

**WILSONVILLE CITY HALL
DEVELOPMENT REVIEW BOARD PANEL A**

MONDAY, MAY 12, 2014 - 6:30 P.M.

I. Call To Order:

II. Roll Call:

Mary Fierros Bower
Lenka Keith
Simon Springall

Ken Ruud
Kristin Akervall
Council Liaison Julie Fitzgerald

III. Chairman's Remarks:

IV. Citizen's Input:

V. City Council Liaison's Report:

VI. Consent Agenda:

A. Approval of minutes of April 14, 2014 DRB Panel A meeting

Documents: [April 14 2014 minutes.pdf](#)

VII. Public Hearing:

A. Resolution No. 277

Calais at Villebois (PDP-3 North): Stacy Connery, AICP, Pacific Community Design, Inc. - representative for Fred Gast, Polygon NW Company - applicant. The applicant is requesting approval of an annexation and Zone Map Amendment from Rural Residential Farm Forest 5-Acre (RRFF-5) to Village (V), an Amendment to SAP North, a Preliminary Development Plan for SAP-North PDP-3, Tentative Subdivision Plat, Type C Tree Plan, Final Development Plan for linear greens and parks and SRIR review for an 84-lot single family subdivision in Villebois and associated improvements. The subject site is located on Tax Lots 1200, 1202, 1205 and 2995 of Section 15, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly

Case Files: DB14-0009 - Annexation
DB14-0010 - Zone Map Amendment to Village (V)
DB14-0011 - PDP 3North - Preliminary Development Plan
DB14-0013 - SAP Amendment
DB14-0014 - Tentative Subdivision Plat
DB14-0015 - Final Development Plan for linear greens and parks
DB14-0016 - Type C Tree Plan
SI14-0003 - SRIR Review

The DRB action on the Annexation and Zone Map Amendment is a recommendation to the City Council.

Documents: [Calais DRB Packet 5.12.2014.pdf](#), [Exhibit B1 SAP Notebook - 1.pdf](#), [Exhibit B1 SAP Notebook - 2.pdf](#), [Exhibit B1 SAP Notebook - 3.pdf](#), [Exhibit B1 SAP Notebook - 4.pdf](#), [Exhibit B2 SAP DRAWINGS.pdf](#), [Exhibit B3 PDP-3 North - 1.pdf](#), [Exhibit B3 PDP-3 North - 2.pdf](#), [Exhibit B3 PDP-3 North - 3.pdf](#), [Exhibit B4 PDP etc DRAWINGS.pdf](#), [Exhibit B5 FDP Plan Set.pdf](#)

VIII. Board Member Communications:

A. Results of the April 28, 2014 DRB Panel B meeting

Documents: [DRB B April 28 2014 Results.pdf](#)

IX Staff Communications

X Adjournment

Assistive Listening Devices (ALD) are available for persons with impaired hearing and can be scheduled for this meeting. The City will also endeavor to provide the following services, without cost, if requested at least 48 hours prior to the meeting.

- Qualified sign language interpreters for persons with speech or hearing impairments.
- Qualified bilingual interpreters.
- To obtain such services, please call the Planning Assistant at 503 682-4960

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, MAY 12, 2014

6:30 PM

VI. Consent Agenda:

A. Approval of minutes from April 14, 2014 DRB Panel A meeting

**Wilsonville City Hall
29799 SW Town Center Loop East
Wilsonville, Oregon**

**Development Review Board – Panel A
Minutes–April 14, 2014 6:30 PM**

I. Call to Order

Chair Mary Fierros Bower called the meeting to order at 6:30 p.m.

II. Chair's Remarks

The Conduct of Hearing and Statement of Public Notice were read into the record.

III. Roll Call

Present for roll call were: Mary Fierros Bower, Lenka Keith, Ken Ruud, Simon Springall, Kristin Akervall, and Councilor Liaison Julie Fitzgerald.

Staff present: Blaise Edmonds, Chris Neamtzu, Barbara Jacobson, Nancy Kraushaar, Kerry Rappold, Steve Adams, Daniel Pauly, and Mike Ward.

VI. Citizens' Input This is an opportunity for visitors to address the Development Review Board on items not on the agenda. There were no comments.

V. City Council Liaison Report

Councilor Fitzgerald stated that in light of the long agenda, she would only report on the City Council's action regarding the Human Bean application that the DRB Panel A had reviewed. She noted that City Council appreciated the complex set of facts that the Human Bean, Carl's Jr. and Chevron presented to the Board and the time spent discussing and reviewing the voluminous record. The Board's hard work made it easier for Council, who agreed that the onsite circulation pattern designed to accommodate a 40-ft truck as proposed to the DRB Panel was not acceptable. The backing of such a large truck on the constrained site would not have been safe. The DRB had found the applicant had not met code requirements with respect to this issue.

- Based on the DRB finding on this issue, however, the applicant subsequently contacted and obtained agreements from vendors no delivery truck larger than a 30-ft length truck would be allowed to service the Human Bean location. The applicant also retained Kittleson & Associates to perform computer generated turn simulations, also called auto turn, to show that the operation of the 30-ft truck required much more limited backing maneuvering and could be contained completely within the Wilsonville Devco land without going over curb cuts. This new information about the truck and study performed by Kittleson was not offered to the DRB hearing.
- Based on the new evidence, City Council imposed a condition to limit vehicles servicing the site to 30-ft or less as a condition for approval. City Council did not find that the Code language was not broad enough to allow the application to be denied based on impacts to neighboring property, drivers driving in the wrong direction, or pedestrians who fail to use sidewalks paths to access the site. Council found that the applicant had done everything possible to ensure safe passage of vehicles and pedestrians within the site itself. Although Council agreed with the DRB that site is constrained and not ideal, the proposal use was within the allowed zoning and did not violate Code requirements given the new circulation pattern and smaller trucks use not previously presented to the DRB.

- The Council also added additional conditions with regard to safety and site circulation, requiring an additional “Do Not Block” marking on the pavement to prevent conflicts within the drive thru circulation between Carl’s Jr. and the Human Bean. The third condition clarified that the applicant cannot use the neighboring Chevron property for delivery, parking or turnaround without express Chevron approval pending resolution of the ongoing easement dispute.
- She also announced that the library passed its new Strategic Plan, which included an even stronger emphasis on engaging and empowering the young reader and to spark, nourish and foster reading in residents of all ages. Several programs would work to enhance community access through more technology and advance the library as a community focal point and resource hub.

VI. Consent Agenda:

- A.** Approval of minutes of March 10, 2014 DRB Panel A meeting

Lenka Keith moved to approve the March 10, 2014 DRB Panel A meeting minutes as presented. The motion was seconded by Simon Springall and passed 4 to 0 to 1 with Ken Ruud abstaining.

- B. Resolution No. 273. Grace Chapel Five (5) Year Temporary Use Permit: Inland Empire Investments/Grace Chapel - Applicant.** The applicant is requesting approval of a five (5) year temporary use permit to allow Grace Chapel Church to continue to occupy the administrative office area of an industrial building. The site is located at 9600 SW Boeckman Road on Tax Lot 202 of Section 14B, T3S-R1W, Clackamas County, Oregon. Staff: Blaise Edmonds

Case Files: DB14-0008 – Five (5) Year Temporary Use Permit

Ken Ruud declared that he was a member of Grace Chapel and recused himself from the vote. He stepped down from the dais.

Simon Springall moved to approve Resolution No. 273. Lenka Keith seconded the motion, which passed 4 to 0.

Ken Ruud returned to the dais at this time.

VII. Public Hearing:

- A. Resolution No. 274. Brenchley Estates North Subdivision: Brenchley Estates Partners, LP – Owner.** The applicant is requesting approval of a Tentative Subdivision Plat, Stage II Final Plan, Site Design Review, Waivers and Type ‘C’ Tree Plan for Brenchley Estates North – Single Family Subdivision. The subject property is located on Tax Lot 103 and a portion of Tax Lot 202 of Section 14A, T3S, R1W, Clackamas County, Oregon. Staff: Blaise Edmonds

Case Files: DB14-0021 – Stage II Final Plan
 DB14-0022 – Waivers
 DB14-0023 – Tentative Subdivision Plat
 DB14-0024 – Site Design Review
 DB14-0025 – Type ‘C’ Tree Plan

Chair Fierros Bower called the public hearing to order at 6:42 p.m. and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Blaise Edmonds, Manager of Current Planning, announced that the criteria applicable to the application were stated on page 3 of the Staff report, which was entered into the record. Copies of the report were made available to the side of the room.

Mr. Edmonds presented the Staff report via PowerPoint, noting the location of the proposed 27-lot Brenchley Estates subdivision and its surrounding features. He reviewed the application requests with the following additional comments:

- He reviewed the housing unit details of each of the Brenchley Estates development phases, which included the Jory Trail Apartments, Terrene Apartments, Active Adults at the Grove Apartments, and a 30-lot, single-family subdivision where homes were currently being sold. The development also included a recreational center and swimming pool. The subject 27-lot proposal would complete the master plan.
- The cumulative open space of the project, shown in green on Slide 6, met the 25% percent required under a master plan.
- The Applicant intended to keep the footbridge, which existed since the prior Thunderbird Mobile Home Park. The 30-lot subdivision to the south has walkways up to bridge that are currently boarded off to keep people from entering the area that would be under construction.
- Recently, the developer built a bus turnout with a bus shelter on SW Parkway Ave, which was a nice amenity along with the community center.
- Stage II Final Plan. The subject property had a split zone with PDR 5 to the south and PDR 4 to the north, which should not affect lot size or density because the Brenchley Estates Master Plan was figured over the entire 59 acres and the balance of the density of 27 lots matches what was approved by City Council.
- Tentative Subdivision Plat. Sheet P4.1 indicated the proposed streets, which would be public with sidewalks on both sides, as well as some old easements that would be vacated.
- Waivers. Two waivers were requested with regard to side yard setbacks and minimum road frontages.
 - The first waiver would allow 4-ft internal side yard setbacks, rather than the 7-ft required by the Development Code for the detached, two-story, single-family homes, as well as 8-ft corner lot side yard setbacks, rather than the 10-ft side yard setbacks required by Code.
 - The second waiver would to allow minimum road frontages of 15 ft and 29 ft for five lots whereas the Code typically required a minimum of 35 ft and 30 ft road frontages for lots in the PDR4 and PDR5 districts, respectfully.
 - An example of the southeast corner of the project was displayed, showing Lots 11, 12, and 13 as flag-like lots that did not have the minimum 35-ft of road frontage. Reducing the road frontages enabled the Applicant to get access to the three lots dovetailed lots in the corner; otherwise, possibly only two lots could be developed, and ~~you~~ a waiver might still be needed.
- Site Design Review. The homes' sites were right on the fringe of the 25 ft Significant Resource Overlay Zone (SROZ), which includes the drainage system heading east to the Mentor Graphics property, but the Applicant intended to respect that edge and construct the homes outside the SROZ Impact Area.
 - Displaying Sheet L2.1, he noted the fitness stations proposed south of Lot 9 that were part of the amenities to enhance the open space. Because homes cannot be built on top of the existing 15-ft wide storm drainage easement, the Applicant was also constructing a pathway heading west to east heading over to SW Parkway Ave.
 - He also indicated two large Oak trees, noting the Oak tree closest to SW Parkway Ave was in poor shape and would be removed, but the Applicant wanted to preserve the good condition Oak tree, which would be a focal point for those walking on the 10-ft wide path that would connect to the 10-ft multi modal path built along SW Parkway Ave for the Jory Trail and Terrene Apartments.
 - The Preliminary Landscape Plan showed a fence along SW Parkway Ave with brick pilasters, similar to the fence design for Brenchley Estate South. While a different brick color or stain could

be used to differentiate this subdivision from the subdivision to the south, the design and spacing of the posts should be the same and the fence's construction should be similar.

- Landscaping would also provide a buffer for the homes adjacent to SW Parkway Ave.
- Sheet L2.0, the Preliminary Landscape Plan for the west portion of the subdivision, showed the pathway continuing and connecting to footbridge as well as sidewalks west of the project.
 - A storm detention swale would handle some of the storm drainage before it went into the intermittent stream to the south.
- The Preliminary Landscape Plan for the north portion of the subdivision, Sheet L.2.2, included a landscape buffer with a similar wood post fence with brick pilasters. He noted the area crosswalks and that Ash Meadows Ln was a public street shown with a center median.
 - All residents in the Brenchley Estates would have access to the half oval park located just north of the Active Adults Apartments.
- Type C Tree Removal. Most of the trees were planted when the Thunderbird Mobile Home Club Park was built in early 1960's, so most trees on the property were not native significant trees. In order to build the project, most of the trees would need to be removed. He wanted to preserve the Oregon White Oak, which are truly significant trees in Wilsonville.
 - The trees in the SROZ, located on the southeast and southwest corners of the site, would be preserved. Most of that tract belonged to Brenchley Estates South, not North, so those were trees were conditioned to be retained with the subdivision currently under construction.
- Lighting Plan proposed low level bollard lighting to illuminate the pathway at night, as well as PGE street lights. He was unclear about whether traditional or more acorn-type lighting with reflective hoods would be used.
- Pictures of the amenities and fitness stations proposed next to the pathway were displayed. Such features are gaining popularity in residential developments.
- A rendering of the fence proposed along Parkway Ave was displayed. He noted he had proposed a condition of approval requiring that the brick posts on the fence have the same spacing as the fence for Brenchley Estates South.

Ken Ruud asked if emergency services or the public utilities had any concerns about the side yard waivers.

Mr. Edmonds replied the public utilities have easements and most of the homes' utilities were in the front of the lots; however, a 15-ft easement would separate the lots and was wide enough should City crews need access with their equipment to repair drainage pipes, etc. Tualatin Valley Fire and Rescue reviewed the project and did not indicate that the reduced setbacks would create any issues. Fire plugs would be appropriately located throughout the subdivision so there would be full fire emergency access in front of all the homes.

Kristin Akervall asked if the smaller side yard waiver was also used for the Brenchley South neighborhood.

Mr. Edmonds stated he had not reviewed that particular project, but the Applicant could confirm if it was a similar lotting pattern. The subject lots, which range from 4,500 sq ft to 6,500 sq ft, were much larger than Villebois' lots, which were as small as 1,900 sq ft in size. The marketplace seemed to demand larger homes on larger lots. The side yard setback waivers also enabled the Applicant to achieve the 27 lots approved in the Master Plan, which also prompted the lot arrangements shown at the corners of the site. The 4-ft waivers would allow the Applicant to maximize the space; otherwise it would be a 24 or 25 lot subdivision.

Simon Springall asked if any photo existed of the big cedar proposed for removal, Tree No.182.

Mr. Edmonds said a picture of the tree was included in the arborist's report which was in the packet. He understood the tree must be removed due to the grading, proximity of the tree to public utilities, street and driveway to the house, and because the tree had a large girth, the branches would be up next to the plate glass window of the house. The arborist believed if that big tree was aggressively pruned to provide light to the house and accommodate the utilities, it would not survive.

Mr. Springall confirmed the significant tree was located on one of the flag lots for which the Applicant was requesting a waiver for the road frontage. He noted the footbridge was in very poor repair.

Mr. Edmonds stated there had been no repair on the bridge itself when he was out there a month ago. He had asked if the Applicant would have that connection to the bridge, which was represented as an important part of the internal pathway system in the Brenchley Estates Master Plan. He was not sure who maintains the bridge; right now, he believed it was part of the Brenchley Estates South homeowners association (HOA) since it was on their tract.

Mr. Springall noted the development to south had the cobra-style lights, which might not be appropriate for this kind of development. He asked if cobra-style lights were proposed.

Mr. Edmonds believed that was the Applicant's intent. Villebois had more European design details to make it a planned community. This was more of traditional subdivision, and those kinds of light fixtures were typically seen in subdivisions throughout Wilsonville.

Mr. Edmonds He clarified that the Development Code did not specify which style of light fixture to use. PGE had a list of light fixtures from which the developer could pick. The City did not have a street lighting plan as part of the Code.

Mr. Springall inquired about health concerns given the algae in the drainage pond to the west and asked if it would be cleaned up somehow or was this part of the natural process.

Mr. Edmonds replied he did not know the condition of the pond; he believed it was a storm detention pond and part of the drainage system to the north. The Applicant or the City's engineering staff could testify to the full function of the pond. He did not recall if there was a landscape treatment for that detention area.

Mike Ward, Civil Engineer, City of Wilsonville, stated he had not seen the pond since it was initially built, so he could not speak to its current condition. He hypothesized that it was created to handle the storm water for the northern part of the site, which was only about half built out and so the pond probably had a lot more capacity than the water flowing through it. As the rest of the site gets built out, more water would flow through that pond, which was more of a detention pond than a water quality pond. He anticipated that the pond would get better as time passed and the site was built out, but he would need to look into that. He confirmed the pond was the developer's responsibility; he believed it was the apartments in north part of the site.

Chair Fierros Bower asked if bike paths would be included along the sidewalks.

Mr. Edmonds answered no; the sidewalks were 5-ft wide. The bicycle route ran north and south along Parkway Ave with connections to local residential streets where anyone could ride down the street. It was not a designated bike route in the Transportation Systems Plan (TSP).

Lenka Keith said she also wanted to keep the large white oak tree along Parkway Ave. She noted Condition PDD3 discussed protecting the tree from over irrigation and asked if the weed suppressing fabric actually kept water out or only light. Was there an effective way to keep water out?

Mr. Edmond stated he had borrowed that condition from Villebois where another arborist incorporated the weed suppressing fabric. The oak had survived a considerable time with just normal rainfall, and the intent was to not over irrigate the tree when more irrigation was introduced. The area under the drip line should be kept as natural as possible. He said he was open to amending the condition.

Mr. Springall noted there were not too many street trees in the development and asked if that was because of the curb cuts and density.

Mr. Edmonds replied that with a driveway for every house, and driveways being close together given narrower lots, the number of street trees decrease due to lack of space. The Tree Ordinance required that every six-inch tree that is removed must be replaced with a two-inch caliper tree or applicants must pay into the Tree Fund; however, street trees could not count towards that mitigation.

Mr. Springall recalled something in the report about the Board being able to condition that trees be planted in the front yards in lieu of street trees.

Mr. Edmond replied that has involved problems with enforcement. The City has done a lot of work with neighborhood street trees and front yards. When a change of ownership occurs, people remove such trees thinking it was their tree and not a street tree. The City could better police trees in the public right-of-way than in people's front yards. It was very difficult to control home ownership, especially as trees start to mature. The City now receives many applications to replace many of the street trees throughout Wilsonville because the wrong type of tree was planted. When placed in front yards, the trees just get cut down because people do not know it is a street tree.

Mr. Springall replied that was unfortunate. Wilsonville had a pattern of urban forest, so it would be beneficial to develop more street trees.

Mr. Edmonds described how after requiring two street trees for every lot in his subdivision, Canyon Creek, that a master street tree plan was created to thin them out after only 17 years. The trees were way over crowded. Trying to squeeze in trees was not a good thing over time.

Ms. Akervall asked if the landscaping planned along Parkway Ave had an appropriate mix of deciduous and evergreen trees since it bordered a somewhat busy street.

Mr. Edmonds responded the landscape plans provided for Brenchley Estates were typically very generic and a very detailed landscaping plan would be provided when Holland was ready to build and the landscape architect had more time to consider the plantings. The Code did not require specific plantings; the area could be all lawn. A mix of conifers, which would grow big and fast over time, were proposed against the fence as well as some shrubbery. He noted the Applicant had done very good landscaping throughout the project and the anticipated landscape plan would be much more detailed, right down to the shrub count and where the trees and plantings would be, so he was confident the area would be nicely landscaped.

Ms. Keith confirmed there would be street parking in the subdivision when no driveway existed. She inquired if there would be any visitor parking nearby.

Mr. Ward replied there would on street parking.

Mr. Edmond stated Development Code required a 20-ft setback for two-car garages, so technically four cars could park at the house. With regard to street parking, the challenge might be when residents move into the Active Adults with their older classic cars and try to find a close enough parking space. However, the overall parking should work out all right.

Mr. Ruud noted the recent request the Board received for parking revisions because parking was a challenge for the apartments next door. He questioned if the nearby access would open the opportunity for people to park in the neighborhood and use the footbridge and other things which might be a concern in the future.

Mr. Edmonds replied it was a public street, and people could park where they want on public streets.

Chair Fierros Bower called for the Applicant's presentation.

Brenner Daniels, Holland Development, Brenchley Estates, thanked Staff for their work, adding the Applicant was excited about the last project within The Grove master planned community. He provided a brief update on the existing projects of the Brenchley Estate development and the number of units and single-family lots, noting the project currently under construction was the Active Adult project with 112 units. The parking ratio at the Active Adult project was significantly increased to about 1.9 parking spaces per unit because more cars were anticipated at that project. In addition, there was on-street parking to the north along Ash Meadow Circle. Between the onsite parking at the Active Adult project, street parking, and the additional four parking spaces at each proposed home, the parking mix would work well between all the projects at the north end.

- He acknowledged the Applicant did return for additional parking on Jory Trail due to more roommate situations than anticipated, so 36 open parking spaces were being added and 23 open parking spaces were being converted to carports.
- He described the benefits of the subject proposal, noting it would bring additional for sale product to the Grove Master Community, of which a significant portion was for rent. The project was consistent with the Comprehensive Plan and would generate less traffic than initially envisioned in the Brenchley North Traffic Impact Study.
 - The proposed project would create significant open green space both on Parkway Ave and on the south end of the site just north of the SROZ.
 - As noted, pedestrian opportunities would be provided from within the subdivision out onto Parkway Ave allowing people to access the walkway north and south on Parkway Ave, as well as the bus shelter and city center the south. In addition, the walkway to the south of the project and north of the SROZ would provide access to the bridge and to Brenchley Estates South.
 - The outdoor fitness locations would be at the south end of the project.

Don Hanson, OTAK, Principal Planner, stated that he liked the composition of Brenchley Estates, noting that when driving along Parkway Ave from the south, drivers see a huge grove of trees with multifamily behind it, then a single-family neighborhood with open space along the drainage way, and now single-family homes were proposed again. He liked that only one thing was not being seen or experienced and the proposed 27-lot subdivision fit the character of the plan quite well.

- He confirmed that the waiver for the side yard setbacks would match what was proposed with the 30 lots on the south, adding the desire was to continue the same feeling on the north.
- The waiver regarding the lot frontage was being requested to do modified flag lots on the southeast and northeast corners of the property. The benefit was it eliminated the need for flare outs or partial cul-de-sac, which involved a lot of unnecessary pavement. This approach would be successful because the flag portion of the flag lots would not be very long; the house could still be seen from the road. The waiver was driven by the configuration of the site.

- The name of the new loop, titled Street A on the slides, would be Vale St, as it made sense to have that name continue around the loop.
- With regard to tree preservation and open space, he first considered the broader context of the entire site and there was a lot of open space on the property, not only with the park on the north end of the development, but a huge grove of fir trees in Phase 1 as well as the big open space corridor. Although there were not many street trees, enough street trees existed and site wide there were a lot of trees.
 - The applicant's decision on open space and tree preservation began in the larger context and considered where the most important place was to provide open space, which was between the subdivision and the drainage way, the SROZ. Extra buffer space was included and a trail and exercise stations added. The Applicant was considering adding a network of the exercise stations site wide. The buffer was also increased along Parkway Ave, not only for the residents, but for the motorists and bicyclists on Parkway Ave. These were believed to be the best places to prioritize open space.
 - On the proposed site plan, he noted three lots in the center block would have double frontage where more street trees would be planted along the western edge due to no driveway interruptions. More street trees would also be planted along the northern edge at the main entry into the site.
 - Many trees have matured in neighborhoods he had designed and were being thinned, so he believed the proposed tree planting plan was the right approach.
- While the two Oak trees along Parkway Ave were landmarks that he wanted to keep, his arborist convinced him that the one hanging out over Parkway Ave was dangerous and needed to be removed. By removing the one; the other Oak tree could be better preserved. The area would be well landscaped and would not be over irrigated. The Applicant had done well with Oak tree preservation work given the park that was done north of the Active Adult building.

Clyde Holland, Chairman/CEO, Holland Partner Group, added the tree was also dangerous, because an open cavity was found at the base of the tree and it had lost a significant part of its crown which pointed to disease. Even with no development, the tree would only survive a few years in its natural life span, so it did not make sense to try to preserve it.

Mr. Hanson stated the arborist was also present and could answer any specific questions. He continued, stating that the Applicant was flexible on street lighting and would negotiate with Staff as they did not want the cobra style either. Several street lighting fixtures approved by the City and PGE could be chosen.

- The Applicant had been very focused on parking and adjustments have been made where needed. Parking on Vale Court just south of the Active Adult Center that extends west had parking on two sides. On the northern side of the street, there was a continuous row of parking because there were no driveways into the Active Adult Apartments. The loop part of Vale Street going through the single-family subdivision would have parking on the one-side.
 - Parking would be allowed on two sides of Ash Meadows that borders the western side of the subdivision. In addition, each home would have a double garage and two spaces in the driveway.
- The footbridge would be repaired and reopened as it was always a key part of master plan and pedestrian circulation linking the north and south. The Applicant did not want to reopen the bridge when the homes were being constructed just north of the trail due to safety concerns. The sidewalk would be built extending down to the renovated footbridge and lighting would be installed.

Mr. Holland expressed appreciation to the Board, noting work on the Master Plan had been going on for four or five years. He believed the decision to have the 60-ft setback on Parkway Ave in Phase I and preserving the large stands of existing fir trees was the right thing to do. The amount of mature landscaping that had been preserved was not likely rivaled in many other projects. When grading for Phases I and II, and the first phase of single-family, every plant specimen that could be moved or

transported was preserved, including three, 50-year old thread leaf maples, and all the White Oaks were preserved in the park on the north end of the Active Adult project.

- The Applicant's financial partners have approved adding in several firs to provide mini grove to harken back and balance the whole project. The project was being reviewed for additional enhancements as well.
- Regarding parking at Jory Trail, he explained two families were renting some two-bedroom units early in the process because there were not enough units and at the time, it was really a significant challenge from a financial standpoint. Holland had never had that happen before. So, the Applicant recalculated that even with the additional parking load, the additional 36 spaces t being added would provide even an enhanced level of parking from that standpoint. As Holland has worked to manage the situation and as the economy has improved, several families have uncoupled which has naturally addressed a lot of the parking issues.
- The budget for the footbridge was in Phase II, and it was a very important link in the trail system that runs throughout the project. One condition was that until there was some place safe for pedestrians to go, the footbridge would remain closed. Construction on the last five homes on the south side was now occurring and would be completed in the next 90 to 120 days. The Applicant's goal was to approve this resolution so the homes could be built this summer, and as soon as those homes were getting done, the bridge would be completed.
- Another enhancement was a bit of a par course, with exercise stations, an interpretive center, etc. spaced periodically to really create the walkways and jog and exercise elements for the overall master plan.
- A key element of the side yards was that when configuring a lot, the goal was to make the lot space the most useable. By having a 4-ft setback, as opposed to 5 ft, the front and backyard actually grow, lengthening the lot as opposed to widening the lot. Growing the front yard, results in getting four true parking spaces per home, and increasing the back yard provides more space for barbeques, kids, etc. Designing and configuring larger lots that are most usable for the residents had been very successful.
- He concluded that building and developing in the City of Wilsonville had been very positive and the success of the project was directly attributable to working to hold a high standard, while considering the different ways to meet and exceed that standard. He was committed to finishing the project with the quality that the Board had come to expect from the Master Plan.

Mr. Hanson stated one reason for the pond algae was because the pond had not been challenged; there had not been much water flowing through it yet, but with more transference of water, the water quality would improve. The pond had a stronger water quality swale leading to it, shown as the arm extending east and north.

Mr. Holland added that as soon as the irrigation and run off for the Active Adult and the subject 27 units was connected to the pond, it would have the same quality seen on the south side which had the flow. The pond would be maintained and serviced by Holland as part of the development of the 27 lots.

Chair Fierros Bower asked if the homeowners association (HOA) would be responsible for maintaining the footbridge and storm detention pond.

Mr. Hanson answered, yes, noting the pond did not treat any public right-of-way water, only that from the private development sites.

Mr. Edmonds asked the Applicant's arborist to talk about the weed suppressant fabric discussed in Condition PDD3.

Todd Prager, Certified Arborist, Tarragon and Associates, recalled the question was whether the fabric should be permeable to air and water and he clarified it should allow for that exchange. He did not

personally like the fabric too much. Although the fabric suppressed weeds, as the mulch typically placed on top of the fabric broke down, it could provide another place for weeds to grow.

- He explained that mulch would be a beneficial treatment to use in the drip line area under the tree. No fabric was needed and he would not want irrigation underneath it. Any plantings under the tree should be native plants or have low water or similar water requirements as the oak.

Mr. Holland noted that a larger bark and mulch material had been used along Ash Meadows Circle at Jory Trail under the trees' drip lines which activated the air and minimized weed growth. He anticipated having that treatment be consistent throughout the development, noting no White Oaks were lost on the Jory Trail project.

Mr. Edmonds said most of the oak tree was in the public right-of-way and City crews were sensitive about maintaining more trees and shrubs in the public right-of-way.

Mr. Holland replied the Applicant anticipated that all the maintenance from the sidewalk back would be handled by the HOA. The footbridge would also be maintained by the HOA. The trail system involved mutual easements so all residents of The Grove could use the trails, so the HOA was responsible for maintaining and sharing it and this was linked in the overall Master Plan.

Mr. Springall said that while he was also interested in saving the other White Oak, he understood that removing it would improve the chances for keeping the other oak. He was concerned about the cedar tree on Lot 19. The flag lot was configured to reduce the amount of asphalt, but he asked if a more traditional turnout would leave enough space to provide the driveway and not have to cut the tree down.

Mr. Hanson replied he had considered about four or five options, but came back to the proposed option.

- When the flare out was considered, the required grading alone would kill the tree. The project had infrastructure in three streets on three sides, which was a constraint because the grades must be matched to the existing streets on all three sides. The grading could not be greatly modified and then transitioned into a large field.
- He carefully considered the options available. Saving the tree would compromise two accesses into homes and the tree would sit up about four feet on a mound and several roots would have to be cut. Fortunately, the arborist provided supervision as the options were considered, but the tree could not be saved, which was why mitigation was emphasized and good landscaping provided along the perimeter.
- Preserving trees has been a high priority of the Applicant as trees have been moved, saved, and protected.

Mr. Holland added that the open green spaces placed along Ash Meadows and the entire loop were around all of the significant trees. Holland would love to save early single tree in the overall Master Plan and very few large or significant trees had been disturbed for this type of development. As discussed with Mr. Daniels and Mr. Prager, even if the grading stayed outside the drip line, the tree would die anyway due to the tree's age and the sensitive nature of red cedars.

- He noted the replanting would be significantly above the minimum. The mixing and matching of the trees to be planted, including White Dogwood, Pink Dogwood, Thread Leaf Maple, and Red Maple, in addition to the fir back drop, had been carefully considered in the Master Plan.

Ms. Akervall asked what type of fence would run behind Lots 1 through 12 which border the open space.

Mr. Hanson replied the Applicant did not want to have a fence there because it looked south into open space. The intent was to have the fencing along Parkway Ave turn the corner so the rear yards facing north were screened and more private. Some uniform fencing would probably be placed along the western

portion of the central block where the flag lots were for consistency. The Applicant liked the open feeling of the homes along the open space to the south.

Mr. Holland said the Applicant did not anticipate building a fence behind anything that backed up to the SROZ, as long as it could be shielded from the public ways.

Mr. Edmonds asked if that could be included in HOA agreement; otherwise the homeowners might build their own fence. He suggested providing an option that would be consistent through the back of those lots for those who might want a dog and a fence; perhaps, allow a transparent fence as done in Villebois when facing open space.

Mr. Holland agreed Holland could restrict the homeowners with regard to rear fencing along the SROZ.

Mr. Hanson added as long as it was not a grey, chain-link fence.

Mr. Holland noted the agreement could specify what was approved for the lots and have them choose.

Mr. Springall asked for clarification about the street lights and whether a condition was needed.

Mr. Hanson suggested that since options were available, the Applicant could work with Staff. He did not think a specific condition was required.

Mr. Holland stated that Holland had several different builders looking at several different styles of homes, so the Applicant would want the lights to tie in with the style of the home for the whole project to be consistent. The Applicant knew the City held a high standard.

Chair Fierros Bower called for public testimony in favor of, opposed, or neutral to the application. Seeing none, she called for questions for Staff.

Mr. Ruud asked about including a possible condition for the lighting and to ensure completion of the footbridge because different people might be involved over the next six months to a year.

Mr. Ward did not believe an additional condition was needed as street lighting was required as part of the Public Works Standard. Staff was happy to work with the Applicant to find a street light style that was PGE approved and that would work well with the development.

- He confirmed Condition PFA 37 was written with the belief that the footbridge would be opened upon the path connecting to it. If that was not the case, he encouraged adding language to specify when the Board wanted the footbridge to be restored and opened. Currently, a condition required the footbridge to be open when the path from the north connected to the footbridge. It did not include comments as to when the plywood would be removed from it.
- He suggested adding language to Condition PFA 37 stating, “The footbridge shall be improved and open to the public prior to occupancy of the homes on the south side of Vale Court between Ash Meadows Circle and Ash Meadow Circle with the condition that those homes are constructed first in the development.”

Mr. Holland stated the new language was acceptable and agreed that occupancy was the right standard because up until then, construction would be occurring. Money for the footbridge was in the budget, but the Applicant did not want to open the footbridge until it was safe and the trail was also constructed in a safe manner.

Chair Fierros Bower confirmed there were no further questions from the Board and closed the public hearing at 8:00 pm.

Mr. Springall suggested the Board confirm its decision regarding the restriction for the rear fence along the SROZ boundary. He had only noted that no chain-link fences would be allowed.

Mr. Edmonds clarified that the fence on the rear property lines of Lots 1 through 12, if constructed, must be transparent in nature, but not chain-link, to allow the potential for a fence without requiring a fence. He described the fence types used in Villebois, which had fence details. The intent was not to have a chain-link or wire fence.

Ms. Akervall expressed concern about there being several different types of fencing along the lots.

Ms. Keith said her impression was that no fence would be between the south boundary of the development and the SROZ.

Mr. Edmond said that was up to the Board. He mentioned the fence because homeowners might want to keep pets within the yards that were next to a sidewalk.

Mr. Springall believed the intent was to provide visibility to the SROZ and the implementation would be in the HOA's Covenants, Conditions and Restrictions (CC&Rs). While he was confident the developer did not want chain-link fences either, he inquired whether that intent would come from the Board's discussion or was more elaboration needed.

Mr. Edmonds stated the discussion that a chain-link fence was not the preferable option was in the record and that a transparent fence uniform in design would be allowed between Lots 1 and 12.

Mr. Springall confirmed the language added to Condition PFA 37 ensured that the footbridge would be improved.

Chair Fierros Bower suggested incorporating the fence option into the HOA CC&Rs as it might not have the same language as the condition.

Ms. Jacobson understood a condition would be added to the CC&Rs to restrict fencing material along the SROZ to materials that were aesthetically complementary to the natural setting and transparent or something to that effect.

Mr. Edmonds noted that in light of the discussion on the weed suppressing fabric, he suggested striking the last two sentences of Condition PDD3 on Page 15 of 52 of the Staff report so the condition stated, "The Applicant shall prevent over irrigation that will harm the Oregon White Oak No. 222"

Simon Springall moved to approve the Staff report with the following amendments:

- **Add, as a condition of approval, that the homeowner association's covenants, conditions and restrictions (CC&Rs) restrict rear fencing on Lots 1 through 12 on the south side of Vale Court along the SROZ to provide visibility of the SROZ and that any potential fencing be made of transparent materials.**
- **Modify Condition PFA 37 to add, "The footbridge shall be improved and open to the public prior to occupancy of the homes on the south side of Vale Court between Ash Meadows Circle and Ash Meadow Circle."**
- **Modify Condition PDD 3 by striking the last two sentences referencing weed suppressing fabric.**

Ken Ruud seconded the motion, which passed unanimously.

Lenka Keith moved to approve Resolution No. 274. Kristin Akervall seconded the motion.

Mr. Springall stated he was happy to see the build out of The Grove development, which was a great improvement to Wilsonville.

The motion passed unanimously.

Chair Fierros Bower read the rules of appeal into the record.

The Board took a brief recess and the meeting was reconvened at 8:17 pm.

- B. Resolution No. 275. Grande Pointe at Villebois: Stacy Connery, AICP, Pacific Community Design, Inc. – representative for Fred Gast, Polygon NW Company-applicant.** The applicant is requesting approval of a Zone Map Amendment from Public Facilities (PF) to Village (V) and adopting findings and conditions approving an amendment to SAP South to add Plan Area 2, Preliminary Development Plan for SAP-South PDP-7, Tentative Subdivision Plat, Type C Tree Plan, Final Development Plan for parks and open space, SROZ Map Refinement, SRIR review and SROZ Boundary Verification for a 100-lot single family subdivision in Villebois and associated improvements. The subject site is located at 29500 SW Grahams Ferry Road on Tax Lots 2800 and 2890 of Section 15, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Daniel Pauly

Case Files: DB14-0002 – SAP South Amendment for Plan Area 2
DB14-0003 – SAP South PDP 7 South, Preliminary Development Plan
DB14-0004 – Zone Map Amendment
DB14-0005 – Tentative Subdivision Plat
DB14-0006 – Type C Tree Plan
DB14-0007 – Final Development Plan for parks and open space
SII4-0002 – SROZ Map Refinement, SRIR Review, SROZ Boundary Verification

The DRB action on the Zone Map Amendment is a recommendation to the City Council.

Chair Fierros Bower called the public hearing to order at 8:18 p.m. and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

Kristin Akervall declared that she did live in Villebois, but she did not believe that would bias her participation.

Daniel Pauly, Associate Planner, announced that the criteria applicable to the application were stated on page 2 of the Staff report, which was entered into the record. Copies of the report were made available to the side of the room.

The following exhibits were entered into the record:

- Exhibit A3: Planning Division Memorandum from Daniel Pauly dated April 14, 2014 identifying recommended corrections and changes to the Staff report.

- Exhibit B11: Lot 91 Preliminary Utility Layout dated April 7, 2014.

Mr. Pauly presented the Staff report via PowerPoint, noting the subject property's location and briefly reviewing the planning history related to the subject site, and reviewed the requested applications as follows:

- Specific Area Plan (SAP) South Amendment to add Plan Area 2. The amended Villebois Master Plan included the subject area as part of SAP South, so a number of Villebois planning tools would be adopted as part of this SAP amendment and applied to this area, including the SAP South Architectural Pattern Book, Community Elements Book, Master Sign and Wayfinding Program, and Rainwater Management Program. He described the purpose for each of these tools with these additional comments:
 - A lotting pattern similar to other areas of SAP South was proposed around the edges of the development, especially along Grahams Ferry Rd, with a denser pattern in the immediate interior, which reflected the master plan amendment requirement.
 - Entry monuments, similar to that required on Surrey St and Grenoble St, would be used, and the fencing on Grahams Ferry Rd would be consistent with that approved along the rest of the Grahams Ferry Rd frontage.
 - Significant Resource Overlay Zone (SROZ) fencing would be located around the edges where lots interface with the SROZ zone.
- At the SAP level, each block is typical given a range of homes. In this case, a SAP was being completed concurrently with the Preliminary Development Plan (PDP). Although The Master Plan did not identify a specific number, the number contemplated at the time of the Master Plan amendment was 113 lots. As the design was refined, the number was reduced to 100 proposed lots. (Slide 11)
- The SAP process allows for Master Plan refinements to specific parameters that were not significant as set in the Development Code. These refinements included:
 - Moving some park amenities out of resource areas including a play area and some picnic tables. For this portion of the development, more of a focus was put on the central park, called Pocket Park 16, where a shelter was also added after further discussion and design work.
 - Input from the neighborhood and public hearing process for the Master Plan included a desire for more curvilinear features and interest to the street alignments, in addition to SROZ refinements. A slight wave was added on SW Athens Ln and SW Naples St, which allowed for more linear green space in front of alley-loaded homes facing the main entry street on SW Athens Ln.
- Preliminary Development Plan (PDP) for PDP 7 South. He reviewed the acreages for open space, public streets, lots and alleys, in addition to the number of proposed housing types, noting two aggregate land use categories exist in the Development Code for Villebois. Medium and larger lots made up one category and small single-family, including all condos and apartments, was the second. (Slide 14)
 - Alley-loaded projects on the interior portions of the site were in the medium category with large and standard front-loaded lots on the edges, as was consistent with the Master Plan and elsewhere in Villebois.
 - The Applicant proposed two phases of development with Phase I being the western portion closer to Grahams Ferry Rd, Pocket Park 16, and a majority of the open space including the trails. Development of Phase I would begin this summer and Phase II would follow, likely next year.
 - A sewer pump station and some other utilities for Phase II needed to be built as part of Phase I. A condition required that temporary pedestrian path be built to provide connectivity to and from the school and other amenities in Villebois throughout construction of Phase I.
 - Several elevations were displayed showing the home designs proposed. (Slides 16-25)

- With regard to circulation, pedestrian connectivity existed through the open space and to Grahams Ferry Rd, which was limited to one due to spacing and natural resource preservation.
 - The street connection into Villebois via a multi-lane road was shown in the Master Plan and was consistent with both the Development Code and Transportation System Plan (TSP) which required connection to a subdivision when a street existed to encourage connectivity.

Steve Adams, Deputy City Engineer, discussed traffic related to the proposed development, which had been studied with the Planning Commission application last fall. The study estimated that about 30 to 40 percent of the traffic would go up Villebois Dr and the other 60 to 70 percent would access Grahams Ferry Rd. He believed the estimates were fairly accurate considering homes in the upper northeast corner would likely exit onto Villebois Dr. The other homes, unless one was going to the elementary school, were facing 25 mile per hour streets in Villebois versus 40 mile per hour streets on Grahams Ferry Rd, so he believed people going to work or shop would probably exit onto Grahams Ferry Rd and head north or south.

- A baseline study was completed on Villebois Dr two weeks ago to determine traffic levels between Grenoble St and Lausanne St, and the average daily traffic was 450 vehicles. An additional 30 to 40 percent of traffic would increase that by 300 to 400 vehicles per day, resulting in 800 to 900 vehicles.
- The traffic engineer informed him that in the national standards, concern was only raised on residential streets when traffic loading reached more than 1,600 vehicles per day. The subject traffic levels were only about 50 percent of what national standards consider a serious concern, so he believed the City was fine.
- Quite a bit of contact had come from citizens concerned about traffic. He believed connectivity, Council goal and TSP were the best way of having connections both on Grahams Ferry Rd and at Amalfi Ln and Villebois Dr.

Simon Springall asked Staff to highlight the pedestrian connections through the SROZ and onto Graham Oaks Nature Park.

Mr. Pauly indicated some trails that went behind homes south of San Remo Ct; a trail that connected through the forest to the north and trails that also connected to Villebois Dr and Graham Oaks Nature Park. Metro owned Graham Oaks Nature Park and specific information was not available about the Applicant working with them, the final design, or what Metro would allow there. Metro certainly favored connectivity, but also had concerns regarding wildlife impacts and such. A condition of approval under the SAP required the Applicant to provide evidence of working with Metro to provide that gateway and connectivity to the extent that Metro allowed.

Additionally, the Master Plan specifically required that additional pedestrian connectivity be provided onto Normandy Ln, the street that essentially fronted the Graham Oaks Nature Park, to provide further connectivity east into the rest of the Villebois development.

Mr. Adams added the existing 10-ft wide pathway located on the east side of Grahams Ferry Rd would be extended to Athens Ln, so if people would have room to take their children for a bike ride, etc. South of Athens Ln, a 5-ft wide sidewalk was required, as most people would likely enter the subdivision at Athens Ln.

Ms. Akervall noted the Grahams Ferry Rd entrance was to be reconstructed by the Applicant and asked when that would occur in relation to the completion of housing in Phase I.

Mr. Adams replied the reconstruction would occur with Phase I, so Grahams Ferry Rd would be rebuilt when the internal streets were built. In previous studies, the City discovered that Grahams Ferry Rd was very inconsistent, so with each phase of Villebois, the entire road section pertaining to that phase was torn out and rebuilt as a minor arterial, as designated in the TSP. That portion of Grahams Ferry Rd was designated as a rural look and would have no curbs, 11-ft travel lanes, a 3-ft paved shoulder to allow

cyclists to ride outside of the travel lane, a gravel shoulder and a swale along either side. Grahams Ferry Rd would be reconstructed at the time of development, as well as a full intersection at Athens Ln, but without left turns. The traffic study indicated not enough demand existed for a left turn lane, so both Grahams Ferry Rd and Athens Ln would have two-lane traffic. He confirmed this work would be completed prior to occupancy.

Ms. Akervall noted that DKS & Associates discussed possibly recommending traffic calming features along Grahams Ferry Rd. She asked whether any of those were being considered.

Mr. Adams believed the traffic calming features were more directed towards Villebois Dr and Normandy Ln. If a problem developed with cars driving too fast to get to Barber St, a condition was included that the City would consider traffic calming devices, such as bulb outs. Normandy Ln had no curb extension, so it was a straight, 28-ft wide street that appeared big and vast. So if people started driving too fast, the City could add a curb extension, crosswalk and signage, etc. to calm traffic speeds which was what the condition entailed.

Mr. Springall confirmed that medium size lots were rear-loaded and that all large and standard lots were front-loaded. He asked why all standard lots had to be front-loaded. The alleyway behind Athens Ln could also be used to serve the four standard lots between Estonia Way and Naples St.

Mr. Pauly replied that looking through Villebois, standard lots were typically front-loaded. He was not aware of any rear-loaded standards, although a few might exist here and there. He noted it depended on the size of the home and that the existing Pattern Book allowed standards to be front-loaded. Neither the Pattern Book nor Master Plan had any requirement that would push them to be rear alley-loaded products.

Mr. Edmonds added so many small and medium lots had been done; other projects in Villebois were mostly alley-loaded. There were a much lower percentage of standard and large lots had been built throughout Villebois.

Mr. Pauly said the Applicant considered many configurations and encouraged the Board to ask the Applicant for more insight.

Mr. Springall asked what happened to the estate-sized lots and how that decision process went.

Mr. Pauly stated in the original Master Plan, residences at the end of San Remo Ct were shown as estate lots. He explained that flexibility existed within the larger aggregate land use category, as defined by the Development Code. As noted in the Master Plan, this large and standard pattern around the edges was consistent with the rest of Villebois, including the most closely neighboring areas of Arbor Villebois. The only estate lots left on the Master Plan were located in a portion of SAP North, where there were many trees and some slope which might drive those lots to be estate lots, but that area of planning was a ways off. There was discussion about doing a Street of Dreams, but this was the product the Applicant had elected to pursue, and it was consistent with similar areas of Villebois, as noted in the findings.

Mr. Pauly continued presenting the Staff report with these key comments:

- The Zone Map Amendment. Like the rest of Villebois, the subject area had a Comprehensive Plan designation of Residential – Village and the option for that was the Village Zone, which was proposed.
- The Tentative Subdivision Plat on (Slide 31) reflected the PDP. He noted an extra tract of land in front of Lot 91 that surrounded one of the preserved, Important Oregon White Oak Trees.
 - All of the proposed lot sizes were consistent with allowances in the Pattern Book and provided the right-of-way and tracts for the open space, water quality swales, alleys, linear greens, etc.

- Type C Tree Plan. When considering the numbers and percentage of trees being removed, it was important to realize the number only represented those trees inventoried at the core and some edges of the development that were being impacted. The vast majority of trees on the site, which were within the conservation easement, were being preserved and not even inventoried because they were all being kept. If a hazardous tree were found over a trail it might be removed and used in the natural area for habitat. He discussed how trees are rated and reviewed the trees being removed with these key comments. (Slides 35-45)
 - Overall, the 24 Important trees being retained were Oregon White Oak. Of the 154 Good trees, 101 were proposed for removal. The predominant species for removal was Douglas fir and of the Good trees being removed, only five were Oregon White Oak. Many poor condition trees were being removed. He noted the mixture of many natural and planted trees existed from prior development.
 - He discussed the tree removal plan for each of the yellowed areas on Slide 35 as follows:
 - Area 1. These trees along Grahams Ferry Rd included many conifer trees, and with grading and improvements to Grahams Ferry Rd, it was not practical to retain them.
 - Area 2 had been previously developed and required a lot of tree removal including some of the Important Oregon White Oaks. Staff worked with the Applicant to maintain the hilled, forested area outside of the SROZ and add it into the SROZ. A fair amount of trees were being taken out, but a lot were either in poor condition or Douglas Firs.
 - Areas 3 and 4 consisted of a mixture of planted trees with some natural trees.
 - Considering the grading and many development alternatives, Staff saw the removal of so many trees as a reasonable approach for making the site developable, while maintaining a lot of natural area. More than 50 percent of the site was being kept as a forested natural area, and the majority of the Important and Good Oregon White Oaks were being retained as well.
 - Oregon White Oak was a species of importance in Wilsonville, as a natural tree and for habitat value. The Villebois Master Plan emphasized the maintenance of Important and Good trees.
 - He reviewed several slides describing the condition and location of Important and Good Oregon White Oak trees that would be removed because of grading issues, the preservation of natural areas, and to accommodate lotting and street patterns. Two Oregon White Oaks might be retained (Slide 39), but were listed as likely to be removed. Staff would work with the Applicant as development occurred to encourage preservation of the trees, especially Tree No. 799, if at all practicable. The tree at the edge of the right-of-way might need to be removed, depending on the needs for right-of-way development and utilities.
 - Slide 40 showed the Oregon White Oaks within the conservation easement, which was indicated with dotted black line. Other Oregon White Oaks were within parks or areas maintained by the homeowners association (HOA), and as long as the initial design was done well in those areas, the trees should be pretty successful.
 - Areas of concern were where Good and Important Oregon White Oaks were either partially or entirely in private rear or front yards. During construction, the City needed to make sure the utilities were properly installed to avoid utility impacts. After construction, backyard improvements that might put turf grass and irrigation into the root zone of the trees must be avoided.
 - Staff added a number of conditions specific to the preservation of Oregon White Oaks in private yards, which included a tree preservation easement that gave the HOA and City access to the portion of a property within the tree's root zone to observe conditions, ensure inappropriate landscaping or irrigation did not exist, and assign the tree's maintenance to the HOA as a community amenity.
 - Staff had talked with homeowners who had preserved Oregon White Oaks in their private yards and learned that maintaining Oregon White Oaks is quite expensive.

- A number of the trees located along the back of Lots 96 to 100 had root zones that crossed from HOA land into private yards, so having the trees under a common responsibility would improve good stewardship of the trees.
- Other conditions limited irrigation and landscaping to native plants congruent with Oregon White Oaks.
- He reviewed specific details provided by the Applicant regarding Important Oregon White Oaks not located within the conservation easement, noting their locations and how design adjustments were made to limit impacts and preserve the trees.
 - Although Tree No. 1023 (Slide 44) was located in a linear green, the root zone and canopy went into Lot 100 so an additional setback was required to prevent the foundation and such from entering the tree's root zone.
 - Staff worked with the Applicant on ideas for Tree No. 856 (Slide 45) and placing the public utility easement at the edge of the root zone. There were conditions requiring that any utility work within the root zone of preserved trees to be bored to avoid trenching through the root zones.
 - The Architectural Pattern Book allowed the maximum setback to be waived automatically if a significant tree were present, so Lot 91 would have a greater front setback in order to preserve the tree. A condition provided in the memo required development of Lot 91 to be substantially similar to what was shown in the Preliminary Utility Layout for Lot 91 dated April 7, 2014, which was entered into the record as Exhibit B11.

Ms. Akervall asked what homebuyers with Important trees would be told about tree stewardship and the relationship between the City and the HOA.

Mr. Pauly explained some work could be done as Staff worked on developing the Covenant, Conditions and Restrictions (CC&Rs), with the developer to ensure education and outreach were available. One advantage was that the easement would show up on the title report which would hopefully bring some attention to it. The community's amenities were great so as active stewards, he hoped the HOA would be part of the education process. The easement enabled a greater partnership, rather than making a homeowner carry the burden of ensuring that the trees were successful as long as possible. He noted the trees had already been studied in detail and had a good chance of being around for a very long time.

Ms. Akervall noted the materials mentioned having signs placed by the trees and asked if that had been used before in Villebois or another neighborhood and if it was successful.

Mr. Pauly replied it was a new idea. Staff believed increasing awareness about the value of the Oregon White Oaks was of the utmost importance. Rather than just trenching through root zones, developers should have an arborist on site when working with the trees or face a hefty fine. The idea was supported by Code and Staff believed it could have an impact because there was a history of trees being inappropriately impacted by utility work during development in Villebois. For these particularly special trees, Staff wanted to take every measure to ensure the trees were dealt with properly. He imagined many more Staff inspections of the trees would take place during the development process. He continued presenting the Staff report with these key comments:

- Final Development Plan for Parks and Open Space. As mentioned Pocket Park 16, located in the northern portion of development, would be the central gathering place for the neighborhood and featured a couple play areas, a lawn area, shelter with seating, a network of hardscape trails and a path leading to and through a wetland area. The park was interesting in that it transitioned from the more formally developed portion to the natural area of the development.
 - He noted Tree No. 1023 was incorporated into a smaller park area and landscaped linear greens were on many of the edges. Efforts had been made to preserve trees on the northern

- edge of the site; although not the most significant trees on the site, they provided a backdrop to many of the homes in Arbor Villebois and were a visual amenity, as testified of previously.
- Displaying Slide 49, he noted Athens Ln had a series of sidewalks and linear greens that created a nice greenway entering into the project and on which homes fronted. An interesting pattern existed where all the sidewalks intersected and additional paths, pocket areas, linear greens and green spaces were incorporated. The project would involve a lot of landscaping and should be very special upon development.
 - Slide 50 identified where passive and active natural trail activity areas were proposed that would provide activities for all ages, from seating to bug inspection.

Kerry Rappold, Natural Resources Program Manager, reviewed the applications regarding the SROZ Map Refinement, Significant Resource Impact Report (SRIR) Review and SROZ Boundary Verification via PowerPoint. The applications was rather complex, not only in terms of site resources but also some of the elements being proposed, so he hoped last month's training helped in understanding the application.

- The SRIR included four elements:
 - A Map Verification looked at the City's existing mapping and inventory, and some minor adjustments were made based on the drip line of some of the trees.
 - The Map Refinement included three areas, totaling six-tenths of an acre, that were primarily being refined based on the fact that most of the trees were row planted, the understory was relatively disturbed, and little complexity existed in the relationship between the understory and overstory.
 - The Applicant's proposed exemption, with regard to the natural trails and nature trail activity areas, was handled separately from the proposed impacts.
 - The proposed impacts included six distinct areas on the site, totaling eight-tenths of an acre, for the purpose of providing street connections, some impact due to residential lots and the trail connection leading out to Grahams Ferry Rd.
- The gray area on Slide 52 indicated where existing disturbance was located previously on the site, which included the Callahan Center, parking lots, cottages and maintenance facility. A pretty well established pattern of impacts to the native habitat existed over the past 30 years.
- The slide also outlined the resource areas of the site, which included a mix of deciduous and coniferous trees, as well as forested and emergent wetlands. On the east side of the site, a potentially nice oak woodland area would provide connectivity to the oak woodland Metro was restoring on the Graham Oaks property.
- He described the four wetland areas identified on the site (Slide 53), noting Wetlands A, B and C were identified as part of the City's local inventory. The little piece located on the south end of Wetland B that was included as part of Pocket Park 16 had not been included in the inventory. A new wetland area, Wetland D, was delineated as part of the Applicant's submittal. The table showed the four wetland areas, breaking Wetland B into northern and southern parts, the different types of wetlands, such as forested emergent, and their sizes.
 - According to Statewide Planning Goal 5, wetlands had to be a minimum of a half-acre when considering local significance and wetlands a half acre or larger had to meet functional criteria requirements to be locally significant. The only wetland that met that definition was Wetland B. This distinction was important because that wetland would have a 50-ft Title 3 buffer applied to it, which limited any impacts that could be done on site as far as pushing development farther west.
 - The other three wetlands were not large enough to meet the half-acre requirement, but were still protected as jurisdictional wetlands and any impacts to them would have to be approved by the Oregon Department of State Lands (DSL) and Army Corps of Engineers. The Applicant was impacting about 1,200 sq ft of Wetland C, so approvals would need to be received from those agencies to proceed, but it was not locally regulated.

- Slide 54 highlighted the proposed mitigation for the wetlands and forested areas. The Applicant proposed impacting eight-tenths of an acre and mitigating twice that amount at about 190,000 sq ft. The Applicant was also adding some created areas that totaled about 60,000 sq ft, which meant about six acres would be enhanced or restored as part of their work. About 4,300 trees and shrubs would be planted as part of that mitigation, so it was a rather significant addition to the site.
- He described the impacts to the SROZ from development, as indicated on Slides 55 to 61, with these key additional comments:
 - The trail connection linking an off-street trail section to Grahams Ferry Rd was a minor impact and impacted no trees.
 - A large percentage of the trees, such as Red Alder and Scouler's Willow, were short-lived and tended to have problems over time, so potential existed for hazard trees over time. Some Douglas firs and a handful of White Oaks were down in the minus 15-inch DBH range, with one possibly larger than that.
 - The Applicant was trying to avoid the 50-ft buffer for Wetland B, which was indicated as a dashed line. The Development Code did not allow any impacts to the wetland or buffer if it was locally significant, so alternatives had to be considered for locating the street network and lots, while ensuring compliance with density requirements and other items. Amalfi Ln and Beaumont Ave would encroach that buffer (Slides 56 and 57) where larger Douglas Firs could be found.
 - The yellow areas on Slides 58 and 59 noted a combined section in Area 4 that primarily consisted of Red Alder and Scouler's Willow trees.
 - In the Willamette Valley, Douglas firs could almost be considered an invasive species in some respects. They were located in areas they would not have been historically especially when Pine/Oak Savanna were primarily in Wilsonville. Douglas firs were located in a much more extensive area than would have been seen 150 years ago.
 - When looking to restore native habitat, Oaks were a very important species and benefits could be gained from removing Douglas fir trees. While he was not advocating their removal, a benefit definitely existed when considering wildlife habitat.
 - The three small areas along the southern edge were primarily due to lot development.
 - Slide 61 indicated the areas the Applicant was refining on site with impacted areas shown in red and areas being created in blue. As part of the creation, the Applicant planned to remove and restore a portion of the access road that existed on site.
 - In addition to the 4,300 trees and shrubs planted as part of creation or enhancement areas, releasing some of the Oaks would be considered, which meant removing some of the Douglas firs that were competing with the Oaks. Staff wanted the Oaks to form a full crown and have the most room to grow and attain the greatest height possible in terms of maturity.

Mr. Springall said he walked the service road on the south end of the property and wandered into the property by the wetlands. He discovered a bunch of former buildings, old foundations, construction holes and hazards and asked what the plan was for dealing with those things and other damage within the SROZ.

Mr. Rappold replied some of the hazards might be within the SROZ, but most were outside of the SROZ boundaries where the old cottages were located. He clarified no development had occurred in Wetland D, but could have in Wetland C.

Mr. Springall explained the area was probably three-quarters of the way up towards the transmission mast and then cutting up towards the property.

Mr. Rappold added Wetland C was interesting because it was constructed on site with regard to the channel and was definitely not of the same quality, in some respects, as Wetland B, which was a very important wetland area as forested wetlands were much rarer.

Mr. Springall asked if the Applicant planned to completely remove the buildings, foundations, etc. as part of the application.

Mr. Pauly answered yes, noting much of that work had been ongoing. City Building Official Martin Brown confirmed that all the tunnels that used to run under the property were properly decommissioned by being collapsed and filled in; the tunnel to the State hospital no longer existed.

Ms. Akervall noted that from some of the diagrams, it appeared the channel portion of Wetland C covered two of the lots or perhaps, they shared the same space.

Mr. Rappold believed the Applicant had showed that part of the wetland would be filled.

Ms. Akervall asked if filling the wetland would hurt the wetland and if having a house on what used to be a wetland would be problematic.

Mr. Rappold deferred to the Applicant, but noted the necessary subgrade would need to be provided to build a house on the wetland. Wetlands like Wetland C had been removed and structures built on them.

Mr. Pauly reviewed the corrections and changes noted in his memorandum dated April 14, 2014, which was entered into the record as Exhibit A3.

Mr. Adams noted an additional correction on Page 145 of 183 and amended the last sentence of Condition PFC 52 as follows, "~~Attachment X~~ **Exhibit C6.**"

Chair Fierros Bower confirmed that driveway shown off Alta Ct in the southern portion of Phase II was a fire truck turnaround.

Chair Fierros Bower called for the Applicant's testimony.

Fred Gast, Polygon Northwest, 109 E 13th St, Vancouver, WA, 98660, appreciated the opportunity to bring the proposal before the Board and commended Staff for their excellent job of informing the City's Boards, Commissions and Council to provide them an opportunity to make an informed and well thought out decision. He thanked his consultant team, who put a great deal of effort and work into the development proposal over the past year plus. He also thanked the neighborhood, who provided some of the best detailed information and helpful points-of-view for creating the very best development proposal possible. An extensive amount of time was spent meeting and having discussions with the community, in both small and large groups; and while they did not always agree, the Applicant always found that the feedback enhanced the proposal. He presented the Applicant's proposal via PowerPoint with these key comments:

- The proposed plan was very commensurate with the Master Plan, which provided the roadmap for how the area should develop. He indicated the colors, which indicated density/lot sizes, told a lot of tales and the table provided information about what had changed somewhat from the Master Plan.
 - He believed the plan had been improved in all areas and many of the changes had been based on neighborhood input. While more specifics would be covered, a modification from the number of homes to be built had been contemplated which resulted in an overall reduction. There was also an increase in the larger and standard lot categories and a reduction in the medium lots, which grew in width because the Applicant was trying to get a larger home.
 - The overall view of the development proposal was good. This unique property allowed the Applicant to do things in Villebois that had not been done before because few opportunities existed in the metro area to develop a site at 2.4 units per acre on a gross basis.

- He reviewed how the economic and development climate had changed over the last three or four years when Polygon started its relationship with Villebois, which had grown and matured in important ways.
 - Polygon took a chance and had faith in Villebois and the City of Wilsonville and that the community would support a proposition with diversity, sustainability and a different take on development. Their first residential development was built closer to the core of the Villebois community and had smaller lots because that was the market. Polygon went with a home style that had the broadest base of potential homebuyers, making it both a good faith-based and business-based bet.
 - The market was coming back and much stronger, and now, Polygon was betting on something different; that added, which was the model they had been following. The basic premise for Villebois was that there should be many opportunities and varieties of home styles. They were not just providing more home opportunities for town homes or lower price points, but Grande Pointe was an opportunity for much higher price points. This was not necessarily a Code issue, but it was important for the Board to know that much greater opportunity existed. With this unique property, Polygon was able to create a special part of the neighborhood in a special neighborhood and provide many different options or opportunities while advancing the notion of diversity within Villebois, which was the reason for the extensive amount of planning.
- The parks were one of the more specific planning pieces. Villebois was based on the notion of compact urban development. The main part of Villebois had a bunch of development surrounding parks which was a great concept and part of what made the compact urban development concept work. However, Polygon was turning that around somewhat by using the amazing resources to have the park surround the development and provide opportunities the rest of Villebois was not necessarily providing, such as the concept of nature play as discussed by Staff.
 - It was important to note that this site was providing 15 percent of all parks and open spaces in Villebois, which was disproportionately weighted given this was only 100 homes of the entire 2,300 to 2,500-unit community, but that was the amenity and home style Polygon wanted to bring to the marketplace.
 - Polygon was trying to enhance an already good Master Plan where possible. He noted the significant amounts of trails, increased size of the pocket park, added shelter and play structures. It was not just informal nature play where you could go for walks in the woods or play on wood structures, but also a more formal central park for the community.
- The neighbors pointed out that every great neighborhood should have a good entry road, which was not in the Master Plan. Strong entries usually only lasted about the first 100 ft into a community, but Polygon was bringing the strong street from the entry all the way into the community, with a strong focal point at the terminus, the T intersection, while maintaining the boulevard feel with wide green spaces and a lot of street trees. The nodes at the far end near the terminus provided a more formal flavor for neighborhood gathering spaces, which was very good input from the neighborhood.
- Fewer lots were present on the street than the Master Plan contemplated. The lots were widened to increase square footage, so the square footage of the alley homes was an average of about 2,500 or 2,600 ft. The width was the same as a standard lot, so opportunities were being provided for some backyards with an alley-loaded solution. It was difficult from the alley configuration to provide big backyards, but the Applicant was looking to do that.
- Architecturally, it was fairly easy to see what the Applicant was trying to achieve. The City's consulting architect signed off that the conceptual elevations met the Pattern Book, the same one currently being used in this part of Villebois.
 - The Applicant was not looking to make modifications, but to take this unique opportunity to bring a more expensive product into the community and help with diversity. The designs featured more stone, more width, more brick, and taller front doors, which were requested by the community. The larger homes featured more width and square footage and were clearly over 3,000 ft, approaching 3,500 or more. He noted these were just samples of what could be done.

- He believed Polygon had demonstrated that they met or exceeded the base Master Plan standard and was trying to do something really special and adding another dimension to Villebois. With the improving market conditions, the project was a good bet. The timing for this proposal was not right four years ago, but he believed it was right today, and by taking advantage of the unique site amenities, they could create a special place within a special place.

Chair Fierros Bower asked what the nature play creative features consisted of, adding she believed they were scattered about the street nodes.

Mr. Gast explained the creative play and street nodes had been used in Villebois already, where kids could climb on features shaped as animals. The strategy was to put these in a gathering place where adults could talk while toddlers occupied themselves so they did not have to be constantly chased around. When used in other developments, Polygon found them to be a central place for people to gather. It was not like a massive park should be created out of these features, but they did serve the street nodes very well.

Mr. Springall asked that the location of Tree Nos. 799 and 1045 be identified. He understood they were considered questionable and asked whether the trees would stay or not.

Mr. Gast did not recall the numbers and actual locations of the trees, but when referring to trees as ones that might stay or go, philosophically, the Applicant tried to take such trees into context with other competing things being addressed in the site plan and consider them in a totality. In other words, what their overall strategy was with the trees. Where the trees fit in the overall strategy demonstrated that the Applicant saw value in the trees and considered them real amenities. They worked very close with their customers in considering how to maximize these amenities, not just for their value, but for the value of the neighborhood on a long-term basis. If trees that were somewhat on the edge could be identified, they believed with their team and experience that there was a good chance of preserving those trees and keeping them as an amenity within the site plan.

- As an example 15 years ago, they developed a site in Lake Oswego with an old English walnut tree that had been planted by the original family. Polygon was able to save that tree even though they were building very close to it. Through good care and good pruning, they were able to preserve the tree as an amenity to the homes very close to it. It was still there today and thriving better now than before because it was now getting the care it needed and was not receiving. Many trees on the subject site fit that same situation, where they had not been receiving any care and probably were not cared for very much when construction occurred in and around them. That did not mean every opportunity should not be taken to preserve them and make them an amenity.

Mr. Springall stated that answered his question in a general sense, but perhaps Mr. Pauly could identify the trees' location and a more specific answer could be provided about whether or not they would stay.

Mr. Gast stated Morgan Hollen might be able to provide those answers.

Chair Fierros Bower recalled an earlier question regarding Wetland C and the home foundations.

Ms. Akervall noted Lots 82 and 83 looked like they would be sharing that space. She asked how that would look and how the house and wetlands might be affected. She asked what process was required to do that build a home on a wetland.

Mr. Gast responded that similar to the trees, resources were categorized in terms of importance, functional classification, etc. Wetland C was a leftover landscaping feature that created the basic definition of a wetland; so it was not a very high quality wetland. From a mitigation point-of-view, Polygon would file applications with DSL, and if the federal government believed Wetland C was within

their jurisdiction, the Applicant would have to seek permits from them. It was a pretty regular course of business to preserve and enhance significant wetlands on one hand, while filling less significant, lower quality wetlands and use mitigation efforts to enhance or create something that would fill more of the functions desired in other cases. The process was fairly straightforward and DSL was the State regulator and the Corps of Engineers was the federal regulator. Polygon submitted wetland impact applications with them many times on an annual basis.

- Structurally, a typical cut and fill is used that occurred in development all the time. The loose material would be removed and replaced with structural material that would be compacted to ensure all soft spots were removed, similar to building roads. Grahams Ferry Rd was a perfect example where they would remove all the incorrect building material and put in new material to make sure it met the standards and the process on the wetland was very similar. There were no negative consequences to a customer.

Mr. Springall asked for the Applicant's perspective regarding Tree Nos. 799 and 1045.

Jim Lange, Pacific Community Design, displayed Slide 39 of 63 from Staff's PowerPoint presentation, which showed Trees 799 and 1045.

Morgan Hollen, Arborist, Morgan Hollen and Associates, 3 Monroe Pkwy, Ste P220, Lake Oswego, OR, 97035, clarified that trees #799 and #1045 were classified as likely to be removed. Both Oregon White Oaks were in good condition, but because of their proximity to development, they were not classified strictly as being retained so they were called likely to be retained. Tree No. 799 was located in the rear of a lot and had a very good opportunity for preservation, depending on the size of the building, when home construction and the required grading occurred. Tree No. 1045 was located right behind the curb line of the street and utilities were likely to go through that area, so the chances of that tree being preserved were a bit less.

- When construction began, trees classified as likely to be removed would have tree protection fencing installed around them and they would be treated like any other tree to be protected. As building progressed and tree protection fencing needed to be adjusted, contractors would contact her. Her company had a very good track record with Polygon's contractors who made those calls prior to removing or adjusting the protection fencing. She would visit the site to make decisions on the ground and provide contractors with recommendations on the ground to do everything possible to protect the trees.
- If it was ultimately determined that removal was the only option and that any impacts would be detrimental, construction would stop and they would coordinate with the City to ensure they had authorization to remove and mitigate for the trees before any impacts occurred.

Mr. Pauly noted Staff was requiring directional boring within the preserved root zone of Tree No 1045 and asked if that would increase the probability that Tree No. 1045 would be preserved.

Ms. Hollen answered yes; if boring was feasible at a minimum depth of 5 ft or more, it would certainly help in the preservation of the tree.

Ms. Akervall asked how deep the driveways would be of the medium-sized houses on alleys. She knew it varied in Villebois, sometimes they were quite short.

Mr. Gast replied the driveways would be the shorter typical variety in Villebois and confirmed any additional parking would have to occur on the street out front.

Lenka Keith thanked the Applicant for their efforts to preserve the natural resources. It was a challenging site, but it was good to see something good happening, and the old dilapidated buildings removed. It was

also good to see a good variety of product, with both larger and smaller lots. The plan seemed like a thoughtful plan.

Chair Fierros Bower agreed it was very refreshing to see such a beautiful design.

Ms. Akervall was excited to use some of the nature trails.

Chair Fierros Bower called for public testimony in favor of, opposed, or neutral to the application.

Everett Lapp, 11192 SW Barber St, Wilsonville, OR, 97070, appreciated the great job Polygon was doing in Villebois as well the beautiful job they had done creating the plan. He asked if the Board had read Exhibits D1 and D2, which did an excellent job describing his concerns about the extension of the street into SW Villebois Dr from Grande Pointe. He emphasized that SW Villebois Dr, at that point, was a narrow street. He respected City Staff, the studies they had done and the traffic going on there now. However, going from 500 cars to about 900 per day would be a significant impact on a very narrow street, a street where cars approaching each other already had to be very careful. Adding an additional 400 cars per day to SW Villebois Dr and Normandy Ln, would result in a traffic issue. He spoke from experience, as he had lived in Villebois since 2006. When he moved in, the speed limit the City assigned to Barber St, which was located in a residential area designed as a pedestrian and bicycle friendly community, was 45 miles per hour. When he approached the City about reducing the speed limit, he understood the developer, Costa Pacific, was forced to place the speed limit by the City. The City said they could not reduce the speed limit because it was a connector street. The speed limit has since been reduced to 25 miles per hour on both Barber St and Costa Circle, but now enforcement problems exist. The situation was ongoing and he had met recently with City Staff on the issue and they were trying to enforce the speed limit. He believed all the Board's approval would do was add an extra complex.

- He recommended that the Applicant extend Como Dr to make it another entrance off Grahams Ferry Rd. One lot would be sacrificed, but that lot could be made up by not extending the street into SW Villebois Dr, so nothing would be lost economically. In fact, the Applicant might possibly gain a lot. He asked the Applicant to consider making that modification and the DRB to require that modification as a condition of approval.

Ms. Akervall confirmed Mr. Lapp's proposed modification would result in no motor vehicle connection to the rest of Villebois except by exiting via Grahams Ferry Rd and then reentering the neighborhood.

Mr. Lapp believed allowing an additional 400 vehicles was a dangerous situation. He understood that was an estimate and no one really knew what would happen or how many of the 100 homes would exit onto Grahams Ferry Rd. As expressed in Exhibits D1 and D2, Grahams Ferry Rd was not an easy access to get onto because people were driving 45 miles per hour and even faster, so people would take an easier route. The route was shorter if they went through Villebois, down to Brown Rd and onto Wilsonville Rd. He reiterated there were many reasons not to go forward with it and very few reasons to bring that street into SW Villebois Dr, in fact zero reasons to really do that. He believed access could be gained off Grahams Ferry Rd quite easily.

Mr. Springall asked if Mr. Lapp considered the development compatible with other parts of Villebois. It was farther from the center which was why there were larger lots, but it seemed like it could be a very integral part of Villebois.

Mr. Lapp believed it was and should be an integral part of the Villebois community, but he did not believe it needed to have vehicular traffic from the addition into Villebois.

Mr. Springall replied without that connectivity, people would not be able to reach the Village Center without heading out onto Grahams Ferry Rd, and other businesses were in the village center.

Mr. Lapp reiterated it was a pedestrian bicycle friendly community and emphasis should be on pedestrians and bicycles, not vehicles. People wanting to go to events in Villebois could walk or bicycle otherwise, they would have to go around taking Grahams Ferry Rd to Surrey St or Grenoble St. He did not say it was the easiest or only option, but it was the best thing to do.

Andrew James, 11976 SW Lausanne St, Wilsonville, OR, 97070, stated his property bordered the subject site and he was very excited that the area was finally being developed. The Applicant held a couple meetings with the neighborhood, he watched the plan go through a couple revisions and the Applicant had been receptive to feedback. Many of the changes requested by the community had come about throughout the process.

- As the project went through the Planning Commission to the DRB, he had learned a lot about how the Villebois Master Plan and approval process took place. He had a few things he wanted to call out to ensure they were considered and documented as part of the approval process. Up until this point, the number of lots had not been solidified. He wanted to make sure that approval of the resolution would lock in the number of lots so it would not be modified substantially after the process went forward.

Mr. Pauly confirmed the approval would lock in the number of lots at 100.

Mr. James said he did see the neighborhood as part of Villebois and SAP South and wanted to make sure connectedness and consistency existed between the neighborhoods. He liked that the Applicant provided the front elevations as part of the proposal, which were consistent with the rest of Villebois. However, he did not see courtyards represented in the images. A large number of courtyards were used throughout SAP South, especially on rear-loaded lots. Living in the neighborhood for almost seven years, the courtyards were social areas and brought the neighborhood out. When walking around the neighborhood, it was very easy to see people in the courtyards and connect with them. It would be really great to see the same consistency in Grande Pointe going forward, since it was part of SAP South.

Mr. Pauly noted that a condition of approval required 30 percent courtyards and the Applicant stated they were really looking at courtyards on alley-loaded products, specifically on the medium lots along the entry road.

Mr. Edmonds added courtyards were more conducive for the French and English style homes, as American homes had porches.

Mr. Pauly noted the two American elevations had very strong front porches.

Mr. James stated he had an American-style and spent a lot of time on his front porch. He wanted to make sure it had that socially connected feel because the last thing the neighborhood wanted was to push people to their backyards.

- With regard to the connected street, he believed it was important for bringing people together. He was also concerned about traffic and reiterated that Villebois Dr was a very narrow street. When taking one's kids to Lowrie Primary School, it was important to know your car width very well if another car was coming because cars parked on both sides of the street. Some cars pull over, so he could see that increased traffic on the road might force people to use other routes to get to Lowrie. He believed it was important to have the street to connect people to drive through the neighborhood. Because he lived near that area, if he was trying to exit the neighborhood quickly he cut out to Grahams Ferry Rd. He did not think many people would try to access Brown Rd or go through the neighborhood, but would likely exit via Grahams Ferry Rd to Wilsonville Rd.

Chair Fierros Bowers called for the Applicant's rebuttal.

Mr. Gast replied the Applicant had no rebuttal.

Mr. Springall confirmed that the Master Plan showed the street connecting through to Villebois Dr.

Mr. Pauly added a significant discussion about that connection had taken place during the Master Plan and a number of findings in the Master Plan and in this approval supported that connection.

Chair Fierros Bower confirmed mitigation ideas existed about how to address speeding traffic.

Mr. Pauly added conversations had taken place with Engineering Staff and DKS & Associates about those options, which included bulb outs, crosswalks, and additional signage. For example, some additional signage might help to calm the traffic on Normandy Ln where one of the marked paths came out from Graham Oaks Nature Park. The City's Engineering Staff was supportive of ensuring the environment was safe. It would be an ongoing thing to observe, as seen with the Safe Routes to School Program in Villebois where the Engineering Staff continually interacted with the neighborhood to get feedback and make it as safe as possible.

Mr. Springall agreed Normandy Ln was a street where connectivity could be improved, as access to the Graham Oaks Trail had no marked sidewalk and the street seemed kind of straight and fast. He asked if traffic calming devices would be addressed now, as part of the application, or left for Engineering and City Staff to address later.

Mr. Adams reiterated that traffic calming was covered in the Planning Commission traffic report last fall in that the City would observe the flow of traffic and if it became a problem, he and Community Development Director Nancy Kraushaar would offer traffic calming at the City's expense, because it was not part of the development and on a separate street that was already completed. Staff's view was not to throw it out there right away, but see how things developed. The street that connects to Villebois Dr was part of Phase II and was still one to two years away from completion when the traffic would actually access that back area.

Mr. Springall asked how traffic calming was still a City responsibility if the developer was providing the additional traffic. The concerns heard and included in the report related to the application and the additional traffic coming through the two streets. Villebois Dr was probably handled because it was narrow, whereas Normandy Ln might be the primary concern for traffic calming.

Mr. Adams replied that any time there was an off site improvement, typically, the City never went back and charged the developer for something that was a block or two off their site. If it were contingent or part of the Applicant's development, they would be responsible for that. Street System Development Charges (SDCs) were collected and used for such things in areas outside of a development, which must be done as part of a City financed project. Law related to the supreme courts Dolan ruling prohibited the City from exacting on a developer for off-site improvements.

Mr. Pauly said if it were the will of the Board, Mr. Gast wanted to offer additional comments on the topic.

Mr. Gast believed Mr. Adams was accurate in the sense that the City would have to consider how all these streets functioned and try to enhance and/or mitigate. From the Polygon's perspective, the connection would be made in Phase II and he did not mind setting aside some financial contributions to

address this issue or another. In order to deal with the Dolan issue, he agreed, as a condition, to target \$20,000 for traffic mitigation in Phase II.

Barbara Jacobson, Assistant City Attorney, believed that could be addressed in Amendment 2 of Exhibit A3 which discussed the developer working with City Staff to come up with a development agreement. She appreciated the Applicant's offer which would be taken into account when putting the agreement together.

Mr. Gast stated if Polygon were having some impact, they did not shy away from taking responsibility to mitigate that impact. He agreed that was a good place to put it.

Ms. Akervall sought clarification about determining when a calming device would be added. She asked how the City would know when it was a problem; was a predetermined measure used to determine when a problem existed or was it dictated by complaints.

Mr. Adams explained that a traffic study was performed on Villebois Dr that showed 85 percent of the 450 total cars per day were traveling below 23 or 24 miles per hour, depending on their direction, so the City had a base measurement with the existing homes. Before the connecting road opened, other traffic studies would be performed on Normandy Ln and St Tropez Ave to determine the base speed level. If the development opened and there was a jump in traffic and speeds, then the City would look at traffic calming measures. He added it was a wiser way of investing City funds and, rather than guessing where to throw \$20,000 or \$30,000 to fix up a possible problem, it was better to wait to see if a problem developed and then go back to modify it.

Ms. Akervall confirmed baselines would be taken of the surrounding streets and the City would know what the streets were handling now and after the development opened.

Chair Fierros Bower closed the public hearing at 10:15 p.m.

Ken Ruud move to accept the Staff report dated April 7, 2014 as amended by Exhibit A3, with the addition of Exhibit B11, and with the last sentence of Condition PFC 52 on Page 145 of 183 also corrected to state, "~~Attachment X Exhibit C6.~~" **Simon Springall** seconded the motion. The motion passed unanimously.

Chair Fierros Bower confirmed no additional language was needed for Item 2 of Exhibit A3.

The motion passed unanimously.

Lenka Keith moved to approve Resolution No. 275. **Ken Ruud** seconded the motion, which passed unanimously.

Chair Fierros Bower read the rules of appeal into the record for the appropriate applications.

VIII. Board Member Communications

A. Results of the March 24, 2014 DRB Panel B Meeting

Simon Springall asked about the enforcement of the temporary Sign Code. It was political season and the City had quite a restrictive Sign Code, but not all political signs were adhering to the Sign Code, as far as when they could and could not be up. He asked if the Sign Code was being enforced.

Chris Neamtzu, Planning Director, replied yes, the City was enforcing the Sign Code. If a violation was observed, City Staff should be notified and it would be taken care of. The City needed to enforce the Sign Code at all times. There were no timeframes when it was not applicable; the City could not have that kind of flexibility in applying the standards.

IX. Staff Communications

Mr. Neamtzu announced that City website was being revamped with a brand new look and all kinds of really neat features. The soft launch went up this week and he invited everyone's feedback, adding Staff had been working on new website for over a year. He thanked the DRB for their great work tonight, adding the panel was doing outstanding work. He appreciated their thoughtful review of the extremely difficult applications, and believed they were doing an outstanding job.

- He reported that after everyone graciously agreed to meet on a special night, the Fun Center agreed to voluntarily limit their zip line operations until midnight this year, so no special meeting was needed. The City had issued a permit for 12:00 am and would see how it went. Holland Partner Group and the apartment community were fairly pleased with the fact that it would not be running all night again. Staff worked very hard with Ms. Jacobson and the owners of the Fun Center to find a compromise and keep the matter out of a public hearing venue. He thanked everyone for their willingness to meet on a special request, which meant a lot to him.

X. Adjournment

The meeting adjourned at 10:22 p.m.

Respectfully submitted,

Paula Pinyerd, ABC Transcription Services, Inc. for
Shelley White, Planning Administrative Assistant

**DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 277**

A RESOLUTION ADOPTING FINDINGS RECOMMENDING APPROVAL TO CITY COUNCIL OF AN ANNEXATION AND ZONE MAP AMENDMENT FROM RURAL RESIDENTIAL FARM FOREST 5-ACRE (RRFF-5) TO VILLAGE (V) AND ADOPTING FINDINGS AND CONDITIONS APPROVING AN AMENDMENT TO SAP-NORTH, PRELIMINARY DEVELOPMENT PLAN FOR SAP-NORTH PDP-3, TENTATIVE SUBDIVISION PLAT, TYPE C TREE PLAN, FINAL DEVELOPMENT PLAN FOR LINEAR GREENS AND PARKS AND SRIR REVIEW FOR AN 84-LOT SINGLE FAMILY SUBDIVISION IN VILLEBOIS AND ASSOCIATED IMPROVEMENTS. THE SUBJECT SITE IS LOCATED ON TAX LOTS 1200, 1202, 1205 AND 2995, OF SECTION 15, TOWNSHIP 3 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CITY OF WILSONVILLE, CLACKAMAS COUNTY, OREGON. STACY CONNERY, AICP, PACIFIC COMMUNITY DESIGN, INC. – REPRESENTATIVE FOR FRED GAST, POLYGON NW COMPANY-APPLICANT.

WHEREAS, an application, together with planning exhibits for the above-captioned development, has been submitted in accordance with the procedures set forth in Section 4.008 of the Wilsonville Code, and

WHEREAS, the Planning Staff has prepared staff report on the above-captioned subject dated May 5, 2014, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel A at a scheduled meeting conducted on May 12, 2014, at which time exhibits, together with findings and public testimony were entered into the public record, and

WHEREAS, the Development Review Board considered the subject and the recommendations contained in the staff report, and

WHEREAS, interested parties, if any, have had an opportunity to be heard on the subject.

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated May 5, 2014, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations, subject to, as applicable, City Council approval of the Annexation and Zone Map Amendment Requests (DB14-0009 and DB14-0010) for:

DB14-00011, DB14-0013 through DB14-0016, and SI14-0003 Preliminary Development Plan, SAP Refinements, SAP Amendment, Tentative Subdivision Plat, Type C Tree Plan, Final Development Plan, and Significant Resource Impact Report for a 84-lot residential subdivision, and associated parks and open space and other improvements.

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 12th day of May, 2014 and filed with the Planning Administrative Assistant on _____. This resolution is final on the 15th calendar day after the postmarked date of the written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03)*.

Mary Fierros Bower Chair, Panel A
Wilsonville Development Review Board

Attest:

Shelley White, Planning Administrative Assistant

Exhibit A1
STAFF REPORT
WILSONVILLE PLANNING DIVISION

Polygon Homes- Calais at Villebois

DEVELOPMENT REVIEW BOARD PANEL 'A'
QUASI-JUDICIAL PUBLIC HEARING
STAFF REPORT

HEARING DATE May 12, 2014
DATE OF REPORT: May 5, 2014

APPLICATION NOS.: DB14-0009 Annexation
DB14-0010 Zone Map Amendment
DB14-0013 SAP-North Amendment
DB14-0011 SAP-North PDP 3, Preliminary Development Plan
DB14-0014 Tentative Subdivision Plat
DB14-0016 Type C Tree Plan
DB14-0015 Final Development Plan for Parks and Open Space
SI14-0003 SRIR Review

REQUEST/SUMMARY: The Development Review Board is being asked to review a Quasi-judicial Annexation, Zone Map Amendment, Villebois Specific Area Plan North Amendment, Preliminary Development Plan, Tentative Subdivision Plat, Type C Tree Plan, Final Development Plan, and SRIR Review for an 84-lot residential subdivision, and associated parks and open space and other associated improvements.

LOCATION: Southeast corner of SW Grahams Ferry Road and SW Tooze Road. The properties are specifically known as Tax Lots 1200, 1202, and 1205, Section 15, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon.

OWNERS: Wayne Rembold, Rembold Co., Polygon at Villebois III LLC, and Charles & Carolyn Taber

APPLICANT: Fred Gast, Polygon NW Company

APPLICANT'S REP.: Stacy Connery, AICP
Pacific Community Design, Inc.

COMPREHENSIVE PLAN MAP DESIGNATION: Residential-Village

ZONE MAP CLASSIFICATION: RRF5 (Clackamas County Rural Residential Farm Forest 5)

STAFF REVIEWERS: Daniel Pauly AICP, Associate Planner
Steve Adams PE, Development Engineering Manager
Kerry Rappold, Natural Resource Program Manager

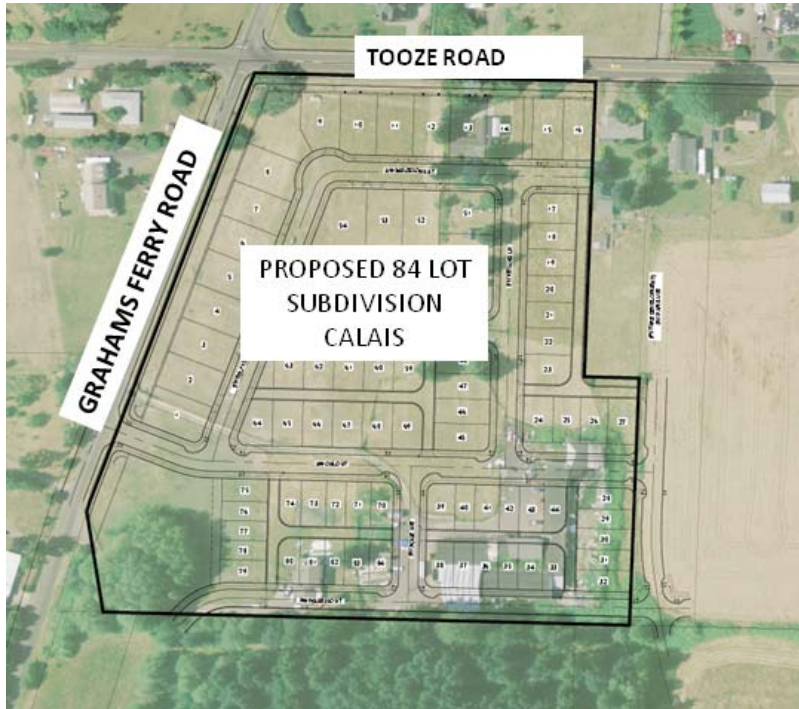
STAFF RECOMMENDATIONS: Approve with conditions the requested SAP Amendment, Preliminary Development Plan, Tentative Subdivision Plat, Tree Removal Plan, Final Development Plan for Parks and Open Space, and SRIR Review. Recommend approval of the requested Annexation and Zone Map Amendment to City Council.

APPLICABLE REVIEW CRITERIA

<u>DEVELOPMENT CODE</u>	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Section 4.033	Authority of City Council
Subsection 4.035 (.04)	Site Development Permit Application
Subsection 4.035 (.05)	Complete Submittal Requirement
Section 4.110	Zones
Section 4.113	Residential Development in Any Zone
Section 4.125	V-Village Zone
Sections 4.139.00 through 4.139.11 as applicable	Significant Resource Overlay Zone (SROZ)
Section 4.154	Bicycle, Pedestrian, and Transit Facilities
Section 4.155	Parking, Loading, and Bicycle Parking
Section 4.167	Access, Ingress, and Egress
Section 4.169	General Regulations-Double Frontage Lots
Section 4.171	Protection of Natural Features and Other Resources
Section 4.175	Public Safety and Crime Prevention
Section 4.176	Landscaping, Screening, and Buffering
Section 4.177	Street Improvement Standards
Section 4.197	Zone Changes and Amendments to Development Code-Procedures
Sections 4.200 through 4.220	Land Divisions
Sections 4.236 through 4.270	Land Division Standards
Sections 4.300 through 4.320	Underground Utilities
Sections 4.400 through 4.440 as applicable	Site Design Review
Sections 4.600 through 4.640.20 as applicable	Tree Preservation and Protection
Section 4.700	Annexation
<u>OTHER CITY PLANNING DOCUMENTS</u>	
Comprehensive Plan	
Villebois Village Master Plan	
SAP North Approval Documents	
<u>REGIONAL AND STATE PLANNING DOCUMENTS</u>	
Metro Code Chapter 3.09	Local Government Boundary Changes

Metro Function Plan Titles 1,2,3,6 and 7	
ORS 222.111	Authority and Procedures for Annexation
ORS 222.120	Procedure without Election by City Electors
ORS 222.125	Annexation by Consent of All Land Owners and Majority of Electors
ORS 22.170	Effect of Consent to Annexation by Territory
Statewide Planning Goals	

Vicinity Map



BACKGROUND/SUMMARY:

Annexation (DB14-0009)

Of the land covered by the Villebois Village Master Plan only the properties just south of Tooze Road between Grahams Ferry Road and 110th Avenue remain outside the City. The City’s Comprehensive Plan already designates these properties as “Residential-Village” in anticipation of annexation concurrent with other applications to develop the property. The requested annexation brings the properties near the corner of Tooze Road and Grahams Ferry Road into the City concurrent with a request to develop the property. As all owners of property and all electors within the area being annexed have consented in writing to annexation the City is able to process the request through the DRB and City Council as defined in the Development Code without any election.

Zone Map Amendment (DB14-0010)

The applicant requests to change the current Clackamas County zoning designation of Rural Residential Farm Forest 5 (RRFF5) to the City of Wilsonville zoning designation of Village (V)

zone. The proposed residential and park uses are permitted in the Village zone. The Village zone has been applied to all of Villebois as it has developed.

SAP North Amendment (DB14-0013)

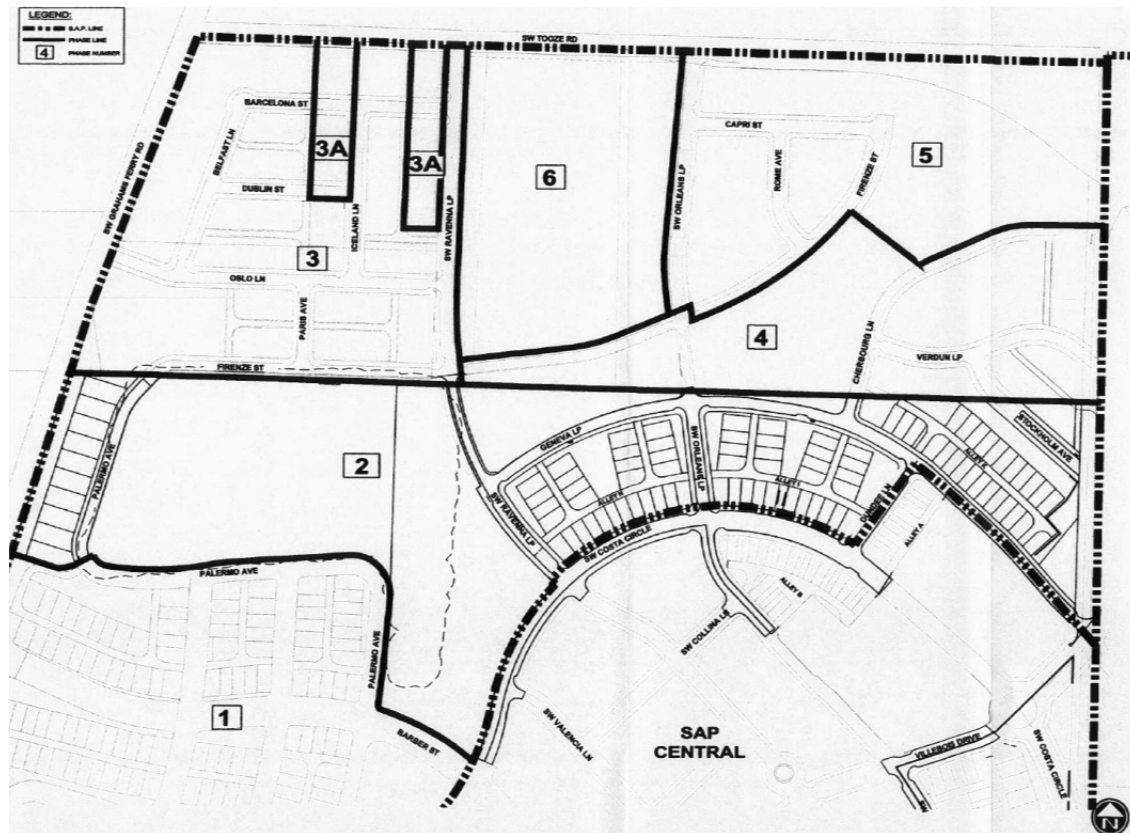
As shown in the table below, Specific Area Plans (SAP’s) in Villebois are made up of many elements. The initial approval of SAP North in 2007 (DB07-0054 et. seq.) was during the review of Phase 1 North when little was known about the timeline in which the remainder of the SAP would develop. To enable development of Phase 1 the approval divided the SAP into two “Areas”. Area 1 being Phase 1 North, and Area 2 being the remaining phases of SAP North. All SAP elements were approved for Area 1, but only certain elements were clearly approved for Area 2 leaving the remainder not approved or with a lack of certainty of whether they were approved.

SAP Elements “Area 2” of SAP North Approval in 2007 (DB07-0054 et. seq.)

Approved	Not Approved or Uncertain
	Site Circulation
	Preliminary Lot Layout
	Parks and Open Space
	Utility Plan
	Proposed Contours
Sequencing/Phasing (being modified)	
	Tree Removal
	Traffic Impact Analysis
Master Signage and Wayfinding Plan	
Rainwater Management Program	
Architectural Pattern Book	
Community Elements Book	



Plan Sheet from 2007 Approval with the Reviewing Planner’s Annotations delineating Area 1 and Area 2



SAP North Phasing as Shown in 2013 Approval of Phase 2

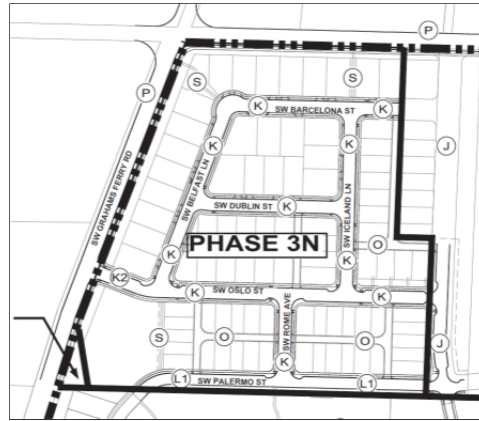
After purchasing all of Area 2 within the City limits Polygon sought development approvals for what was labeled Phase 2 of SAP North. In the 2013 approvals of Phase 2 North (DB13-0020 et. seq.) the area was considered Area 1B in relation to the 2007 labeling of Area 1 and Area 2. The rationale being no reason existed, beyond the 2007 focus of the developer, why the areas of SAP North within the City weren't included in Area 1 during the 2007 approval. Phase 2 North was not affected by uncertainties surrounding the potential school on Tooze Road cited in 2007 as the primary uncertainty regarding Area 2. As part of the 2013 approval all SAP elements either not previously approved or with uncertainty about their approval status were approved for Phase 2 North, leaving addressing those SAP elements for the additional phases outside the City to a future review.

Polygon now has the option to purchase the subject properties which are contiguous to the western part of Phase 2 North. In their proposal they are labeling the subject properties as Phase 3 North and request all SAP elements be adopted for the phase. While many of the same rationale exists to only review additional SAP elements for Phase 3 North similar to Phase 2 North, the applicant and the City have agreed to a broader SAP Amendment to clearly establish as many SAP elements as possible for the entire SAP.

However, for the future phases beyond Phase 3, the SAP Amendment is limited to adopting a general lot layout, unit count, site circulation, parks and open space, and utility plan reflective of the Villebois Village Master Plan. These elements were in the uncertain category during the previous approvals and the action simply formally establishes them. For the future phases the



Villebois Village Master Plan Figure 7



Proposed Refined Street Network

Parks, Trails, and Open Space

- Addition of Pocket Park at the southwest corner of Tooze Road and Grahams Ferry Road
- Addition of an open space with a retained wetland
- Additional linear greens and shared landscape areas

Utilities and Stormwater Facilities

- Realignment of utilities to match proposed street network
- Revision of location of stormwater facilities based on site conditions

Land Use and Density

- Increase of the number of Large Lots
- Addition of Medium Lots
- Decrease of the number of Standard and Small Lots
- Overall reduction of 17 units

PDP 3N Preliminary Development Plan (DB14-0011)

The proposed Preliminary Development Plan 3 of Specific Area Plan North (also known as Calais at Villebois) comprises 15.16 acres. The applicant proposes a variety of single-family housing types totaling 84 units, 2.03 acres of parks and open space, 4.49 acres of public streets, and associated infrastructure improvements. The front of all the houses will face tree lined streets, parks and green spaces.



Proposed Housing Type	Number of Units
Large Size Single Family	23
Standard Size Single Family	3
Medium Size Single Family	26
Small Size Single Family	32
Total	84

Tentative Subdivision Plat (DB14-0014)

The applicant is proposing the subdivision of the properties into 84 residential lots, along with alleys, park areas, and street rights-of-way. The name of the proposed subdivision approved by Clackamas County is “Calais at Villebois.”

Type C Tree Plan (DB14-0016)

The majority of the trees being retained are on the one (1) acre Taber property or just south, with most the remainder of the properties being open pasture. A number of trees not inventoried are being preserved in the wetland at the southwest corner of the development area. Of the forty-one (41) trees inventoried, seven (7) are designated to be retained. Only one Oregon White Oak

exists on the site, but has split and fallen since the arborist report was written and will be removed. Of the twenty-six (26) trees being removed, seventeen (17) are being removed due to the condition of the trees. Nine (9), including five (5) in good condition, are being removed due to construction. Staff has reviewed the site plan and has not identified any reasonable design alternatives to retain the “Good” trees being removed for construction. Notably, a 61-inch diameter Giant Sequoia (Tree 10478) in excellent health sits in the middle of a planned street that can’t be realigned sufficiently to avoid the tree without significantly changing the layout of the development.

Treatment Recommendation	General Condition Rating			Total
	P	M	G	
Retain		2	5	7 (17.1%)
Remove	8	13	5	26 (63.4%)
Likely to be Removed			8	8 (19.5%)
Total	8 (19.5%)	15 (36.6%)	18 (43.9%)	41 (100%)

Final Development Plan for Parks and Open Space (DB14-0015)

Details have been provided for all the parks and open space matching the requirements of the Community Elements Book. Street trees, curb extensions, street lights, and mail kiosks are also shown conforming to the Community Elements Book.

SRIR Review (SI14-0003)

The SRIR Review for Open Space 2 approved with Phase 2 North is being updated to reflect the revised impacts as the final programming of the child play area and other amenities on the northern edge of Open Space 2 proposed with Phase 3 North.

DISCUSSION TOPICS:

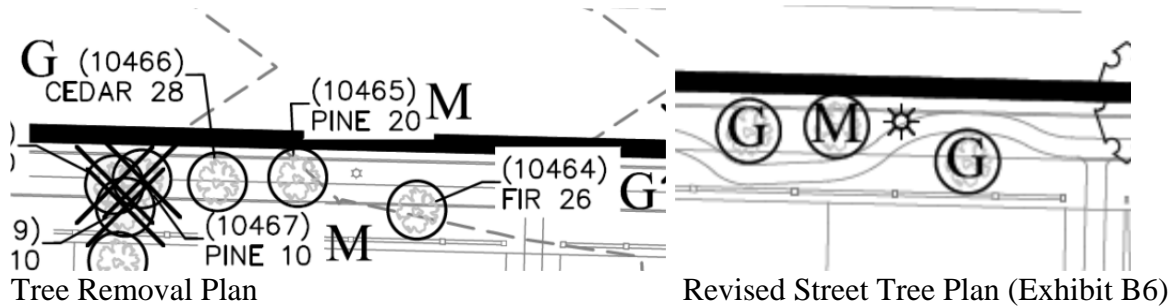
Preservation and Maintenance of Tree 10499 (27” Douglas-fir in Excellent Health)

A notable tree designated for retention is a 27-inch Douglas-fir (Tree 10499) in excellent health. In consideration of the health and value of the tree and its location Conditions of Approval PDF 4 and PDF 5 impose reasonable conditions to encourage proper long-term preservation and maintenance as well as clearly identify maintenance responsibility. Condition of Approval PDF 4 requires a tree preservation and maintenance easement and associated easement agreement allowing for inspection of the tree condition and assigning tree maintenance responsibility to the homeowners association as well as limiting plantings and irrigation that could damage the health of the tree. As a practical matter Condition of Approval PDF 5 requires an access easement to allow necessary access by the City and HOA for inspection and maintenance activities.

Sidewalk/Tree Conflicts along SW Tooze Road

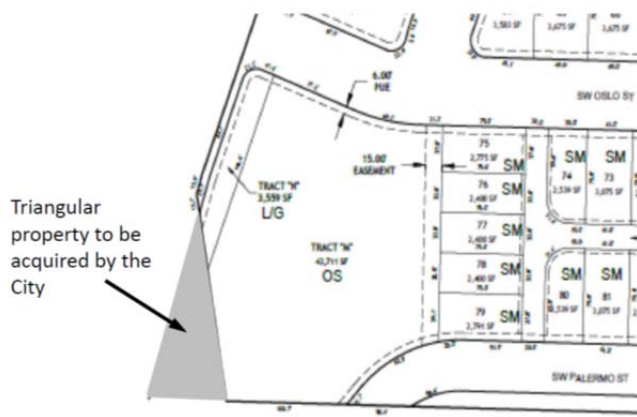
Three trees designated for retention along SW Tooze Road are shown in the vicinity of the planned sidewalk. The trees are a 26-inch Douglas-fir, a 20-inch Ponderosa Pine, and a 28-inch

Western Redcedar. Condition of Approval PDF 12 requires the sidewalk to meander to minimize placement within the root zone and when it is within the root zone requires a specific profile to protect roots. A public sidewalk easement may be required within the adjacent linear green to allow for the meandering. The revised street tree plan in Exhibit B6 shows how the meandering could look.



Triangular Piece of Property along SW Grahams Ferry Road

Tax Lot 31W15 01591, an approximate 7,150 square foot triangular piece of property on the southwest of the project along SW Grahams Ferry Road is shown as a “Future Phase.” This piece of property was not included in the current requests due to inability to identify the property owner and secure their necessary consents and permissions. As explained by Steve Adams in Exhibit C6, the Development Agreement between Polygon NW and the City is anticipated to assign the responsibility to the City to acquire of this property for planned improvements. No homes or other buildings are anticipated to be constructed on the property. Improvements shown in the Master Plan and SAP documents, including Grahams Ferry Road, sidewalks, and fencing can be completed under the current zoning. Staff anticipates this piece of property will be coupled with future applications for SAP North phases east of Phase 3 North for annexation and any other necessary approvals.



Offsite Street Improvements

Condition of Approval PFD 33 requires construction of Paris Avenue/Ravenna Loop and Palermo Street in PDP 2 North prior to or concurrently with PDP 3 North to provide internal circulation within Villebois. However, a gap still remains between the terminus of Ravenna Loop

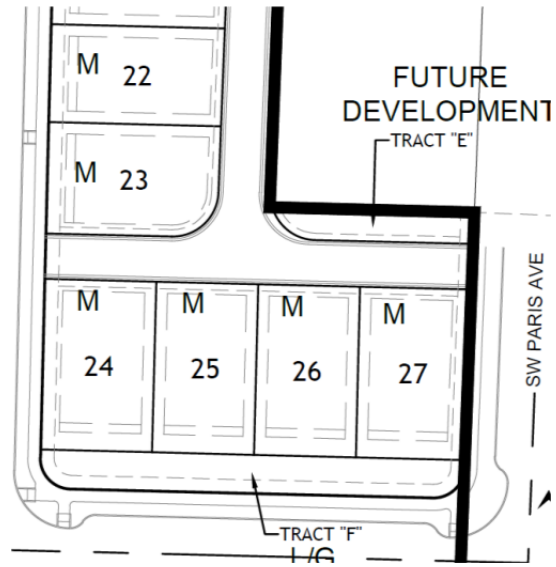
in PDP 2 North and street connections in PDP 3 North. The City and Polygon are working on a development agreement that will enable construction of Paris Avenue/Ravenna Loop in the future phase to the east of PDP 3 North with Phase 3 North. The offsite Paris Avenue/Ravenna Loop improvements will include intersections with Palermo Street, Oslo Street, and an alley north of Oslo Street. The proposed offsite street improvements are on property currently owned by the City planned to be sold for development. The proposed area of the offsite improvement will be dedicated as right-of-way. Public utilities to serve Phase 3 North will also be located in the offsite improvement area.

While a majority of these offsite improvements are typical of what will be in the City right-of-way, a tract of land between the sidewalk and the front of Lots 30 through 32 would typically be a private linear green maintained by the homeowners association and include pathways to provide pedestrian connectivity to the front of the adjoining lots. Consistent with Condition of Approval PDG 8 and PDG 10, landscape and hardscape within the tract in front of Lots 30 through 32 will need to be completed prior to issuance of building permit plans for homes on the lots. While the tract will be in City right-of-way the Operations and Maintenance Agreement will require maintenance by the homeowners association similar to other linear green areas throughout Villebois.



Future Development Tracts/Lots Overlapping PDP Boundary

In this and previous applications PDP boundaries have been adjusted to reflect property ownership. In a number of cases this led to remnant areas between the PDP’s developable with homes using land from multiple PDP’s. The proposed tentative subdivision plat includes a future development tract north of and across the alley from Lots 26 and 27. This tract is anticipated to be combined with land from a future phase to create a buildable lot.



CONCLUSION AND CONDITIONS OF APPROVAL:

Staff has reviewed the applicant's analysis of compliance with the applicable criteria. This Staff report adopts the applicant's responses as Findings of Fact except as noted in the Findings. Based on the Findings of Fact and information included in this Staff Report, and information received from a duly advertised public hearing, staff recommends that the Development Review Board approve the proposed applications (DB14-0013, DB14-0011, DB14-0014, DB14-0016, DB14-00015, and SI14-0003) and recommend approval of the annexation and zone map amendment to City Council (DB14-0009 and DB14-0010) with the following conditions:

The Developer is working with the City to reach agreement on the apportionment of fair and equitable exactions for the subject applications through a Development Agreement. Such agreement is subject to approval by the City Council by resolution.

Planning Division Conditions:

REQUEST A: DB14-0009 ANNEXATION

This action recommends Annexation to the City Council for the subject properties. The Zone Map Amendment (DB14-0010) and all approvals contingent on it are contingent on annexation. The SAP Amendment (DB14-0013) is also contingent upon annexation for those areas requested to be annexed.

REQUEST B: DB14-0010 ZONE MAP AMENDMENT

This action recommends adoption of the Zone Map Amendment to the City Council for the subject properties. This action is contingent upon annexation of the subject properties to the City of Wilsonville (DB14-0009). Case files DB14-0011, DB14-0014, DB14-0015, and DB14-0016 are contingent upon City Council's action on the Zone Map Amendment request.

REQUEST C: DB14-0013 SAP-NORTH AMENDMENT

PDC 1. For the properties proposed to be annexed under Request A (DB14-0009) approval of DB14-0013, SAP North Amendment, is contingent upon annexation.

PDC 2. For areas of SAP North designated as Future Phases this action reflects the plans for these areas adopted as part of the legislative Villebois Village Master Plan and does not constitute quasi-judicial land use action for these properties. It is understood the Specific Area Plan North will be amended or refined for these Future Phases concurrent with future annexation and quasi-judicial development applications.

REQUEST D: DB14-0011 SAP-NORTH PDP 3, PRELIMINARY DEVELOPMENT PLAN

PDD 1. Approval of DB14-0011 SAP-North PDP 3, Preliminary Development Plan is contingent upon annexation of the subject properties to the City of Wilsonville (Case File DB14-0009) and City Council approval of the Zone Map Amendment from Clackamas County Rural Residential Farm Forest 5 (RRFF5) to Village (V) (Case File DB14-0010).

PDD 2. Street lighting types and spacing shall be as shown in the Community Elements Book and as approved by the Engineering Division during the Public Works permitting process. See Finding D28.

PDD 3. All park and open space improvements approved by the Development Review Board, including associated improvements in Open Space 2, shall be completed prior the issuance of the forty-second (42nd) house permit for PDP 3 North. If weather or other

	special circumstances prohibit completion, bonding for the improvements will be permitted. See Finding D55.
PDD 4.	The applicant/owner shall enter into an Operations and Maintenance Agreement for the subdivision that clearly identifies ownership and maintenance for parks, open space, and paths. Such agreement shall ensure maintenance in perpetuity and shall be recorded with the subdivision for 'Calais at Villebois.' Such agreement shall be reviewed and approved by the City Attorney prior to recordation. See also Finding G4.
PDD 5.	The applicant/owner shall install courtyard fencing in the front yard of no less than thirty percent (30%) of the houses, which is rounded down to twenty-five (25) of the eighty-four (84) houses. The applicant/owner is especially encouraged to place the courtyards in the front yard of homes facing the open space or linear greens and that do not have a porch as well as alley loaded homes. The design and placement of the required courtyard fencing shall be consistent with the Architectural Pattern Book and the architectural style of the house. The courtyard area enclosed by the fence shall not exceed a five (5) percent slope from front building line of the house to the point of the courtyard closest to the front lot line or between the points of the courtyard closest to opposite side lot lines. Where necessary, the applicant shall install dry stack rock or brick wall along the front or side of the lot to ensure a five (5) percent or less slope is maintained. See Finding D25.
PDD 6.	Where a building foundation is exposed in the public view shed more than would be typical on a level lot, the foundation shall have a brick or stone façade matching the design of the house.

REQUEST E DB14-0014 TENTATIVE SUBDIVISION PLAT

PDE 1.	Approval of DB14-0014 Tentative Subdivision Plat is contingent upon annexation of the subject properties to the City of Wilsonville (Case File DB14-0009) and City Council approval of the Zone Map Amendment from Clackamas County Rural Residential Farm Forest 5 (RRFF5) to Village (V) (Case File DB14-0010).
PDE 2.	Any necessary easements or dedications shall be identified on the Final Subdivision Plat.
PDE 3.	If one or more of the park/open space tracts are to be dedicated to the City or other public entity, this dedication(s) shall also be executed and recorded with the Final Plat.
PDE 4.	Alleyways shall remain in private ownership and be maintained by the Homeowner's Association established by the subdivision's CC&Rs. The CC&Rs shall be reviewed and approved by the City Attorney prior to recordation.
PDE 5.	The Final Subdivision Plat shall indicate dimensions of all lots, lot area, minimum lot size, easements, proposed lot and block numbers, parks/open space by name and/or type, and any other information that may be required as a result of the hearing process for PDP-3N or the Tentative Plat.
PDE 6.	A non-access reservation strip shall be applied on the final plat to those lots with access to a public street and an alley. All lots with access to a public street and an alley must take vehicular access from the alley to a garage or parking area. A plat note effectuating that same result can be used in the alternative. The applicant shall work with the County Surveyor and City Staff regarding appropriate language. See Finding E3.

PDE 7.	All reserve strips and street plugs shall be detailed on the Final Subdivision Plat. See Finding E3.
PDE 8.	All tracts shall, except those indicated for future home development, shall include a public access easement across their entirety.
PDE 9.	The applicant/owner shall submit subdivision bylaws, covenants, and agreements to the City Attorney prior to recordation. See Finding E6.

REQUEST F: DB14-0016 TYPE C TREE PLAN

PDF 1.	Approval of DB14-0016 Type C Tree Plan is contingent upon annexation of the subject properties to the City of Wilsonville (Case File DB14-0009) and City Council approval of the Zone Map Amendment from Clackamas County Rural Residential Farm Forest 5 (RRFF5) to Village (V) (Case File DB14-0010).
PDF 2.	The property owner/applicant or their successors in interest shall grant access to the property for authorized City representatives as needed to verify the tree related information provided, to observe tree related site conditions, and to verify, once a removal permit is granted, that the terms and conditions of the permit are followed.
PDF 3.	Pursuant to note 6 of Table V-1 in Section 4.125 WC Lot 13 can be exempt from the maximum front setback to enable tree preservation. If it is necessary to place foundations or other hardscape improvements within the root zone of preserved trees construction shall be coordinated with and follow recommendations of the project arborist to minimize impacts.
PDF 4.	In order to ensure proper preservation and clear responsibility for maintenance and due to its excellent condition, the applicant/owner shall grant a tree protection and maintenance easement to the City over the area of Lot 50 within the drip line of Tree 10499. The easement shall be shown on the Final Plat. The applicant/owner shall enter into an easement agreement regarding this tree preservation easement which, among other provisions typical of such agreements, shall include the following provisions: <ul style="list-style-type: none"> • City and HOA access to inspect health of trees and condition of area within easement and perform any necessary activity to preserve the tree and maintain appropriate landscaping within the easement area. • Limit landscaping within the tree protection easement to understory plantings compatible with Douglas-fir. • Require temporary and permanent drainage and irrigation be designed around easement area to optimize the amount of water in the root zone of the tree to support its health. • Establish that if the tree dies or structurally fails beyond preservation, that an additional Douglas-fir is planted in its place. • Establish HOA responsibility for tree maintenance within the easement area and replacement, if needed. See Finding F3.
PDF 5.	A five foot (5') access easement shall be provided along the south property line of Lot 50 to the tree preservation and maintenance easement required by Condition of Approval PDF 4. Such easement shall allow for access by the authorized representatives and contractors for the HOA or City to reach the tree preservation and maintenance easement area. Such easement shall be shown on the final plat with a plat note defining the scope of the easement. No other obstructions other than a fence

	with an unlocked gate shall be allowed within the easement area. See Finding F3.
PDF 6.	Trees planted as replacement of removed trees shall be, state Department of Agriculture Nursery Grade No. 1. or better, shall meet the requirements of the American Association of Nursery Men (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade, shall be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two (2) years after the planting date. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced. See Findings F21 and F22.
PDF 7.	Solvents, building material, construction equipment, soil, or irrigated landscaping, shall not be placed within the drip line of any preserved tree, unless a plan for such construction activity has been approved by the Planning Director or Development Review Board based upon the recommendations of an arborist. See Finding F24.
PDF 8.	Before and during development, land clearing, filling or any land alteration the applicant shall erect and maintain suitable tree protective barriers which shall include the following: <ul style="list-style-type: none"> • 6' high fence set at tree drip lines. • Fence materials shall consist of 2 inch mesh chain links secured to a minimum of 1 ½ inch diameter steel or aluminum line posts. • Posts shall be set to a depth of no less than 2 feet in native soil. • Protective barriers shall remain in place until the City authorizes their removal or issues a final certificate of occupancy, whichever occurs first. • Tree protection fences shall be maintained in a full upright position. See Findings F24.
PDF 9.	Fence posts placement within drip lines and root zones of preserved trees shall be hand dug and supervised by the project arborist. If roots are encountered alternative fence post placement is required as determined by the project arborist. See Finding F3.
PDF 10.	Utilities, including franchise utilities, public utilities, and private utilities and service lines shall be directionally bored as necessary to avoid the root zone of preserved trees. This includes trees designated "likely to be removed" unless the trees are authorized to be removed by the City through the process described in pages 3 to 4 of the Tree Maintenance and Protection Plan Memo in Section VIB) of the applicant's notebook, Exhibit B3. All work within the root zone of preserved trees shall be supervised by and follow the recommendation of the project arborist. See Finding F3.
PDF 11.	Of the trees indicated "Likely to be Removed" the following trees shall only be removed upon finding by Planning staff, based on the recommendation of the project arborist, that no practical design alternative exists that would enable their preservation: <p>Tree 10471 (32" Douglas-fir) or Tree 10474 (24" Ponderosa Pine) Tree 10475 (28" Western Redcedar) Tree 10480 (14" Red Maple) Tree 10481 (24" Douglas-fir) Tree 10482 (28" Douglas-fir) Tree 10483 (22" Douglas-fir)</p>
PDF 12.	The sidewalk along SW Tooze Road shall meander as necessary to minimize placement within the root zone of Trees 10464, 10465, and 10466. Any sidewalk

placed within the root zone of these trees shall follow Figure 1, Sample Surfacing Profile, on page 5 of the Tree Maintenance and Protection Plan Memo in Section VIB) of the applicant’s notebook, Exhibit B3. All work for utilities, sidewalks, or other improvements within the root zones of these trees shall be supervised and follow the recommendations of the project arborist. See Finding F3.

REQUEST G: DB14-0015 FINAL DEVELOPMENT PLAN FOR PARKS AND OPEN SPACE

PDG 1.	Except for those improvements shown in OS-2 previously rezoned and annexed with PDP 2 North, approval of DB14-0015 Final Development Plan is contingent upon annexation of the subject properties to the City of Wilsonville (Case File DB14-0009) and City Council approval of the Zone Map Amendment from Clackamas County Rural Residential Farm Forest 5 (RRFF5) to Village (V) (Case File DB14-0010).
PDG 2.	All plant materials shall be installed consistent with current industry standards.
PDG 3.	All construction, site development, and landscaping of the parks shall be carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. Minor alterations may be approved by the Planning Division through the Class I Administrative Review process. See Finding G32.
PDG 4.	All retaining walls within the public view shed shall be a decorative stone or brick construction or veneer. Final color and material for the retaining walls shall be approved by the Planning Division through the Class I Administrative Review Process. See Finding G37.
PDG 5.	All hand rails within the parks and open space shall be of a design similar to the approved courtyard fencing shown in the Architectural Pattern Book. Final design of any hand rails in parks and open space shall be approved by the Planning Division through the Class I Administrative Review Process. See Finding G37.
PDG 6.	All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Development Review Board. See Finding G41 through G43.
PDG 7.	The applicant shall submit final parks, landscaping and irrigation plans to the City prior to construction of parks. The irrigation plan must be consistent with the requirements of Section 4.176(.07)C.
PDG 8.	Prior to occupancy of each house the Applicant/Owner shall install landscaping along the public view-sheds of each house, unless otherwise approved by the Community Development Director. Homeowners association shall contract with a professional landscape service to maintain the landscaping.
PDG 9.	No street trees shall be planted where their growth would interfere with preserved trees. Street trees shall be appropriately placed between curb cuts. See Finding G23.
PDG 10.	Street trees shall be planted as each house or park is built.
PDG 11.	Final construction plans for playground equipment and other elements shall demonstrate compliance with the requirements of the Community Elements Book which have not been verified for compliance at the current level of design. See Findings G9 and G17.
PDG 12.	Consistent with Parks and Open Spaces Policy 1 in the Villebois Village Master Plan a large shade tree of 3”-5” caliper shall be planted in the pocket park as a focal point at the intersection of Grahams Ferry Road and Tooze Road.

REQUEST H: SI14-0003 SRIR REVIEW

NONE

The following Conditions of Approval are provided by the Engineering, Natural Resources, or Building Divisions of the City’s Community Development Department or Tualatin Valley Fire and Rescue, all of which have authority over development approval. A number of these Conditions of Approval are not related to land use regulations under the authority of the Development Review Board or Planning Director. Only those Conditions of Approval related to criteria in Chapter 4 of Wilsonville Code and the Comprehensive Plan, including but not limited to those related to traffic level of service, site vision clearance, recording of plats, and concurrency, are subject to the Land Use review and appeal process defined in Wilsonville Code and Oregon Revised Statutes and Administrative Rules. Other Conditions of Approval are based on City Code chapters other than Chapter 4, state law, federal law, or other agency rules and regulations. Questions or requests about the applicability, appeal, exemption or non-compliance related to these other Conditions of Approval should be directed to the City Department, Division, or non-City agency with authority over the relevant portion of the development approval.

Engineering Division Conditions:

REQUEST D: DB14-0011 SAP-NORTH PDP 3, PRELIMINARY DEVELOPMENT PLAN

Standard Comments:

PFD 1 All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards.

PFD 2 Applicant shall submit insurance requirements to the City of Wilsonville in the following amounts:

<i>Coverage (Aggregate, accept where noted)</i>	<i>Limit</i>
Commercial General Liability	
General Aggregate (per project)	\$ 2,000,000
Fire Damage (any one fire)	\$ 50,000
Medical Expense (any one person)	\$ 10,000
Business Automobile Liability Insurance	
Each Occurrence	\$ 1,000,000
Aggregate	\$ 2,000,000
Workers Compensation Insurance	\$ 500,000

PFD 3 No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, right-of-way and easements have been obtained and Staff is notified a minimum of 24 hours in advance.

PFD 4 All public utility/improvement plans submitted for review shall be based upon a 22”x 34” format and shall be prepared in accordance with the City of Wilsonville Public Work’s Standards.

PFD 5 Plans submitted for review shall meet the following general criteria:

- a. Utility improvements that shall be maintained by the public and are not contained within a public right-of-way shall be provided a maintenance access acceptable to

the City. The public utility improvements shall be centered in a minimum 15-ft. wide public easement for single utilities and a minimum 20-ft wide public easement for two parallel utilities and shall be conveyed to the City on its dedication forms.

- b. Design of any public utility improvements shall be approved at the time of the issuance of a Public Works Permit. Private utility improvements are subject to review and approval by the City Building Department.
- c. In the plan set for the PW Permit, existing utilities and features, and proposed new private utilities shall be shown in a lighter, grey print. Proposed public improvements shall be shown in bolder, black print.
- d. All elevations on design plans and record drawings shall be based on NAVD 88 Datum.
- e. All proposed on and off-site public/private utility improvements shall comply with the State of Oregon and the City of Wilsonville requirements and any other applicable codes.
- f. Design plans shall identify locations for street lighting, gas service, power lines, telephone poles, cable television, mailboxes and any other public or private utility within the general construction area.
- g. As per City of Wilsonville Ordinance No. 615, all new gas, telephone, cable, fiber-optic and electric improvements etc. shall be installed underground. Existing overhead utilities shall be undergrounded wherever reasonably possible.
- h. Any final site landscaping and signing shall not impede any proposed or existing driveway or interior maneuvering sight distance.
- i. Erosion Control Plan that conforms to City of Wilsonville Ordinance No. 482.
- j. Existing/proposed right-of-way, easements and adjacent driveways shall be identified.
- k. All engineering plans shall be stamped by a Professional Engineer registered in the State of Oregon.

PFD 6 Submit plans in the following general format and order for all public works construction to be maintained by the City:

- a. Cover sheet
- b. City of Wilsonville construction note sheet
- c. General construction note sheet
- d. Existing conditions plan.
- e. Erosion control and tree protection plan.
- f. Site plan. Include property line boundaries, water quality pond boundaries, sidewalk improvements, right-of-way (existing/proposed), easements (existing/proposed), and sidewalk and road connections to adjoining properties.
- g. Grading plan, with 1-foot contours.
- h. Composite utility plan; identify storm, sanitary, and water lines; identify storm and sanitary manholes.
- i. Detailed plans; show plan view and either profile view or provide i.e.'s at all utility crossings; include laterals in profile view or provide table with i.e.'s at crossings; vertical scale 1"= 5', horizontal scale 1"= 20' or 1"= 30'.
- j. Street plans.
- k. Storm sewer/drainage plans; number all lines, manholes, catch basins, and

	<p>cleanouts for easier reference</p> <ul style="list-style-type: none"> l. Water and sanitary sewer plans; plan; number all lines, manholes, and cleanouts for easier reference. m. Detailed plan for storm water detention facility (both plan and profile views), including water quality orifice diameter and manhole rim elevations. Provide detail of inlet structure and energy dissipation device. Provide details of drain inlets, structures, and piping for outfall structure. Note that although storm water detention facilities are typically privately maintained they will be inspected by engineering, and the plans must be part of the Public Works Permit set. n. Detailed plan for water quality facility (both plan and profile views). Note that although storm water quality facilities are typically privately maintained they will be inspected by Natural Resources, and the plans must be part of the Public Works Permit set. o. Composite franchise utility plan. p. City of Wilsonville detail drawings. q. Illumination plan. r. Striping and signage plan. s. Landscape plan.
PFD 7	Prior to manhole and sewer line testing, design engineer shall coordinate with the City and update the sanitary and stormwater sewer systems to reflect the City's numbering system. Video testing and sanitary manhole testing will refer to the updated numbering system. Design engineer shall also show the updated numbering system on As-Built drawings submitted to the City.
PFD 8	The applicant shall install, operate and maintain adequate erosion control measures in conformance with the standards adopted by the City of Wilsonville Ordinance No. 482 during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed.
PFD 9	Applicant shall work with City's Natural Resources office before disturbing any soil on the respective site. If 5 or more acres of the site will be disturbed applicant shall obtain a 1200-C permit from the Oregon Department of Environmental Quality. If 1 to less than 5 acres of the site will be disturbed a 1200-CN permit from the City of Wilsonville is required.
PFD 10	To lessen the impact of the proposed project on the downstream storm drain system, and adjacent properties, project run-off from that portion of the site within the Mill Creek Basin shall be detained and limited to the difference between a developed 25-year storm and an undeveloped 25-year storm. The detention and outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
PFD 11	A storm water analysis prepared by a Professional Engineer registered in the State of Oregon shall be submitted for review and approval by the City to address appropriate pipe and detention facility sizing.
PFD 12	The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.
PFD 13	Storm water quality facilities shall have approved landscape planted and/or some

	other erosion control method installed and approved by the City of Wilsonville prior to streets and/or alleys being paved.
PFD 14	Fire hydrants shall be located in compliance with TVF&R fire prevention ordinance and approval of TVF&R.
PFD 15	The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards.
PFD 16	All survey monuments on the subject site, or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.
PFD 17	Sidewalks, crosswalks and pedestrian linkages in the public right-of-way shall be in compliance with the requirements of the U.S. Access Board.
PFD 18	No surcharging of sanitary or storm water manholes is allowed.
PFD 19	The project shall connect to an existing manhole or install a manhole at each connection point to the public storm system and sanitary sewer system.
PFD 20	A City approved energy dissipation device shall be installed at all proposed storm system outfalls. Storm outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
PFD 21	The applicant shall provide a ‘stamped’ engineering plan and supporting information that shows the proposed street light locations meet the appropriate AASHTO lighting standards for all proposed streets and pedestrian alleyways.
PFD 22	All required pavement markings, in conformance with the Transportation Systems Plan and the Bike and Pedestrian Master Plan, shall be completed in conjunction with any conditioned street improvements.
PFD 23	Street and traffic signs shall have a hi-intensity prismatic finish meeting ASTM 4956 Spec Type 4 standards.
PFD 24	The applicant shall provide adequate sight distance at all project driveways by driveway placement or vegetation control. Specific designs to be submitted and approved by the City Engineer. Coordinate and align proposed driveways with driveways on the opposite side of the proposed project site.
PFD 25	Access requirements, including sight distance, shall conform to the City's Transportation Systems Plan (TSP) or as approved by the City Engineer. Landscaping plantings shall be low enough to provide adequate sight distance at all street intersections and alley/street intersections.
PFD 26	Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.
PFD 27	The applicant shall provide the City with a Stormwater Maintenance and Access

	Easement (on City approved forms) for City inspection of those portions of the storm system to be privately maintained. Stormwater or rainwater LID facilities may be located within the public right-of-way upon approval of the City Engineer. Applicant shall maintain all LID storm water components and private conventional storm water facilities; maintenance shall transfer to the respective homeowners association when it is formed.				
PFD 28	The applicant shall “loop” proposed waterlines by connecting to the existing City waterlines where applicable.				
PFD 29	All water lines that are to be temporary dead-end lines due to the phasing of construction shall have a valved tee with fire-hydrant assembly installed at the end of the line.				
PFD 30	For any new public easements created with the project the Applicant shall be required to produce the specific survey exhibits establishing the easement and shall provide the City with the appropriate Easement document (on City approved forms).				
PFD 31	<p>Mylar Record Drawings:</p> <p>At the completion of the installation of any required public improvements, and before a 'punch list' inspection is scheduled, the Engineer shall perform a record survey. Said survey shall be the basis for the preparation of 'record drawings' which will serve as the physical record of those changes made to the plans and/or specifications, originally approved by Staff, that occurred during construction. Using the record survey as a guide, the appropriate changes will be made to the construction plans and/or specifications and a complete revised 'set' shall be submitted. The 'set' shall consist of drawings on 3 mil. Mylar and an electronic copy in AutoCAD, current version, and a digitally signed PDF.</p>				
Specific Comments:					
PFD 32	Applicant shall enter into a Development Agreement with the City that clarifies the responsibilities and/or estimated costs for construction of Tooze Road, Grahams Ferry Road, Paris Avenue, Palermo Street (south of proposed subdivision), and water, sanitary and storm infrastructure to service this proposed subdivision.				
PFD 33	To provide internal circulation within Villebois the Applicant shall complete the construction of both Palermo Street and Paris Avenue/Ravenna Loop in the adjacent Villebois SAP North PDP 2 subdivision either prior to, or concurrent with, construction of Villebois SAP North PDP 3.				
PFD 34	<p>At the request of Staff, DKS Associates completed a Transportation Review dated March 14, 2014. The project is hereby limited to no more than the following impacts.</p> <table border="0" style="margin-left: 40px;"> <tr> <td>Estimated New PM Peak Hour Trips</td> <td style="text-align: right;">85</td> </tr> <tr> <td>Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area</td> <td style="text-align: right;">27</td> </tr> </table>	Estimated New PM Peak Hour Trips	85	Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area	27
Estimated New PM Peak Hour Trips	85				
Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area	27				
PFD 35	Recent traffic analysis reports done for Villebois have indicates that the intersection of Grahams Ferry Road and Tooze Road would operate at LOS F with the build-out of this and other approved Villebois subdivisions. Improvements to this intersection are planned and funded by the City and construction work is anticipated to be completed by spring 2016.				

PFD 36	Connections to the public right-of-way shall occur at Oslo Street and Grahams Ferry Road and via Palermo Street and Paris Street to streets previously approved with Villebois SAP North PDP 2.
PFD 37	Alley Tract “H” stops short of the Oslo Street right-of-way; Applicant shall provide a hard surface pedestrian connection between this alley tract and the public sidewalk on north side of Oslo Street.
PFD 38	All construction traffic shall access the site via Grahams Ferry Road.
PFD 39	In the 2013 Transportation Systems Plan Tooze Road is identified as a Minor Arterial. Applicant shall dedicate sufficient right-of-way to accommodate Tooze Road as a Minor Arterial; this will require an additional 17.5 feet of right-of-way dedication to the City to accommodate a half-street width of 37.5-ft (total right-of-way width of 75 feet).
PFD 40	In the 2013 Transportation Systems Plan Grahams Ferry Road is identified as a Minor Arterial. Applicant shall dedicate sufficient right-of-way to accommodate Grahams Ferry Road as a Minor Arterial; this will require an additional 7.5 feet of right-of-way dedication to the City to accommodate a half-street width of 37.5-ft (total right-of-way width of 77 feet).
PFD 41	With the improvements to Grahams Ferry Road applicant shall cause to have all overhead utilities along the east side of the road installed underground along the entire property frontage and install a new underground to overhead transition pole at the southeast corner of the Tooze Road / Grahams Ferry Road intersection.
PFD 42	On Grahams Ferry Road adjacent to the Villebois Village development the standard street light is a 35-ft black fiberglass direct bury pole (30-ft mounting height) with 6-ft black arm and black full-cutoff cobra head luminaire.
PFD 43	All internal streets shall be lighted with approved Westbrooke style street lights per the Villebois street lighting master plan.
PFD 44	On westbound Oslo Street at Grahams Ferry Road applicant shall provide a left-turn pocket to accommodate turn movements onto Grahams Ferry Road as recommended in the Villebois Urban Village SAP North Area 1B Transportation Study, completed by DKS, July 31, 2013.
PFD 45	On Grahams Ferry Road, stormwater will be collected via curb inlets north of Oslo Street and via storm swales south of Oslo; however the Applicant shall be required to provide detention and water quality requirements for impervious surfaces created with the reconstruction of Grahams Ferry Road.
PFD 46	The proposed subdivision lies within two storm drainage basins – Coffee Lake and Mill Creek. Those portions of the subdivision lying within the Coffee Lake basin are exempt from stormwater detention requirements as established per City Ordinance No. 608. Those portions of the subdivision lying within Mill Creek basin and improvements done with Grahams Ferry Road shall be required to conform to the storm detention requirements of PFD 10. No net interbasin transfer of stormwater is allowed.
PFD 47	The applicant shall provide ‘stamped’ engineering details with dimensions for intersection sight distance verification and AutoTURN layouts for all proposed intersections, including alley/street connections. Adequate clearance shall be provided at all intersections and alleyways. The sight distance point for exiting vehicles shall be located 14.4 feet from the edge of the traveled way.

	At a minimum, the applicant shall provide 'stamped' engineering AutoTURN layouts for fire trucks and buses (WB-60) that show the overhang and/or mirrors of the vehicle as opposed to the wheel paths. Turning vehicles may use the width of the minor street to start the appropriate turn. The vehicle must however, stay within the appropriate receiving (inside) lane of the major street. Additionally, the turning vehicle must not intrude onto the wheel chair ramp on the inside of the turning movement.
PFD 48	Alleys that are identified by Tualatin Valley Fire and Rescue (TVF&R) as possible routes for medical and/or fire emergencies shall meet TVF&R's design requirements.
PFD 49	At the time of plan submittal for a Public Works Permit, the applicant shall provide to the City a copy of correspondence showing that the plans have also been distributed to the franchise utilities. Prior to issuance of a Public Works Permit, the applicant shall have coordinated the proposed locations and associated infrastructure design for the franchise utilities. Should permanent/construction easements or right-of-way be required to construct the public improvements or to relocate a franchised utility, the applicant shall provide a copy of the recorded documents. Should the construction of public improvements impact existing utilities within the general area, the applicant shall obtain written approval from the appropriate utility prior to commencing any construction.
PFD 50	Applicant shall provide sufficient mail box units for the proposed phasing plan; applicant shall construct mail kiosk at locations coordinated with City staff and the Wilsonville U.S. Postmaster. In previous discussions between City staff and the Wilsonville U.S. Postmaster mail kiosk locations were preferred to be located along Oslo Street.
PFD 51	Rainwater management components will be allowed to be located in the public right-of-way, however such components shall be maintained by the Applicant, or subsequent HOA, and this shall be included in the Ownership and Maintenance agreement as required in PFD 27.
PFD 52	Existing abandoned water, sanitary, or storm water lines shall either be completely removed, grouted in place, or abandoned per a City approved recommendation from a Registered Geotechnical Engineer.
PFD 53	SAP North PDP 3 consists of 84 lots. All construction work in association with the Public Works Permit and Project Corrections List shall be completed prior to the City Building Division issuing a certificate of occupancy, or a building permit for the housing unit(s) in excess of 50% of total (43 rd lot).
PFD 54	Much of the site is located within a sanitary sewer reimbursement district adopted with Resolution No. 2350 and is subject to the requirements established by this resolution.

REQUEST E DB14-0014 TENTATIVE SUBDIVISION PLAT

PFE 1.	Applicant shall provide a minimum 6-foot Public Utility Easement on lot frontages to all public right-of-ways. An 8-foot PUE shall be provided along Collectors. A 10-ft PUE shall be provided along Minor and Major Arterials.
PFE 2.	Subdivision or Partition Plats: Paper copies of all proposed subdivision/partition plats shall be provided to the City

	for review. Once the subdivision/partition plat is approved, applicant shall have the documents recorded at the appropriate County office. Once recording is completed by the County, the applicant shall be required to provide the City with a 3 mil Mylar copy of the recorded subdivision/partition plat.
PFE 3.	Subdivision or Partition Plats: All newly created easements shown on a subdivision or partition plat shall also be accompanied by the City’s appropriate Easement document (on City approved forms) with accompanying survey exhibits that shall be recorded immediately after the subdivision or partition plat.
PFE 4.	Applicant shall provide a public sidewalk easement for those portions of the 10-ft sidewalk adjacent to Grahams Ferry Road that are not within the public right-of-way.

Natural Resources Division Conditions:

REQUEST D: DB14-0011 SAP-NORTH PDP 3, PRELIMINARY DEVELOPMENT PLAN & REQUEST G: DB14-0015 FINAL DEVELOPMENT PLAN FOR PARKS AND OPEN SPACE

Rainwater Management Plan:	
NRDG 1.	The applicant shall submit a detailed operations and maintenance manual for the rainwater management components that has been reviewed and approved by city staff before 50% of the units are occupied in PDP 3, SAP North .
NRDG 2.	Pursuant to the City of Wilsonville Public Works Standards, access should be provided for the entire perimeter of the rainwater management components. At a minimum, at least one access shall be provided for maintenance and inspection.
NRDG 3.	All Rainwater Management Components and associated infrastructure located in public areas shall be designed to the Public Works Standards. Rainwater Management Components in private areas shall comply with the plumbing code.
NRDG 4.	Plantings in Rainwater Management Components located in public areas shall comply with the Public Works Standards. Plantings in Rainwater Management Components located in private areas shall comply with the Plant List in the Rainwater Management Program or Community Elements Plan.
NRDG 5.	The rainwater management components shall comply with the requirements of the Oregon DEQ UIC (Underground Injection Control) Program.
Stormwater Management:	
NRDG 6.	Provide profiles, plan views and specifications for the proposed water quality treatment facilities consistent with the requirements of the City of Wilsonville’s Public Works Standards.
NRDG 7.	Pursuant to the Public Works Standards, the applicant shall submit a maintenance plan (including the City’s stormwater maintenance covenant) for the proposed stormwater facilities, inclusive of the rainwater management components, prior to approval for occupancy of the associated development.
NRDG 8.	Pursuant to the City of Wilsonville’s Public Works Standards, access shall be provided to all areas of the proposed water quality treatment facilities. At a minimum, at least one access shall be provided for maintenance and inspection.
Other:	

NRDG 9. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities and proposed facilities (e.g. DEQ NPDES #1200-C permit).

REQUEST H: SI14-0003 SRIR REVIEW

Significant Resource Overlay Zone:

NRH 1. All landscaping, including herbicides used to eradicate invasive plant species and existing vegetation, in the SROZ shall be reviewed and approved by the Natural Resources Program Manager. Native plants are required for landscaping in the SROZ.

NRH 2. Prior to any site grading or ground disturbance, the applicant is required to delineate the boundary of the SROZ. Six-foot (6') tall cyclone fences with metal posts pounded into the ground at 6'-8' centers shall be used to protect the significant natural resource area where development encroaches into the 25-foot Impact Area.

- Protective fences shall be maintained in a full upright position.

NRH 3. Pursuant to Section 4.139.04, the applicant shall demonstrate proposed exempt development (i.e., soft surface pedestrian trail and nature trail activity area) within the 25-foot Impact Area and the Significant Resource Overlay Zone has been designed to avoid, minimize and mitigate impact to the significant natural resources.

NRH 4. Mitigation actions shall be implemented prior to or at the same time as the impact activity is conducted.

NRH 5. Pursuant to Section 4.139.03 (.05) of the Wilsonville Code, the applicant is required to use habitat-friendly development practices (Table NR-2) to the extent practicable for any encroachment into the Significant Resource Overlay Zone and the 25-foot Impact Area.

NRH 6. The Significant Resource Overlay Zone (SROZ) and mitigation area depicted on the SRIR mapping for the site shall be identified in a conservation easement. The applicant shall record the conservation easement with Clackamas Court Clerk's office. The conservation easement shall include language prohibiting any disturbance of natural vegetation without first obtaining approval from the City Planning Division and the Natural Resources Program Manager. The conservation easement shall be reviewed by the City Attorney prior to recording.

Building Division Conditions:

ALL REQUESTS

None

Tualatin Valley Fire & Rescue Conditions:

ALL REQUESTS

None

MASTER EXHIBIT LIST:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case Files DB14-0009 through DB14-0016.

- A1.** Staff report and findings (this document)
- A2.** Slides and notes for Staff's Public Hearing Presentation (*available at Public Hearing*)
- B1.** Applicant's Notebook for SAP Amendment and SRIR Review: *Under separate cover*
 - Section I: General Information
 - IA) Introductory Narrative
 - IB) Form/Ownership Documentation
 - IC) Copy of Certification of Assessment & Liens
 - ID) Fee Calculation
 - IE) Mailing List *This information has been revised*
 - Section II: SAP Amendment
 - IIA) Supporting Compliance Report
 - IIB) Reduced Drawings
 - IIC) Utility & Drainage Report
 - IID) Traffic Analysis
 - IIE) Historic/Cultural Resource Inventory
 - IIF) Significant Resource Impact Report Addendum
 - IIG) Tree Report
 - IIH) Architectural Pattern Book for SAP North-No Changes
 - III) Community Elements Book for SPA North-No Changes
 - IIJ) Master Signage and Wayfinding Plan for SAP North-No Changes
 - IIK) Rainwater Management Book for SAP North-No Changes
 - IIIL) Compliance with SAP North Conditions of Approval
- B2.** Applicant's SAP Large Format Plans (Smaller 11x17 plans included in Sections IIB of the applicant's notebook Exhibit B1.) *Under separate cover.*
 - Sheet 1 Cover Sheet
 - Sheet 2 Phasing Plan
 - Sheet 3 Existing Conditions
 - Sheet 4 Aerial Photograph
 - Sheet 5 Land Use Key
 - Sheet 6 Land Use Plan
 - Sheet 7 Circulation Plan
 - Sheet 8 Street Sections
 - Sheet 9 Park/Open Space/Pathways Plan
 - Sheet 10 SROZ Plan
 - Sheet 11 Street Tree Plan
 - Sheet 12 Tree Preservation Plan
 - Sheet 13 Grading Plan
 - Sheet 14 Utility Plan
- B3.** Applicant's Notebook for PDP/Tentative Plat/Zone Change/Tree Removal Plan/Final Development Plan: *Under separate cover*

Section I: General Information

- IA) Introductory Narrative
- IB) Form/Ownership Documentation
- IC) Fee Calculation
- ID) Mailing List *This information has been revised*

Section II: Annexation

- IIA) Supporting Compliance Report
- IIB) Copy of Petition & Ownership/Elector Info
- IIC) Legal Description & Sketch

Section III: Preliminary Development Plan

- IIIA) Supporting Compliance Report
- IIIB) Reduced Drawings
- IIIC) Utility & Drainage Reports
- IIID) Traffic Analysis
- IIIE) Tree Report
- IIIF) Conceptual House Elevations
- IIIG) SRIR Addendum & Wetland Delineation Report

Section IV: Tentative Subdivision Plat

- IVA) Supporting Compliance Report
- IVB) Tentative Plat *Revised: See Exhibit B6*
- IVC) Draft CC&R's
- IVD) Copy of Certification of Assessments and Liens
- IVE) Subdivision Name Approval

Section V: Zone Change

- VA) Supporting Compliance Report
- VB) Zone Change Map
- VC) Legal Description & Sketch

Section VI: Tree Removal Plan

- VIA) Supporting Compliance Report
- VIB) Tree Report
- VIC) Tree Preservation Plan

Section VII: Final Development Plan

- VIIA) Supporting Compliance Report
- VIIIB) Reduced Plans
- VIIIC) Sample Elevations of Mailbox Kiosks

- B4.** Applicant's Large Format Plans PDP/Tentative Plat/Tree Plan (Smaller 11x17 plans included in Sections IIIB and IVB of the applicant's notebook Exhibit B3.) *Under separate cover.*

- Sheet 1 Cover Sheet
- Sheet 2 Existing Conditions
- Sheet 3 Aerial Photograph
- Sheet 4 Preliminary Plat *Revised. See Exhibit B6.*
- Sheet 5 Grading Plan
- Sheet 6 Composite Utility Plan
- Sheet 7 Circulation Plan

- Sheet 8 Site/Land Use Plan
- Sheet 9 Typical Lot Pattern
- Sheet 10 Tree Preservation Plan
- Sheet 11 Street Tree/Lighting Plan *Revised. See Exhibit B6*
- Sheet 12 SROZ Plan
- B5.** Large Format Plans for Final Development Plan (Smaller 11x17 plans included in Section VIIB of the applicant's notebook, Exhibit B1.) *Under separate cover.*
 - Sheet 1 Cover Sheet
 - Sheet L1.0 Landscape Plan
 - Sheet L2.0 Landscape Plan
 - Sheet L3.0 Landscape Plan
 - Sheet L4.0 Landscape Plan
 - Sheet L5.0 Landscape Details & Specifications
- B6.** Revised Sheets Submitted April 29, 2014
 - Sheet 4 from Exhibit B4/Section IVB) of Exhibit B3 Preliminary/Tentative Plat
 - Sheet 11 from Exhibit B4 Street Tree Plan
- B7.** Email correspondence regarding SHPO (State Historic Preservation Office) findings on Foundation and Well found on site
- C1.** Comments and Conditions from Engineering Division
- C2.** Comments, Findings, and Conditions from Natural Resources
- C3.** Comments and Conditions from TVF&R
- C4.** Comments from Public Works
- C5.** Comments from NW Natural
- C6.** Email from Steve Adams concerning changes to Engineering Conditions of Approval and Tax Lot 31W15 01591
- D1.** Email from Tanya Stricker dated April 25, 2014

FINDINGS OF FACT:

1. The statutory 120-day time limit applies to this application. The application was received on January 31, 2014. On February 28, 2014, staff conducted a completeness review within the statutorily allowed 30-day review period, and, on March 31, 2014, the Applicant submitted new materials. On April 22, 2014 the application was deemed complete. The City must render a final decision for the request, including any appeals, by August 20, 2014
2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	Clackamas County RRFF5	Tooze Road/ Rural Residential
East:	Clackamas Coun RRFF5	Vacant
South:	V	Open Space
West:	Clackamas County RRFF5	Grahams Ferry Road/ Rural Residential

3. Prior land use actions include:

Legislative:

02PC06 - Villebois Village Concept Plan
02PC07A - Villebois Comprehensive Plan Text
02PC07C - Villebois Comprehensive Plan Map
02PC07B - Villebois Village Master Plan
02PC08 - Village Zone Text
04PC02 – Adopted Villebois Village Master Plan
LP-2005-02-00006 – Revised Villebois Village Master Plan
LP-2005-12-00012 – Revised Villebois Village Master Plan (Parks and Recreation)
LP10-0001 – Amendment to Villebois Village Master Plan (School Relocation from SAP North to SAP East)
LP13-0005 – Amendment to Villebois Village Master Plan (Future Study Area)

Quasi Judicial:

DB07-0054 et seq – SAP-North
DB07-0087 et seq – PDP-1N, Arbor at Villebois
DB11-0024 et seq – PDP-1N Modification, SAP North Amendment Polygon NW
DB12-0066 et seq – PDP-1N Modification, SAP North Amendment Polygon NW
DB13-0020 et seq – PDP-2N, SAP North Amendment Polygon NW

4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

CONCLUSIONARY FINDINGS:

NOTE: Pursuant to Section 4.014 the burden of proving that the necessary findings of fact can be made for approval of any land use or development application rests with the applicant in the case.

GENERAL INFORMATION

Section 4.008 Application Procedures-In General

Review Criteria: This section lists general application procedures applicable to a number of types of land use applications and also lists unique features of Wilsonville's development review process.

Finding: These criteria are met.

Explanation of Finding: The application is being processed in accordance with the applicable general procedures of this Section.

Section 4.009 Who May Initiate Application

Review Criterion: "Except for a Specific Area Plan (SAP), applications involving specific sites may be filed only by the owner of the subject property, by a unit of government that is in the process of acquiring the property, or by an agent who has been authorized by the owner, in writing, to apply."

Finding: This criterion is satisfied.

Explanation of Finding: The applications have been submitted on behalf of contract purchaser Polygon Homes, and is signed by the property owners, Wayne Rembold of Villebois LLC (TL's 1200 and 1205) and both Charles and Carolyn Taber (TL 1202).

Subsection 4.010 (.02) Pre-Application Conference

Review Criteria: This section lists the pre-application process

Finding: These criteria are satisfied.

Explanation of Finding: A pre-application conference was held on November 21, 2013 in accordance with this subsection.

Subsection 4.011 (.02) B. Lien Payment before Application Approval

Review Criterion: "City Council Resolution No. 796 precludes the approval of any development application without the prior payment of all applicable City liens for the subject property. Applicants shall be encouraged to contact the City Finance Department to verify that there are no outstanding liens. If the Planning Director is advised of outstanding liens while an application is under consideration, the Director shall advise the applicant that payments must be made current or the existence of liens will necessitate denial of the application."

Finding: This criterion is satisfied.

Explanation of Finding: No applicable liens exist for the subject property. The application can thus move forward.

Subsection 4.035 (.04) A. General Site Development Permit Submission Requirements

Review Criteria: "An application for a Site Development Permit shall consist of the materials specified as follows, plus any other materials required by this Code." Listed 1. through 6. j.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has provided all of the applicable general submission requirements contained in this subsection.

Section 4.110 Zoning-Generally

Review Criteria: “The use of any building or premises or the construction of any development shall be in conformity with the regulations set forth in this Code for each Zoning District in which it is located, except as provided in Sections 4.189 through 4.192.” “The General Regulations listed in Sections 4.150 through 4.199 shall apply to all zones unless the text indicates otherwise.”

Finding: These criteria are satisfied.

Explanation of Finding: This proposed development is in conformity with the Village zoning district and general development regulations listed in Sections 4.150 through 4.199 have been applied in accordance with this Section.

REQUEST A: DB14-0009ANNEXATION

The applicant’s findings in Section IIA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Comprehensive Plan

Annexation and Boundary Changes

Implementation Measure 2.2.1.a.

A1. **Review Criteria:** “Allow annexation when it is consistent with future planned public services and when a need is clearly demonstrated for immediate urban growth.”

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on page 2 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) the required consistency is fulfilled by being consistent with the Villebois Village Master Plan.

Implementation Measure 2.2.1.e.

A2. **Review Criteria:** “Changes in the City boundary will require adherence to the annexation procedures prescribed by State law and Metro standards. Amendments to the City limits shall be based on consideration of:” Listed 1 through 5.

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on page 3 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) the requirements are fulfilled by being consistent with the Villebois Village Master Plan or by compliance with state and regional policies as found elsewhere the findings supporting this request.

Compact Urban Development Implementation Measures

Implementation Measure 4.1.6.a. and c.

A3. **Review Criteria:** “Development in the “Residential-Village” Map area shall be directed by the Villebois Village Concept Plan (depicting the general character of proposed land uses, transportation, natural resources, public facilities, and infrastructure strategies), and subject to relevant Policies and Implementation Measures in the Comprehensive Plan; and implemented in accordance with the Villebois Village Master Plan, the “Village” Zone District, and any other provisions of the Wilsonville Planning and Land Development Ordinance that may be applicable.”

“The “Village” Zone District shall be applied in all areas that carry the Residential – Village Plan Map Designation.”

Finding: These criteria are satisfied.

Explanation of Finding: The subject site is included in the “Residential-Village” Comprehensive Plan Map Designation (Area B). This Implementation Measure establishes precedence for the “Village” Zone to be applied to the subject property area. An application for a Zone Map Amendment to apply the V Zone to the site has been included

with a concurrent Preliminary Development Plan application for Phase 3 of SAP North. The site must be brought into City limits before the V zone can be applied.

Development Code

Subsections 4.030 (.01) A, 11, 4.031 (.01) K, and 4.033 (.01) F. Authority to Review Annexation

- A4. **Review Criteria:** These subsections prescribe the authority of the Planning Director to determine whether an annexation request is legislative or quasi-judicial, the DRB does the initial review of quasi-judicial annexation, and the City Council takes final local action of quasi-judicial annexation.
Finding: These criteria are satisfied.
Explanation of Finding: The subject annexation request has been determined to be quasi-judicial and is being reviewed by the DRB and City Council consistent with these subsections.

Section 4.700 Annexation

- A5. **Review Criteria:** This section defines the criteria and process for annexation review within the City. The full text of the criteria is on pages 5-6 of the applicant's narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3).
Finding: These criteria are satisfied.
Explanation of Finding: As further explained by the applicant on page 6 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) the request is within the UGB, contiguous with current City boundaries, and is in compliance with state, regional, and local policies as found elsewhere the findings supporting this request.

Metro Code

Chapter 3.09 Local Government Boundary Changes

- A6. **Review Criteria:** This chapter establishes hearing, notice, and decision requirements as well as review criteria for local government boundary changes in the Metro region. The full text of the criteria is on pages 7-10 of the applicant's narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3).
Finding: These criteria are satisfied.
Explanation of Finding: As further explained by the applicant on pages 7-10 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) the request is within the UGB, meets the definition of a minor boundary change, satisfies the requirements for boundary change petitions, is consistent with the Comprehensive Plan, Villebois Village Concept Plan, and Villebois Village Master Plan.

Oregon Revised Statutes

ORS 222.111 Authority and Procedure for Annexation

A7. **Review Criteria:** ORS 222.111 establishes the authority and procedures for annexation by City's within the state of Oregon. The full text of the criteria is on pages 10-11 of the applicant's narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3).

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on pages 10-11 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) the applicable requirements in state statute are met including the facts that subject property is within the UGB, is contiguous to the City, the request has been initiated by the property owners of the land being annexed, and all property owners and 100% of electors within the annexed area have provided their consent in writing.

ORS 222.120 Procedure Without Election by City Electors

A8. **Review Criteria:** ORS 222.111 establishes the authority and procedures for annexation by City's within the state of Oregon. The full text of the criteria is on pages 11-12 of the applicant's narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3).

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on pages 13 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3) there is no City charter requirement for election for annexation, a public hearing process is being followed as defined in the Development Code, and the applicable requirements in state statute are met including the facts that all property owners and 100% of electors within the annexed area have provided their consent in writing.

ORS 222.125 Annexation by Consent of All Owners of Land and Majority of Electors

A9. **Review Criteria:** "The legislative body of a city need not call or hold an election in the city or in any contiguous territory proposed to be annexed or hold the hearing otherwise required under ORS 222.120 (Procedure without election by city electors) when all of the owners of land in that territory and not less than 50 percent of the electors, if any, residing in the territory consent in writing to the annexation of the land in the territory and file a statement of their consent with the legislative body. Upon receiving written consent to annexation by owners and electors under this section, the legislative body of the city, by resolution or ordinance, may set the final boundaries of the area to be annexed by a legal description and proclaim the annexation."

Finding: These criteria are satisfied.

Explanation of Finding: All property owners and 100% of electors within the annexed area have provided their consent in writing. However, a public hearing process is being followed as prescribed in the City's Development Code concurrent with a Zone Map Amendment request and other quasi-judicial land use applications.

Oregon Statewide Planning Goals

Goals 1, 2, 5, 6, 8, 9, 10, 11, 12, 13

A10. **Review Criteria:** The goals include: citizen involvement, land use planning, natural resources and open spaces, air water and land resource quality, recreational needs, economic development, housing, public facilities and services, transportation, and energy conservation.

Finding: These criteria are satisfied.

Explanation of Finding: The area requested to be annexed will be developed consistent with the City's Comprehensive Plan and the Villebois Village Master Plan, both which have been found to meet the statewide planning goals. The applicant has provided additional findings related to statewide planning goals on pages 13-14 of their narrative and supporting compliance report for their petition for annexation (Section IIA of Exhibit B3).

REQUEST B: DB14-0010 ZONE MAP AMENDMENT

The applicant's findings in Section IVA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Comprehensive Plan

Compact Urban Development-Implementation Measures

Implementation Measure 4.1.6.a

- B1. **Review Criteria:** "Development in the "Residential-Village" Map area shall be directed by the Villebois Village Concept Plan (depicting the general character of proposed land uses, transportation, natural resources, public facilities, and infrastructure strategies), and subject to relevant Policies and Implementation Measures in the Comprehensive Plan; and implemented in accordance with the Villebois Village Master Plan, the "Village" Zone District, and any other provisions of the Wilsonville Planning and Land Development Ordinance that may be applicable."
Finding: These criteria are satisfied.
Explanation of Finding: Development in this area is being guided by all the listed plans and codes.

Implementation Measure 4.1.6.b.

- B2. **Review Criteria:** This implementation measure identifies the elements the Villebois Village Master Plan must contain.
Finding: These criteria are not applicable
Explanation of Finding: The concurrent proposal for a preliminary development plan implements the procedures as outlined by the Villebois Village Master Plan, as previously approved.

Implementation Measure 4.1.6.c.

- B3. **Review Criterion:** "The "Village" Zone District shall be applied in all areas that carry the Residential-Village Plan Map Designation."
Finding: This criterion is satisfied.
Explanation of Finding: The Village Zone zoning district is being applied to an area designated as Residential-Village in the Comprehensive Plan.

Implementation Measure 4.1.6.d.

- B4. **Review Criterion:** "The "Village" Zone District shall allow a wide range of uses that befit and support an "urban village," including conversion of existing structures in the core area to provide flexibility for changing needs of service, institutional, governmental and employment uses."
Finding: This criterion is satisfied.
Explanation of Finding: The area covered by the proposed zone change is proposed for residential uses, and parks and open space as shown in the Villebois Village Master Plan.

Planning and Land Development Ordinance

Section 4.029 Zoning to be Consistent with Comprehensive Plan

- B5. **Review Criterion:** “If a development, other than a short-term temporary use, is proposed on a parcel or lot which is not zoned in accordance with the Comprehensive Plan, the applicant must receive approval of a zone change prior to, or concurrently with the approval of an application for a Planned Development.”

Finding: This criterion is satisfied.

Explanation of Finding: The applicant is applying for a zone change concurrently with a Preliminary Development Plan, which is equivalent to a Stage II Final Plan for a planned development.

Subsection 4.110 (.01) Base Zones

- B6. **Review Criterion:** This subsection identifies the base zones established for the City, including the Village Zone.

Finding: This criterion is satisfied.

Explanation of Finding: The requested zoning designation of Village “V” is among the base zones identified in this subsection.

Subsection 4.125 (.01) Village Zone Purpose

- B7. **Review Criteria:** “The Village (V) zone is applied to lands within the Residential Village Comprehensive Plan Map designation. The Village zone is the principal implementing tool for the Residential Village Comprehensive Plan designation. It is applied in accordance with the Villebois Village Master Plan and the Residential Village Comprehensive Plan Map designation as described in the Comprehensive Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The subject lands are designated Residential-Village on the Comprehensive Plan map and are within the Villebois Village Master Plan area and the zoning designation thus being applied is the Village “V”.

Subsection 4.125 (.02) Village Zone Permitted Uses

- B8. **Review Criteria:** This subsection lists the uses permitted in the Village Zone.

Finding: These criteria are satisfied.

Explanation of Finding: The proposed residential and park and open space uses are consistent with the Village Zone designation and Villebois Village Master Plan.

Subsection 4.125 (.18) B. 2. Zone Change Concurrent with PDP Approval

- B9. **Review Criterion:** “... Application for a zone change shall be made concurrently with an application for PDP approval...”

Finding: This criterion is satisfied.

Explanation of Finding: A zone map amendment is being requested concurrently with a request for PDP approval. See Request D.

Subsection 4.197 (.02) Zone Change Review

Subsection 4.197 (.02) A. Zone Change Procedures

B10. **Review Criteria:** “That the application before the Commission or Board was submitted in accordance with the procedures set forth in Section 4.008, Section 4.125(.18)(B)(2), or, in the case of a Planned Development, Section 4.140;”

Finding: These criteria are satisfied.

Explanation of Finding: The request for a zone map amendment has been submitted as set forth in the applicable code sections.

Subsection 4.197 (.02) B. Zone Change: Conformance with Comprehensive Plan Map, etc.

B11. **Review Criteria:** “That the proposed amendment is consistent with the Comprehensive Plan map designation and substantially complies with the applicable goals, policies and objectives, set forth in the Comprehensive Plan text;”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed zone map amendment is consistent with the Comprehensive Map designation of Residential-Village and as shown in Findings B1 through B4 comply with applicable Comprehensive Plan text.

Subsection 4.197 (.02) C. Zone Change: Specific Findings Regarding Residential Designated Lands

B12. **Review Criteria:** “In the event that the subject property, or any portion thereof, is designated as “Residential” on the City’s Comprehensive Plan Map; specific findings shall be made addressing substantial compliance with Implementation Measure 4.1.4.b, d, e, q, and x of Wilsonville’s Comprehensive Plan text;”

Finding: These criteria are satisfied.

Explanation of Finding: Implementation Measure 4.1.6.c. states the “Village” Zone District shall be applied in all areas that carry the Residential-Village Plan Map Designation. Since the Village Zone must be applied to areas designated “Residential Village” on the Comprehensive Plan Map and is the only zone that may be applied to these areas, its application is consistent with the Comprehensive Plan.

Subsection 4.197 (.02) D. Zone Change: Public Facility Concurrency

B13. **Review Criteria:** “That the existing primary public facilities, i.e., roads and sidewalks, water, sewer and storm sewer are available and are of adequate size to serve the proposed development; or, that adequate facilities can be provided in conjunction with project development. The Planning Commission and Development Review Board shall utilize any and all means to insure that all primary facilities are available and are adequately sized.”

Finding: These criteria are satisfied.

Explanation of Finding: The Preliminary Development Plan compliance report and the plan sheets demonstrate that the existing primary public facilities are available or can be provided in conjunction with the project. Section IIIC of the applicant’s notebook, Exhibit B3, includes supporting utility and drainage reports. In addition, the applicant has provided a Traffic Impact Analysis, which is in Section IIID of the applicant’s notebook, Exhibit B3.

Subsection 4.197 (.02) E. Zone Change: Impact on SROZ Areas

- B14. **Review Criteria:** “That the proposed development does not have a significant adverse effect upon Significant Resource Overlay Zone areas, an identified natural hazard, or an identified geologic hazard. When Significant Resource Overlay Zone areas or natural hazard, and/ or geologic hazard are located on or about the proposed development, the Planning Commission or Development Review Board shall use appropriate measures to mitigate and significantly reduce conflicts between the development and identified hazard or Significant Resource Overlay Zone;”

Finding: These criteria are satisfied.

Explanation of Finding: There is a small amount of SROZ on the southern edge of the property being rezoned. Request H is a Significant Resource Impact Report, which has found no significant adverse effect on the SROZ area.

Subsection 4.197 (.02) F. Zone Change: Development within 2 Years

- B15. **Review Criterion:** “That the applicant is committed to a development schedule demonstrating that the development of the property is reasonably expected to commence within two (2) years of the initial approval of the zone change.”

Finding: This criterion is satisfied.

Explanation of Finding: Related land use approvals for PDP 3 North expire after 2 years, so requesting the land use approvals assumes development would commence within two (2) years. However, in the scenario where the applicant or their successors due not commence development within two (2) years allowing related land use approvals to expire, the zone change shall remain in effect.

Subsection 4.197 (.02) G. Zone Change: Development Standards and Conditions of Approval

- B16. **Review Criteria:** “That the proposed development and use(s) can be developed in compliance with the applicable development standards or appropriate conditions are attached to insure that the project development substantially conforms to the applicable development standards.”

Finding: These criteria are satisfied.

Explanation of Finding: As can be found in the findings for the accompanying requests, the applicable development standards will be met either as proposed or as a condition of approval.

REQUEST C: DB14-0013 SAP-NORTH AMENDMENT

The applicant's findings in Section IIA of their notebook, Exhibit B1, respond to the majority of the applicable criteria.

Wilsonville Comprehensive Plan

Implementation Measure 4.1.6.a. Development in the "Residential-Village" Map Area

- C1. **Review Criteria:** "Development in the "Residential-Village" Map area shall be directed by the Villebois Village Concept Plan (depicting the general character of proposed land uses, transportation, natural resources, public facilities, and infrastructure strategies), and subject to relevant Policies and Implementation Measures in the Comprehensive Plan; and implemented in accordance with the Villebois Village Master Plan, the "Village" Zone District, and any other provisions of the Wilsonville Planning and Land Development Ordinance that may be applicable."

Finding: These criteria are satisfied.

Explanation of Finding: As found in this report, development is being proposed consistent with the Villebois Village Master Plan and the "Village" Zone District. See Findings C3 through C69.

Implementation Measure 4.1.6.c. Application of the "Village" Zone District

- C2. **Review Criteria:** "The "Village" Zone District shall be applied in all areas that carry the Residential-Village Plan Map Designation."

Finding: These criteria are satisfied.

Explanation of Finding: The "Village" Zone is proposed to be applied. See Request B.

Villebois Village Master Plan

General- Land Use Plan

Goal: *Villebois Village shall be a complete community that integrates land use, transportation, and natural resource elements to foster a unique sense of place and cohesiveness.*

General-Land Use Plan Policy 1 Range of Choices

- C3. **Review Criteria:** "The Villebois Village shall be a complete community with a wide range of living choices, transportation choices, and working and shopping choices. Housing shall be provided in a mix of types and densities resulting in a minimum of 2,300 dwelling units within the Villebois Village Master Plan area."

Finding: These criteria are satisfied.

Explanation of Finding: The proposed SAP amendment continues the provision of a mix of types and densities resulting in a minimum of 2,300 dwelling units within the Villebois area. The proposed SAP amendment also facilitates mode choice in transportation with facilities for bicycles and pedestrians in addition to vehicles. Commercial areas continue to be concentrated around the Village Center.

General-Land Use Plan Policy 2 Compliance with Figure 1 – Land Use Plan

- C4. **Review Criteria:** “Future development applications within the Villebois Village area shall provide land uses and other major components of the Plan such as roadways and parks and open space in general compliance with their configuration as illustrated on *Figure 1 – Land Use Plan* or as refined by Specific Area Plans.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed SAP Amendment further defines the residential uses in the subject area and other components are in the general configuration shown in the Master Plan. As can be seen on Sheet 6 *Land Use Plan* of the applicant’s submitted plan set, Exhibit B2, the residential uses include large, standard, medium, and small detached single-family. They are arranged as a similar pattern as other areas in Villebois with large lots on the edges with a mix of lot sizes on the interior of the site. See Findings C119 through C124 regarding Master Plan land use mix and density refinements as part of the SAP Amendment request.

General-Land Use Plan Policy 3 Civic, Recreational, Educational, and Open Space Opportunities

- C5. **Review Criteria:** “The Villebois Village shall provide civic, recreational, educational and open space opportunities.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed SAP Amendment shows recreational opportunities shown in the Master Plan for the subject area.

General-Land Use Plan Policy 4 Full Public Services

- C6. **Review Criteria:** “The Villebois Village shall have full public services including: transportation; rainwater management; water; sanitary sewer; fire and police services; recreation, parks and open spaces; education; and transit.”

Finding: These criteria are satisfied.

Explanation of Finding: All the listed public services are proposed to be provided consistent with the Master Plan.

General-Land Use Plan Policy 5 Development Guided by Finance Plan and CIP

- C7. **Review Criteria:** “Development of Villebois shall be guided by a Finance Plan and the City’s Capital Improvement Plan, ensuring that the availability of services and development occur in accordance with the City’s concurrency requirements (see Implementation Measure 4, below).”

Finding: These criteria are satisfied.

Explanation of Finding: All city requirements for concurrency and Development Agreements remain in effect and will be applied, including concurrency requirements with the PDP approval. See Request D.

General-Land Use Plan Implementation Measure 1 Unique Planning and Regulatory Tools

- C8. **Review Criteria:** “Allow for unique planning and regulatory tools that are needed to realize the *Villebois Village Master Plan*. These tools shall include, but are not limited to: Specific Area Plans; Pattern Books; and Community Elements Books.”

Finding: These criteria are satisfied.

Explanation of Finding: All the listed tools previously approved for SAP North are being utilized for the subject area.

General-Land Use Plan Implementation Measure 3 Master Plan Refinements

- C9. **Review Criteria:** “Refinements to the *Villebois Village Master Plan* are anticipated as more detailed plans are developed for the Specific Area Plans. Specific Area Plans may propose refinements to the *Villebois Village Master Plan* without requiring an amendment to the *Villebois Village Master Plan* provided the refinement is not significant. Non-significant refinements shall be defined in the Village (“V”) Zone text and may include, but are not limited to: minor alterations to street alignments or minor changes in area or uses. Disagreement about whether a refinement is significant shall be resolved by a process provided in the Village (“V”) Zone text.”

Finding: These criteria are satisfied.

Explanation of Finding: Refinements are proposed consistent with this allowance.

General-Land Use Plan Implementation Measure 4 Coordinating Finance Plan and Development Agreements

- C10. **Review Criteria:** “The Master Planner shall coordinate with the City on the development of a Finance Plan for necessary urban services and public infrastructure. Each developer within Villebois Village will sign their own Development Agreement that will address the necessary urban services and public infrastructure as appropriate.”

Finding: These criteria are satisfied.

Explanation of Finding: All city requirements for concurrency and Development Agreements remain in effect and will be applied, including concurrency requirements with the PDP approval. See Request D.

Residential Neighborhood Housing

Goal: *The Villebois Village shall provide neighborhoods consisting of a mix of homes for sale, apartments for rent, row homes, and single-family homes on a variety of lot sizes, as well as providing housing for individuals with special needs. The Villebois Village shall provide housing choices for people of a wide range of economic levels and stages of life through diversity in product type.*

Residential Neighborhood Housing Policy 1 Variety of Housing Options

- C11. **Review Criteria:** “Each of the Villebois Village’s neighborhoods shall include a wide variety of housing options and shall provide home ownership options ranging from affordable housing to estate lots.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed mix of housing for the subject area is provided consistent with the Villebois Village Master Plan and allowed refinements.

Residential Neighborhood Housing Policy 2 Affordable Rental and Ownership Opportunities

- C12. **Review Criteria:** “Affordable housing within Villebois shall include rental and home ownership opportunities.”

Finding: These criteria are satisfied.

Explanation of Finding: Affordable rental and home ownership opportunities at the level shown in the adopted Master Plan remain.

Residential Neighborhood Housing Policy 3 Average Density Requirement

C13. **Review Criteria:** “The mix of housing shall be such that the Village development provides an overall average density of at least 10 dwelling units per net residential acre.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed development helps maintain an overall average density in Villebois of more than 10 dwellings units per net residential acre with the type of residential development shown in Figure 1 of the Villebois Village Master Plan.

Residential Neighborhood Housing Policy 4 Minimum Total Dwelling Units

C14. **Review Criteria:** “The Villebois Village shall accommodate a total of at least 2,300 dwelling units within the boundary of the *Villebois Village Master Plan*.”

Finding: These criteria are satisfied.

Explanation of Finding: This dwelling unit minimum for Villebois continues to be exceeded.

Residential Neighborhood Housing Policy 5 Mix of Housing Types in Neighborhoods

C15. **Review Criteria:** “The Villebois Village shall provide a mix of housing types within each neighborhood and on each street to the greatest extent practicable.”

Finding: These criteria are satisfied.

Explanation of Finding: A variety of housing types are proposed in the subject area consistent with Figure 1 of the Villebois Village Master Plan and allowed refinements.

Residential Neighborhood Housing Policy 6 Community Housing Requirements

C16. **Review Criteria:** “The Villebois Village shall include community housing types consistent with Oregon Revised Statute 426.508(4), which requires that no more than 10 acres be retained from the sale of the former Dammasch State Hospital property for development of community housing for chronically mentally ill persons. The City of Wilsonville, the Oregon Department of Administrative Services, and the Mental Health and Developmental Disability Services Division shall jointly coordinate the identification of the acreage to be retained.”

Finding: These criteria are satisfied.

Explanation of Finding: None of the designated 10 acres are within the subject area.

Residential Neighborhood Housing Policy 7 Governor’s Quality Development Objectives and Governor’s Livability Initiative

C17. **Review Criteria:** “The development standards and Specific Area Plans required by the Village zone shall be consistent with the Governor’s Quality Development Objectives and the Governor’s Livability Initiative.”

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on page 6 of their supporting compliance report for amendment to Specific Area Plan-North (Section IIA of

Exhibit B1) the Specific Area Plan is consistent with the objectives and initiative referenced in this subsection.

Residential Neighborhood Housing Policy 8 Increasing Transportation Options

C18. **Review Criteria:** “Each neighborhood shall be designed to increase transportation options. Neighborhoods shall be bike and pedestrian friendly.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed SAP amendment continues to show paths, bike facilities, block lengths, etc. consistent with the Master Plan to be pedestrian friendly and increase transportation options.

Residential Neighborhood Housing Policy 10 Incorporating Natural Features

C19. **Review Criteria:** “Natural features shall be incorporated into the design of each neighborhood to maximize their aesthetic character while minimizing impacts to said natural features.”

Finding: These criteria are satisfied.

Explanation of Finding: Wetlands and forested areas are incorporated into the design of SAP North.

Residential Neighborhood Housing Implementation Measure 1 Compact, Pedestrian Oriented Character

C20. **Review Criteria:** “Ensure, through the development standards and Pattern Book(s) required by the Village zone, that the design and scale of dwellings are compatible with the compact, pedestrian-oriented character of the concepts contained in the *Villebois Village Concept Plan* and the contents of this *Villebois Village Master Plan*.”

Finding: These criteria are satisfied.

Explanation of Finding: Development standards and a Pattern Book for SAP North have been adopted to ensure the required design and scale of dwellings.

Residential Neighborhood Housing Implementation Measure 2 Pattern Books

C21. **Review Criteria:** “Create a set of design guidelines for the development of Pattern Books with the Village zone requirements. Pattern Books shall address, at a minimum, architectural styles and elements, scale and proportions, and land use patterns with lot diagrams.”

Finding: These criteria are satisfied.

Explanation of Finding: The Architectural Pattern Book for the entirety of SAP North has previously been approved.

Chapter 3 Parks & Open Space/Off-Street Trails & Pathways

Goal The Parks system within Villebois Village shall create a range of experiences for its residents and visitors through an interconnected network of pathways, parks, trails, open space and other public spaces that protect and enhance the site’s natural resources and connect Villebois to the larger regional park/open space system.

Parks and Open Spaces Policy 1 Incorporating Existing Trees, Planting Shade Trees

- C22. **Review Criteria:** “Parks and open space areas shall incorporate existing trees where feasible and large shade trees shall be planted in appropriate locations in parks and open spaces.”

Finding: These criteria are satisfied.

Explanation of Finding: Existing trees have been inventoried for Phase 3 North, are being incorporated where feasible, and planted where appropriate. See Request F, Type C Tree Plan, and Request G, Final Development Plan for Parks and Open Space.

Parks and Open Spaces Policy 2 Interconnected Trail System

- C23. **Review Criteria:** “An interconnected trail system shall be created linking the park and open spaces and key destination points within Villebois and to the surrounding neighborhoods. The trails system shall also provide loops of varying length to accommodate various activities such as walking, running and rollerblading.”

Finding: These criteria are satisfied.

Explanation of Finding: A trail system continues to be provided consistent with the Villebois Village Master Plan.

Parks and Open Spaces Policy 3 Variety of Facilities and Activities

- C24. **Review Criteria:** “Parks shall encourage the juxtaposition of various age-oriented facilities and activities, while maintaining adequate areas of calm.”

Finding: These criteria are satisfied.

Explanation of Finding: SAP North provides a variety of age-oriented facilities, ranging from child play structures to more active, hard surface sport courts. Opportunities for quiet reflection and passive interaction are provided within the forested area of OS-2. SAP North provides numerous other age-oriented facilities, passive and active activities, and areas of calm, as depicted on the Parks/Open Space/Pathways Plan, Sheet 9 of Exhibit B2. This SAP Amendment adds both active and passive recreational opportunities within Phase 3. The pocket park in the northwest site corner will provide a child play structure, pedestrian/bicycle connection to the intersection of Grahams Ferry Road and Tooze Road, and a lawn area. Preservation of the treed wetland in the southwest site corner and the adjacent pedestrian connection will provide an opportunity for quiet reflection and passive recreational use. Therefore, the planned park and open space areas provide activities for a range of ages and activity levels.

Parks and Open Spaces Policy 4 Wildlife Habitat

- C25. **Review Criteria:** “Park designs shall encourage opportunities for wildlife habitat, such as plantings for wildlife foraging and/or habitat, bird and/or bat boxes and other like elements.”

Finding: These criteria are satisfied.

Explanation of Finding: SAP North encourages opportunities for wildlife habitat by minimizing impacts to natural resources and incorporating forested and wetland areas into the site design. Nature trails, benches, and nature trail activity areas within OS-2 will be established in ways that preserve opportunities for wildlife habitat. Additionally, with the proposed amendment, the existing treed wetland in the southwestern site corner of Phase 3

is retained in an open space tract. Landscaping and a bioretention cell are planned within this open space area to minimize wetland impacts.

Parks and Open Spaces Policy 5 Power of Ten

C26. **Review Criteria:** “Gathering spaces in parks shall generate social interaction by adding layers of activity (Power of Ten).”

Finding: These criteria are satisfied.

Explanation of Finding: SAP North includes a range of passive and active activities and facilities within gathering spaces of parks and open spaces, as depicted on the Parks/Open Space/Pathways Plan, Sheet 9 of Exhibit B2.

Improvements within Open Space 2 (OS-2) will occur in conjunction with PDP 3N. Note that previous development agreements identified the OS-2 improvements as an obligation of the subject property (PDP 3N). Improvements provided with PDP 3N include a creative child play area on the north side of OS-2, which includes nature play features. The creative child play area is located along a nature trail that is part of a larger nature trail system within OS-2. This nature trail system connects to residential areas along the north, south, and east sides of OS-2, to Regional Park 4 to the east, and to the Tonquin trail that continues to the south and northeast of OS-2.

Additionally, Phase 3 of SAP North includes a pocket park in the northwestern site corner, which provides an active child play structure, lawn area for active or passive use, and a minor pathway for pedestrians and bicycles. Fencing of a more transparent style will be provided along Grahams Ferry Road and Tooze Road in order to enhance the visibility of the park space and increase the perception of accessibility to and from the park with the intersection and residential neighborhood. Furthermore, a large shade tree within the pocket park will provide visual interest for the neighborhood and traveling public, a greater sense of green space, as well as protection from the sun. In addition, a sidewalk with combined pedestrian/bicycle access is provided along park frontage on Grahams Ferry Road and Tooze Road, which will encourage pedestrian and bicycle activity to and through the pocket park.

Finally, Phase 3 includes an open space tract in the southwestern site corner that preserves a treed wetland. A pedestrian/bicycle connection is provided from SW Oslo Street to SW Palermo Street adjacent to the wetland, allowing for passive recreational use of the open space. Furthermore, adjacent residential lots will front onto the open space area, which creates the potential for residents to congregate in front yards and encourages social space next to the path and wetland.

Parks and Open Spaces Policy 6 Compliance with SROZ Regulations

C27. **Review Criteria:** “Build-out of the Villebois Village Master Plan shall comply with the City of Wilsonville SROZ regulations. Any encroachment into the SROZ will be reviewed for compliance or exemption as more detailed information is provided that will affect the SROZ areas. Adjustments in plan, street alignments, and intersections as well as rainwater facilities and pathways shall be made to comply with SROZ regulations.”

Finding: These criteria are satisfied.

Explanation of Finding: SROZ regulations are being reviewed, see Request H.

Parks and Open Spaces Policy 9 Parks Flexibility Over Time

C28. **Review Criteria:** “Parks and recreation spaces shall provide for flexibility over time to allow for adaptation to the future community’s park, recreation and open space needs.”

Finding: These criteria are satisfied.

Explanation of Finding: No park programming is such as to preclude future flexibility.

Parks and Open Spaces Policy 11 Parking along Park Frontages

C29. **Review Criteria:** “On-street parking will not be allowed along the frontages of parks and open spaces where views into and out of the park spaces should be protected. Parking will be allowed along parks and open spaces in circumstances where it is necessary for the function of the park and will not obstruct the views into and out of the park area.”

Finding: These criteria are satisfied.

Explanation of Finding: On-street parking along parks is not proposed, consistent with this Policy.

Parks and Open Spaces Implementation Measure 1 Compliance with Parks Figures

C30. **Review Criteria:** “Future and pending development applications within Villebois (Specific Area Plans, Preliminary Development Plans and Final Development Plans) shall comply with the park, trail, open space system proposed in Figure 5 – Parks and Open Space Plan, Figure 5A – Recreational Experiences Plan, and Table 1: Parks Programming. Refinements may be approved in accordance with Village Zone section 4.125(.18)(F).”

Finding: These criteria are satisfied.

Explanation of Finding: As shown on Sheet 9, Parks/Open Space/Pathways Plan, of the applicant’s SAP Plan Set, Exhibit B2, Parks in SAP North continue to be shown consistent with the Master Plan or as refined through subsequent applications.

Parks and Open Spaces Implementation Measure 3 Native Vegetation, Landforms, and Hydrology

C31. **Review Criteria:** “Parks and open spaces shall be designed to incorporate native vegetation, landforms and hydrology to the fullest extent possible.”

Finding: These criteria are satisfied.

Explanation of Finding: As shown on the Park/Trail/Open Space Plan , Sheet 9 of Exhibit B2 parks and open space areas including the wetland in open space at the southwest corner of Phase 3 North.

Parks and Open Spaces Implementation Measure 4 Community Elements Book

C32. **Review Criteria:** “Each Specific Area Plan shall include a Community Elements Book that (1) meets the requirements of Master Plan Chapter 3; (2) specifies the value system and methodology for tree preservation, protection and tree planting; and (3) provides a proposed plant list. The Community Elements Book also includes specifications for site furnishings and play structures. Proposed parks shall closely comply with the specifications of the applicable Community Elements Book.”

Finding: These criteria are satisfied.

Explanation of Finding: A Community Elements Book has previously been adopted for the entirety of SAP North.

Parks and Open Spaces Implementation Measure 5 Artwork is Encouraged

C33. **Review Criteria:** “Artwork is encouraged to be incorporated into parks.”

Finding: These criteria are satisfied.

Explanation of Finding: Space has been reserved for placement of artwork in parks closer to the Village Center and within neighborhood and community gathering spaces. While no park artwork is currently proposed in SAP North the design of parks would allow appropriate artwork if desired in the future.

Parks and Open Spaces Implementation Measure 7 Year Round Recreation

C34. **Review Criteria:** “The ability to recreate year round shall be preserved through measures such as: the provision of some hard surfaces that function in the wet season; areas shaded from the sun; areas protected from the rain; safely lit areas and indoor recreation opportunities.”

Finding: These criteria are satisfied.

Explanation of Finding: Specific Area Plan North includes a variety of year-round recreation and open space opportunities, including multi-use trails, hard surface sports areas, and play and park structures. The Park/Open Space/Pathways Plan, Sheet 9 of Exhibit B2, illustrates how Phase 3 will contribute additional parks and open space areas that contribute to the ability to recreate year round. Through the preservation of existing trees within parks and open space areas, shade from the sun and rain is provided adjacent to the retained wetland and within OS-2.

Parks and Open Spaces Implementation Measure 9 Tree Retention

C35. **Review Criteria:** “The design of Villebois shall retain the maximum number of existing trees practicable that are six inches or more DBH in the “Important” and “Good” tree rating categories, which are defined in the Community Elements Books. Trees rated “Moderate” shall be evaluated on an individual basis as regards retention. Native species of trees and trees with historical importance shall be given special consideration for retention.”

Finding: These criteria are satisfied.

Explanation of Finding: Tree retention is being reviewed in concert with other design alternatives. See Request F for additional review of tree retention and removal.

Parks and Open Spaces Implementation Measure 10 Tree Preservation and Planting Plans

C36. **Review Criteria:** “Each Specific Area Plan, Preliminary Development Plan and Final Development Plan shall include tree preservation plans and planting plans to indicate proposed tree planting within parks and along streets and descriptions of the size of trees when planted and upon maturity.”

Finding: These criteria are satisfied.

Explanation of Finding: Tree Preservation and Planting Plans are being reviewed concurrently with PDP 3 North. See Request F. PDP’s for future phases of SAP North will similarly require concurrent review of Tree Preservation and Planting Plans

Parks and Open Spaces Implementation Measure 11 Cultural and Historic Resources

C37. **Review Criteria:** “Provide for review of cultural and historic resources on portions of Villebois that are to be annexed into the City of Wilsonville with the Specific Area Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: A cultural resources inventory has been completed and is available in Exhibit B1, notebook, Section IIE. No resources have been identified for preservation. See also Finding C134 and Exhibit B7.

Parks and Open Spaces Implementation Measure 13 SROZ Compliance

C38. **Review Criteria:** “The Villebois Master Plan shall comply with the Significant Resource Overlay Zone (SROZ) regulations. Proposed encroachments into the SROZ for exempt or non-exempt development shall be reviewed for compliance with the requirements of Section 4.139 of the Wilsonville Code.”

Finding: These criteria are satisfied.

Explanation of Finding: Request H reviews compliance with the SROZ regulations.

Parks and Open Spaces Implementation Measure 14 Park Lighting

C39. **Review Criteria:** “A conceptual plan for the lighting of park spaces throughout Villebois is provided on the plan included in Appendix H. Future development applications shall comply with the lighting system proposed in Appendix H. Refinements may be approved in accordance with Village Zone Section 4.125(.18)(F).”

Finding: These criteria are satisfied.

Explanation of Finding: The conceptual plan for lighting of park spaces addresses major parks and open spaces within SAP North, such as the Tonquin Trail and the Neighborhood Commons. Phase 3 does not include a Neighborhood Commons or the Tonquin Trail. Appendix H does not require lighting in SAP North Phase 3 open space or park areas.

Parks and Open Spaces Implementation Measure 15 Variety of Child Play Areas

C40. **Review Criteria:** “Each child play area shall include uses suitable for a range of age groups.”

Finding: These criteria are satisfied.

Explanation of Finding: The Park/Open Space/Pathways Plan, Sheet 9 of Exhibit B2, illustrates the child play areas approved with Phase 1 and Phase 2 and proposed for Phase 3. Phase 3 provides a pocket park, including a play structure and lawn area. Additionally, the child play area within OS-2 to be developed with Phase 3 is designed for both younger and older children.

Parks and Open Spaces Implementation Measure 18 Completion of Parks and Home Occupancy

C41. **Review Criteria:** “The park spaces included within each phase of development will be completed prior to occupancy of 50% of the housing units in that particular phase unless weather or other special circumstances prohibit completion, in which case bonding for the improvements shall be permitted.”

Finding: These criteria are satisfied.

Explanation of Finding: A Condition of Approval PDD 3 under the Request D, Preliminary Development Plan, ensures compliance with this implementation measure.

Parks and Open Spaces Implementation Measure 20 ADA Park Access

C42. **Review Criteria:** “The adequacy, amount and location of the proposed parking (including ADA parking) necessary to serve the proposed park uses shall be evaluated in detail at the SAP and PDP level. Off-street parking may be required to serve the various park users.”

Finding: These criteria are satisfied.

Explanation of Finding: The parks and open space areas and on-street parking within Phase 1 and Phase 2 have been approved. Parks and open spaces within Phase 3, including a pocket park and open space area, are anticipated to serve the immediate neighborhood and adjacent neighbors. The proposed park/open space uses within Phase 3 are not anticipated to require parking, as most users are anticipated to access these areas by walking or biking. Future Phases will be required to submit additional information regarding parks and open spaces and proposed parking through a SAP Amendment or Refinement.

Sanitary Sewer Goal, Policy, and Implementation Measures

C43. **Review Criteria:** “Goal: The Villebois Village shall include adequate sanitary sewer service.

Policy

1. The sanitary sewer system for Villebois Village shall meet the necessary requirements for the City of Wilsonville Wastewater Master Plan.

Various project specific implementation measures

Finding: These criteria are satisfied.

Explanation of Finding: The Utility Plan, Sheet 14 of Exhibit B2, shows the approved sanitary system within Phase 1 and Phase 2, and the proposed sanitary system within Phase 3. The sanitary system within Phase 3 of SAP North will comply with Policies 1 through 7 of the City of Wilsonville Wastewater Master Plan, as demonstrated by the Utility Plan and the attached Utility & Drainage Report, applicant’s notebook, Exhibit B1, Section IIC. No refinements to sanitary sewer are proposed.

Water System Goal, Policy, and Implementation Measures

C44. **Review Criteria:**

“Goal

The Villebois Village shall include adequate water service.

Policy

The water system for Villebois Village shall meet the necessary requirements of the City of Wilsonville Water System Master Plan.

Implementation Measures

1. Implement the following list of Water System Master Plan policies and projects with development of Villebois Village:

- Policies: 1-7
- Projects:
 - 1) 18-inch main in Barber Street from Kinsman Road to Brown Road
 - 2) 48-inch main in Kinsman Road from Barber Street to Boeckman Road
 - 3) 24-inch main in Boeckman Road from Kinsman Road to Villebois Drive
 - 4) 18-inch main in Villebois Drive from Boeckman Road to Barber Street
 - 5) 18-inch main in Barber Street from Brown Road to Grahams Ferry Road
 - 6) 18-inch main in Grahams Ferry Road from Barber Street to Tooze Road.
 - 7) 12-inch main in Grahams Ferry Road from the Future Study Area to Barber Street
 - 8) 30-inch main in Tooze Road from Villebois Drive to Grahams Ferry Road
 - 9) 12-inch main in extension of Villebois Drive from Barber Street to the Future Study Area
 - 10) 12-inch main connections from Barber Street to Evergreen Road

2. Incorporate the construction of the above referenced projects into the Finance Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The Utility Plan, Sheet 14 of Exhibit B2, shows the water system for SAP North, reflecting Phase 1 and Phase 2 approvals, and the proposed water system for Phase 3. The proposed water system will comply with Policies 1 through 7 of the Water System Master Plan. The 18-inch main in Grahams Ferry Road from Barber Street Road to Tooze Road has been constructed. Additionally, the City has already installed the 18-inch main from Barber Street from Brown Road to Grahams Ferry.

Storm Water Goal

The Villebois Village shall include adequate storm water systems to prevent unacceptable levels of flooding, protect receiving streams and water bodies from pollution and increased runoff rates due to development, and create a connection between people and the environment.

Storm Water Policy 1 Meeting Stormwater Master Plan and Public Works Standards

C45. **Review Criteria:** “The onsite storm water system for Villebois shall meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards.”

Finding: These criteria are satisfied.

Explanation of Finding: The Utility Plan, Sheet 14 of Exhibit B2, shows the stormwater system for SAP North, reflecting Phase 1 and Phase 2 approvals, and the proposed stormwater system for Phase 3. A supporting Utility and Drainage Report is included in Notebook (Exhibit B1) Section IIC, which demonstrates that the stormwater system will meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards.

Storm Water Policy 2 and 3 Minimizing Development “Footprint” on Hydrological Cycle, Rainwater Management

C46. **Review Criteria:** “Villebois Village shall strive to minimize the development “footprint” on the hydrological cycle through the combination of stormwater management and rainwater management.”

“Villebois Village shall integrate rainwater management systems into parks and open space areas.”

Finding: These criteria are satisfied.

Explanation of Finding: Rainwater Management Systems are integrated into parks and open space areas as shown on the Park/Open Space/Pathways Plan, Sheet 9 of Exhibit B2. A copy of the approved Rainwater Management Program for SAP North is provided in Notebook (Exhibit B1) Section IIK. A minor refinement is proposed to on-site water quality/stormwater/rainwater facilities within Phase 3 along Grahams Ferry Road and Tooze Road. See Findings C113 through C118.

Storm Water Implementation Measure 11 Stormwater Facility Maintenance

C47. **Review Criteria:** “Pursuant to the City’s Stormwater Master Plan Policies 9.2.4 and 9.2.5, maintenance of stormwater conveyance facilities, including detention/retention facilities, will be planned as part of the Specific Area Plans for the Villebois Village.”

Finding: These criteria are satisfied.

Explanation of Finding: Ownership and maintenance of stormwater conveyance facilities in SAP North Phase 3 and other future phases will be addressed through the future Ownership & Maintenance Agreement to be prepared with Final Plat Review.

Circulation System Goal

The Villebois Village shall provide for a circulation system that is designed to reflect the principles of smart growth.

Circulation System Policy 1 Encourage Alternative Modes, Accommodate All Modes

C48. **Review Criteria:** “The Villebois Village shall encourage alternatives to the automobile, while accommodating all travel modes, including passenger cars, trucks, buses, bicycles and pedestrians.”

Finding: These criteria are satisfied.

Explanation of Finding: Transportation facilities including streets, sidewalks, and trails are proposed consistent with the Master Plan accommodating different travel modes.

Circulation System Implementation Measure 5 Curb Extensions

C49. **Review Criteria:** “Curb extensions may be utilized within the Villebois Village area under the following basic principles for their placement and design:

- A minimum of 20-foot face-of-curb to face-of-curb street width shall be provided at all Residential street intersections, even where curb extensions are located. In the Village Center (inside the Village Loop), the minimum curb-to-curb public street width should be 22 feet, in order to accommodate delivery and garbage truck movements.
- Fire trucks, buses, and single-unit trucks (i.e., garbage trucks) shall be able to negotiate from Collector/Arterial streets without crossing the Collector/Arterial street centerline. Fire trucks

shall be able to negotiate through Residential streets, although it is acceptable for them to cross the street centerline on Residential streets.

- Passenger car turning movements shall be able to stay within the street centerline on all streets.
- Bike lanes shall not be forced into vehicle travel lanes.

Placement of curb extensions shall be reviewed through the City's minor alteration process with Specific Area Plans."

Finding: These criteria are satisfied.

Explanation of Finding: The Circulation Plan, Sheet 7 of Exhibit B2, includes the approved placement of curb extensions within Phase 1 and Phase 2 and the proposed placement of curb extensions within Phase 3. The placement of the curb extensions within Phase 3 is consistent with the Curb Extension Concept Plan in the SAP North Community Elements Book.

Circulation System Implementation Measure 6 Alignment Compliant with SROZ

C50. **Review Criteria:** "Street and pathway alignments shall be demonstrated to be in compliance with Significant Resource Overlay Zone (SROZ) regulations with Specific Area Plans."

Finding: These criteria are satisfied.

Explanation of Finding: SROZ compliance is reviewed in Request H.

Circulation System Implementation Measure 7 Connectivity Between Street Termination Points and Adjacent Trails/Pathways

C51. **Review Criteria:** "Pedestrian and bicycle connectivity shall be provided between public and private street termination points and adjacent trails/pathways at the discretion of the City Engineer."

Finding: These criteria are satisfied.

Explanation of Finding: The Circulation Plan and the Street Sections, Sheets 7 and 8 of Exhibit B2, illustrate the street system within SAP North, including shared roadways for bicyclists and sidewalks. The Park/Open Space/Pathways Plan, Sheet 9 of Exhibit B2, shows pedestrian/bicycle connections to adjacent streets or parks and open spaces throughout SAP North. Amendments to add specific information for Phase 3 continue this approach.

Statewide Planning Goals

Goal 1 Citizen Involvement

C52. **Review Criterion:** "To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

Finding: This criterion is satisfied.

Explanation of Finding: The adoption process for the proposed SAP amendment includes duly noticed public hearings before the Development Review Board. The current process was preceded by a Master Plan adoption and SAP North review processes found compliant with Goal 1.

Goal 2 Land Use Planning

C53. **Review Criterion:** “To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.”

Finding: This criterion is satisfied.

Explanation of Finding: The City is currently in compliance with Goal 2 because it has an acknowledged Comprehensive Plan and regulations implementing the plan. The Villebois Village Master Plan was adopted consistent with the planning policies in the Comprehensive Plan. The Villebois Village Master Plan was found to be consistent with Goal 2 because it creates a more specific plan for a portion of the City that provides additional guidance for future regulations. The proposed SAP amendment does not alter these circumstances. No additional needed connections beyond what is proposed by the applicant in Phase 3 North have been identified.

Goal 5 Natural Resources, Scenic and Historic Areas, and Open Spaces

C54. **Review Criterion:** “To protect natural resources and conserve scenic and historic areas and open spaces.”

Finding: This criterion is satisfied.

Explanation of Finding: The proposed SAP amendment complies with local and regional policies and requirements to implement this goal.

Goal 6 Air, Water and Land Resource Quality

C55. **Review Criteria:** “To maintain and improve the quality of the air, water and land resources of the state.”

Finding: These criteria are satisfied.

Explanation of Finding: The Villebois Village Master Plan is consistent with the air, water and land resources policies of the Comprehensive Plan. The Villebois Village Master Plan protects water and land resources by providing protection for natural resource areas and limiting development to areas that have less impact on natural resources. The Master Plan does not propose any residential structures within the 100-year floodplain. The Plan also calls for measures to use environmentally sensitive techniques for storm drainage. The Plan provides for a mixed-use, compact, interconnected Village that will provide transportation benefits by reducing the need for lengthy vehicle trips and increase the opportunity for bicycle and pedestrian transportation. The proposed SAP amendment does not alter these conditions as it remains consistent with the Master Plan in this regard.

Goal 7 Areas Prone to Natural Disasters and Hazards

C56. **Review Criteria:** “To protect life and property from natural disasters and hazards.”

Finding: These criteria are satisfied.

Explanation of Finding: No areas prone to floods, erosion, landslides, wildfire, etc. have been identified in SAP North.

Goal 8 Recreational Needs

C57. **Review Criteria:** “To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.”

Finding: These criteria are satisfied.

Explanation of Finding: Recreational amenities are shown throughout SAP North, including Phase 3. The amenities include a variety of play areas, trails, and gathering spots. In addition, connections are provided to the regional Ice Age Tonquin Trail.

Goal 10 Housing

C58. **Review Criteria:** “To provide for the housing needs of citizens of the state.”

Finding: These criteria are satisfied.

Explanation of Finding: The Villebois Village Master Plan complies with local and regional policies and requirements to implement this goal. The housing density and number goals for Villebois continue to be met with the number units and type of housing proposed for SAP North, including Phase 3.

Goal 11 Public Facilities and Services

C59. **Review Criteria:** “To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.”

Finding: These criteria are satisfied.

Explanation of Finding: The Villebois Village Master Plan is consistent with the applicable provisions of the City’s various utility plans (see Chapter 4 – Utilities of the Master Plan). It proposes to coordinate future development with the provision of the public facility infrastructure in the area (Figure 6 – Conceptual Composite Utilities Plan). The proposed SAP amendment does not change the planned utilities as shown in the Master Plan.

Goal 12 Transportation

C60. **Review Criteria:** “To provide and encourage a safe, convenient and economic transportation system.”

Finding: These criteria are satisfied.

Explanation of Finding: The Villebois Village Master Plan provides plans (Figure 7 – Street Plan and Figure 8 – Proposed Arterial/Collectors Street System) for a transportation system that is integrated with the transportation system existing and proposed for the City and surrounding areas of Clackamas County. Street sections (Figures 9A and 9B – Street and Trail Sections) are designed to slow traffic, encourage walking and bicycling, and create a pleasant environment. The proposed SAP amendment remains consistent with the transportation components of the Villebois Village Master Plan, and thus this goal.

Goal 13 Energy Conservation

C61. **Review Criteria:** “Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles.”

Finding: These criteria are satisfied.

Explanation of Finding: The Comprehensive Plan has been acknowledged to be consistent with Goal 13, and the Villebois Village Master Plan is consistent with Comprehensive Plan energy conservation policies. The Villebois Village Master Plan provides for a compact mixed-use development that will conserve energy by reducing the amount of and length of vehicle trips by making bicycle and pedestrian transportation viable alternatives for many trips. The proposed SAP amendment remains consistent with the Villebois Village Master Plan in this regard, and thus Goal 13.

Goal 14 Urbanization

C62. **Review Criteria:** “To provide for an orderly and efficient transition from rural to urban land use.”

Finding: These criteria are satisfied.

Explanation of Finding: The Villebois Village Master Plan is consistent with Comprehensive Plan urbanization policies and the Residential – Village Land Use designation. The proposed SAP amendment for SAP North continues to comply with and further the intent of Goal 14 by providing a coordinated plan for urbanization of the Master Plan area that coordinates development of the area with development of public facilities, including the transportation system, and protects natural resources. The SAP amendment continues to provide more detailed plans for the urbanization of an area already determined to be within the City’s urban growth boundary.

Village Zone

Subsection 4.125 (.01) Purpose

The Village (V) zone is applied to lands within the Residential Village Comprehensive Plan Map designation. The Village zone is the principal implementing tool for the Residential Village Comprehensive Plan designation. It is applied in accordance with the Villebois Village Master Plan and the Residential Village Comprehensive Plan Map designation as described in the Comprehensive Plan.

Subsection 4.125 (.02) Permitted Uses in Village Zone

C63. **Review Criteria:** This subsection lists the uses typically permitted in the Village Zone, including single-family detached dwellings, row houses, and non-commercial parks, playgrounds, and recreational facilities.

Finding: These criteria are satisfied.

Explanation of Finding: The uses proposed includes single-family homes, parks and playgrounds, and open space which are permitted in the Village Zone.

Subsection 4.125 (.05) Development Standards Applying to All Development in the Village Zone

“All development in this zone shall be subject to the V Zone and the applicable provisions of the Wilsonville Planning and Land Development Ordinance. If there is a conflict, then the standards of this section shall apply. The following standards shall apply to all development in the V zone:”

Subsection 4.125 (.05) A. 1.-2 Block, Alley, Pedestrian and Bicycle Standards: Maximum Block Perimeter and Spacing Between Streets for Local Access

C64. **Review Criteria:** “Maximums Block Perimeter: 1,800 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent a block perimeter from meeting this standard.”

“If the maximum spacing for streets for local access exceeds 530 feet, intervening pedestrian and bicycle access shall be provided, with a maximum spacing of 330 feet from those local streets, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions from meeting this standard.”

Finding: These criteria are satisfied.

Explanation of Finding: Circulation patterns within Phase 1 and Phase 2, and within a portion of Future Phases, are shown on the SAP Drawings, Exhibit B2. Phase 1 has been constructed and Phase 2 is in construction. Additional information for Future Phases will be required through a SAP Amendment.

Circulation patterns within Phase 3 of SAP North are dictated by the 600-foot access spacing standard on SW Grahams Ferry Road, located along the western site boundary, and SW Tooze Road, located along the northern site boundary (City of Wilsonville Transportation System Plan requirement for a minor arterial). The presence of SROZ along the southern property line and development patterns within PDP 2N to the south also influence circulation patterns within SAP North Phase 3. Blocks within the proposed PDP plan meet the maximum 1,800-foot block perimeter, except as follows.

- The block bounded by SW Oslo Street, SW Belfast Lane, SW Barcelona Street, the eastern site boundary, Tooze Road, and SW Grahams Ferry Road can only be developed to the eastern property line. In addition, circulation within these streets along the western and north portions of the site is dictated by the 600 foot access spacing standard for minor arterials, which applies to both Grahams Ferry Road and Tooze Road. A pedestrian/bicycle connection to Tooze Road is provided between Lots 14 and 15 and to the intersection of Grahams Ferry Road and Tooze Road between Lots 8 and 9 within the pocket park.

- The block bounded by Palermo Street, SW Rome Avenue, SW Oslo Street, and the western site boundary can only be developed to the western and southern property lines. The alignment of SW Palermo Street is limited by the presence of upland forest preserve in the southwestern corner of the site and along the southern portion of the site, and by the existing portion of SW Palermo Street within Phase 2. In addition, circulation within these streets along the western portion of the site is dictated by the 600 foot Grahams Ferry Road

spacing standard. A pedestrian/bicycle connection is provided along the eastern edge of the open space tract (adjacent to the retained wetland).

- The block bounded by SW Barcelona Street, SW Iceland Lane, and SW Oslo Street, and the block bounded by SW Oslo Street, SW Rome Avenue, and SW Palermo Street, can only be developed to the eastern property line. The extension of SW Barcelona Street and SW Oslo Street and construction of SW Ravenna Loop/Paris Avenue is anticipated to occur with future development of parcels to the east. Compliance with the block perimeter and street spacing standards will be addressed at such a time as these streets are extended. Other blocks within Phase 3 not mentioned above meet the maximum 1,800 foot block perimeter and maximum 530 street spacing requirements.

Subsection 4.125 (.05) A. 3. Block, Alley, Pedestrian and Bicycle Standards: Intervening Pedestrian and Bicycle Access

C65. **Review Criteria:** “If the maximum spacing for streets for local access exceeds 530 feet, intervening pedestrian and bicycle access shall be provided, with a maximum spacing of 330 feet from those local streets, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions from meeting this standard.”

Finding: These criteria are satisfied.

Explanation of Finding: No SROZ area, existing buildings, or topographic variations prevent the spacing standard from being met.

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Subsection 4.125 (.05) B. Access

C66. **Review Criterion:** “All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer.”

Finding: This criterion is satisfied.

Explanation of Finding: The design of the subdivision shown in the SAP allows this criterion to be met during the review of the subdivision plat.

Subsection 4.125 (.05) D. Fences

C67. **Review Criterion:** This subsection establishes provisions for fences in the Village Zone, including being consistent with the Master Fencing Program and the Architectural Pattern Book.

Finding: This criterion is satisfied.

Explanation of Finding: A Master Fencing Plan for the SAP has previously been approved.

Subsection 4.125 (.08) Parks & Open Space

C68. **Review Criteria:** This subsection prescribes the open space requirement for development in the Village Zone.

Finding: These criteria are satisfied.

Explanation of Finding: Figure 5 – Parks & Open Space Plan of the Villebois Village Master Plan indicates that approximately 33% of Villebois is in Parks and Open Space. This SAP amendment continue to meet the open space requirements for Villebois.

Subsection 4.125 (.09) Street Alignment and Access Improvements

Subsection 4.125 (.09) A. 1. a. Street Alignment and Access Improvements Conformity with Master Plan, etc.

C69. **Review Criterion:** “All street alignment and access improvements shall conform to the Villebois Village Master Plan, or as refined in the Specific Area Plan, Preliminary Development Plan, or Final Development Plan . . .”

Finding: This criterion will be satisfied.

Explanation of Finding: The street alignments are generally consistent with those shown in the Villebois Village Master Plan. Some minor refinements are proposed. See Findings C101 through C106.

Subsection 4.125 (.09) A. 1. a. i. Street Improvement: Conformity with Public Works Standards and Continuation of Streets

C70. **Review Criteria:** “All street improvements shall conform to the Public Works Standards and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed street network will enable conformance with the Public Work Standards. The street system is designed to provide for the continuation of streets within Villebois and to adjoining properties or subdivisions according to the Master Plan.

Subsection 4.125 (.09) A. 1. a. ii. Streets Developed According to Master Plan

C71. **Review Criterion:** “All streets shall be developed according to the Master Plan.”

Finding: This criterion is satisfied.

Explanation of Finding: All streets are proposed to be developed with cross sections shown in the Master Plan.

Subsection 4.125 (.09) A. 2. a. & b. Intersections of Streets: Angles and Intersections

C72. **Review Criteria:**

- “Angles: Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.
- Intersections: If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety (90) degrees shall require approval by the City Engineer after consultation with the Fire District.”

Finding: These criteria are satisfied.

Explanation of Finding: The applicant’s drawings in Exhibit B2 show all proposed streets are developed consistent with these standards.

Subsection 4.15 (.09) A. 2. c. Intersection of Streets: Offsets

C73. **Review Criterion:** “Offsets: Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:

- 1000 ft. for major arterials
- 600 ft. for minor arterials
- 100 ft. for major collector
- 50 ft. for minor collector”

Finding: These criteria are satisfied.

Explanation of Finding: No intersections violating the defined offsets are proposed.

Subsection 4.125 (.09) A. 2. d. Curb Extensions

C74. **Review Criteria:** “Curb extensions at intersections shall be shown on the Specific Area Plans required in subsection 4.125(.18)(C) through (F) below, and shall:

- Not obstruct bicycle lanes on collector streets.
- Provide a minimum 20 foot wide clear distance between curb extensions at all local residential street intersections shall have, shall meet minimum turning radius requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.”

Finding: These criteria are satisfied.

Explanation of Finding: Proposed curb extensions are shown on the Circulation Plan (Sheet 7 of Exhibit B2), none of which are located on collector streets. The submitted drawings illustrate that all street intersections will have a minimum 20 foot wide clear distance between curb extensions.

Subsection 4.125 (.09) A. 3. Street Grades

C75. **Review Criteria:** “Street grades shall be a maximum of 6% on arterials and 8% for collector and local streets. Where topographic conditions dictate, grades in excess of 8%, but not more than 12%, may be permitted for short distances, as approved by the City Engineer, where topographic conditions or existing improvements warrant modification of these standards.”

Finding: These criteria are satisfied.

Explanation of Finding: No street grades approaching these maximums are proposed.

Subsection 4.125 (.09) A. 4. Centerline Radius Street Curves

C76. **Review Criterion:** “The minimum centerline radius street curves shall be as follows:

- Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by City Engineer.
- Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- Local streets: 75 feet”

Finding: These criteria are satisfied.

Explanation of Finding: The submitted plan sheets, see Exhibit B2, show all street curves meet these standards.

Subsection 4.125 (.09) A. 5. Rights-of-way

C77. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for rights-of-way as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: Proposed rights-of-way are shown on the applicant’s plan sheets, Exhibit B2. Rights-of-way will also be reviewed as part of the Preliminary Development Plan and Tentative Plat to ensure compliance. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of a final plat in accordance with Section 4.177.

Subsection 4.125 (.09) A. 6. Access Drives

C78. **Review Criteria:** Access drives are required to be 16 feet for two-way traffic. Otherwise, pursuant to subsection (.09) A. above, the provisions of 4.177 apply for access drives as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states in the narrative in Exhibit B1, “Access drives (alleys) will be paved at least 16-feet in width within a 20-foot tract, as shown on the Circulation Plan. In accordance with Section 4.177, all access drives will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions.”

Subsection 4.125 (.09) A. 7. Clear Vision Areas

C79. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for clear vision areas as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that clear vision areas will be provided and maintained in compliance with the Section 4.177.

Subsection 4.125 (.09) A. 8. Vertical Clearance

C80. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for vertical clearance as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that Vertical clearance will be provided and maintained in compliance with the Section 4.177.

Subsection 4.125 (.10) Sidewalk and Pathway Improvement Standards

C81. **Review Criteria:** “The provisions of Section 4.178 shall apply within the Village zone.”

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states, “All sidewalks and pathways within SAP SAP North Phase 3 will be constructed in accordance with the standards of Section 4.178 and the Villebois Village Master Plan.” Sidewalks and pathways are shown in the circulation plan and street cross-sections (Sheets 7 and 8, Exhibit B2).

Subsection 4.125 (.11) Landscaping, Screening and Buffering

C82. **Review Criteria:** “Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:

- Streets in the Village Zone shall be developed with street trees as described in the Community Elements Book.”

Finding: These criteria are satisfied.

Explanation of Finding: The appropriate landscaping is provided. The proposed street trees are among the choices provided in the Community Elements Book, or allowed in the Villebois Village Master Plan where wet conditions warrant.

Subsection 4.125 (.12) Signage and Wayfinding

C83. **Review Criteria:** “Except as this subsection may otherwise be amended, or until such time as a Signage and Wayfinding Plan is approved as required by Section 4.125(.18)(D)(2)(f), signs within the Village zone shall be subject to provisions of Section 4.156.”

Finding: These criteria are satisfied.

Explanation of Finding: A Master Signage and Wayfinding Program has previously been adopted for SAP North.

Subsection 4.125 (.13) Design Principles Applying to the Village Zone

C84. **Review Criteria:** “The following design principles reflect the fundamental concepts, and support the objectives of the Villebois Village Master Plan, and guide the fundamental qualities of the built environment within the Village zone.

- The design of landscape, streets, public places and buildings shall create a place of distinct character.
- The landscape, streets, public places and buildings within individual development projects shall be considered related and connected components of the Villebois Village Master Plan.
- The design of streets and public spaces shall provide for and promote pedestrian safety, connectivity and activity.
- The design of exterior lighting shall minimize off-site impacts, yet enable functionality.”

Finding: These criteria are satisfied.

Explanation of Finding: The SAP Drawings, Exhibit B2, the Architectural Pattern Book, and the Community Elements Book are intended to guide the Preliminary Development Plan and Final Development Plan applications to achieve a built environment that reflects the fundamental concepts and objectives of the Master Plan. The Design Principles of Section (.13) have driven the development of the SAP Drawings, the Architectural Pattern Book and the Community Elements Book, which have previously been approved for SAP North and will work in concert to assure that the vision of Villebois is Phase 3 of SAP North as well as future phases of SAP North.

Subsection 4.125 (.14) A. 1. a. Design Standards: Flag Lots

C85. **Review Criterion:** “Flag lots are not permitted.”

Finding: This criterion is satisfied.

Explanation of Finding: No flag lots are proposed.

Subsection 4.125 (.14) A. 2. a. - e. and h. – k. Building and Site Design Requirements

C86. **Review Criteria:** “Building and site design shall include:

- Proportions and massing of architectural elements consistent with those established in an approved Architectural Pattern Book or Village Center Architectural Standards.
- Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Architectural Pattern Book, Community Elements Book or approved Village Center Architectural Standards.
- Protective overhangs or recesses at windows and doors.
- Raised stoops, terraces or porches at single-family dwellings.
- Exposed gutters, scuppers, and downspouts, or approved equivalent.
- Building elevations of block complexes shall not repeat an elevation found on an adjacent block.
- Building elevations of detached buildings shall not repeat an elevation found on buildings on adjacent lots.
- A porch shall have no more than three walls.
- A garage shall provide enclosure for the storage of no more than three motor vehicles, as described in the definition of Parking Space.”

Finding: These criteria are satisfied.

Explanation of Finding: The Architectural Pattern Book and Community Elements Book previously approved for SAP North ensure compliance with these standards and consistency with surrounding development.

Subsection 4.125 (.14) A. 3. Lighting and Site Furnishings

C87. **Review Criteria:** “Lighting and site furnishings shall be in compliance with the approved Architectural Pattern Book, Community Elements Book, or approved Village Center Architectural Standards.”

Finding: These criteria are satisfied.

Explanation of Finding: The SAP North Architectural Pattern Book and Community Elements Books have previously been approved ensuring compliance with these criteria.

Subsection 4.125 (.14) A. 4. Building Systems

C88. **Review Criteria:** “Building systems, as noted in Tables V-3 and V-4 (Permitted Materials and Configurations), below, shall comply with the materials, applications and configurations required therein. Design creativity is encouraged. The LEED Building Certification Program of the U.S. Green Building Council may be used as a guide in this regard.”

Finding: These criteria are satisfied.

Explanation of Finding: Subsequent Building Permit applications will review proposed buildings for consistency with the criteria of Table V-3 and the Architectural Pattern Book previously approved for SAP North.

Subsection 4.125 (.18) C. Specific Area Plan (SAP) Approval Process

Subsection 4.125 (.18) C. 1. Specific Area Plan Purpose

C89. **Review Criterion:** “Purpose – A SAP is intended to advance the design of the Villebois Village Master Plan.”

Finding: This criterion is satisfied.

Explanation of Finding: As shown in Findings C3 through C51 above, the proposed SAP amendment is advancing the design of the Villebois Village Master Plan.

Subsection 4.125 (.18) C. 2.-3. Who Can Initiate a SAP Application

- C90. **Review Criterion:** “If not initiated by the City Council, Planning Commission or Development Review Board, an application for SAP approval shall be submitted by the Master Planner, or by landowners pursuant to subsection C.3 below. The application shall be accompanied by payment of a fee established in accordance with the City’s fee schedule.

The owners of property representing at least 80 percent of a SAP area may request in writing that the Master Planner submit a SAP application. The Master Planner must provide a written response within thirty days. If the Master Planner agrees to submit a request, the Master Planner shall have 180 days to submit the SAP application. If the Master Planner denies the request, fails to respond within 30 days, or fails as determined by the Planning Director to diligently pursue the application after agreeing to submit it, by providing drafts of a pattern book and all other SAP elements within 60 days and thereafter pursuing approval in good faith, the property owners may submit a SAP application for review and approval. A copy of a SAP application submitted by property owners must be provided to the Master Planner. Once the application has been deemed complete by the City, the Master Planner shall have 30 days to review and comment in writing before the proposed SAP is scheduled for public hearing by the DRB.”

Finding: This criterion is satisfied.

Explanation of Finding: The Master Planner previously submitted SAP North, which included the approval of many SAP elements. Some elements were not defined because they were not yet known. A subsequent SAP amendment defined the additional components for Phase 2. This request provides the required details for Phase 3, and has been signed by the property owners of Phase 3. For future phases the information has been provided that does not require access to the properties, including definition of street alignment and land uses consistent with the Master Plan. Future SAP Amendments or Refinements signed by the necessary property owners or initiated by the Master Planner will be submitted to finish providing all elements for the future phases before or concurrently with PDP requests.

Subsection 4.125 (.18) D 1. SAP Submittal Requirements: Existing Conditions

- C91. **Review Criterion:** “Existing Conditions – An application for SAP approval shall specifically and clearly show the following features and information on maps, drawings, application form or attachments. The SAP shall be drawn at a scale of 1" = 100' (unless otherwise indicated) and may include multiple sheets depicting the entire SAP area, as follows:” Listed a. through h.

Finding: These criteria are satisfied.

Explanation of Finding: All the required existing condition drawings have been submitted. See Sheet 3 of Exhibit B2.

Subsection 4.125 (.18) D. 2. SAP Submittal Requirements: Development Information

- C92. **Review Criterion:** “SAP Development Information – The following information shall also be shown at a scale of 1" = 100' and may include multiple sheets depicting the entire SAP area:” Listed a. through n.

Finding: These criteria are satisfied.

Explanation of Finding: All the required information has been submitted. See Exhibit B2.

Subsection 4.125 (.18) D. 3. SAP Submittal Requirements: Architectural Pattern Book

- C93. **Review Criterion:** “Architectural Pattern Book – An Architectural Pattern Book shall be submitted with a SAP application. The Architectural Pattern Book shall apply to all development outside of the Village Center Boundary, as shown on Figure 1 of the currently adopted Villebois Village Master Plan. An Architectural Pattern Book shall address the following:” Listed a. through h.

Finding: These criteria are satisfied.

Explanation of Finding: The SAP North Architectural Pattern Book has previously been approved for the entirety of SAP North, including Phase 3 and future phases.

Subsection 4.125 (.18) D. 4. SAP Submittal Requirements: Community Elements Book

- C94. **Review Criterion:** “Community Elements Book – A Community Elements Book shall be submitted, including the following:” Listed a. through n.

Finding: These criteria are satisfied.

Explanation of Finding: The SAP North Community Elements Book has previously been approved for the entirety of SAP North, including Phase 3 and future phases.

Subsection 4.125 (.18) D. 5. SAP Submittal Requirements: Rainwater Management Program

- C95. **Review Criterion:** “Rainwater Management Program – A Rainwater Management Program shall be submitted, addressing the following:” Listed a. through c. vii.

Finding: These criteria are satisfied or will be satisfied by Condition of Approval NR 1.

Explanation of Finding: The SAP North Rainwater Management Program has previously been approved for the entirety of SAP North, including Phase 3 and future phases.

Subsection 4.125 (.18) D. 6. SAP Submittal Requirements: Master Signage and Wayfinding

- C96. **Review Criterion:** “Master Signage and Wayfinding – A Master Signage and Wayfinding Plan shall be submitted with an SAP application and shall address the following:” Listed a. through e.

Finding: These criteria are satisfied.

Explanation of Finding: The SAP North Master Signage and Wayfinding program has previously been approved for the entirety of SAP North, including Phase 3 and future phases.

Subsection 4.125 (.18) D. 8. SAP Submittal Requirements: SAP Narrative Statement

- C97. **Review Criterion:** “SAP Narrative Statement – A narrative statement shall be submitted, addressing the following:” Listed a. through f.

Finding: These criteria are satisfied.

Explanation of Finding: The required narrative has been submitted. See Exhibit B1.

Subsection 4.125 (.18) E. 1. b. i. SAP Elements Consistent with Villebois Village Master Plan

- C98. **Review Criteria:** “Is consistent with the Villebois Village Master Plan. Those elements of the Village Master Plan with which the SAP must be consistent are the Plan’s Goals, Policies, and Implementation Measures, and, except as the text otherwise provides, Figures 1, 5, 6A, 7, 8, 9A, and 9B.”

Finding: These criteria are satisfied.

Explanation of Finding: Findings C3 through C51 above demonstrate compliance of proposed SAP amendment with the Villebois Village Master Plan.

Subsection 4.125 (.18) E. 1. b. ii. SAP Phasing Reasonable

C99. **Review Criteria:** “If the SAP is to be phased, as enabled by Sections 4.125(.18)(D)(2)(g) and (h), that the phasing sequence is reasonable.”

Finding: These criteria are satisfied.

Explanation of Finding: Proposed Phase 3 is contiguous with the previously approved Phase 2 is reasonable to be the next phase developed of SAP North. Other future Phases will be contiguous to approved or built phases which allows flexibility for these phases to be built a various factors dictate.

Subsection 4.125 (.18) E. 1. b. iii. DRB Modification of SAP

C100. **Review Criteria:** “The Development Review Board may require modifications to the SAP, or otherwise impose such conditions, as it may deem necessary to ensure conformance with the Villebois Village Master Plan, and compliance with applicable requirements and standards of the Planning and Land Development Ordinance, and the standards of this section.”

Finding: These criteria are satisfied.

Explanation of Finding: No specific findings are recommended pursuant to this subsection.

Subsection 4.125 (.18) F. SAP Refinements to Villebois Village Master Plan

Refinement 1 Street Network

Subsection 4.125 (.18) F. 1. a. i. Refinements to the Master Plan: Streets

C101. **Review Criteria:** “Changes to the street network or functional classification of streets that do not significantly reduce circulation system function or connectivity for vehicles, bicycles or pedestrians.”

Finding: These criteria are satisfied.

Explanation of Finding: The only street network refinements in this SAP Amendment request relate to Phase 3, the street network within future phases remain as shown in the Master Plan subject to refinements as part of future PDP requests. The proposed street system within SAP North is generally consistent with the Villebois Village Master Plan. The Master Plan shows SW Iceland Lane with a southwest to northeast orientation with alignment towards the child play feature in Open Space 2. With the proposed refinement, SW Iceland Lane is proposed to have a straight north-south orientation with alignment towards residential lots, with the location adjusted slightly to the east. Circulation towards the child play area is maintained with the provision of SW Rome Avenue to maintain an “eyes on the street” effect for park safety. The purpose of the refinement to SW Iceland Lane allows for smaller residential blocks, which provides better pedestrian connectivity. This street refinement also allows lots to be oriented directly towards the west for greater sun exposure.

Additionally, the Master Plan shows access from Grahams Ferry Road taken from SW Firenze Street (Palermo Street) and a continuous street with north-south alignment along

the western portion of Phase 3 (Amsterdam Avenue/Belfast Lane). However, in order to retain the existing treed wetland in the southwest site corner, access to/from Grahams Ferry Road will occur with SW Oslo Street, and a portion of Amsterdam Avenue/Belfast Lane adjacent to the wetland is removed. With the proposed refinement, access from Grahams Ferry Road is taken from SW Oslo Street. Site circulation along the western portion of Phase 3 is maintained with the provision of SW Belfast Lane in the originally intended location, the continuation of SW Palermo Street along the northern edge of OS-2 in the planned location of Firenze Street, and a pedestrian path adjacent to the wetland to replace the removed portion of Belfast Lane, which connects SW Oslo Street and SW Palermo Street.

These refinements do not affect the function of the circulation system or connectivity for vehicles, bicycles or pedestrians.



Subsection 4.125 (.18) F. 1. b. i. Refinements: Definition of Significant-Quantitative

C102. **Review Criteria:** “As used herein, “significant” means:

- i. More than ten percent of any quantifiable matter, requirement, or performance measure, as specified in (.18)(F)(1)(a), above, or,
- ii. That which negatively affects an important, qualitative feature of the subject, as specified in (.18)(F)(1)(a), above.”

Finding: These criteria are satisfied.

Explanation of Finding: Quantifiable measures related to this refinement request include circulation system function and connectivity. Level of Service (LOS) is the quantifiable performance measure related to circulation system function for motor vehicles. No data is available nor practical to obtain regarding the circulation system function for bicycles and pedestrians. Pedestrian and bicycle connections will be maintained where shown in the master plan with only slightly different alignments. While the traffic study did not compare LOS as various intersections with and without the proposed refinements, LOS of service continues to be met with the proposed changes. The quantifiable measure of connectivity is number of connecting routes. Connectivity is maintained to Grahams Ferry Road via SW Oslo Street, and the same level of connectivity exists within the site.

Subsection 4.125 (.18) F. 1. B. ii. Refinements: Definition of Significant-Qualitative

C103. **Review Criteria:** “As used herein, “significant” means:

ii. That which negatively affects an important, qualitative feature of the subject, as specified in (.18)(F)(1)(a), above.”

Finding: These criteria are satisfied.

Explanation of Finding: This subsection does not provide clear definition of what an important qualitative feature might be. Absent details in this subsection, staff interprets the primary qualitative factors to consider being the three guiding design principles of the Villebois Village Master Plan: Connectivity, Diversity, and Sustainability. The three guiding design principles are further defined by the goals, policies, and implementation measures of the Master Plan. By virtue of better or equally implementing the goals, policies, and implementation measures of the Villebois Village Master Plan, as described in Finding C104 below, the proposed refinements do not negatively affect qualitative features of the street network.

Subsection 4.125 (.18) F. 2. a. Refinements: Equally or Better Meeting Master Plan

C104. **Review Criteria:** “The refinements will equally or better meet the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The following are the relevant goals and policies from the Villebois Village Master Plan followed by discussion of how the refinements better or equally meet them:

Circulation System Goal: The Villebois Village shall provide for a circulation system that is designed to reflect the principles of smart growth.

While some vehicle connectivity choices are being removed, retaining of the wetland furthers the smart growth principle of a thriving natural environment. The enlargement and addition of pocket parks add more green space within the development.

Circulations System Policy 1: The Villebois Village shall encourage alternatives to the automobile, while accommodating all travel modes, including passenger cars, trucks, buses, bicycles and pedestrians.

There will continue to be access to all homes and destinations from a variety of travel modes. The design of homes facing green spaces encourages more pedestrian mode choices.

Subsection 4.125 (.18) F. 2. b. Refinements: Impact on Resources

C105. **Review Criteria:** “The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the SAP and Village area, and”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed refinements retain a wetland having a positive impact on the natural and scenic resources and amenities in the development.

Subsection 4.125 (.18) F. 2. c. Refinements: Relation to Adjoining Areas

C106. **Review Criteria:** “The refinement will not preclude an adjoining or subsequent SAP area from development consistent with the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The connections to adjoining future PDP to the east remains consistent with the Villebois Village Master Plan.

Refinement 2 Parks, Trails, and Open Spaces

Subsection 4.125 (.18) F. 1. a. ii. Refinements to the Master Plan: Parks, Trails, and Open Space

C107. **Review Criteria:** “Changes to the nature or location of park types, trails or open space that do not significantly reduce function, usability, connectivity, or overall distribution or availability of these uses in the Specific Area Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The only parks, trails, and open space refinements proposed with this SAP Amendment relate to Phase 3, the parks within the future phases remain as shown in the Master Plan subject to refinements as part of future PDP or FDP requests. As further explained by the applicant on page 40 of their supporting compliance report for the SAP Amendment (Exhibit B1), the refinements include adding a pocket park at the southwest corner of Tooze Road and Grahams Ferry Road and various linear greens and landscape tracts.

Subsection 4.125 (.18) F. 1. b. i. Refinements: Definition of Significant-Quantitative

C108. **Review Criteria:** “As used herein, “significant” means:

i. More than ten percent of any quantifiable matter, requirement, or performance measure, as specified in (.18)(F)(1)(a), above, or,

Finding: These criteria are satisfied.

Explanation of Finding: The performance measures, etc. being measured for the purpose of this refinement are the reduction of function, usability, connectivity, or overall distribution or availability of park uses in the Preliminary Development Plan. The addition of park and open space areas do not reduce these performance measures.

Subsection 4.125 (.18) F. 1. B. ii. Refinements: Definition of Significant-Qualitative

C109. **Review Criteria:** “As used herein, “significant” means:

ii. That which negatively affects an important, qualitative feature of the subject, as specified in (.18)(F)(1)(a), above.”

Finding: These criteria are satisfied.

Explanation of Finding: This subsection does not provide clear definition of what an important qualitative feature might be. Absent details in this subsection, staff interprets the primary qualitative factors to consider being the three guiding design principles of the Villebois Village Master Plan: Connectivity, Diversity, and Sustainability. The three guiding design principles are further defined by the goals, policies, and implementation measures of the Master Plan. By virtue of better or equally implementing the goals,

policies, and implementation measures of the Villebois Village Master Plan, as described in Finding C110 below, the proposed refinements do not negatively affect qualitative features of the parks, trails, and open space.

Subsection 4.125 (.18) F. 2. a. Refinements: Equally or Better Meeting Master Plan

C110. **Review Criteria:** “The refinements will equally or better meet the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: Adding additional park and open space amenities help to better provide access to and variety to parks and open spaces within the Villebois Village Master Plan.

Subsection 4.125 (.18) F. 2. b. Refinements: Impact on Resources

C111. **Review Criteria:** “The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the SAP and Village area, and”

Finding: These criteria are satisfied.

Explanation of Finding: Addition the open space around the wetland helps protect a natural resource. No proposed additional park and open space amenities have a detrimental impact on the environment or natural or scenic resources.

Subsection 4.125 (.18) F. 2. c. Refinements: Relation to Adjoining Areas

C112. **Review Criteria:** “The refinement will not preclude an adjoining or subsequent SAP area from development consistent with the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed refinements do not impact the surrounding areas.

Refinement 3 Utilities and Storm Water Facilities

Subsection 4.125 (.18) F. 1. a. iii. Refinements to Utilities and Storm Water Facilities

C113. **Review Criteria:** “Changes to the nature or location of utilities or storm water facilities that do not significantly reduce the service or function of the utility or facility.”

Finding: These criteria are satisfied.

Explanation of Finding: The only refinements in this SAP Amendment request relate to Phase 3, the utilities and storm water facilities within future phases remain as shown in the Master Plan subject to refinements as part of future PDP requests. Refinements are in relation to the on-site water quality/rainwater facilities shown on the northern edge of Phase 3 along Tooze Road and on the western edge of Phase 3 along Grahams Ferry Road (except for the southwest site corner). In the southwest site corner, a bioretention cell is provided adjacent to the retained wetland and site entrance from Grahams Ferry Road. Due to site topography/elevation, it is not possible to provide stormwater/rainwater management facilities in the aforementioned locations. However, bioretention swales are added along SW Oslo Street and within the open space area along the southern site edge. The provision of bioretention cells within these areas of the site will ensure that this refinement does not cause reduction to the service or function of rainwater management.

Subsection 4.125 (.18) F. 1. b. i. Refinements: Definition of Significant-Quantitative

C114. **Review Criteria:** “As used herein, “significant” means:

i. More than ten percent of any quantifiable matter, requirement, or performance measure, as specified in (.18)(F)(1)(a), above, or,

Finding: These criteria are satisfied.

Explanation of Finding: The performance measures, etc. being measured for the purpose of this refinement are the reduction of service and function of the utility or facility. As explained in Finding C113, the service or function is not being reduced.

Subsection 4.125 (.18) F. 1. B. ii. Refinements: Definition of Significant-Qualitative

C115. **Review Criteria:** “As used herein, “significant” means:

ii. That which negatively affects an important, qualitative feature of the subject, as specified in (.18)(F)(1)(a), above.”

Finding: These criteria are satisfied.

Explanation of Finding: This subsection does not provide clear definition of what an important qualitative feature might be. Absent details in this subsection, staff interprets the primary qualitative factors to consider being the three guiding design principles of the Villebois Village Master Plan: Connectivity, Diversity, and Sustainability. The three guiding design principles are further defined by the goals, policies, and implementation measures of the Master Plan. By virtue of better or equally implementing the goals, policies, and implementation measures of the Villebois Village Master Plan, as described in Finding C110 below, the proposed refinements do not negatively affect qualitative features of the parks, trails, and open space.

Subsection 4.125 (.18) F. 2. a. Refinements: Equally or Better Meeting Master Plan

C116. **Review Criteria:** “The refinements will equally or better meet the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: Keeping the same level of service and function as described in Finding C113 will equally meet the Master Plan.

Subsection 4.125 (.18) F. 2. b. Refinements: Impact on Resources

C117. **Review Criteria:** “The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the SAP and Village area, and”

Finding: These criteria are satisfied.

Explanation of Finding: By changing the rainwater facilities to maintain a wetland the refinement will not have a negative impact on the environment or natural or scenic resources.

Subsection 4.125 (.18) F. 2. c. Refinements: Relation to Adjoining Areas

C118. **Review Criteria:** “The refinement will not preclude an adjoining or subsequent SAP area from development consistent with the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed refinements do not impact the surrounding areas.

Refinement 4 Land Use and Density

Subsection 4.125 (.18) F. 1. a. iv. and v. Refinements to the Master Plan: Parks, Trails, and Open Space

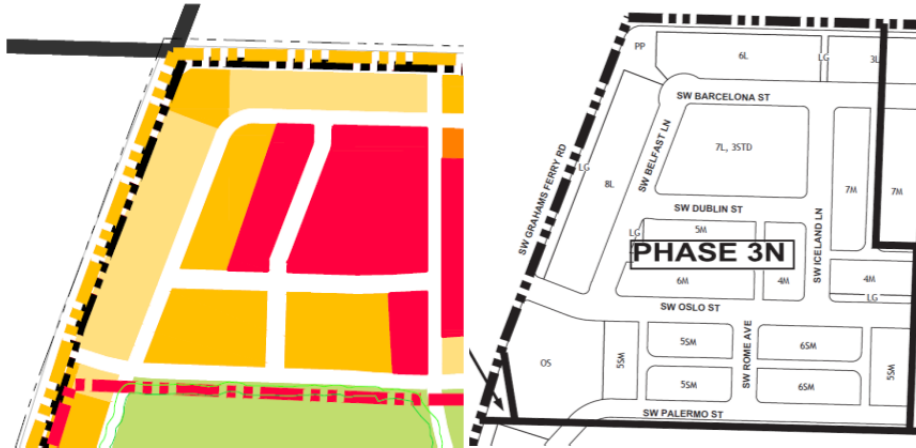
C119. **Review Criteria:** “Changes to the location or mix of land uses that do not significantly alter the overall distribution or availability of uses in the affected SAP.”

“A change in density that does not exceed ten percent, provided such density change does not result in fewer than 2,300 dwelling units in the Village.”

Finding: These criteria are satisfied.

Explanation of Finding: The only refinements in this SAP Amendment request relate to Phase 3, the land uses and densities within future phases remain as shown in the Master Plan subject to refinements as part of future PDP requests. As further explained on pages 41-42 of the applicant’s supporting compliance report for the SAP Amendment (Exhibit B1) refinements to the mix and locations of land uses include fewer smalls and standards, and the addition of mediums, in the central portion of the site. Large lots are concentrated towards the edge of Phase 3, with more mediums and smalls approaching the Village Center, consistent with the land use pattern throughout Villebois. The changes in Phase 3 result in a cumulative increase of 12 units within the medium size and above aggregate land use category, or an increase of 7.4%, and a cumulative decrease of 29 units with the small size and attached aggregate land use category, or a decrease of 9.6%. These changes are within the 10% allowed when looking at both the Villebois Village Master Plan as a whole and SAP North. Through this request the density in SAP North, as measured by the number of units is reduced by 17 units or 3.6%, which again is much less than a 10% change for the Master Plan or the SAP. The Villebois Village Master Plan remains on track to provide well in excess of 2300 units within the Master Plan area.

	SAP North Unit Count within MP	Proposed SAP North Unit Count	% Change
Medium/Standard/ Large/Estate	162	174	+7.4%
Small/Small Cottage/Row Houses/Neighborhood Apts.	302	273	-9.6%
TOTAL	464	447	-3.6%



Subsection 4.125 (.18) F. 1. b. i. Refinements: Definition of Significant-Quantitative

C120. **Review Criteria:** “As used herein, “significant” means:

- i. More than ten percent of any quantifiable matter, requirement, or performance measure, as specified in (.18)(F)(1)(a), above, or,

Finding: These criteria are satisfied.

Explanation of Finding: Quantifiable measures related to this refinement include number of units within the aggregate land use category, which is being reduced within the allowable 10% limit and maintains more than 2300 units in the Villebois Village. See Finding C119 above.

Subsection 4.125 (.18) F. 1. B. ii. Refinements: Definition of Significant-Qualitative

C121. **Review Criteria:** “As used herein, “significant” means:

- ii. That which negatively affects an important, qualitative feature of the subject, as specified in (.18)(F)(1)(a), above.”

Finding: These criteria are satisfied.

Explanation of Finding: This subsection does not provide clear definition of what an important qualitative feature might be. Absent details in this subsection, staff interprets the primary qualitative factors to consider being the three guiding design principles of the Villebois Village Master Plan: Connectivity, Diversity, and Sustainability. The three guiding design principles are further defined by the goals, policies, and implementation measures of the Master Plan. By virtue of better or equally implementing the goals, policies, and implementation measures of the Villebois Village Master Plan, as described in Finding C122 below, the proposed refinements do not negatively affect qualitative features of the street network.

Subsection 4.125 (.18) F. 2. a. Refinements: Equally or Better Meeting Master Plan

C122. **Review Criteria:** “The refinements will equally or better meet the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: As further explained by the applicant on pages 42-43 of their supporting compliance report for the SAP Amendment (Exhibit B1), increasing the variety

of housing products in Phase 3 and slightly reducing the density equally or better meets the Villebois Village Master Plan

Subsection 4.125 (.18) F. 2. b. Refinements: Impact on Resources

C123. **Review Criteria:** “The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the SAP and Village area, and”

Finding: These criteria are satisfied.

Explanation of Finding: The change in housing mix and reduction in overall density does not have any detrimental impacts on the environment or natural or scenic resources.

Subsection 4.125 (.18) F. 2. c. Refinements: Relation to Adjoining Areas

C124. **Review Criteria:** “The refinement will not preclude an adjoining or subsequent SAP area from development consistent with the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The changes in housing mix and reduction in overall density for Phase 3 will not preclude adjacent future phases from developing with the housing mix and density shown in the Villebois Village Master Plan.

Section 4.139.01 SROZ Purpose

C125. **Review Criteria:** “The Significant Resource Overlay Zone (SROZ) is intended to be used with any underlying base zone as shown on the City of Wilsonville Zoning Map. The purpose of the Significant Resource Overlay Zone is to implement the goals and policies of the Comprehensive Plan relating to natural resources, open space, environment, flood hazard, and the Willamette River Greenway. In addition, the purposes of these regulations are to achieve compliance with the requirements of the Metro Urban Growth Management Functional Plan (UGMFP) relating to Title 3 Water Quality Resource Areas, and Title 13 Habitat Conservation Areas, and that portion of Statewide Planning Goal 5 relating to significant natural resources. It is not the intent of this ordinance to prevent development where the impacts to significant resources can be minimized or mitigated.”

Finding: These criteria are satisfied.

Explanation of Finding: A small amount of SROZ at the southern edge of Phase 3. The SROZ regulations are being reviewed in Request H.

Section 4.139.02 Where the SROZ Regulations Apply

C126. **Review Criteria:** “The regulations of this Section apply to the portion of any lot or development site, which is within a Significant Resource Overlay Zone and its associated “Impact Areas”. The text provisions of the Significant Resource Overlay Zone ordinance take precedence over the Significant Resource Overlay Zone maps. The Significant Resource Overlay Zone is described by boundary lines shown on the City of Wilsonville Significant Resource Overlay Zone Map. For the purpose of implementing the provisions of this Section, the Wilsonville Significant Resource Overlay Zone Map is used to determine whether a Significant Resource Impact Report (SRIR) is required. Through the development of an SRIR, a more specific determination can be made of possible impacts on the significant resources.

Unless otherwise exempted by these regulations, any development proposed to be located within the Significant Resource Overlay Zone and/or Impact Area must comply with these regulations.

Where the provisions of this Section conflict with other provisions of the City of Wilsonville Planning and Land Development Ordinance, the more restrictive shall apply.

The SROZ represents the area within the outer boundary of all inventoried significant natural resources. The Significant Resource Overlay Zone includes all land identified and protected under Metro’s UGMFP Title 3 Water Quality Resource Areas and Title 13 Habitat Conservation Areas, as currently configured, significant wetlands, riparian corridors, and significant wildlife habitat that is inventoried and mapped on the Wilsonville Significant Resource Overlay Zone Map.”

Finding: These criteria are satisfied.

Explanation of Finding: A small amount of SROZ at the southern edge of Phase 3. The SROZ regulations are being reviewed in Request H.

Section 4.171 Protection of Natural Features & Other Resources

Subsection 4.171 (.02) General Terrain Preparation

C127. **Review Criteria:**

- “All developments shall be planned designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant land forms.
- All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code, all development shall be planned, designed, constructed and maintained so as to:
 - Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.
 - Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.
 - Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

Finding: These criteria are satisfied.

Explanation of Finding: The subject area is relatively flat without the features listed. Grading will be required to follow the Uniform Building Code, as will be reviewed for grading permits for the site.

Subsection 4.171 (.03) Hillsides

C128. **Review Criterion:** “Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:”

Finding: This criterion does not apply.

Explanation of Finding: The subject Preliminary Development Plan does not include any areas of slopes in excess of 25%. Therefore, this standard does not apply to this application.

Subsection 4.171 (.04) Trees and Wooded Area

C129. **Review Criteria:**

- “All developments shall be planned, designed, constructed and maintained so that:

- Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
- Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.
- Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
 - Avoiding disturbance of the roots by grading and/or compacting activity.
 - Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.
 - Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
 - Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

Finding: These criteria are satisfied.

Explanation of Finding: No wooded areas exist within Phase 3. Individual trees of been inventoried and reviewed for preservation consistent with the Villebois Village Master Plan and the City’s Tree Ordinance. See Request F. Future phases will also have tree plans reviewed concurrent with PDP requests.

Subsection 4.171 (.05) High Voltage Power Lines

C130. **Review Criteria:** “High Voltage Power line Easements and Rights of Way and Petroleum Pipeline Easements:

- Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage power line easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage power line easements and rights of way and petroleum pipeline easement shall be carefully reviewed.
- Any proposed non-residential development within high voltage power line easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

Finding: These criteria do not apply.

Explanation of Finding: The development area and surrounding area are not around high voltage power lines.

Subsection 4.171 (.06) Safety Hazards

C131. **Review Criteria:** “

- To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- To protect lives and property from damage due to soil hazards.
- To protect lives and property from forest and brush fires.
- To avoid financial loss resulting from development in hazard areas.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that development of the subject area will occur in a manner that minimizes potential hazards to safety.

Subsection 4.171 (.07) Earth Movement Hazard Areas

C132. **Review Criterion:** “No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions.”

Finding: This criterion is satisfied.

Explanation of Finding: No areas of land movement, slump, earth flow, or mud or debris flow have been identified in the project area.

Subsection 4.171 (.08) Standards for Soil Hazard Areas

C133. **Review Criteria:**

- “Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulleting and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Finding: These criteria are satisfied.

Explanation of Finding: No soil hazard areas have been identified within the subject area.

Subsection 4.171 (.09) Historic Protection

C134. **Review Criteria:** This subsection establishes requirements for protection of historic resources.

Finding: This criterion is satisfied.

Explanation of Finding: A Cultural Resources Inventory for SAP North Phase 3 (see Exhibit B1, notebook, Section IIE) describes methods, conditions, findings, and recommendations related to historic, cultural, and archeological resources on the subject site in detail. A foundation and well have been identified as Site KBS1. As stated in the inventory report “it is unlikely that site KBS1 has the potential to yield important information about the area’s history. SWCA (consultant) recommends that site KBS1 is not eligible for listing in the NRHP and, should SHPO concur with this recommendation, construction activities in the APE may proceed as planned.” Exhibit B7 shows SHPO concurrency.

Section 4.178 Sidewalk and Pathway Standards

C135. **Review Criteria:**

- “Sidewalks. All sidewalks shall be concrete and a minimum of five (5) feet in width, except where the walk is adjacent to commercial storefronts. In such cases, they shall be increased to a minimum of ten (10) feet in width.
- Pathways
 - Bicycle facilities shall be provided using a bicycle lane as the preferred facility design. The other facility designs listed will only be used if the bike lane standard

cannot be constructed due to physical or financial constraints. The alternative standards are listed in order of preference.

- Bike lane. This design includes 12-foot minimum travel lanes for autos and paved shoulders, 5-6 feet wide for bikes that are striped and marked as bicycle lanes. This shall be the basic standard applied to bike lanes on all arterial and collector streets in the City, with the exception of minor residential collectors with less than 1,500 (existing or anticipated) vehicle trips per day.”

Finding: These criteria are satisfied.

Explanation of Finding: Sheet 8 of the applicant’s plan sheets, Exhibit B2, depict cross-sections of the proposed sidewalks and pathways in compliance with the above standards and Master Plan figures

REQUEST D: DB14-0011 SAP-NORTH PDP 3, PRELIMINARY DEVELOPMENT PLAN

The applicant's findings in Section IIA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Village Zone

Subsection 4.125 (.02) Permitted Uses in Village Zone

D1. **Review Criteria:** This subsection lists the uses typically permitted in the Village Zone, including single-family detached dwellings, row houses, and non-commercial parks, playgrounds, and recreational facilities.

Finding: These criteria are satisfied.

Explanation of Finding: The uses proposed includes single-family homes, parks and playgrounds, and open space which are permitted in the Village Zone.

Subsection 4.125 (.05) Development Standards Applying to All Development in the Village Zone

“All development in this zone shall be subject to the V Zone and the applicable provisions of the Wilsonville Planning and Land Development Ordinance. If there is a conflict, then the standards of this section shall apply. The following standards shall apply to all development in the V zone:”

Subsection 4.125 (.05) A. Block, Alley, Pedestrian, and Bicycle Standards

D2. **Review Criteria:** This subsection lists the block, alley, pedestrian, and bicycle standards applicable in the Village Zone.

Finding: These criteria are satisfied.

Explanation of Finding: The Preliminary Development Plan drawings, Exhibit B4, shows blocks, alleys, pedestrian, and bicycle paths consistent with this subsection and the SAP, as proposed to be amended.

Subsection 4.125 (.05) B. Access

D3. **Review Criterion:** “All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer.”

Finding: This criterion is satisfied.

Explanation of Finding: A condition of approval for the Tentative Subdivision Plat will ensure compliance with this standard. See Request E.

Table V-1, Development Standards

D4. Review Criteria:

Table V-1: Development Standards												
Building Type	Min. Lot Size (sq.ft.)	Min. Lot Width (ft.)	Min. Lot Depth (ft.)	Max. Lot Coverage (note)	Min. Frontage Width ^{18,112} (%)	Max. Bldg. Height ⁶ (ft.)	Front Min. (ft.)	Setbacks ^{10, 13, 20}			Alley-Loaded Garage (note)	Street-Loaded Garage (note)
								Front Max. (ft.)	Rear Min. (ft.)	Side Min. (ft.)		
Commercial Buildings - Village Center ¹⁴	NR	NR	NR	1	90	60	NR ¹	5	NR	NR	NR	NA
Hotels - Village Center ¹⁴	NR	NR	NR	1	80	60	NR ²	15	NR	NR	NR	NA
Mixed Use Buildings - Village Center ¹⁴	NR	NR	NR	1	90	60	NR ²	8	NR	NR	NR	NA
Multi-Family Dwellings - Village Center ¹⁴	NR	NR	NR	1	80	45	5 ⁴	15	NR	NR	NR	NA
Row Houses ¹¹ - Village Center ¹⁴	NR	NR	NR	1	80	45	5 ⁴	10	NR	NR	NR	NA
Commercial Buildings	NR	NR	NR	1	60	45	NR	15	NR	NR	NR	NA
Mixed Use Buildings	NR	NR	NR	1	60	45	NR	15	NR	NR	NR	NA
Multi-Family Dwellings	NR	NR	NR	1	60	45	8 ⁴	15	NR	NR	NR	NA
Row Houses ¹¹	NR	15	50	1	80	45	8 ⁵	15	NR	NR	NR	NA
Duplexes	4,000	45	70	2	60 ¹⁸	35	12 ^{5,6}	20 ⁸	5	5 ¹⁵	7	8.17.18
Single-Family Dwellings	2,250	35	50	2	60 ¹⁸	35	12 ^{3,9}	20 ⁸	5	5 ¹⁵	7	8.17

Notes: NR - No Requirement

NA - Not Allowed

1 Lot < 8000sf: NR, Lot > 8000sf: 80% (Max. Lot Coverage)

2 Small lots: 75%, Medium Lots: 65%, Standard and Large Lots: 55%, Estate Lots: 45% Maximum Lot Coverage

On lots where detached accessory buildings are built, maximum lot coverage may be increased by 10%.

3 Bay windows, balconies, and other structural building projections above 8 ft. may encroach up to 5 ft. into the Public Way; canopies, awnings, and other non-structural projections may encroach up to 8 ft. into the Public Way.

4 Porches, stairs, stoops, decks, canopies, balconies, bay windows, chimneys, awnings, and other building projections may encroach up to the Public Way.

5 Porches, stoops, decks, canopies, balconies, bay windows, chimneys, awnings, and other building projections may encroach to within 8 ft. of the Public Way. Stairs may encroach to the Public Way.

6 For Standard, or Large Lots on Collector Avenues, front setbacks are 20 ft. min., (13' setback to porch), side street setbacks are 15' (8' setback to porch). Pie-shaped lots or lots with significant trees or grade banks at frontage have no maximum front setback.

7 The garage setback from alley shall be between 3 and 5 foot or, when as optional parking space is located between the garage and the alley, shall be 16 ft. minimum. Lots with important trees, as identified in the Master Plan, or grade differences at the alley, affecting garage location shall be exempt from this requirement.

8 Street-loaded garages shall be a minimum 20 ft. front setback to face of garage, and located a minimum of 5 ft. behind main façade of the associated dwelling unit.

9 Vertical encroachments are allowed up to ten additional feet, for up to 10% of the building footprint; vertical encroachments shall not be habitable space.

10 For Village Center buildings with lots fronting two or more streets, at least two facades shall be subject to the minimum frontage width and front setback requirements.

11 Row Houses are typically attached, but may be detached within the Village Center Boundary. When attached, no more than ten units shall be contiguous along a street edge. When row houses are detached, the Minimum Frontage Width is 65%. The Minimum Frontage Width for detached row houses may be less than 65% on corner lots or to accommodate the curve radius of street frontage, public utility easements, important trees, grade differences, public open space requirements, or as otherwise approved by the DRB.

12 See Definitions, 4.125.01, for measurement of Minimum Frontage Width.

13 Front Setback is measured as the offset of the front lot line or a vehicular or pedestrian access easement line. On lots with alleys, Rear Setback shall be measured from the rear lot line abutting the alley.

14 See Figure 2A - Village Center Boundary & Land Use Plan in the Villebois Village Master Plan for areas included within the Village Center.

15 On Estate Lots and Large Lots with frontage 70 ft. or wider, the minimum combined side yard setbacks shall total 15 ft. with a minimum of 5 ft. On Small and Medium Lots, minimum side setback shall be 0 ft. or as required by Building Code.

16 For cluster housing with lots arranged on a courtyard, frontage shall be measured at the front door face of the building adjacent to a public right of way or a public pedestrian access easement linking the courtyard with the Public Way.

17 Dwellings on lots without alley access shall be at least 36 feet wide.

18 Duplexes with front-loaded garages are limited to one shared standard-sized driveway/apron.

19 Maximum setbacks may be increased as necessary to accommodate deeper porches, building code, public utility easements or public open space requirements.

20 Lots are categorized as small, medium, standard, large or estate as shown in the Pattern Book.

Finding: These criteria are satisfied.

Explanation of Finding: In previous PDP's it has consistently been interpreted to allow the lot width and lot sizes to be governed by the Pattern Book. All lot dimensions and sizes meet the standards established in the SAP North Pattern Book.

Subsection 4.125 (.07) Table V-2 Off-Street Parking, Loading & Bicycle Parking

D5. **Review Criteria:**

Table V-2: Off Street Parking Requirements				
Permitted or Conditional Use	Min. Vehicle Spaces	Max. Vehicle Spaces	Bicycle Short-term (Spaces)	Bicycle Long-term (Spaces)
Permitted Uses				
Single-Family Detached Dwellings	1.0/DU	NR	NR	NR
Single-Family Accessory Dwelling Units*	1.0/DU	NR	NR	NR
Duplex	1.0/DU	NR	NR	NR
Row Houses	1.0/DU	NR	NR	NR
Multi-Family Dwellings	1.0/1 Bdr 1.5/2 Bdr 1.75/3 Bdr	NR	1 per 20 units Min. of 2	1 per 4 units Min. of 2
Community Housing	1 per 4 residents	1 per unit	None	1 per 8 residents Min. of 2
Commercial Uses				
Convenience Store	2/1000 sf	5/1000 sf	1 per 5000 sf Min. of 2	1 per 12,000 sf Min. of 2
Restaurant/Pub	2/1000 sf	10/1000 sf	1 per 5000 sf Min. of 2	1 per 12,000 sf Min. of 2
Child Day Care	0.2 per student/staff	0.3 per student/staff	None	1 per 10,000 sf Min. of 2
Medical/Dental	3/1000 sf	4/1000 sf	1 per 40,000 sf Min. of 2	1 per 70,000 sf Min. of 2
All other commercial uses	2/1000 sf	4/1000 sf	1 per 10,000 sf Min. of 2	1 per 40,000 sf Min. of 2
Conditional Uses				
Schools	0.2 per student/staff	0.3 per student/staff	0.3 per student/staff	0.2 per classroom
Recreational Facilities	3/1000 sf ¹	5/1000 sf ¹	1 per 3,000 sf Min. of 4	1 per 3000 sf Min. of 4
Conference Center	0.3 per seat	0.5 per seat	1 per 15 seats Min. of 2	1 per 40 seats Min. of 10
Library/Museum	2/1000 sf	4/1000 sf	1 per 1000 sf Min. of 6	1 per 1000 sf Min. of 6
Religious Institution	.25 per seat	.5 per seat	1 per 2,000 sf Min. of 2	1 per 4,000 sf Min. of 2
Theater	.25 per seat	.5 per seat	1 per 20 seats Min. of 2	1 per 50 seats Min. of 4
Overnight Lodging Facility	1 per room	1.5 per room	1 per 20 rooms Min. of 2	1 per 20 rooms Min. of 2
Light Manufacturing/Research and Development	2/1000 sf	4/1000 sf	1 per 10,000 sf Min. of 2	1 per 40,000 sf Min. of 2
All other Conditional Uses	2/1000 sf	4/1000 sf	1 per 10,000 sf Min. of 2	1 per 40,000 sf Min. of 2

Notes: ¹ 1/1000 sf min. for court facilities

NR No requirement

* See WC Section 4.113(.11) Assessorly Dwelling Units

[Table 4-2 amended by Ord. 677, 3/1/10]

Finding: These criteria are satisfied.

Explanation of Finding: At least two (2) parking spaces are provided for each home, exceeding the minimum of one (1). On street parking will also be provided throughout the development

Subsection 4.125 (.08) Parks & Open Space

D6. **Review Criteria:** This subsection prescribes the open space requirement for development in the Village Zone.

Finding: These criteria are satisfied.

Explanation of Finding: Figure 5 Parks & Open Space Plan of the Villebois Village Master Plan states that there are a total of 159.73 acres within Villebois, which is approximately 33% of Villebois. As described in the Parks, Trails, and Open Space refinement as part of the SAP Amendment, Request C, a pocket park along with linear greens and landscape areas are being added increasing the overall amount of open space within Villebois.

Subsection 4.125 (.09) Street Alignment and Access Improvements

Subsection 4.125 (.09) A. 1. a. Street Alignment and Access Improvements Conformity with Master Plan, etc.

D7. **Review Criterion:** “All street alignment and access improvements shall conform to the Villebois Village Master Plan, or as refined in the Specific Area Plan, Preliminary Development Plan, or Final Development Plan . . .”

Finding: This criterion is satisfied.

Explanation of Finding: The street alignments and access improvements conform with SAP North plans which have been found to be in compliance with the Villebois Village Master Plans with some minor refinements regarding alignment of the streets. See Request C Findings C69 and Findings C101 through C106.

Subsection 4.125 (.09) A. 1. a. i. Street Improvement: Conformity with Public Works Standards and Continuation of Streets

D8. **Review Criteria:** “All street improvements shall conform to the Public Works Standards and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: All street improvements within this PDP will comply with the applicable Public Works Standards and make the connections to adjoining properties and phases as shown in the Villebois Village Master Plan, as refined in Request C.

Subsection 4.125 (.09) A. 1. a. ii. Streets Developed According to Master Plan

D9. **Review Criterion:** “All streets shall be developed according to the Master Plan.”

Finding: This criterion is satisfied.

Explanation of Finding: All streets within this PDP will be developed with curbs, landscape strips, sidewalks, and bikeways or pedestrian pathways as depicted on the Circulation Plan and Street Sections, Sheet 7 of Exhibit B4, , which are consistent with the cross sections shown in the Master Plan and as approved by the City Engineer for Grahams Ferry Road and Tooze Road.

Subsection 4.125 (.09) A. 2. a. & b. Intersections of Streets: Angles and Intersections

D10. Review Criteria:

- “Angles: Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.
- Intersections: If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety (90) degrees shall require approval by the City Engineer after consultation with the Fire District.”

Finding: These criteria are satisfied.

Explanation of Finding: The Circulation Plan, Sheet 7 of Exhibit B4, demonstrates that all proposed streets will intersect at angles consistent with the above standards.

Subsection 4.15 (.09) A. 2. c. Intersection of Streets: Offsets

D11. Review Criterion: “Offsets: Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:

- 1000 ft. for major arterials
- 600 ft. for minor arterials
- 100 ft. for major collector
- 50 ft. for minor collector”

Finding: These criteria are satisfied.

Explanation of Finding: The Circulation Plan, Sheet 7 of Exhibit B4, demonstrate that opposing intersections on public streets are offset, as appropriate, so that no danger to the traveling public is created.

Subsection 4.125 (.09) A. 2. d. Curb Extensions

D12. Review Criteria: “Curb extensions at intersections shall be shown on the Specific Area Plans required in subsection 4.125(.18)(C) through (F) below, and shall:

- Not obstruct bicycle lanes on collector streets.
- Provide a minimum 20 foot wide clear distance between curb extensions at all local residential street intersections shall have, shall meet minimum turning radius requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.”

Finding: These criteria are satisfied.

Explanation of Finding: Curb extensions are shown on the Circulation Plan, Sheet 7 of Exhibit B4. Curb extensions will not obstruct bicycle lanes on collector streets. The plan sheets illustrate that all local street intersections will have a minimum 20 foot wide clear distance between curb extensions.

Subsection 4.125 (.09) A. 3. Street Grades

D13. Review Criteria: “Street grades shall be a maximum of 6% on arterials and 8% for collector and local streets. Where topographic conditions dictate, grades in excess of 8%, but not more than 12%, may be permitted for short distances, as approved by the City Engineer, where topographic conditions or existing improvements warrant modification of these standards.”

Finding: These criteria are satisfied.

Explanation of Finding: No streets are proposed that exceed or approach the maximum

grade.

Subsection 4.125 (.09) A. 4. Centerline Radius Street Curves

D14. **Review Criterion:** “The minimum centerline radius street curves shall be as follows:

- Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by City Engineer.
- Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- Local streets: 75 feet”

Finding: These criteria are satisfied.

Explanation of Finding: Compliance is shown on the Circulation Plan, Sheet 7 of Exhibit B4.

Subsection 4.125 (.09) A. 5. Rights-of-way

D15. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for rights-of-way as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: Proposed rights-of-way are shown on the applicant’s plan sheets, including Sheet 4, Preliminary Plat, in Exhibit B4 as revised in Exhibit B6. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of a final plat in accordance with Section 4.177.

Subsection 4.125 (.09) A. 6. Access Drives

D16. **Review Criteria:** Access drives are required to be 16 feet for two-way traffic. Otherwise, pursuant to subsection (.09) A. above, the provisions of 4.177 apply for access drives as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states, “Access drives (alleys) will be paved at least 16-feet in width within a 20-foot tract, as shown on the Circulation Plan. In accordance with Section 4.177, all access drives will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions.”

Subsection 4.125 (.09) A. 7. Clear Vision Areas

D17. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for clear vision areas as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that clear vision areas will be provided and maintained in compliance with the Section 4.177.

Subsection 4.125 (.09) A. 8. Vertical Clearance

D18. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for vertical clearance as no other provisions are noted.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that Vertical clearance will be provided and maintained in compliance with the Section 4.177.

Subsection 4.125 (.09) A. 9. Interim Improvement Standards

D19. **Review Criteria:** Pursuant to subsection (.09) A. above, the provisions of 4.177 apply for interim improvement standards as no other provisions are noted.

Finding: This criterion will be satisfied.

Explanation of Finding: No interim street improvements are proposed pursuant to this subsection.

Subsection 4.125 (.10) Sidewalk and Pathway Improvement Standards

D20. **Review Criteria:** “The provisions of Section 4.178 shall apply within the Village zone.”

Finding: These criteria are satisfied.

Explanation of Finding: All sidewalks and pathways within PDP 3 North will be constructed in accordance with the standards of Section 4.178 and the Villebois Village Master Plan. Sidewalks and pathways are shown in the Circulation Plan and Street Cross-sections, Sheet 7 of Exhibit B4.

Subsection 4.125 (.11) Landscaping, Screening and Buffering

D21. **Review Criteria:** “Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:

- Streets in the Village Zone shall be developed with street trees as described in the Community Elements Book.”

Finding: These criteria are satisfied.

Explanation of Finding: The appropriate landscaping is provided. The proposed street trees are among the choices provided in the Community Elements Book.

Subsection 4.125 (.12) Signage and Wayfinding

D22. **Review Criteria:** “Except as this subsection may otherwise be amended, or until such time as a Signage and Wayfinding Plan is approved as required by Section 4.125(.18)(D)(2)(f), signs within the Village zone shall be subject to provisions of Section 4.156.”

Finding: These criteria are satisfied.

Explanation of Finding: Signage will be provided consistent with the SAP North Signage & Wayfinding Plan.

Subsection 4.125 (.13) Design Principles Applying to the Village Zone

D23. **Review Criteria:** “The following design principles reflect the fundamental concepts, and support the objectives of the Villebois Village Master Plan, and guide the fundamental qualities of the built environment within the Village zone.

- The design of landscape, streets, public places and buildings shall create a place of distinct character.
- The landscape, streets, public places and buildings within individual development projects shall be considered related and connected components of the Villebois Village Master Plan.
- The design of streets and public spaces shall provide for and promote pedestrian safety, connectivity and activity.
- The design of exterior lighting shall minimize off-site impacts, yet enable functionality.”

Finding: These criteria are satisfied.

Explanation of Finding: The Architectural Pattern Book and Community Elements Book ensure the design meets the fundamental design concepts and support the objectives of the Villebois Village Master Plan. By complying with an approved Architectural Pattern Book and Community Elements Book, the design of the PDP will satisfy these criteria. See also Final Development Plan, Request G.

Subsection 4.125 (.14) A. 1. a. Design Standards: Flag Lots

D24. **Review Criterion:** “Flag lots are not permitted.”

Finding: This criterion is satisfied.

Explanation of Finding: No flag lots are proposed.

Subsection 4.125 (.14) A. 2. a. - e. and h. – k. Building and Site Design Requirements

D25. **Review Criteria:** “Building and site design shall include:

- Proportions and massing of architectural elements consistent with those established in an approved Architectural Pattern Book or Village Center Architectural Standards.
- Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Architectural Pattern Book, Community Elements Book or approved Village Center Architectural Standards.
- Protective overhangs or recesses at windows and doors.
- Raised stoops, terraces or porches at single-family dwellings.
- Exposed gutters, scuppers, and downspouts, or approved equivalent.
- Building elevations of block complexes shall not repeat an elevation found on an adjacent block.
- Building elevations of detached buildings shall not repeat an elevation found on buildings on adjacent lots.
- A porch shall have no more than three walls.
- A garage shall provide enclosure for the storage of no more than three motor vehicles, as described in the definition of Parking Space.”

Finding: These criteria are satisfied or will be satisfied by Conditions of Approval.

Explanation of Finding: The application requests PDP approval for single family detached houses. Conformance with the Pattern Book and Community Elements Book will assure consistency with the Design Standards of subsection (.14). Conformance with the Architectural Pattern Book will be reviewed at the issuance of each building permit. Conceptual front elevations of the planned homes are provided. See Section IIF) of Exhibit B3. Compliance with the Community Elements Book is being reviewed as part of Request F Final Development Plan. In order to increase consistency with the Architectural Pattern Book and other development elsewhere in Villebois Condition of Approval PDD 5

requires courtyard fencing consistent with the pattern book and the architectural style of the home for at least 30% of the homes with usable courtyards not exceeding a 5% slope.

Subsection 4.125 (.14) A. 2. g. Landscape Plans

D26. **Review Criterion:** “Building and site design shall include:

- A landscape plan in compliance with Sections 4.125(.07) and (.11), above.”

Finding: This criterion is satisfied.

Explanation of Finding: The appropriate landscape plans have been provided. See FDP Plans, Exhibit B5.

Subsection 4.125 (.14) A. 2. f. Protection of Significant Trees

D27. **Review Criterion:** “Building and site design shall include:

- The protection of existing significant trees as identified in an approved Community Elements Book.”

Finding: This criterion is satisfied.

Explanation of Finding: Tree protection information is provided. See also Request F.

Subsection 4.125 (.14) A. 3. Lighting and Site Furnishings

D28. **Review Criteria:** “Lighting and site furnishings shall be in compliance with the approved Architectural Pattern Book, Community Elements Book, or approved Village Center Architectural Standards.”

Finding: These criteria are satisfied or will be required to do so by Condition of Approval PDD 2.

Explanation of Finding: Park plans show furnishings consistent with the Community Elements Book. A condition of approval ensure the final street lighting installation is consistent with the Community Elements Book.

Subsection 4.125 (.14) A. 4. Building Systems

D29. **Review Criteria:** “Building systems, as noted in Tables V-3 and V-4 (Permitted Materials and Configurations), below, shall comply with the materials, applications and configurations required therein. Design creativity is encouraged. The LEED Building Certification Program of the U.S. Green Building Council may be used as a guide in this regard.”

Finding: These criteria are satisfied.

Explanation of Finding: Subsequent Building Permit applications will review proposed buildings for consistency with the criteria of Table V-3 and the Architectural Pattern Book.

Subsection 4.125 (.18) G. Preliminary Development Plan Approval Process

Subsection 4.125 (.18) G. 1. a. Preliminary Development Plan: Submission Timing

D30. **Review Criterion:** “An application for approval of a Preliminary Development Plan for a development in an approved SAP shall be filed with the City Planning Division for the entire SAP, or when submission of the SAP in phases has been authorized by the Development Review Board, for a phase in the approved sequence.”

Finding: This criterion is satisfied.

Explanation of Finding: This PDP addresses Phase 3 on the SAP North Phasing Plan as amended with Request C.

Subsection 4.125 (.18) G. 1. b. Preliminary Development Plan: Owners' Consent

D31. **Review Criterion:** "An application for approval of a Preliminary Development Plan for a development in an approved SAP shall be made by the owner of all affected property or the owner's authorized agent;"

Finding: This criterion is satisfied.

Explanation of Finding: This application is made by Fred Gast of Polygon Homes. The PDP application has been signed by owners Wayne Rembold of Villebois LLC as well as Charles and Carolyn Taber.

Subsection 4.125 (.18) G. 1. c. Preliminary Development Plan Permit Process: Proper Form & Fees

D32. **Review Criterion:** "An application for approval of a Preliminary Development Plan for a development in an approved SAP shall be filed on a form prescribed by the City Planning Division and filed with said division and accompanied by such fee as the City Council may prescribe by resolution;"

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has used the prescribed form and paid the required application fees.

Subsection 4.125 (.18) G. 1. d. Preliminary Development Plan Permit Process: Professional Coordinator

D33. **Review Criterion:** "An application for approval of a Preliminary Development Plan for a development in an approved SAP shall set forth the professional coordinator and professional design team for the project;"

Finding: This criterion is satisfied.

Explanation of Finding: A professional design team is working on the project with Stacy Connery AICP from Pacific Community Design as the professional coordinator.

Subsection 4.125 (.18) G. 1. e. Preliminary Development Plan Permit Process: Mixed Uses

D34. **Review Criterion:** "An application for approval of a Preliminary Development Plan for a development in an approved SAP shall state whether the development will include mixed land uses, and if so, what uses and in what proportions and locations."

Finding: This criterion is satisfied.

Explanation of Finding: The proposed PDP includes only residential uses with supporting recreational amenities and utilities.

Subsection 4.125 (.18) G. 1. f. Preliminary Development Plan Permit Process: Land Division

D35. **Review Criterion:** "An application for approval of a Preliminary Development Plan for a development in an approved SAP shall include a preliminary land division (concurrently) per Section 4.400, as applicable."

Finding: This criterion is satisfied.

Explanation of Finding: A preliminary subdivision plat has been submitted concurrently with this request. See Request E.

Subsection 4.125 (.18) G. 1. g. Preliminary Development Plan Permit Process: Zone Map Amendment

D36. **Review Criterion:** “An application for approval of a Preliminary Development Plan for a development in an approved SAP shall include a concurrent application for a Zone Map Amendment (i.e., Zone Change) for the subject phase.”

Finding: This criterion is satisfied.

Explanation of Finding: A zone map amendment request has been submitted concurrently with this request. See Request B.

Subsection 4.125 (.18) G. 2. a. – c. Preliminary Development Plan Permit Process: Information Required

D37. **Review Criteria:** “The application for Preliminary Development Plan approval shall include conceptual and quantitatively accurate representations of the entire development sufficient to demonstrate conformance with the approved SAP and to judge the scope, size and impact of the development on the community and shall be accompanied by the following information:

- A boundary survey or a certified boundary description by a surveyor licensed in the State of Oregon.
- Topographic information sufficient to determine direction and percentage of slopes, drainage patterns, and in environmentally sensitive areas, (e.g., flood plain, wetlands, forested areas, steep slopes or adjacent to stream banks). Contour lines shall relate to North American Vertical Datum of 1988 and be at minimum intervals as follows:
 - One (1) foot contours for slopes of up to five percent (5%);
 - Two (2) foot contours for slopes from six percent (6%) to twelve (12%);
 - Five (5) foot contours for slopes from twelve percent (12%) to twenty percent (20%). These slopes shall be clearly identified, and
 - Ten (10) foot contours for slopes exceeding twenty percent (20%).
- The location of areas designated Significant Resource Overlay Zone (SROZ), and associated 25-foot Impact Areas, within the PDP and within 50 feet of the PDP boundary, as required by Section 4.139.

Finding: These criteria are satisfied.

Explanation of Finding: All of the listed information has been provided. See Exhibits B3 and B4.

Subsection 4.125 (.18) G. 2. d. Preliminary Development Plan Permit Process: Land Area Tabulation

D38. **Review Criteria:** “A tabulation of the land area to be devoted to various uses, and a calculation of the average residential density per net acre.”

Finding: These criteria are satisfied.

Explanation of Finding: Following is a tabulation of land area devoted to the various uses and a calculation of net residential density:

Approx. Gross Acreage	15.16 Acres
Parks and Open Space	2.03 Acres

Public Streets	4.49 Acres
Lots and Alleys	8.64 Acres

Net Residential Density: 84 lots / 8.64 Acres = 9.72 units per net acre

Subsection 4.125 (.18) G. 2. e. Preliminary Development Plan Permit Process: Streets, Alleys, and Trees

D39. **Review Criteria:** “The location, dimensions and names, as appropriate, of existing and platted streets and alleys on and within 50 feet of the perimeter of the PDP, together with the location of existing and planned easements, sidewalks, bike routes and bikeways, trails, and the location of other important features such as section lines, section corners, and City boundary lines. The plan shall also identify all trees 6 inches and greater d.b.h. on the project site only.”

Finding: These criteria are satisfied.

Explanation of Finding: Information on planned alleys and streets are provided or the information is readily available. Easements, sidewalks, bike routes and bikeways, trails, and other relevant features are shown. The required trees are shown. See Exhibit B4.

Subsection 4.125 (.18) G. 2. f. Preliminary Development Plan Permit Process: Building Drawings

D40. **Review Criteria:** “Conceptual drawings, illustrations and building elevations for each of the listed housing products and typical non-residential and mixed-use buildings to be constructed within the Preliminary Development Plan boundary, as identified in the approved SAP, and where required, the approved Village Center Design.”

Finding: This criterion is satisfied.

Explanation of Finding: The proposed PDP includes Large, Standard, Medium, and Small detached single-family housing products. Conceptual elevations have been provided. See Section IIF) of applicant’s notebook, Exhibit B3. The elevations have been reviewed by the City’s consultant architect for consistency with the Architectural Pattern Book or will be prior to issuance of building permits.

Subsection 4.125 (.18) G. 2. g. Preliminary Development Plan Permit Process: Utility Plan

D41. **Review Criterion:** “A composite utility plan illustrating existing and proposed water, sanitary sewer, and storm drainage facilities necessary to serve the SAP.”

Finding: This criterion is satisfied.

Explanation of Finding: A composite utility plan has been provided. See applicant’s Sheet 6, Exhibit B4.

Subsection 4.125 (.18) G. 2. h. Preliminary Development Plan Permit Process: Phasing Sequence

D42. **Review Criterion:** “If it is proposed that the Preliminary Development Plan will be executed in Phases, the sequence thereof shall be provided.”

Finding: This criterion is satisfied.

Explanation of Finding: The PDP is proposed to be executed in a single phase.

Subsection 4.125 (.18) G. 2. i. Preliminary Development Plan Permit Process: Security for Capital Improvements

D43. **Review Criterion:** “A commitment by the applicant to provide a performance bond or other acceptable security for the capital improvements required by the project.”

Finding: This criterion is satisfied.

Explanation of Finding: The applicant states “the applicant will provide a performance bond or other acceptable security for the capital improvements required by the project.”

Subsection 4.125 (.18) G. 2. j. Preliminary Development Plan Permit Process: Traffic Report

D44. **Review Criterion:** “At the applicant’s expense, the City shall have a Traffic Impact Analysis prepared, as required by Section 4.030(.02)(B), to review the anticipated traffic impacts of the proposed development. This traffic report shall include an analysis of the impact of the SAP on the local street and road network, and shall specify the maximum projected average daily trips and maximum parking demand associated with buildout of the entire SAP, and it shall meet Subsection 4.140(.09)(J)(2).”

Finding: This criterion is satisfied.

Explanation of Finding: The required traffic report has been provided, and can be found in Section IID of the applicant’s notebook, Exhibit B3.

Subsection 4.125 (.18) H. PDP Application Submittal Requirements

Subsection 4.125 (.18) H. 1. PDP Application Submittal Requirements: General

D45. **Review Criteria:** “The Preliminary Development Plan shall conform with the approved Specific Area Plan, and shall include all information required by (.18)(D)(1) and (2), plus the following:

- The location of water, sewerage and drainage facilities;
- Conceptual building and landscape plans and elevations, sufficient to indicate the general character of the development;
- The general type and location of signs;
- Topographic information as set forth in Section 4.035;
- A map indicating the types and locations of all proposed uses; and
- A grading and erosion control plan illustrating existing and proposed contours as prescribed previously in this section.”

Finding: These criteria are satisfied.

Explanation of Finding: The PDP matches the requested approval of the SAP North, as requested to be amended in Request C, and the application includes all of the requested information.

Subsection 4.125 (.18) H. 2. PDP Application Submittal Requirements: Traffic Report

D46. **Review Criteria:** “In addition to this information, and unless waived by the City’s Community Development Director as enabled by Section 4.008(.02)(B), at the applicant’s expense, the City shall have a Traffic Impact Analysis prepared, as required by Section 4.030(.02)(B), to review the anticipated traffic impacts of the proposed development. This traffic report shall include an analysis of the impact of the PDP on the local street and road network, and shall specify the maximum projected average daily trips and maximum parking demand associated with buildout of

the entire PDP, and it shall meet Subsection 4.140(.09)(J)(2) for the full development of all five SAPs.”

Finding: These criteria are satisfied.

Explanation of Finding: The required traffic report is included in Section IID of the applicant’s notebook, Exhibit B3.

Subsection 4.125 (.18) H. 3. PDP Application Submittal Requirements: Level of Detail

D47. **Review Criterion:** “The Preliminary Development Plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the phase of development. However, approval of a Final Development Plan is a separate and more detailed review of proposed design features, subject to the standards of Section 4.125(.18)(L) through (P), and Section 4.400 through Section 4.450.”

Finding: This criterion is satisfied.

Explanation of Finding: The required level of detail has been shown, similar to other PDP’s approved throughout Villebois.

Subsection 4.125 (.18) H. 4. PDP Application Submittal Requirements: Copies of Legal Documents

D48. **Review Criterion:** “Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or for the creation of a non-profit homeowner’s association, shall also be submitted.”

Finding: This criterion is satisfied.

Explanation of Finding: The required legal documents for review have been provided. See Section IVC in the applicant’s notebook, Exhibit B3.

Subsection 4.125 (.18) I. PDP Approval Procedures

D49. **Review Criteria:** “An application for PDP approval shall be reviewed using the following procedures:

- Notice of a public hearing before the Development Review Board regarding a proposed PDP shall be made in accordance with the procedures contained in Section 4.012.
- A public hearing shall be held on each such application as provided in Section 4.013.
- After such hearing, the Development Review Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.”

Finding: These criteria are satisfied.

Explanation of Finding: The request is being reviewed according to this subsection.

Subsection 4.125 (.18) K. PDP Approval Criteria

Subsection 4.125 (.18) K. 1. a. PDP Approval Criteria: Consistent with Standards of Section 4.125

D50. **Review Criteria:** “Is consistent with the standards identified in this section.”

Finding: These criteria are satisfied.

Explanation of Finding: As shown elsewhere in this request, the proposed Preliminary Development Plan is consistent with the standards of Section 4.125.

Subsection 4.125 (.18) K. 1. b. PDP Approval Criteria: Complies with the Planning and Land Development Ordinance

D51. **Review Criterion:** “Complies with the applicable standards of the Planning and Land Development Ordinance, including Section 4.140(.09)(J)(1)-(3).”

Finding: This criterion is satisfied.

Explanation of Finding: Findings are provided showing compliance with applicable standards of the Planning and Land Development Ordinance. Specifically Findings D57 through D59 address Subsections 4.140 (.09) J. 1. through 3.

Subsection 4.125 (.18) K. 1. c. PDP Approval Criteria: Consistent with Approved SAP

D52. **Review Criterion:** “Is consistent with the approved Specific Area Plan in which it is located.”

Finding: This criterion is satisfied.

Explanation of Finding: The requested PDP approval is consistent with the SAP, as requested to be amended by Request C.

Subsection 4.125 (.18) K. 1. d. PDP Approval Criteria: Consistent with Approved Pattern Book

D53. **Review Criterion:** “Is consistent with the approved Pattern Book and, where required, the approved Village Center Architectural Standards.”

Finding: This criterion is satisfied.

Explanation of Finding: As stated by the applicant, “No buildings are proposed with this Preliminary Development Plan. Subsequent Building Permit applications for residential buildings in this Preliminary Development Plan will document compliance with the Architectural Pattern Book. However, proposed lots are sized to accommodate proposed uses in a manner consistent with Table V-1 and the Architectural Pattern Book.”

Subsection 4.125 (.18) K. 2. PDP Approval Criteria: Reasonable Phasing Schedule

D54. **Review Criterion:** “If the PDP is to be phased, that the phasing schedule is reasonable and does not exceed two years between commencement of development of the first, and completion of the last phase, unless otherwise authorized by the Development Review Board.”

Finding: This criterion is satisfied.

Explanation of Finding: The PDP will be completed in a single phase.

Subsection 4.125 (.18) K. 3. PDP Approval Criteria: Parks Concurrency

D55. **Review Criterion:** “Parks within each PDP or PDP Phase shall be constructed prior to occupancy of 50% of the dwelling units in the PDP or PDP phase, unless weather or other special circumstances prohibit completion, in which case bonding for such improvements shall be permitted.”

Finding: This criterion will be satisfied by Condition of Approval PDD 3.

Explanation of Finding: A condition of approval ensures the parks within PDP 3 North completed prior to occupancy of 50% of the housing units of the phase or bonding will be provided if special circumstances prevent completion. Specifically, park improvement shown must be completed prior to the granting of the building permit for the 42nd house in the PDP.

Subsection 4.125 (.18) K. 5. PDP Approval Criteria: DRB Conditions

D56. **Review Criteria:** “The Development Review Board may require modifications to the PDP, or otherwise impose such conditions as it may deem necessary to ensure conformance with the approved SAP, the Villebois Village Master Plan, and compliance with applicable requirements and standards of the Planning and Land Development Ordinance, and the standards of this section.”

Finding: This criterion is satisfied.

Explanation of Finding: No additional conditions of approval are recommended.

Subsection 4.140 (.09) J. Planned Development Permit Review Criteria

“A planned development permit may be granted by the Development Review Board only if it is found that the development conforms to all the following criteria, as well as to the Planned Development Regulations in Section 4.140:”

Subsection 4.140 (.09) J. 1. Consistency with Comprehensive Plan and Other Plans, Ordinances

D57. **Review Criteria:** “The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.”

Finding: These criteria are satisfied.

Explanation of Finding: The applicant’s findings demonstrate the location, design, size, and uses proposed with the PDP are both separately and as a whole consistent with SAP North as proposed to be amended in Request C, and thus the Villebois Village Master Plan, the City’s Comprehensive Plan designation of Residential – Village for the area, and any other applicable ordinance of which staff is aware.

Subsection 4.140 (.09) J. 2. Meeting Traffic Level of Service D

D58. **Review Criteria:** That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City’s adopted Capital Improvement Program, for which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5.

Finding: These criteria are satisfied.

Explanation of Finding: The location, design, size and uses are such that traffic generated within the PDP at the most heavily used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D. The proposed uses and the circulation system are consistent with SAP North, as requested to be amended in Request C. A copy of the Traffic Impact Analysis is included in Section IID of the applicant’s notebook, Exhibit B3.

Subsection 4.140 (.09) J. 3. Concurrency for Other Facilities and Services

D59. **Review Criteria:** “That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.”

Finding: These criteria are satisfied.

Explanation of Finding: As shown in the Utility and Drainage Report, Section IIIC of the applicant’s notebook, Exhibit B3, and the applicant’s Composite Utility Plan, Sheet 6 of Exhibit B4, adequate or immediately planned facilities and services are sufficient to serve the planned development.

Section 4.171 Protection of Natural Features & Other Resources

Subsection 4.171 (.02) General Terrain Preparation

D60. **Review Criteria:**

- “All developments shall be planned designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant land forms.
- All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code, all development shall be planned, designed, constructed and maintained so as to:
 - Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.
 - Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.
 - Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

Finding: These criteria are satisfied.

Explanation of Finding: The PDP matches the SAP North approvals, as requested to be amended in Request C and found to meet the requirements of this subsection.

Subsection 4.171 (.03) Hillsides

D61. **Review Criterion:** “Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:”

Finding: This criterion does not apply.

Explanation of Finding: No development is proposed on such slopes.

Subsection 4.171 (.04) Trees and Wooded Area

D62. **Review Criteria:**

- “All developments shall be planned, designed, constructed and maintained so that:
 - Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
 - Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.

- Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
 - Avoiding disturbance of the roots by grading and/or compacting activity.
 - Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.
 - Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
 - Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

Finding: These criteria are satisfied.

Explanation of Finding: The Tree Preservation Plan, Section VI of Exhibit B3 and Sheet 10 of Exhibit B4, depicts existing trees within the subject area and identifies trees to be retained and to be removed. This application includes a request for approval of a Type “C” Tree Removal Plan. See Request F.

Subsection 4.171 (.05) High Voltage Power Lines

D63. **Review Criteria:** “High Voltage Power line Easements and Rights of Way and Petroleum Pipeline Easements:

- Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage power line easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage power line easements and rights of way and petroleum pipeline easement shall be carefully reviewed.
- Any proposed non-residential development within high voltage power line easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

Finding: These criteria do not apply.

Explanation of Finding: The development area and surrounding area are not around high voltage power lines.

Subsection 4.171 (.06) Safety Hazards

D64. **Review Criteria:** “

- To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- To protect lives and property from damage due to soil hazards.
- To protect lives and property from forest and brush fires.
- To avoid financial loss resulting from development in hazard areas.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant states that development of the subject area will occur in a manner that minimizes potential hazards to safety.

Subsection 4.171 (.07) Earth Movement Hazard Areas

D65. **Review Criterion:** “No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions.”

Finding: This criterion is satisfied.

Explanation of Finding: No areas of land movement, slump, earth flow, or mud or debris flow have been identified in the project area.

Subsection 4.171 (.08) Standards for Soil Hazard Areas

D66. **Review Criteria:**

- “Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulleting and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Finding: These criteria are satisfied.

Explanation of Finding: No soil hazard areas have been identified within the subject area.

Subsection 4.171 (.09) Historic Protection

D67. **Review Criteria:** This subsection establishes requirements for protection of historic resources.

Finding: This criterion is satisfied.

Explanation of Finding: The PDP matches the SAP North approvals, as requested to be amended in Request C and found to meet the requirements of this subsection.

Section 4.176 Landscaping, Screening, and Buffering

D68. **Review Criteria:** This section establishes landscape, screening, and buffering requirements for development within the City.

Finding: These criteria are satisfied.

Explanation of Finding: Landscaping will be provided in accordance with the standards in Section 4.176. The Street Tree/Lighting Plan depicts street trees along rights-of-way within the subject Preliminary Development Plan area. The plan has been developed in conformance with the *Community Elements Book* and the applicable standards of Section 4.176. Landscaping in the parks and linear green areas will be reviewed with Request G, Final Development Plan.

Section 4.177 Street Improvement Standards

D69. **Review Criteria:** This section establishes street improvements standards for development within the City.

Finding: These criteria are satisfied.

Explanation of Finding: The PDP matches the SAP North approvals, as requested to be amended in Request C and found to meet the requirements of this subsection.

Section 4.178 Sidewalk and Pathway Standards

D70. **Review Criteria:**

- “Sidewalks. All sidewalks shall be concrete and a minimum of five (5) feet in width, except where the walk is adjacent to commercial storefronts. In such cases, they shall be increased to a minimum of ten (10) feet in width.
- Pathways
 - Bicycle facilities shall be provided using a bicycle lane as the preferred facility design. The other facility designs listed will only be used if the bike lane standard cannot be constructed due to physical or financial constraints. The alternative standards are listed in order of preference.
 - Bike lane. This design includes 12-foot minimum travel lanes for autos and paved shoulders, 5-6 feet wide for bikes that are striped and marked as bicycle lanes. This shall be the basic standard applied to bike lanes on all arterial and collector streets in the City, with the exception of minor residential collectors with less than 1,500 (existing or anticipated) vehicle trips per day.”

Finding: These criteria are satisfied.

Explanation of Finding: The PDP matches the SAP North approvals, as requested to be amended in Request C and found to meet the requirements of this subsection.

REQUEST E: DB14-0014 TENTATIVE SUBDIVISION PLAT

The applicant's findings in Section IIIA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Subsection 4.125 (.02) Permitted Uses in the Village Zone

- E1. **Review Criteria:** This subsection lists the permitted uses in the Village Zone.
Finding: These criteria are satisfied.
Explanation of Finding: The proposed subdivision is for uses including single family homes and parks and open space are permitted in the Village Zone.

Subsection 4.125 (.05) Development Standards Applying to All Development in Village Zone

Subsection 4.125 (.05) A. Block, Alley, Pedestrian, and Bicycle Standards

- E2. **Review Criteria:** This subsection lists the block, alley, pedestrian, and bicycle standards applicable in the Village Zone.
Finding: These criteria are satisfied.
Explanation of Finding: The tentative subdivision plat shows blocks, alleys, pedestrian, and bicycle paths consistent with this subsection and the proposed PDP.

Subsection 4.125 (.05) B. Access Standards

- E3. **Review Criterion:** "All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer."
Finding: This criterion will be satisfied by Condition of Approval PDE 6.
Explanation of Finding: Condition of Approval PDE 6 requires a non-access reservation strip on the street side of lots with street access helping to ensure this criterion is met.

Table V-1: Development Standards in the Village Zone

- E4. **Review Criteria:** This table shows the development standards, including setback for different uses in the Village Zone.
Finding: These criteria are satisfied.
Explanation of Finding: As been consistently interpreted for PDP approvals in Villebois, lot dimensions in the Architectural Pattern Book can govern such things as lot width and size even when it is not consistent with the table. The proposed lots facilitate the construction that meets relevant standards of the table.

Subsection 4.125 (.07) Off-Street Parking, Loading and Bicycle Parking

- E5. **Review Criteria:** "Except as required by Subsections (A) through (D), below, the requirements of Section 4.155 shall apply within the Village zone."
Finding: These criteria are satisfied.
Explanation of Finding: Nothing concerning the tentative subdivision would prevent the required parking from being built.

Subsection 4.125 (.08) Open Space Requirements

- E6. **Review Criteria:** This subsection establishes the open space requirements for the Village Zone.
Finding: These criteria are satisfied or will be satisfied by Condition of Approval PDE 9.
Explanation of Finding: The tentative subdivision plat shows open space consistent with the requirements of the Village Zone and the proposed PDP. Consistent with the requirements of (.08) C. the condition of approval require the City Attorney to review and approve pertinent bylaws, covenants, or agreements prior to recordation.

Subsection 4.125 (.09) A. 1. Street and Improvement Standards: General Provisions

- E7. **Review Criteria:** “Except as noted below, the provisions of Section 4.177 shall apply within the Village zone:
- General Provisions:
 - All street alignment and access improvements shall conform to Figures 7, 8, 9A, and 9B of the Villebois Village Master Plan, or as refined in an approved Specific Area Plan, Preliminary Development Plan, or Final Development Plan, and the following standards:
 - All street improvements shall conform to the Public Works Standards and the Transportation Systems Plan, and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.
 - All streets shall be developed according to the Master Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows street alignments, improvements, and access improvements consistent with the approved PDP and SAP found to be consistent with the Master Plan and Transportation Systems Plan.

Subsection 4.125 (.09) A. 2. Street and Improvement Standards: Intersection of Streets

- E8. **Review Criteria:** “Intersections of streets:
- Angles: Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.
 - Intersections: If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of a thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety 90 degrees shall require approval by the City Engineer after consultation with the Fire District.
 - Offsets: Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:
 - 1000 ft. for major arterials
 - 600 ft. for minor arterials
 - 100 ft. for major collector
 - 50 ft. for minor collector
 - Curb Extensions:
 - Curb extensions at intersections shall be shown on the Specific Area Plans required in Subsection 4.125(.18)(C) through (F), below, and shall:
 - Not obstruct bicycle lanes on collector streets.
 - Provide a minimum 20 foot wide clear distance between curb extensions at all local residential street intersections, meet minimum turning radius

requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows street intersections as proposed in the proposed PDP consistent with these standards.

Subsection 4.125 (.09) A. 4. Street and Improvement Standards: Centerline Radius Street Curves

E9. **Review Criteria:** “The minimum centerline radius street curves shall be as follows:

- Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by the City Engineer.
- Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- Local streets: 75 feet”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows streets found to meet these standards under Requests C and D.

Subsections 4.125 (.09) A. 5. and 4.177 (.01) C. Street and Improvement Standards: Rights-of-way

E10. **Review Criteria:**

- “Prior to issuance of a Certificate of Occupancy Building permits or as a part of the recordation of a final plat, the City shall require dedication of rights-of-way in accordance with the Street System Master Transportation Systems Plan. All dedications shall be recorded with the County Assessor's Office.
- The City shall also require a waiver of remonstrance against formation of a local improvement district, and all non-remonstrances shall be recorded in the County Recorder’s Office as well as the City's Lien Docket, prior to issuance of a Certificate of Occupancy Building Permit or as a part of the recordation of a final plat.
- In order to allow for potential future widening, a special setback requirement shall be maintained adjacent to all arterial streets. The minimum setback shall be 55 feet from the centerline or 25 feet from the right-of-way designated on the Master Plan, whichever is greater.”

Finding: These criteria are satisfied.

Explanation of Finding: As stated by the applicant, “rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of a final plat in accordance with Section 4.177.”

Subsections 4.125 (.09) A. 6.and 4.177 (.01) E. Street and Improvement Standards: Access Drives

E11. **Review Criteria:**

- Access drives are required to be 16 feet for two-way traffic.
- An access drive to any proposed development shall be designed to provide a clear travel lane free from any obstructions.
- Access drive travel lanes shall be constructed with a hard surface capable of carrying a 23-ton load.

- Secondary or emergency access lanes may be improved to a minimum 12 feet with an all-weather surface as approved by the Fire District. All fire lanes shall be dedicated easements.
- Minimum access requirements shall be adjusted commensurate with the intended function of the site based on vehicle types and traffic generation.
- Where access drives connect to the public right-of-way, construction within the right-of-way shall be in conformance to the Public Works Standards.

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows alleys of sufficient width to meet the width standards. The applicant states easements for fire access will be dedicated as required.

Subsections 4.125 (.09) A. 7. and 4.177 (.01) F. Street and Improvement Standards: Clear Vision Areas

E12. **Review Criteria:** “A clear vision area which meets the Public Works Standards shall be maintained on each corner of property at the intersection of any two streets, a street and a railroad or a street and a driveway. However, the following items shall be exempt from meeting this requirement:” Listed 1. a.-f.

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows streets found to meet these standards under Requests C and D.

Subsections 4.125 (.09) A. 8.and 4.177 (.01) G. Street and Improvement Standards: Vertical Clearance

E13. **Review Criterion:** “a minimum clearance of 12 feet above the pavement surface shall be maintained over all streets and access drives.”

Finding: This criterion is satisfied.

Explanation of Finding: Nothing shown on the tentative subdivision plat would preclude the required clearance from being provided.

Subsections 4.125 (.09) A. 9.and 4.177 (.01) H. Street and Improvement Standards: Interim Improvement Standards

E14. **Review Criteria:** “It is anticipated that all existing streets, except those in new subdivisions, will require complete reconstruction to support urban level traffic volumes. However, in most cases, existing and short-term projected traffic volumes do not warrant improvements to full Master Plan standards. Therefore, unless otherwise specified by the Planning Commission, the following interim standards shall apply.

- Arterials - 24 foot paved, with standard sub-base. Asphalt overlays are generally considered unacceptable, but may be considered as an interim improvement based on the recommendations of the City Engineer, regarding adequate structural quality to support an overlay.
- Half-streets are generally considered unacceptable. However, where the Development Review Board finds it essential to allow for reasonable development, a half-street may be approved. Whenever a half-street improvement is approved, it shall conform to the requirements in the Public Works Standards:

- When considered appropriate in conjunction with other anticipated or scheduled street improvements, the City Engineer may approve street improvements with a single asphalt lift. However, adequate provision must be made for interim storm drainage, pavement transitions at seams and the scheduling of the second lift through the Capital Improvements Plan.

Finding: These criteria are satisfied.

Explanation of Finding: The area covered by the tentative subdivision plat does not include any interim improvements addressed by this subsection.

Subsection 4.202 (.01) through (.03) Plats Reviewed by Planning Director or DRB

E15. **Review Criteria:** “Pursuant to ORS Chapter 92, plans and plats must be approved by the Planning Director or Development Review Board (Board), as specified in Sections 4.030 and 4.031, before a plat for any land division may be filed in the county recording office for any land within the boundaries of the City, except that the Planning Director shall have authority to approve a final plat that is found to be substantially consistent with the tentative plat approved by the Board.

The Development Review Board and Planning Director shall be given all the powers and duties with respect to procedures and action on tentative and final plans, plats and maps of land divisions specified in Oregon Revised Statutes and by this Code.

Approval by the Development Review Board or Planning Director of divisions of land within the boundaries of the City, other than statutory subdivisions, is hereby required by virtue of the authority granted to the City in ORS 92.”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat is being reviewed by the Development Review Board according to this subsection. The final plat will be reviewed by the Planning Division under the authority of the Planning Director to ensure compliance with the DRB review of the tentative subdivision plat.

Subsection 4.202 (.04) A. Lots must be Legally Created for Issuing Development Permit

E16. **Review Criterion:** “No person shall sell any lot or parcel in any condominium, subdivision, or land partition until a final condominium, subdivision or partition plat has been approved by the Planning Director as set forth in this Code and properly recorded with the appropriate county.”

Finding: This criterion is satisfied.

Explanation of Finding: It is understood that no lots will be sold until the final plat has been approved by the Planning Director and recorded.

Subsection 4.202 (.04) B. Prohibition of Creating Undersized Lots

E17. **Review Criterion:** “It shall be a violation of this Code to divide a tract of land into a parcel smaller than the lot size required in the Zoning Sections of this Code unless specifically approved by the Development Review Board or City Council. No conveyance of any portion of a lot, for other than a public use, shall leave a structure on the remainder of the lot with less than the minimum lot size, width, depth, frontage, yard or setback requirements, unless specifically authorized through the Variance procedures of Section 4.196 or the waiver provisions of the Planned Development procedures of Section 4.118.”

Finding: This criterion is satisfied.

Explanation of Finding: No lots will be divided into a size smaller than allowed by the proposed Village “V” zoning designation.

Subsection 4.210 (.01) Pre-Application Conference

E18. **Review Criterion:** “Prior to submission of a tentative condominium, partition, or subdivision plat, a person proposing to divide land in the City shall contact the Planning Department to arrange a pre-application conference as set forth in Section 4.010.”

Finding: This criterion is satisfied.

Explanation of Finding: A pre-application conference was held on November 21, 2013 in accordance with this subsection.

Subsection 4.210 (.01) A. Preparation of Tentative Plat

E19. **Review Criterion:** “The applicant shall cause to be prepared a tentative plat, together with improvement plans and other supplementary material as specified in this Section. The Tentative Plat shall be prepared by an Oregon licensed professional land surveyor or engineer. An affidavit of the services of such surveyor or engineer shall be furnished as part of the submittal.”

Finding: This criterion is satisfied.

Explanation of Finding: Sheet 4 of Exhibit B4, as shown revised in Exhibit B6, is a tentative subdivision plat prepared in accordance with this subsection.

Subsection 4.210 (.01) B. Tentative Plat Submission

E20. **Review Criteria:** “The design and layout of this plan plat shall meet the guidelines and requirements set forth in this Code. The Tentative Plat shall be submitted to the Planning Department with the following information:” Listed 1. through 26.

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat has been submitted with the required information.

Subsection 4.210 (.01) D. Land Division Phases to Be Shown

E21. **Review Criteria:** “Where the applicant intends to develop the land in phases, the schedule of such phasing shall be presented for review at the time of the tentative plat. In acting on an application for tentative plat approval, the Planning Director or Development Review Board may set time limits for the completion of the phasing schedule which, if not met, shall result in an expiration of the tentative plat approval.”

Finding: These criteria are satisfied.

Explanation of Finding: The land is intended to be developed in a single phase.

Subsection 4.210 (.01) E. Remainder Tracts

E22. **Review Criteria:** “Remainder tracts to be shown as lots or parcels. Tentative plats shall clearly show all affected property as part of the application for land division. All remainder tracts, regardless of size, shall be shown and counted among the parcels or lots of the division.”

Finding: These criteria are satisfied.

Explanation of Finding: All affected property has been incorporated into the tentative subdivision plat.

Subsection 4.236 (.01) Conformity to the Master Plan or Map

E23. **Review Criteria:** “Land divisions shall conform to and be in harmony with the Transportation Master Plan (Transportation Systems Plan), the Bicycle and Pedestrian Master Plan, the Parks and Recreation Master Plan, the Official Plan or Map and especially to the Master Street Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat is consistent with applicable plans including the Transportation Systems Plan and Villebois Village Master Plan.

Subsection 4.236 (.02) Relation to Adjoining Street System

E24. **Review Criteria:**

- A land division shall provide for the continuation of the principal streets existing in the adjoining area, or of their proper projection when adjoining property is not developed, and shall be of a width not less than the minimum requirements for streets set forth in these regulations. Where, in the opinion of the Planning Director or Development Review Board, topographic conditions make such continuation or conformity impractical, an exception may be made. In cases where the Board or Planning Commission has adopted a plan or plat of a neighborhood or area of which the proposed land division is a part, the subdivision shall conform to such adopted neighborhood or area plan.
- Where the plat submitted covers only a part of the applicant's tract, a sketch of the prospective future street system of the unsubmitted part shall be furnished and the street system of the part submitted shall be considered in the light of adjustments and connections with the street system of the part not submitted.
- At any time when an applicant proposes a land division and the Comprehensive Plan would allow for the proposed lots to be further divided, the city may require an arrangement of lots and streets such as to permit a later resubdivision in conformity to the street plans and other requirements specified in these regulations.

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows streets meeting these standards consistent with the proposed PDP. See Request D.

Subsection 4.236 (.03) Streets: Conformity to Standards Elsewhere in the Code

E25. **Review Criteria:** “All streets shall conform to the standards set forth in Section 4.177 and the block size requirements of the zone.”

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows streets consistent with the proposed SAP Amendment and PDP under Requests C and D which meets Section 4.177 and the block requirements of the zone.

Subsection 4.236 (.04) Creation of Easements

E26. **Review Criteria:** “The Planning Director or Development Review Board may approve an easement to be established without full compliance with these regulations, provided such an easement is the only reasonable method by which a portion of a lot large enough to allow partitioning into two (2) parcels may be provided with vehicular access and adequate utilities. If the proposed lot is large enough to divide into more than two (2) parcels, a street dedication may be required.”

Finding: These criteria are satisfied.

Explanation of Finding: No specific easements are requested pursuant to this subsection.

Subsection 4.236 (.05) Topography

E27. **Review Criteria:** “The layout of streets shall give suitable recognition to surrounding topographical conditions in accordance with the purpose of these regulations.”

Finding: This criterion is satisfied.

Explanation of Finding: The tentative subdivision plat shows street alignments recognizing topographic conditions consistent with the requested PDP.

Subsection 4.236 (.06) Reserve Strips

E28. **Review Criteria:** “The Planning Director or Development Review Board may require the applicant to create a reserve strip controlling the access to a street. Said strip is to be placed under the jurisdiction of the City Council, when the Director or Board determine that a strip is necessary:” Reasons listed A. through D.

Finding: These criteria are satisfied.

Explanation of Finding: No reserve strips are being required for the reasons listed in this subsection. However, reserve strips are being required by Condition of Approval PDD 6 to prevent access to the front side of lots served by an alley. See also Findings E3.

Subsection 4.236 (.07) Future Expansion of Street

E29. **Review Criteria:** When necessary to give access to, or permit a satisfactory future division of, adjoining land, streets shall be extended to the boundary of the land division and the resulting dead-end street may be approved without a turn-around. Reserve strips and street plugs shall be required to preserve the objective of street extension.

Finding: These criteria are satisfied.

Explanation of Finding: Streets are being extended consistent with this subsection.

Subsection 4.236 (.08) Additional Right-of-Way for Existing Streets

E30. **Review Criteria:** “Whenever existing streets adjacent to or within a tract are of inadequate width, additional right-of-way shall conform to the designated width in this Code or in the Transportation Systems Plan.”

Finding: These criteria are satisfied.

Explanation of Finding: The necessary rights-of-way for Grahams Ferry Road and Tooze Road are being dedicated.

Subsection 4.236 (.09) Street Names

E31. **Review Criteria:** “No street names will be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and numbers shall conform to the established name system in the City, and shall be subject to the approval of the City Engineer.”

Finding: These criteria are satisfied.

Explanation of Finding: Street names will be reviewed by Engineering staff and be subject to approval by the City Engineer consistent with this subsection.

Subsection 4.237 (.01) Blocks

E32. **Review Criteria:**

- The length, width, and shape of blocks shall be designed with due regard to providing adequate building sites for the use contemplated, consideration of needs for convenient access, circulation, control, and safety of pedestrian, bicycle, and motor vehicle traffic, and recognition of limitations and opportunities of topography.
- Sizes: Blocks shall not exceed the sizes and lengths specified for the zone in which they are located unless topographical conditions or other physical constraints necessitate larger blocks. Larger blocks shall only be approved where specific findings are made justifying the size, shape, and configuration.

Finding: These criteria are satisfied.

Explanation of Finding: The tentative subdivision plat shows blocks consistent with those proposed Preliminary Development Plan. See Request D.

Subsection 4.237 (.02) Easements

E33. **Review Criteria:**

- Utility lines. Easements for sanitary or storm sewers, drainage, water mains, electrical lines or other public utilities shall be dedicated wherever necessary. Easements shall be provided consistent with the City's Public Works Standards, as specified by the City Engineer or Planning Director. All of the public utility lines within and adjacent to the site shall be installed within the public right-of-way or easement; with underground services extending to the private parcel constructed in conformance to the City's Public Works Standards. All franchise utilities shall be installed within a public utility easement. All utilities shall have appropriate easements for construction and maintenance purposes.
- Water courses. Where a land division is traversed by a water course, drainage way, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of the water course, and such further width as will be adequate for the purposes of conveying storm water and allowing for maintenance of the facility or channel. Streets or parkways parallel to water courses may be required.

Finding: These criteria are satisfied or will be satisfied by Conditions of Approval.

Explanation of Finding: As shown on preliminary plat, Sheet 4 of Exhibit B4 as revised in Exhibit B6, the required easements have been provided. Condition of Approvals ensures all easements dealing with utilities are on the final plat.

Subsection 4.237 (.03) Mid-block Pedestrian and Bicycle Pathways

E34. **Review Criteria:** “An improved public pathway shall be required to transverse the block near its middle if that block exceeds the length standards of the zone in which it is located.

- Pathways shall be required to connect to cul-de-sacs or to pass through unusually shaped blocks.
- Pathways required by this subsection shall have a minimum width of ten (10) feet unless they are found to be unnecessary for bicycle traffic, in which case they are to have a minimum width of six (6) feet.

Finding: These criteria are satisfied.

Explanation of Finding: Pathways are being provided consistent with the Village Zone requirements and the Villebois Village Master Plan.

Subsection 4.237 (.04) Tree Planting & Tree Access Easements

E35. **Review Criteria:** “Tree planting plans for a land division must be submitted to the Planning Director and receive the approval of the Director or Development Review Board before the planting is begun. Easements or other documents shall be provided, guaranteeing the City the right to enter the site and plant, remove, or maintain approved street trees that are located on private property.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed street trees are within the proposed public right-of-way.

Subsection 4.237 (.05) Lot Size and Shape

E36. **Review Criteria:** “The lot size, width, shape and orientation shall be appropriate for the location of the land division and for the type of development and use contemplated. Lots shall meet the requirements of the zone where they are located.”

Finding: These criteria are satisfied.

Explanation of Finding: Proposed lot sizes, widths, shapes and orientations are appropriate for the proposed development and are in conformance with the Village Zone requirements as discussed under Requests C and D.

Subsection 4.237 (.06) Access

E37. **Review Criteria:** “The division of land shall be such that each lot shall have a minimum frontage on a street or private drive, as specified in the standards of the relative zoning districts. This minimum frontage requirement shall apply with the following exceptions:” Listed A. and B.

Finding: These criteria are satisfied.

Explanation of Finding: Each lot has the minimum frontage on a street or greenbelt, as allowed in the Architectural Pattern Book.

Subsection 4.237 (.07) Through Lots

E38. **Review Criteria:** “Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries or adjacent non-residential activity or to overcome specific disadvantages of topography and orientation.”

Finding: These criteria are satisfied.

Explanation of Finding: No through lots are proposed. The lots on Belfast Lane and Barcelona Street backing up to Grahams Ferry Road and Tooze Road have a linear green between the rear lot lines and the Grahams Ferry Road and Tooze Road rights-of-way.

Subsection 4.237 (.08) Lot Side Lines

E39. **Review Criteria:** “The side lines of lots, as far as practicable for the purpose of the proposed development, shall run at right angles to the street or tract with a private drive upon which the lots face.”

Finding: These criteria are satisfied.

Explanation of Finding: Generally side lot lines are at right angles with the front lot line. Where they do not, they run at the closest possible angle to 90 degrees as allowed by block shape, adjacent lot shape, and required alley orientation.

Subsection 4.237 (.09) Large Lot Land Divisions

E40. **Review Criteria:** “In dividing tracts which at some future time are likely to be re-divided, the location of lot lines and other details of the layout shall be such that re-division may readily take place without violating the requirements of these regulations and without interfering with the orderly development of streets. Restriction of buildings within future street locations shall be made a matter of record if the Development Review Board considers it necessary.”

Finding: These criteria are satisfied.

Explanation of Finding: No future divisions of the lots included in the tentative subdivision plat.

Subsection 4.237 (.10) and (.11) Building Line and Built-to Line

E41. **Review Criteria:** The Planning Director or Development Review Board may establish special:

- building setbacks to allow for the future redivision or other development of the property or for other reasons specified in the findings supporting the decision. If special building setback lines are established for the land division, they shall be shown on the final plat.
- build-to lines for the development, as specified in the findings and conditions of approval for the decision. If special build-to lines are established for the land division, they shall be shown on the final plat.

Finding: These criteria are satisfied.

Explanation of Finding: No building lines or built-to lines are proposed or recommended.

Subsection 4.237 (.12) Land for Public Purposes

E42. **Review Criterion:** “The Planning Director or Development Review Board may require property to be reserved for public acquisition, or irrevocably offered for dedication, for a specified period of time.”

Finding: This criterion is satisfied.

Explanation of Finding: No property reservation is recommended as described in this subsection.

Subsection 4.237 (.13) Corner Lots

E43. **Review Criterion:** “Lots on street intersections shall have a corner radius of not less than ten (10) feet.”

Finding: This criterion is satisfied.

Explanation of Finding: All proposed corner lots meet the minimum corner radius of ten (10) feet.

Section 4.250 Lots of Record

E44. **Review Criteria:** “All lots of record that have been legally created prior to the adoption of this ordinance shall be considered to be legal lots. Tax lots created by the County Assessor are not necessarily legal lots of record.”

Finding: These criteria are satisfied.

Explanation of Finding: The parcels being divided are of record, and the resulting subdivision lots will be lots of record.

Section 4.260 Improvements-Procedures

E45. **Review Criteria:** “In addition to other requirements, improvements installed by the developer, either as a requirement of these regulations or at the developer's own option, shall conform to the requirements of this Code and improvement standards and specifications of the City. The improvements shall be installed in accordance with the City's Public Works Standards.”

Finding: These criteria are satisfied.

Explanation of Finding: The rights-of-way shown on the tentative subdivision plat are sufficient for installation of improvements to City standards. Conformance of the improvements with the City's Public Works Standards and other applicable standards will be ensured through the Engineering Division's permit and inspection process.

Section 4.262 Improvements-Requirements

E46. **Review Criteria:** This section establishes requirements for a number of different improvements including curbs, sidewalks, sanitary sewers, drainage, underground utility and service facilities, streetlight standards, street signs, monuments, and water.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has stated their intent to meet the requirements for all the types of improvements indicated in this subsection. Conformance with these requirements will be ensured through the Engineering Division's, and Building Division's where applicable, permit and inspection process.

REQUEST F: DB14-0016 TYPE C TREE PLAN

The applicant's findings in Section VA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Subsection 4.600.50 (.03) A. Access to Site for Tree Related Observation

F1. **Review Criterion:** "By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant's property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed."

Finding: This criterion will be satisfied by Condition of Approval PDF 2.

Explanation of Finding: Condition of Approval PDF 2 ensures the required access is allowed.

Subsection 4.610.00 (.03) B. Type C Tree Removal Review Authority

F2. **Review Criterion:** "Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council."

Finding: This criterion is satisfied.

Explanation of Finding: The requested tree removal is connected to site plan review by the Development Review Board for the proposed development. The tree removal is thus being reviewed by the DRB.

Subsection 4.610.00 (.06) A. Conditions Attached to Type C Tree Permits

F3. **Review Criterion:** "Conditions. Attach to the granting of the permit any reasonable conditions considered necessary by the reviewing authority including, but not limited to, the recording of any plan or agreement approved under this subchapter, to ensure that the intent of this Chapter will be fulfilled and to minimize damage to, encroachment on or interference with natural resources and processes within wooded areas;"

Finding: This criterion is met or will be met by conditions of approval.

Explanation of Finding: A number of additional conditions are recommended pursuant to this subsection. Tree 10499 is a twenty-seven inch (27") Douglas-fir in excellent condition, rated as Good by the project arborist and indicated for retention during development. In consideration of the health and value of the tree Conditions of Approval PDF 4 and PDF 5 impose reasonable conditions to encourage proper long-term preservation and maintenance as well as clearly identify maintenance responsibility. Condition of Approval PDF 4 requires a tree preservation and maintenance easement and associated easement agreement allowing for inspection of the tree condition and assigning tree maintenance responsibility to the homeowners association as well as limiting plantings and irrigation that could damage the health of the tree. As a practical matter Condition of Approval PDF 5 requires an access easement on Lot 50 to allow necessary access for inspection and maintenance activities.

Condition of Approval PDF 12 addresses concern that the alignment of the sidewalk along SW Tooze Rd. looks to impact three trees shown as retained. The condition requires the sidewalk to meander to minimize placement within the root zone and when it is within the root zone requires a specific profile to protect roots. A public sidewalk easement may be required within the linear green to allow for the meandering.

Lastly, Conditions of Approval PDF 9 and 10 require special care be taken to limit impacts when installing fencing and utilities in the root zone of preserved trees.

Subsection 4.610.00 (.06) B. Completion of Operation

- F4. **Review Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Fix a reasonable time to complete tree removal operations;”

Finding: This criterion is satisfied.

Explanation of Finding: It is understood the tree removal will be completed by the time construction of all homes, parks, and other improvements in the PDP are completed, which is a reasonable time frame for tree removal.

Subsection 4.610.00 (.06) C. Security

- F5. **Review Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Require the Type C permit grantee to file with the City a cash or corporate surety bond or irrevocable bank letter of credit in an amount determined necessary by the City to ensure compliance with Tree Removal Permit conditions and this Chapter. 1. This requirement may be waived by the Planning Director if the tree removal must be completed before a plat is recorded, and the applicant has complied with WC 4.264(1) of this Code.”

Finding: This criterion is satisfied.

Explanation of Finding: As allowed by Subsection 1 the bonding requirement is being waived as the application is required to comply with WC 4.264(1).

Subsection 4.610.10 (.01) Standards for Tree Removal, Relocation or Replacement

Subsection 4.610.10 (.01) A. Standards for the Significant Resource Overlay Zone

- F6. **Review Criteria:** “Standard for the Significant Resource Overlay Zone. The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this chapter.”

Finding: These criteria are satisfied.

Explanation of Finding: Request H fully reviews any impact to the Significant Resource Overlay Zone, including any tree removal.

Subsection 4.610.10 (.01) B. Standards for Preservation and Conservation

- F7. **Review Criteria:** “No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a principle shall be equal in concern and importance as other design principles.”

Finding: These criteria are satisfied.

Explanation of Finding: As shown on the Existing Conditions Plan, Sheet 2 of Exhibit B4, the majority of the site is pasture with trees concentrated around existing residential dwellings, the northwestern site corner, and the retained wetland located in the southwestern site corner. Existing trees within these areas are preserved to the extent feasible while the locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas. Trees located within the wetland area to be retained and within the SROZ area will be preserved within open space tracts. The majority of trees proposed for removal are in “Poor” condition or “Moderate” condition. Trees with a “Good” rating are retained to the extent feasible. No trees with a rating of “Important” are present within the subject site.

Subsection 4.610.10 (.01) C. Standards for Development Alternatives

- F8. **Review Criteria:** “Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.”

Finding: These criteria are satisfied.

Explanation of Finding: The majority of the site is pasture with trees located around existing residential dwellings, within the retained wetland in the southwestern site corner, and the northwestern site corner. Existing trees within these areas are preserved to the extent feasible while the locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas.

Subsection 4.610.10 (.01) D. Standards for Land Clearing

- F9. **Review Criteria:** “Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.”

Finding: These criteria are satisfied.

Explanation of Finding: This standard is being followed as shown in the applicant’s plan set, Exhibit B4.

Subsection 4.610.10 (.01) E. Standards for Residential Development

- F10. **Review Criteria:** “Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.”

Finding: These criteria are satisfied.

Explanation of Finding: The subject site is relatively flat and is being developed with a pattern similar to other areas of Villebois.

Subsection 4.610.10 (.01) F. Standards for Compliance with Statutes and Ordinances

- F11. **Review Criteria:** “The proposed activity shall comply with all applicable statutes and ordinances.”

Finding: These criteria are satisfied.

Explanation of Finding: This standard is broad and duplicative. As found elsewhere in this report, the applicable standards are being applied.

Subsection 4.610.10 (.01) G. Standards for Relocation and Replacement

F12. **Review Criteria:** “The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not removed, in accordance with WC 4.620.10.

Finding: These criteria are satisfied.

Explanation of Finding: The proposed tree activity is being reviewed in accordance to the referenced sections related to replacement and protection.

Subsection 4.610.10 (.01) H. Limitation on Tree Removal

F13. **Review Criteria:** “Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.” Listed 1. through 4.

Finding: These criteria are satisfied.

Explanation of Finding: The proposed tree removal is either necessary for construction or is due to the health and condition of the trees.

Subsection 4.610.10 (.01) I. 1. Additional Standards for Type C Permits: Tree Survey

F14. **Review Criteria:** “For all site development applications reviewed under the provisions of Chapter 4 Planning and Zoning, the developer shall provide a Tree Survey before site development as required by WC 4.610.40 , and provide a Tree Maintenance and Protection Plan, unless specifically exempted by the Planning Director or DRB, prior to initiating site development.”

Finding: These criteria are satisfied.

Explanation of Finding: The required Tree Maintenance and Protection Plan has been submitted. See Section VIC) of Exhibit B3.

Subsection 4.610.10 (.01) I. 2. Additional Standards for Type C Permits: Platted Subdivision

F15. **Review Criteria:** “The recording of a final subdivision plat whose preliminary plat has been reviewed and approved after the effective date of Ordinance 464 by the City and that conforms with this subchapter shall include a Tree Survey and Maintenance and Protection Plan, as required by this subchapter, along with all other conditions of approval.”

Finding: These criteria are satisfied.

Explanation of Finding: The required plan has been submitted. See Section VIC) of Exhibit B3.

Subsection 4.610.10 (.01) I. 3. Additional Standards for Type C Permits: Utilities

F16. **Review Criteria:** “The City Engineer shall cause utilities to be located and placed wherever reasonably possible to avoid adverse environmental consequences given the circumstances of existing locations, costs of placement and extensions, the public welfare, terrain, and preservation of natural resources. Mitigation and/or replacement of any removed trees shall be in accordance with the standards of this subchapter.”

Finding: These criteria are satisfied.

Explanation of Finding: The Composite Utility Plan, Sheet 6 of Exhibit B4, shows the site has been designed to minimize the impact upon the environment to the extent feasible

given existing conditions. Utility placement in relation to trees will be further reviewed during review of construction drawings and utility easement placement on the final plat.

Subsection 4.610.40 (.01) Type C Tree Plan Reviewed with Stage II Final Plan

F17. **Review Criteria:** “Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process, and any plan changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed Type C Tree Plan is being reviewed concurrently with the Preliminary Development Plan, which is the equivalent of a Stage II Final Plan in the Village Zone.

Section 4.610.40 (.02) Submission of Tree Maintenance and Protection Plan

F18. **Review Criteria:** “The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:” Listed A. 1. through A. 7.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has submitted the necessary copies of a Tree Maintenance and Protection Plan. See Section VIC of the applicants notebook, Exhibit B3 and Sheet 10 of the applicant’s plan set, Exhibit B4.

Subsection 4.620.00 (.01) Tree Replacement Requirement

F19. **Review Criterion:** “A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal.”

Finding: This criterion is satisfied.

Explanation of Finding: The tree mitigation requirements will be more than exceeded by the planned street tree and trees in parks and linear greens.

Subsection 4.620.00 (.02) Basis for Determining Replacement

F20. **Review Criteria:** “The permit grantee shall replace removed trees on a basis of one (1) tree replanted for each tree removed. All replacement trees must measure two inches (2”) or more in diameter.”

Finding: These criteria are satisfied.

Explanation of Finding: More trees are planned to be planted that proposed to be removed. Each tree, including street trees and trees in parks and linear greens will meet the minimum diameter requirement.

Subsection 4.620.00 (.03) Replacement Tree Requirements

F21. **Review Criteria:** “A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree species list supplied by the City, and shall be state Department of Agriculture Nursery Grade No. 1 or better.

B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee’s successors-in-interest for two (2) years after the planting date.

C. A “guaranteed” tree that dies or becomes diseased during that time shall be replaced.

D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat.”

Finding: These criteria are satisfied or will be satisfied by Condition of Approval PDF 6.

Explanation of Finding: The condition of approval will ensure the relevant requirements of this subsection are met.

Subsection 4.620.00 (.04) Replacement Tree Stock Requirements

F22. **Review Criteria:** “All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade.”

Finding: These criteria will be satisfied by Condition of Approval PDF 6.

Explanation of Finding: Condition of Approval PDF 6 assures this is met.

Subsection 4.620.00 (.05) Replacement Trees Locations

F23. **Review Criteria:** “The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed.”

Finding: These criteria are satisfied.

Explanation of Finding: The applicant proposes to mitigate for all removed trees on site and in the appropriate locations for the proposed development.

Section 4.620.10 Tree Protection During Construction

F24. **Review Criteria:** “Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:” Listed A. through D.

Finding: These criteria are satisfied or will be satisfied by Condition of Approvals PDF 7 and PDF 8.

Explanation of Finding: The conditions of approval assure the applicable requirements of this Section will be met.

REQUEST G: DB14-0015 FINAL DEVELOPMENT PLAN FOR PARKS AND OPEN SPACE

The applicant's findings in Section VIA of their PDP notebook, Exhibit B3, respond to the majority of the applicable criteria.

Subsection 4.125 (.02) Permitted Uses in the Village Zone

G1. **Review Criteria:** This subsection lists the uses typically permitted in the Village Zone including "Non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar recreational and community uses owned and operated either publicly or by an owners association."

Finding: These criteria are satisfied.

Explanation of Finding: The requested Final Development Plan is for parks and open space allowed within the Village Zone.

Subsection 4.125 (.08) A. Parks and Open Space in the Village Zone-Amount Required

G2. **Review Criteria:** "In all residential developments and in mixed-use developments where the majority of the developed square footage is to be in residential use, at least twenty-five percent (25%) of the area shall be open space, excluding street pavement and surface parking. In multi-phased developments, individual phases are not required to meet the 25% standard as long as an approved Specific Area Plan demonstrates that the overall development shall provide a minimum of 25% open space. Required yard areas shall not be counted towards the required open space area."

Finding: These criteria are satisfied.

Explanation of Finding: Park and Open Space is being provided consistent with the PDP found to meet these criteria.

Subsection 4.125 (.08) B. Parks and Open Space in the Village Zone-Ownership

G3. **Review Criteria:** "Open space area required by this Section may, at the discretion of the Development Review Board, be protected by a conservation easement or dedicated to the City, either rights in fee or easement, without altering the density or other development standards of the proposed development. Provided that, if the dedication is for public park purposes, the size and amount of the proposed dedication shall meet the criteria of the City of Wilsonville standards. The square footage of any land, whether dedicated or not, which is used for open space shall be deemed a part of the development site for the purpose of computing density or allowable lot coverage."

Finding: These criteria are satisfied.

Explanation of Finding: This discretion of the DRB is understood. Ownership will be according to agreements reached between the developer and the City.

Subsection 4.125 (.08) C. Parks and Open Space in the Village Zone-Protection and Maintenance

G4. **Review Criteria:** "The Development Review Board may specify the method of assuring the long-term protection and maintenance of open space and/or recreational areas. Where such protection or maintenance are the responsibility of a private party or homeowners' association, the City Attorney shall review and approve any pertinent bylaws, covenants, or agreements prior to recordation."

Finding: These criteria are satisfied.

Explanation of Finding: Protection and maintenance of the open space and recreational areas are covered in the CCR's being reviewed by the City, and Operation and Maintenance Agreements between the developer and the City.

Subsection 4.125 (.09) Street and Access Improvement Standards

G5. **Review Criteria:** This section lists street and access improvement standards for the Village Zone including vision clearance standards.

Finding: These criteria are satisfied.

Explanation of Finding: This code section does not apply to the proposed parks and open space, except for vision clearance for vegetation which is met.

Subsection 4.125 (.10) Sidewalk and Pathway Improvement Standards

G6. **Review Criteria:** "The provisions of Section 4.178 shall apply within the Village zone."

Finding: These criteria are satisfied.

Explanation of Finding: Sidewalk and pathway improvements within the park areas are provided consistent with the PDP which was found to meet these criteria.

Subsection 4.125 (.11) Landscaping Screening and Buffering

G7. **Review Criteria:** "Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:" "Streets in the Village zone shall be developed with street trees as described in the Community Elements Book."

Finding: These criteria are satisfied.

Explanation of Finding: Findings G18 through G29 pertain to Section 4.176. Street trees are proposed consistent with the Community Elements Book.

Section 4.125 (.12) A. Signs Compliance with Master Sign and Wayfinding Plan for SAP

G8. **Review Criterion:** "All signage and wayfinding elements within the Village Zone shall be in compliance with the adopted Signage and wayfinding Master Plan for the appropriate SAP."

Finding: This criterion does not apply.

Explanation of Finding: The SAP North Signage & Wayfinding Plan indicates the provision of Secondary Site Identifier at the site entrance from Grahams Ferry Road. The FDP set, Exhibit B5, show provision of the 'Secondary Site Identifier' with the construction of the site entrance.

Subsection 4.125 (.14) Design Standards Applying to the Village Zone

The following Design Standards implement the Design Principles found in Section 4.125(.13), above, and enumerate the architectural details and design requirements applicable to buildings and other features within the Village (V) zone. The Design Standards are based primarily on the features, types, and details of the residential traditions in the Northwest, but are not intended to mandate a particular style or fashion. All development within the Village zone shall incorporate the following:

Subsection 4.125 (.14) A. 2. b. Details to Match Architectural Pattern Book and Community Elements Book

G9. **Review Criteria:** “Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Architectural Pattern Book, Community Elements Book or approved Village Center Architectural Standards.”

Finding: These criteria are satisfied or will be satisfied by Conditions of Approval.

Explanation of Finding: The Architectural Pattern Book is not applicable to the parks except that any retaining walls within the public view shed must be consistent with the materials in the Architectural Pattern Book and the Master Fencing shown in the pattern book. Condition of Approval PDG 11 ensures park elements are consistent with the Community Elements Book including playground equipment, nature path directional bollards, benches, tables, and trash cans.

Subsection 4.125 (.14) A. 2. f. Protection of Significant Trees

G10. **Review Criterion:** “The protection of existing significant trees as identified in an approved Community Elements Book.”

Finding: This criterion is satisfied.

Explanation of Finding: Significant trees are being protected. See Request F.

Subsection 4.125 (.14) A. 2. g. Landscape Plan

G11. **Review Criterion:** “A landscape plan in compliance with Sections 4.125(.07) and (.11), above.”

Finding: This criterion is satisfied.

Explanation of Finding: Landscape plans have been provided in compliance with the referenced sections.

Subsection 4.125 (.14) C. Lighting and Site Furnishings

G12. **Review Criteria:** “Lighting and site furnishings shall be in compliance with the approved Architectural Pattern Book, Community Elements Book, or approved Village Center Architectural Standards.”

Finding: These criteria will be satisfied by a condition of approval.

Explanation of Finding: The condition of approval requires the lighting and site furnishings to be consistent with the Community Elements Book.

Subsection 4.125 (.18) L. Final Development Plan Approval Procedures

G13. **Review Criteria:** This subsection establishes the approval procedures for Final Development Plans.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has followed the applicable procedures set out in this subsection for approval of a FDP.

Subsection 4.125 (.18) M. Final Development Plan Submittal Requirements

G14. **Review Criteria:** “An application for approval of a FDP shall be subject to the provisions of Section 4.034.”

Finding: These criteria are satisfied.

Explanation of Finding: The necessary materials have been submitted for review of the FDP.

Subsections 4.125 (.18) N. and P. 1. Final Development Plans Subject to Site Design Review Criteria

G15. **Review Criteria:** “An application for approval of a FDP shall be subject to the provisions of Section 4.421”

Finding: These criteria are satisfied.

Explanation of Finding: The provisions of Section 4.421 are being used as criteria in the review of the FDP. See Findings G30 through G37.

Subsection 4.125 (.18) O. Refinements to Preliminary Development Plan as part of Final Development Plan

G16. **Review Criteria:** This subsection identifies the process and requirements for refinements to a preliminary development plan as party of a final development plan.

Finding: These criteria are satisfied.

Explanation of Finding: No refinements are proposed as part of the requested FDP.

Subsection 4.125 (.18) P.2. Final Development Plan Compliance with Architectural Pattern Book, Community Elements Book, and PDP Conditions of Approval

G17. **Review Criteria:** “An application for an FDP shall demonstrate that the proposal conforms to the applicable Architectural Pattern Book, Community Elements Book, Village Center Architectural Standards and any conditions of a previously approved PDP.”

Finding: These criteria are satisfied or will be satisfied by a Conditions of Approval PDG 11 and PDG 12.

Explanation of Finding: Overall, as demonstrated by Finding G9 above, the FDP demonstrates compliance with the SAP North Community Elements Book. The applicant has provided sufficient information to show that playground equipment meeting the Community Elements Book can be provided. However, Condition of Approval PDG 11 ensures the detailed requirements of the Community Elements Book are met. There are no relevant portions of the Architectural Pattern Book, or Conditions of Approval for a previously approved PDP to which to demonstrate compliance. To further consistency with the Villebois Village Master Plan Parks and Open Spaces Policy 1, Condition of Approval PDG 12 requires a large shade tree be planted in the pocket park as a focal point at the intersection of Grahams Ferry Road and Tooze Road.

Landscape Standards Section 4.176

Subsection 4.176 (.02) B. Landscape Standards and Compliance with Code

G18. **Review Criterion:** “All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a

minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length”

Finding: This criterion is satisfied.

Explanation of Finding: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Subsection 4.176 (.03) Landscape Area and Locations

G19. **Review Criteria:** “Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable.”

Finding: These criteria are satisfied.

Explanation of Finding: The proposed parks are predominantly covered with vegetative plant materials other than areas for walkways, play structures, benches, tables, etc. The plantings are in a variety of areas.

Subsection 4.176 (.04) Buffering and Screening

G20. **Review Criteria:** “Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.”

Finding: These criteria are satisfied.

Explanation of Finding: No conditions requiring buffering and screening are within the area covered by the subject FDP request.

Subsection 4.176 (.06) A. Plant Materials-Shrubs and Groundcover

G21. **Review Criteria:** This subsection establishes plant material and planting requirements for shrubs and ground cover.

Finding: These criteria are satisfied.

Explanation of Finding: Applicant’s Sheet L5.0 in their plan set, Exhibit B5, indicates the requirements established by this subsection will be met by the proposed plantings.

Subsection 4.176 (.06) B. Plant Materials-Trees

G22. **Review Criteria:** This subsection establishes plant material requirements for trees.

Finding: These criteria are satisfied.

Explanation of Finding: Applicant’s Sheet L5.0 in their plan set, Exhibit B5, indicates the requirements established by this subsection will be met by the proposed plantings.

Subsection 4.176 (.06) D. Plant Materials-Street Trees

G23. **Review Criteria:** This subsection establishes plant material requirements for street trees.

Finding: These criteria are satisfied

Explanation of Finding: Applicant’s Sheets L2.0 through L4.0 of their plan set, Exhibit B5, indicate the requirements established by this subsection as well as the Community Elements Book are generally met. However, the plans show street trees both where they can interfere with preserved trees and within areas designated as curb cuts. Exhibit B6 includes a revised street tree plan to address the preserved tree and curb cut conflicts. Additional street trees may be omitted to avoid interference with “Likely to be removed” trees end up being preserved.

Subsection 4.176 (.06) E. Types of Plant Species

G24. **Review Criteria:** This subsection discusses use of existing landscaping or native vegetation, selection of plant materials, and prohibited plant materials.

Finding: These criteria are satisfied.

Explanation of Finding: The allowed plant materials are governed by the Community Elements Book. All proposed plant materials will be consistent with the SAP North Community Elements Book.

Subsection 4.176 (.06) F. Tree Credit

G25. **Review Criteria:** “Existing trees that are in good health as certified by an arborist and are not disturbed during construction may count for landscaping tree credit as follows: Existing trunk diameter

	Number of Tree Credits
18 to 24 inches in diameter	3 tree credits
25 to 31 inches in diameter	4 tree credits
32 inches or greater	5 tree credits:”

Maintenance requirements listed 1. through 2.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant is not requesting any of the preserved trees be counted as tree credits pursuant to this subsection.

Subsection 4.176 (.06) G. Exceeding Plant Material Standards

G26. **Review Criterion:** “Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.”

Finding: This criterion is satisfied.

Explanation of Finding: The selected landscape materials do not violate any height or vision clearance requirements.

Subsection 4.176 (.07) Installation and Maintenance of Landscaping

G27. **Review Criteria:** This subsection establishes installation and maintenance standards for landscaping.

Finding: These criteria are satisfied or will be satisfied by Condition of Approval PDG 2.

Explanation of Finding: The installation and maintenance standards are or will be met as follows:

- Plant materials are required to be installed to current industry standards and be properly staked to ensure survival
- Plants that die are required to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City.
- A note on the applicant's Sheet L5.0 in their plan set, Exhibit B5, indicates "coordinate landscape installation with installation of underground sprinkler and drainage systems."

Subsection 4.176 (.09) Landscape Plans

G28. **Review Criterion:** "Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated."

Finding: This criterion is satisfied.

Explanation of Finding: Landscape plans have been submitted with the required information. See Exhibit B5.

Subsection 4.176 (.10) Completion of Landscaping

G29. **Review Criterion:** "The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages. In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review."

Finding: This criterion is satisfied.

Explanation of Finding: As a condition of PDP approval the parks for the PDP or PDP phase must be completed prior to fifty percent (50%) of the house permits are issued unless certain conditions exist, similar to what is described in this subsection, in which case a bond can be posted. See finding D55 and Condition of Approval PDD 3.

Site Design Review

Subsection 4.400 (.01) Excessive Uniformity, Inappropriateness of Design, Etc.

G30. **Review Criteria:** "Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such

areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.”

Finding: These criteria are satisfied.

Explanation of Finding:

Excessive Uniformity: A variety of parks with a variety of features and amenities are provided consistent with the diversity of park uses described in the Villebois Village Master Plan avoiding excessive uniformity in park and open space design.

Inappropriate or Poor Design of the Exterior Appearance of Structures: Park structures are being required to conform to the Community Elements Book ensuring quality design appropriate for the Villebois context.

Inappropriate or Poor Design of Signs: Signs within parks and open spaces are required to be consistent with the Master Sign and Wayfinding program which is a comprehensive signage package that ensures signs in parks and open spaces, like elsewhere in Villebois, are of a quality design and appropriate for the Villebois context.

Lack of Proper Attention to Site Development: The appropriate professional services have been used to design the park and open spaces incorporating unique features of the site including natural features, demonstrating appropriate attention being given to site development.

Lack of Proper Attention to Landscaping: Landscaping has been professionally designed by a landscape architect, and includes a variety of plant materials, all demonstrating appropriate attention being given to landscaping.

Subsection 4.400 (.02) Purposes of Objectives of Site Design Review

G31. **Review Criterion:** “The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:” Listed A through J.

Finding: These criteria are satisfied.

Explanation of Finding: It is staff’s professional opinion that the applicant has provided sufficient information demonstrating compliance with the purposes and objectives of site design review. This includes designing the site to keep more formal improvements focused on areas of the site that were previously impacted by development, and preserving and enhancing the abundant natural areas of the site. In addition, site structures and features are consistent with the Community Element Book, which has previously been reviewed to ensure consistency with the Villebois Village Master Plan which has similar purposes and objectives as site design review.

Section 4.420 Site Design Review-Jurisdiction and Power of the Board

G32. **Review Criteria:** The section states the jurisdiction and power of the Development Review Board in relation to site design review including the application of the section, that development is required in accord with plans, and variance information.

Finding: These criteria will be satisfied by Condition of Approval PDG 3.

Explanation of Finding: A condition of approval has been included to ensure construction, site development, and landscaping are carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. No grading or other permits will be granted prior to development review board approval. No variances are requested from site development requirements.

Subsection 4.421 (.01) Site Design Review-Design Standards

G33. **Review Criteria:** “The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards.” Listed A through G.

Finding: These criteria are satisfied.

Explanation of Finding: The scope of design standards refers only to the parks and open spaces, as the single-family homes are not subject to site design review. The park elements within Open Space 2 have appropriately been set among the natural area, and other park elements are appropriate for a relatively flat site. Surface water drainage has been thoroughly reviewed consistent with the Villebois Village Master Plan and the Rainwater Master Plan for SAP North.

Subsection 4.421 (.02) Applicability of Design Standards to Various Site Features

G34. **Review Criteria:** “The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.”

Finding: These criteria are satisfied.

Explanation of Finding: Design standards have been applied to all applicable site features, which does not include single-family homes.

Subsection 4.421 (.03) Objectives of Section 4.400 Serve as Additional Criteria and Standards

G35. **Review Criteria:** “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.”

Finding: These criteria are satisfied.

Explanation of Finding: The purposes and objectives in Section 4.400 are being used as additional criteria and standards. See Finding G31 above.

Subsection 4.421 (.05) Site Design Review-Conditions of Approval

G36. **Review Criterion:** “The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code.”

Finding: This criterion is satisfied.

Explanation of Finding: No additional conditions of approval are recommended.

Subsection 4.421 (.06) Color or Materials Requirements

G37. **Review Criterion:** “The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City.”

Finding: This criterion will be satisfied by Condition of Approvals PDG 4 and PDG 5.

Explanation of Finding: The Conditions of Approval requires specific materials for any retaining walls or hand rails to ensure a quality of design consistent with the Architectural Pattern Book.

Section 4.440 Site Design Review-Procedures

G38. **Review Criteria:** “A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:” Listed A through F.

Finding: These criteria are satisfied.

Explanation of Finding: The applicant has submitted the required additional materials, as applicable.

Section 4.442 Time Limit on Approval

G39. **Review Criterion:** “Site design review approval shall be void after two (2) years unless a building permit has been issued and substantial development pursuant thereto has taken place; or an extension is granted by motion of the Board.

Finding: This criterion is satisfied.

Explanation of Finding: It is understood that the approval will expire after 2 years if a building permit hasn’t been issued unless an extension has been granted by the board.

Subsection 4.450 (.01) Landscape Installation or Bonding

G40. **Review Criterion:** “All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant.”

Finding: This criterion is satisfied.

Explanation of Finding: As a condition of PDP approval the parks for the PDP or PDP phase must be completed prior to fifty percent (50%) of the house permits being issued. See Finding D55 in Request D and Condition of Approval PDD 3.

Subsection 4.450 (.02) Approved Landscape Plan Binding

G41. **Review Criterion:** “Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code.”

Finding: This criterion will be satisfied by Condition of Approval PDG 6.

Explanation of Finding: The condition of approval shall provide ongoing assurance this criterion is met.

Subsection 4.450 (.03) Landscape Maintenance and Watering

G42. **Review Criterion:** “All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval.”

Finding: This criterion will be satisfied by Condition of Approval PDG 6.

Explanation of Finding: The condition of approval will ensure landscaping is continually maintained in accordance with this subsection.

Subsection 4.450 (.04) Addition and Modifications of Landscaping

G43. **Review Criterion:** “If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City’s development review process, that removal or modification must first be approved through the procedures of Section 4.010.”

Finding: This criterion will be satisfied by Condition of Approval PDG 6.

Explanation of Finding: The condition of approval shall provide ongoing assurance that this criterion is met by preventing modification or removal without the appropriate City review.

REQUEST H: SI14-0003 SRIR REVIEW

Findings of Fact:

1. The area designated Significant Resource Overlay Zone (SROZ) within Phase 3 North is upland wildlife habitat (Site ID Number URA#41). The delineated wetlands (i.e., wetland A and wetland B) were not included in the City's Natural Resources Inventory, and are not considered locally significant. However, any impacts to these wetlands are regulated by the Oregon Department of State Lands and the Army Corps of Engineers.
2. The upland wildlife habitat (i.e., mixed coniferous/deciduous forest) is 9.89 acres, and has a mature Douglas fir/Oregon white oak canopy. The understory has been disturbed in the past, and the shrub and herbaceous layers have been impacted by non-native invasive plant species. Native tree species include Oregon white oak, Douglas fir, vine maple, and Indian plum. Non-native invasive plant species include Himalayan blackberry, English ivy, and domestic cherry trees. The forest provides habitat for birds, but due to the lack of connectivity to other habitat, it does not provide many opportunities for other species, such as mammals.
3. The Significant Resource Overlay Zone ordinance prescribes regulations for development within the SROZ and its associated 25 foot Impact Area. Setbacks from significant natural resources implement the requirements of Metro Title 3 Water Quality Resource Areas, Metro Title 13 Nature in Neighborhoods, and Statewide Planning Goal 5. Wetlands, streams and riparian corridors shall have at least a minimum 50-foot buffer, but buffers may extend to the top of the slope for riparian corridors. All significant natural resources have a 25 foot Impact Area. Development or other alteration activities may be permitted within the SROZ and its associated 25 foot Impact Area through the review of a Significant Resource Impact Report (SRIR).
4. Pursuant to the city's SROZ ordinance, development is only allowed within the Area of Limited Conflicting Use (ALCU). The ALCU is located between the riparian corridor boundary, riparian impact area or the Metro Title 3 Water Quality Resource Area boundary, whichever is furthest from the wetland or stream, and the outside edge of the SROZ, or an isolated significant wildlife habitat (upland forest) resource site.
5. The applicant's Significant Resource Impact Report delineated specific resource boundaries and analyzed the impacts of development within the SROZ. The applicant's SRIR contained the required information, including an analysis and development recommendations for mitigating impacts. The approved mitigation plan was submitted with Phase 2.

Description of Request:

The applicant is requesting approval of a Significant Resource Impact Report (SRIR) for non-exempt development that is located within the Significant Resource Overlay Zone and its associated 25 foot Impact Area in Phase 3.

Summary of Issues/Background:

The proposed non-exempt development will encroach into the Significant Resource Overlay Zone and its associated 25 foot Impact Area. All non-exempt development will occur within the

Area of Limited Conflicting Use of the isolated significant wildlife habitat (i.e., upland forest). The applicant is proposing to add 2,101 square feet of impact to the impacts previously approved with Phase 2. With this revision, the impacted area totals 18,356 square feet and is situated within and along the edge of the upland forest. The impact to the SROZ is necessary for the construction of a bioretention cell along the northern edge of the forest.

Proposed exempt development in the SROZ and its associated 25 foot Impact Area includes the following:

- 1) Soft surface pedestrian pathway and nature trail activity area within the upland forest.

Section 4.139.04 Use and Activities Exempt from These Regulations

Proposed exempt development in the SROZ and its associated 25 foot Impact Area comply with the following exemptions:

- (.08) The construction of new roads, pedestrian or bike paths into the SROZ in order to provide access to the sensitive area or across the sensitive area, provided the location of the crossing is consistent with the intent of the Wilsonville Comprehensive Plan. Roads and paths shall be constructed so as minimize and repair disturbance to existing vegetation and slope stability.**

H1. The construction of the nature trail and nature trail activity area will have minimal impacts to the resource area, and is consistent with the requirements of this exemption.

Section 4.139.06.03 SRIR Review Criteria:

In addition to the normal Site Development Permit Application requirements as stated in the Planning and Land Development Ordinance, the following standards shall apply to the issuance of permits requiring an SRIR. The SRIR must demonstrate how these standards are met in a manner that meets the purposes of this Section.

A. Except as specifically authorized by this code, development shall be permitted only within the Area of Limited Conflicting Use (see definition) found within the SROZ;

H2. The proposed non-exempt development is located within the Area of Limited Conflicting Use found within the SROZ. The total area of all other encroachments within the SROZ or its associated Impact Area has been deemed exempt or proposed only within the Impact Area.

B. Except as specifically authorized by this code, no development is permitted within Metro's Urban Growth Management Functional Plan Title 3 Water Quality Resource Areas boundary;

H3. The proposed development for Phase 3 will not be located within Metro's Title 3 Water Quality Resource Areas boundary.

C. No more than five (5) percent of the Area of Limited Conflicting Use (see definition) located on a property may be impacted by a development proposal. On properties that

are large enough to include Areas of Limited Conflicting Use on both sides of a waterway, no more than five (5) percent of the Area of Limited Conflicting Use on each side of the riparian corridor may be impacted by a development proposal. This condition is cumulative to any successive development proposals on the subject property such that the total impact on the property shall not exceed five (5) percent;

H4. The applicant has identified the proposed development within the Area of Limited Conflicting Use, and calculated the percentage for this development. The total includes impacts associated with phases 2 and 3 of SAP-North. The following information has been provided on the Area of Limited Conflicting Use (ALCU):

Total ALCU	=	430,988 square feet
Allowed Impact (5%)	=	21,549 square feet
Proposed Impact	=	18,356 square feet (4.3%)

D. Mitigation of the area to be impacted shall be consistent with Section 4.139.06 of this code and shall occur in accordance with the provisions of this Section;

H5. The applicant has identified the mitigation area necessary to offset impacts to the SROZ, and proposed to enhance 46,212 square feet. Based on the required mitigation ratio of 2.5:1, only 45,890 square feet is required. The mitigation plan was approved with Phase 2.

E. The impact on the Significant Resource is minimized by limiting the degree or magnitude of the action, by using appropriate technology or by taking affirmative steps to avoid, reduce or mitigate impacts;

H6. The impact to the SROZ will be from the construction of a bioretention cell along the northern edge of the forest. The applicant has minimized permanent impacts to very mature trees, and other native vegetation. The grading and erosion control plan will ensure areas within the SROZ are protected during construction activities. No stormwater runoff will discharge into the SROZ.

F. The impacts to the Significant Resources will be rectified by restoring, rehabilitating, or creating enhanced resource values within the “replacement area” (see definitions) on the site or, where mitigation is not practical on-site, mitigation may occur in another location approved by the City;

H7. Impacts to the SROZ will be mitigated for on-site and will satisfy the mitigation ratios and other requirements of Section 4.139.07.

G. Non-structural fill used within the SROZ area shall primarily consist of natural materials similar to the soil types found on the site;

H8. Non-structural fill will consist of natural materials similar to the soil types found on the site.

H. The amount of fill used shall be the minimum required to practically achieve the project purpose;

H9. No fill is proposed to be placed within the SROZ.

I. Other than measures taken to minimize turbidity during construction, stream turbidity shall not be significantly increased by any proposed development or alteration of the site;

H10. All proposed grading activities on-site will be managed pursuant to guidelines established and identified in the applicant's approved erosion control plan and a 1200-C Erosion Control Permit issued by the Oregon Department of Environmental Quality. Stream turbidity is regulated under the City's Grading and Erosion Control Permit and the DEQ's 1200-C Erosion Control Permit.

J. Appropriate federal and state permits shall be obtained prior to the initiation of any activities regulated by the U.S. Army Corps of Engineers and the Oregon Division [Department] of State Lands in any jurisdictional wetlands or water of the United States or State of Oregon, respectively.

H11. The applicant has submitted a joint permit application for the filling of wetland A, which will require permit approval from the Oregon Department of State Lands and the Army Corps of Engineers.

Section 4.139.07 Mitigation Standards

(.01) The applicant shall review the appropriate Goal 5 Inventory Summary Sheets for wildlife habitat (i.e. upland) contained in the *City of Wilsonville Natural Resource Inventory and Goal 5/Title 3/ESA Compliance and Protection Plan* ("Compliance and Protection Plan"- May 2000) to determine the resource function ratings at the time the inventory was conducted.

H12. The applicant has reviewed the appropriate Upland Summary Sheet (Site ID Number 2.14U) to determine the resource function ratings at the time the inventory was conducted.

(.02) The applicant shall prepare a Mitigation Plan document containing the following elements:

A. The Mitigation Plan shall contain an assessment of the existing natural resource function ratings at the time of the proposed encroachment for the site compared to the function ratings recorded in the Compliance and Protection Plan.

H13. The applicant has addressed the resource function ratings for the impact area and also correctly documented the resource function ratings in the Compliance and Protection Plan. The impact area has a low to medium function rating due to non-native invasive plant species, and the lack of habitat connectivity.

B. The Mitigation Plan shall contain an assessment of the anticipated adverse impacts to significant wildlife habitat resources. The impact assessment shall

discuss impacts by resource functions (as listed in the Compliance and Protection Plan, May 2000) for each resource type, and shall map the area of impact (square feet or acres) for each function.

H14. The applicant has determined the impact to the significant resource area based on the resource functions. The applicant has calculated the square feet of the impact to the Significant Resource. The applicant's site plan in the SRIR depicts the area of impact.

C. The Mitigation Plan shall present a proposed mitigation action designed to replace the lost or impacted resource functions described in Subsection B, above. The mitigation plan shall be designed to replace lost or impacted functions by enhancement of existing resources on, or off the impact site, or creation of new resource areas.

H15. For Phase 2, the applicant received approval of a mitigation plan consistent with the requirements in Section 4.139.07. The mitigation will occur on-site, and within close proximity to the areas of impact.

D. For mitigation projects based on resource function enhancement, the area ratios presented in Table NR - 2 shall be applied. These ratios are based on the resource function ratings at the time of the proposed action, as described in Subsection A, above. The mitigation action shall be conducted on the appropriate size area as determined by the ratios in Table NR - 2.

H16. The applicant has estimated the resource function ratings for the "existing rating at mitigation site" and "proposed rating at mitigation site."

(.03) Proposals for mitigation action where new natural resource functions and values are created (i.e. creating wetland or wildlife habitat where it does not presently exist) will be reviewed and may be approved by the Development Review Board or Planning Director if it is determined that the proposed action will create natural resource functions and values that are equal to or greater than those lost by the proposed impact activity.

H17. No new habitat will be created as part of the mitigation plan. The proposed mitigation will enhance existing habitat.

(.04) Mitigation actions shall be implemented prior to or at the same time as the impact activity is conducted.

H18. A condition of approval requires the mitigation actions to be implemented prior to or at the same time as the impact activity is conducted.

(.05) Mitigation plans shall have clearly stated goals and measurable performance standards.

H19. The applicant has submitted a mitigation plan with goals and measurable performance standards.

(.06) All mitigation plans shall contain a monitoring and maintenance plan to be conducted for a period of five years following mitigation implementation. The applicant shall be responsible for ongoing maintenance and management activities, and shall submit an annual report to the Planning Director documenting such activities, and reporting progress towards the mitigation goals. The report shall contain, at a minimum, photographs from established photo points, quantitative measure of success criteria, including plant survival and vigor if these are appropriate data. The Year 1 annual report shall be submitted one year following mitigation action implementation. The final annual report (Year 5 report) shall document successful satisfaction of mitigation goals, as per the stated performance standards. If the ownership of the mitigation site property changes, the new owners will have the continued responsibilities established by this section.

H20. The applicant has submitted information regarding monitoring and maintenance of the proposed mitigation.

(.07) The Mitigation Plan document shall be prepared by a natural resource professional.

H21. The applicant's team has the necessary credentials to implement a mitigation plan for the proposed impacts.

(.08) Prior to any site clearing, grading or construction, the SROZ area shall be staked, and fenced per approved plan. During construction, the SROZ area shall remain fenced and undisturbed except as allowed by an approved development permit.

H22. A condition of approval requires the SROZ to be fenced and undisturbed.

(.09) For any development which creates multiple parcels intended for separate ownership, the City shall require that the SROZ areas on the site be encumbered with a conservation easement or tract.

H23. A conservation easement is required for the SROZ areas on the site. A condition of approval requires a conservation easement to be recorded.

(.10) The City may require a conservation easement over the SROZ that would prevent the owner from activities and uses inconsistent with the purpose of this Section and any easements therein. The purpose of the conservation easement is to conserve and protect resources as well as to prohibit certain activities that are inconsistent with the purposes of this section. Such conservation easements do not exclude the installation of utilities.

H24. A conservation easement is required for the SROZ areas on the site. A condition of approval requires a conservation easement to be recorded.

- (.11) At the Planning Directors discretion, mitigation requirements may be modified based on minimization of impacts at the impact activity site. Where such modifications are granted by the Planning Director, the Director shall clearly indicate the reasons for doing so in the record, citing the relevant information relied upon in reaching the decision.**

H25. The applicant has not requested a modification of mitigation requirements.

- (.12) The Director may study the possibility of a payment-in-lieu-of system for natural resource impact mitigation. This process would involve the public acquisition and management of natural resource properties partially funded by these payments.**

H26. The applicant has not requested a payment-in-lieu.



Villebois



POLYGON NW COMPAN



OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Pla

Preliminary
Plat

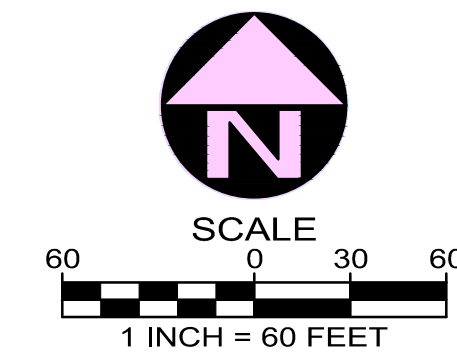
City of Wilsonville
EXHIBIT B6 DB14-0009 et seq

DATE 4/29/

4

LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK





Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

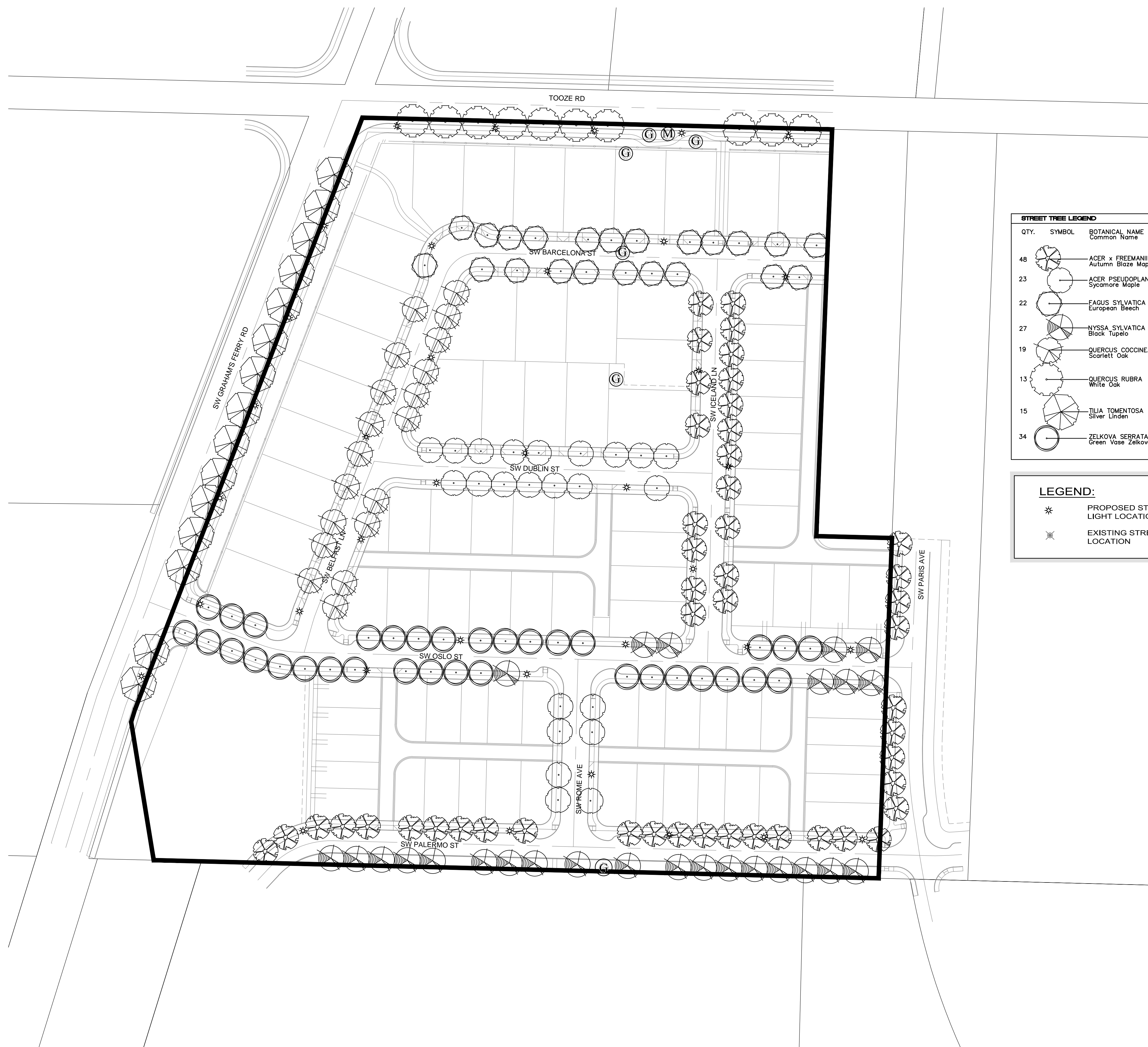
PDP 3N
VILLEBOIS

Preliminary
Development Plan

Street Tree
Plan

DATE 4/29/

11

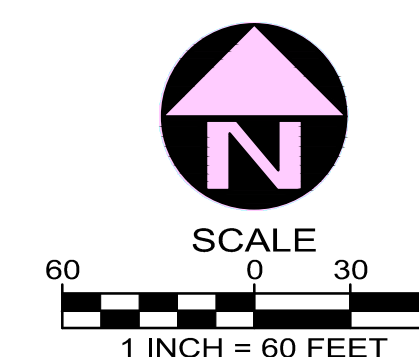


STREET TREE LEGEND

QTY.	SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
48		ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
23		ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
22		FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
27		NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
19		QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
13		QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
15		TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
34		ZELKOVA SERRATA 'GREEN VASE' Green Vase Zelkova	2" cal.	30' o.c.

LEGEND:

- * PROPOSED STREET LIGHT LOCATION
- ⊗ EXISTING STREET LIGHT LOCATION



From: Stacy Connery <stacy@pacific-community.com>
Sent: Thursday, May 01, 2014 9:32 AM
To: Pauly, Daniel
Subject: FW: Oregon Archaeological Site Form Approval (for Rumpf)

Dan,

FYI - see email below regarding status of SHPO concurrence.

Thanks,
Stacy Connery, AICP
(503) 828-5052



12564 SW Main Street
Tigard, OR 97223

 Please consider the environment before printing this e-mail

From: C. Mirth Walker [<mailto:cmwalker@swca.com>]
Sent: Thursday, May 01, 2014 9:14 AM
To: Stacy Connery; Amber Shasky-Bell
Subject: FW: Oregon Archaeological Site Form Approval (for Rumpf)

For your files
Mirth

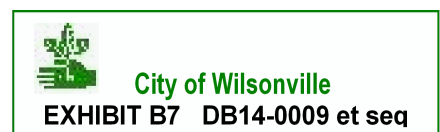
From: Zach Windler
Sent: Thursday, May 01, 2014 9:11 AM
To: C. Mirth Walker
Cc: Mini Sharma
Subject: FW: Oregon Archaeological Site Form Approval (for Rumpf)

FYI. The wheels are in motion...

Zach Windler, MLitt, RPA | Archaeologist | Project Manager
SWCA Portland | P 503.224.0333 | C 512.422.7398

From: Hub.HeritagePrograms@prd.state.or.us [<mailto:Hub.HeritagePrograms@prd.state.or.us>]
Sent: Thursday, May 01, 2014 9:01 AM
To: Zach Windler
Subject: Oregon Archaeological Site Form Approval

Your site Form Submission #12693 has been approved.
A smithsonian number of 35CL401 has been assigned.
The submission was given a SHPO national register eligibility status of Not Eligible
Comments: Eligibility determination will be finalized when SHPO receives formal Finding of Effect and Determination of Eligibility from USACE



No further action is required.

**EXHIBIT A
PLANNING DIVISION
STAFF REPORT**

VILLEBOIS SAP NORTH PDP 3 - CALAIS

**DEVELOPMENT REVIEW BOARD PANEL ‘ ___ ’
QUASI JUDICIAL HEARING**

Public Hearing Date:

Date of Report:

Application Numbers:

Request A: DB14-_____

Request B: DB14-_____

Request C: DB14-_____

Property

Owners/Applicants:

PD = Planning Division conditions

BD – Building Division Conditions

PF = Engineering Conditions.

NR = Natural Resources Conditions

TR = SMART/Transit Conditions

FD = Tualatin Valley Fire and Rescue Conditions



City of Wilsonville

EXHIBIT C1 DB14-0009 et seq

Preliminary Development Plan

Standard Comments:

PFC 1. All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards.

PFC 2. Applicant shall submit insurance requirements to the City of Wilsonville in the following amounts:

<i>Coverage (Aggregate, accept where noted)</i>	<i>Limit</i>
Commercial General Liability	
General Aggregate (per project)	\$ 2,000,000
Fire Damage (any one fire)	\$ 50,000
Medical Expense (any one person)	\$ 10,000
Business Automobile Liability Insurance	
Each Occurrence	\$ 1,000,000
Aggregate	\$ 2,000,000
Workers Compensation Insurance	\$ 500,000

PFC 3. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, right-of-way and easements have been obtained and Staff is notified a minimum of 24 hours in advance.

PFC 4. All public utility/improvement plans submitted for review shall be based upon a 22”x 34” format and shall be prepared in accordance with the City of Wilsonville Public Work’s Standards.

PFC 5. Plans submitted for review shall meet the following general criteria:

- a. Utility improvements that shall be maintained by the public and are not contained within a public right-of-way shall be provided a maintenance access acceptable to the City. The public utility improvements shall be centered in a minimum 15-ft. wide public easement for single utilities and a minimum 20-ft wide public easement for two parallel utilities and shall be conveyed to the City on its dedication forms.
- b. Design of any public utility improvements shall be approved at the time of the issuance of a Public Works Permit. Private utility improvements are subject to review and approval by the City Building Department.
- c. In the plan set for the PW Permit, existing utilities and features, and proposed new private utilities shall be shown in a lighter, grey print. Proposed public improvements shall be shown in bolder, black print.
- d. All elevations on design plans and record drawings shall be based on NAVD 88 Datum.
- e. All proposed on and off-site public/private utility improvements shall comply with the State of Oregon and the City of Wilsonville requirements and any other applicable codes.
- f. Design plans shall identify locations for street lighting, gas service, power lines, telephone poles, cable television, mailboxes and any other public or private utility within the general construction area.

- g. As per City of Wilsonville Ordinance No. 615, all new gas, telephone, cable, fiber-optic and electric improvements etc. shall be installed underground. Existing overhead utilities shall be undergrounded wherever reasonably possible.
- h. Any final site landscaping and signing shall not impede any proposed or existing driveway or interior maneuvering sight distance.
- i. Erosion Control Plan that conforms to City of Wilsonville Ordinance No. 482.
- j. Existing/proposed right-of-way, easements and adjacent driveways shall be identified.
- k. All engineering plans shall be stamped by a Professional Engineer registered in the State of Oregon.

PFC 6. Submit plans in the following general format and order for all public works construction to be maintained by the City:

- a. Cover sheet
- b. City of Wilsonville construction note sheet
- c. General construction note sheet
- d. Existing conditions plan.
- e. Erosion control and tree protection plan.
- f. Site plan. Include property line boundaries, water quality pond boundaries, sidewalk improvements, right-of-way (existing/proposed), easements (existing/proposed), and sidewalk and road connections to adjoining properties.
- g. Grading plan, with 1-foot contours.
- h. Composite utility plan; identify storm, sanitary, and water lines; identify storm and sanitary manholes.
- i. Detailed plans; show plan view and either profile view or provide i.e.'s at all utility crossings; include laterals in profile view or provide table with i.e.'s at crossings; vertical scale 1"= 5', horizontal scale 1"= 20' or 1"= 30'.
- j. Street plans.
- k. Storm sewer/drainage plans; number all lines, manholes, catch basins, and cleanouts for easier reference
- l. Water and sanitary sewer plans; plan; number all lines, manholes, and cleanouts for easier reference.
- m. Detailed plan for storm water detention facility (both plan and profile views), including water quality orifice diameter and manhole rim elevations. Provide detail of inlet structure and energy dissipation device. Provide details of drain inlets, structures, and piping for outfall structure. Note that although storm water detention facilities are typically privately maintained they will be inspected by engineering, and the plans must be part of the Public Works Permit set.
- n. Detailed plan for water quality facility (both plan and profile views). Note that although storm water quality facilities are typically privately maintained they will be inspected by Natural Resources, and the plans must be part of the Public Works Permit set.
- o. Composite franchise utility plan.
- p. City of Wilsonville detail drawings.
- q. Illumination plan.
- r. Striping and signage plan.
- s. Landscape plan.

PFC 7. Prior to manhole and sewer line testing, design engineer shall coordinate with the City and update the sanitary and stormwater sewer systems to reflect the City's numbering system. Video testing and sanitary manhole testing will refer to the updated numbering system. Design engineer shall also show the updated numbering system on As-Built drawings submitted to the City.

PFC 8. The applicant shall install, operate and maintain adequate erosion control measures in conformance with the standards adopted by the City of Wilsonville Ordinance No. 482 during the construction of any public/private

	utility and building improvements until such time as approved permanent vegetative materials have been installed.
PFC 9.	Applicant shall work with City’s Natural Resources office before disturbing any soil on the respective site. If 5 or more acres of the site will be disturbed applicant shall obtain a 1200-C permit from the Oregon Department of Environmental Quality. If 1 to less than 5 acres of the site will be disturbed a 1200-CN permit from the City of Wilsonville is required.
PFC 10.	To lessen the impact of the proposed project on the downstream storm drain system, and adjacent properties, project run-off from that portion of the site within the Mill Creek Basin shall be detained and limited to the difference between a developed 25-year storm and an undeveloped 25-year storm. The detention and outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
PFC 11.	A storm water analysis prepared by a Professional Engineer registered in the State of Oregon shall be submitted for review and approval by the City to address appropriate pipe and detention facility sizing.
PFC 12.	The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.
PFC 13.	Storm water quality facilities shall have approved landscape planted and/or some other erosion control method installed and approved by the City of Wilsonville prior to streets and/or alleys being paved.
PFC 14.	Fire hydrants shall be located in compliance with TVF&R fire prevention ordinance and approval of TVF&R.
PFC 15.	The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards.
PFC 16.	All survey monuments on the subject site, or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.
PFC 17.	Sidewalks, crosswalks and pedestrian linkages in the public right-of-way

	shall be in compliance with the requirements of the U.S. Access Board.
PFC 18.	No surcharging of sanitary or storm water manholes is allowed.
PFC 19.	The project shall connect to an existing manhole or install a manhole at each connection point to the public storm system and sanitary sewer system.
PFC 20.	A City approved energy dissipation device shall be installed at all proposed storm system outfalls. Storm outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
PFC 21.	The applicant shall provide a ‘stamped’ engineering plan and supporting information that shows the proposed street light locations meet the appropriate AASHTO lighting standards for all proposed streets and pedestrian alleyways.
PFC 22.	All required pavement markings, in conformance with the Transportation Systems Plan and the Bike and Pedestrian Master Plan, shall be completed in conjunction with any conditioned street improvements.
PFC 23.	Street and traffic signs shall have a hi-intensity prismatic finish meeting ASTM 4956 Spec Type 4 standards.
PFC 24.	The applicant shall provide adequate sight distance at all project driveways by driveway placement or vegetation control. Specific designs to be submitted and approved by the City Engineer. Coordinate and align proposed driveways with driveways on the opposite side of the proposed project site.
PFC 25.	Access requirements, including sight distance, shall conform to the City's Transportation Systems Plan (TSP) or as approved by the City Engineer. Landscaping plantings shall be low enough to provide adequate sight distance at all street intersections and alley/street intersections.
PFC 26.	Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.
PFC 27.	The applicant shall provide the City with a Stormwater Maintenance and Access Easement (on City approved forms) for City inspection of those portions of the storm system to be privately maintained. Stormwater or rainwater LID facilities may be located within the public right-of-way upon approval of the City Engineer. Applicant shall maintain all LID storm water components and private conventional storm water facilities; maintenance shall transfer to the respective homeowners association when it is formed.
PFC 28.	The applicant shall “loop” proposed waterlines by connecting to the existing City waterlines where applicable.
PFC 29.	All water lines that are to be temporary dead-end lines due to the phasing of construction shall have a valved tee with fire-hydrant assembly installed at the end of the line.
PFC 30.	For any new public easements created with the project the Applicant shall be required to produce the specific survey exhibits establishing the easement and shall provide the City with the appropriate Easement document (on City

	approved forms).				
PFC 31.	<p>Mylar Record Drawings:</p> <p>At the completion of the installation of any required public improvements, and before a 'punch list' inspection is scheduled, the Engineer shall perform a record survey. Said survey shall be the basis for the preparation of 'record drawings' which will serve as the physical record of those changes made to the plans and/or specifications, originally approved by Staff, that occurred during construction. Using the record survey as a guide, the appropriate changes will be made to the construction plans and/or specifications and a complete revised 'set' shall be submitted. The 'set' shall consist of drawings on 3 mil. Mylar and an electronic copy in AutoCAD, current version, and a digitally signed PDF.</p>				
Specific Comments:					
PFC 32.	Applicant shall enter into a Development Agreement with the City that clarifies the responsibilities and/or estimated costs for construction of Tooze Road, Grahams Ferry Road, Paris Avenue, Palermo Street (south of proposed subdivision), and water, sanitary and storm infrastructure to service this proposed subdivision.				
PFC 33.	To provide internal circulation within Villebois the Applicant shall complete the construction of both Palermo Street and Paris Avenue/Ravenna Loop in the adjacent Villebois SAP North PDP 2 subdivision either prior to, or concurrent with, construction of Villebois SAP North PDP 3.				
PFC 34.	At the request of Staff, DKS Associates completed a Transportation Review dated March 14, 2014. The project is hereby limited to no more than the following impacts.				
	<table border="0"> <tr> <td style="padding-left: 40px;">Estimated New PM Peak Hour Trips</td> <td style="text-align: right; padding-left: 20px;">85</td> </tr> <tr> <td style="padding-left: 40px;">Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area</td> <td style="text-align: right; padding-left: 20px;">27</td> </tr> </table>	Estimated New PM Peak Hour Trips	85	Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area	27
Estimated New PM Peak Hour Trips	85				
Estimated Weekday PM Peak Hour Trips Through Wilsonville Road Interchange Area	27				
PFC 35.	Recent traffic analysis reports done for Villebois have indicates that the intersection of Grahams Ferry Road and Tooze Road would operate at LOS F with the build-out of this and other approved Villebois subdivisions. Improvements to this intersection are planned and funded by the City and construction work is anticipated to be completed by spring 2016.				
PFC 36.	Connections to the public right-of-way shall occur at Oslo Street and Grahams Ferry Road and via Palermo Street and Paris Street to streets previously approved with Villebois SAP North PDP 2.				
PFC 37.	Shift the proposed Rome Avenue eastward to better align with the alley in Tract "H".				
PFC 38.	All construction traffic shall access the site via Grahams Ferry Road.				
PFC 39.	In the 2013 Transportation Systems Plan Tooze Road is identified as a Minor Arterial. Applicant shall dedicate sufficient right-of-way to				

	accommodate Tooze Road as a Minor Arterial; this will require an additional 17.5 feet of right-of-way dedication to the City to accommodate a half-street width of 37.5-ft (total right-of-way width of 75 feet).
PFC 40.	In the 2013 Transportation Systems Plan Grahams Ferry Road is identified as a Minor Arterial. Applicant shall dedicate sufficient right-of-way to accommodate Grahams Ferry Road as a Minor Arterial; this will require an additional 8.5 feet of right-of-way dedication to the City to accommodate a half-street width of 38.5-ft (total right-of-way width of 77 feet).
PFC 41.	With the improvements to Grahams Ferry Road applicant shall cause to have all overhead utilities along the east side of the road installed underground along the entire property frontage and install a new underground to overhead transition pole at the southeast corner of the Tooze Road / Grahams Ferry Road intersection.
PFC 42.	On Grahams Ferry Road adjacent to the Villebois Village development the standard street light is a 35-ft black fiberglass direct bury pole (30-ft mounting height) with 6-ft black arm and black full-cutoff cobra head luminaire.
PFC 43.	All internal streets shall be lighted with approved Westbrooke style street lights per the Villebois street lighting master plan.
PFC 44.	On westbound Oslo Street at Grahams Ferry Road applicant shall provide a left-turn pocket to accommodate turn movements onto Grahams Ferry Road as recommended in the Villebois Urban Village SAP North Area 1B Transportation Study, completed by DKS, July 31, 2013.
PFC 45.	On Grahams Ferry Road, stormwater will be collected via curb inlets north of Oslo Street and via storm swales south of Oslo; however the Applicant shall be required to provide detention and water quality requirements for impervious surfaces created with the reconstruction of Grahams Ferry Road.
PFC 46.	The proposed subdivision lies within two storm drainage basins – Coffee Lake and Mill Creek. Those portions of the subdivision lying within the Coffee Lake basin are exempt from stormwater detention requirements as established per City Ordinance No. 608. Those portions of the subdivision lying within Mill Creek basin and improvements done with Grahams Ferry Road shall be required to conform to the storm detention requirements of PFC 10. No net interbasin transfer of stormwater is allowed.
PFC 47.	The applicant shall provide ‘stamped’ engineering details with dimensions for intersection sight distance verification and AutoTURN layouts for all proposed intersections, including alley/street connections. Adequate clearance shall be provided at all intersections and alleyways. The sight distance point for exiting vehicles shall be located 14.4 feet from the edge of the traveled way. At a minimum, the applicant shall provide 'stamped' engineering AutoTURN layouts for fire trucks and buses (WB-60) that show the

	<p>overhang and/or mirrors of the vehicle as opposed to the wheel paths. Turning vehicles may use the width of the minor street to start the appropriate turn. The vehicle must however, stay within the appropriate receiving (inside) lane of the major street. Additionally, the turning vehicle must not intrude onto the wheel chair ramp on the inside of the turning movement.</p>
PFC 48.	Alleys that are identified by Tualatin Valley Fire and Rescue (TVF&R) as possible routes for medical and/or fire emergencies shall meet TVF&R's design requirements.
PFC 49.	At the time of plan submittal for a Public Works Permit, the applicant shall provide to the City a copy of correspondence showing that the plans have also been distributed to the franchise utilities. Prior to issuance of a Public Works Permit, the applicant shall have coordinated the proposed locations and associated infrastructure design for the franchise utilities. Should permanent/construction easements or right-of-way be required to construct the public improvements or to relocate a franchised utility, the applicant shall provide a copy of the recorded documents. Should the construction of public improvements impact existing utilities within the general area, the applicant shall obtain written approval from the appropriate utility prior to commencing any construction.
PFC 50.	Applicant shall provide sufficient mail box units for the proposed phasing plan; applicant shall construct mail kiosk at locations coordinated with City staff and the Wilsonville U.S. Postmaster. In previous discussions between City staff and the Wilsonville U.S. Postmaster mail kiosk locations were preferred to be located along Oslo Street.
PFC 51.	Rainwater management components will be allowed to be located in the public right-of-way, however such components shall be maintained by the Applicant, or subsequent HOA, and this shall be included in the Ownership and Maintenance agreement as required in PFC 27.
PFC 52.	Existing abandoned water, sanitary, or storm water lines shall either be completely removed, grouted in place, or abandoned per a City approved recommendation from a Registered Geotechnical Engineer.
PFC 53.	SAP North PDP 3 consists of 84 lots. All construction work in association with the Public Works Permit and Project Corrections List shall be completed prior to the City Building Division issuing a certificate of occupancy, or a building permit for the housing unit(s) in excess of 50% of total (43 rd lot).
PFC 54.	Much of the site is located within a sanitary sewer reimbursement district adopted with Resolution No. 2350 and is subject to the requirements established by this resolution.

Tentative Plat

Engineering Division Conditions:

PFC 1. Applicant shall provide a minimum 6-foot Public Utility Easement on lot frontages to all public right-of-ways. An 8-foot PUE shall be provided along Collectors. A 10-ft PUE shall be provided along Minor and Major Arterials.

PFC 2. Subdivision or Partition Plats:

Paper copies of all proposed subdivision/partition plats shall be provided to the City for review. Once the subdivision/partition plat is approved, applicant shall have the documents recorded at the appropriate County office. Once recording is completed by the County, the applicant shall be required to provide the City with a 3 mil Mylar copy of the recorded subdivision/partition plat.

PFC 3. Subdivision or Partition Plats:

All newly created easements shown on a subdivision or partition plat shall also be accompanied by the City's appropriate Easement document (on City approved forms) with accompanying survey exhibits that shall be recorded immediately after the subdivision or partition plat.



COMMUNITY DEVELOPMENT MEMORANDUM

To: Daniel Pauly, Associate Planner

From: Kerry Rappold, Natural Resources Program Manager

Date: April 29, 2014

RE: Villebois Village SAP North, PDP 3 (DB14-0011/0015 and SI14-0003)

This memorandum includes staff conditions of approval. The conditions are based on the preliminary and final development plans for PDP 3, and the SRIR review. The conditions of approval apply to the applicant's submittal of construction plans (i.e. engineering drawings).

Significant Resource Overlay Zone

- NR1. All landscaping, including herbicides used to eradicate invasive plant species and existing vegetation, in the SROZ shall be reviewed and approved by the Natural Resources Program Manager. Native plants are required for landscaping in the SROZ.
- NR2. Prior to any site grading or ground disturbance, the applicant is required to delineate the boundary of the SROZ. Six-foot (6') tall cyclone fences with metal posts pounded into the ground at 6'-8' centers shall be used to protect the significant natural resource area where development encroaches into the 25-foot Impact Area.
- NR3. Pursuant to Section 4.139.04, the applicant shall demonstrate proposed exempt development (i.e., soft surface pedestrian trail and nature trail activity area) within the 25-foot Impact Area and the Significant Resource Overlay Zone has been designed to avoid, minimize and mitigate impact to the significant natural resources.
- NR4. Mitigation actions shall be implemented prior to or at the same time as the impact activity is conducted.
- NR5. Pursuant to Section 4.139.03 (.05) of the Wilsonville Code, the applicant is required to use habitat-friendly development practices (Table NR-2) to the extent practicable for any encroachment into the Significant Resource Overlay Zone and the 25-foot Impact Area.
- NR6. The Significant Resource Overlay Zone (SROZ) and mitigation area depicted on the SRIR mapping for the site shall be identified in a conservation easement. The applicant shall record the conservation easement with Clackamas Court Clerk's office. The conservation easement shall include language prohibiting any disturbance of natural vegetation without first obtaining approval from the City Planning Division and the Natural Resources Program Manager. The conservation easement shall be reviewed by the City Attorney prior to recording.

Rainwater Management Plan:

- NR10. The applicant shall submit a detailed operations and maintenance manual for the rainwater management components that has been reviewed and approved by city staff before 50% of the units are occupied in **PDP 3, SAP North**.
- NR11. Pursuant to the City of Wilsonville Public Works Standards, access should be provided for the entire perimeter of the rainwater management components. At a minimum, at least one access shall be provided for maintenance and inspection.
- NR12. All Rainwater Management Components and associated infrastructure located in public areas shall be designed to the Public Works Standards. Rainwater Management Components in private areas shall comply with the plumbing code.
- NR13. Plantings in Rainwater Management Components located in public areas shall comply with the Public Works Standards. Plantings in Rainwater Management Components located in private areas shall comply with the Plant List in the Rainwater Management Program or Community Elements Plan.
- NR14. The rainwater management components shall comply with the requirements of the Oregon DEQ UIC (Underground Injection Control) Program.

Stormwater Management:

- NR15. Provide profiles, plan views and specifications for the proposed water quality treatment facilities consistent with the requirements of the City of Wilsonville's Public Works Standards.
- NR16. Pursuant to the Public Works Standards, the applicant shall submit a maintenance plan (including the City's stormwater maintenance covenant) for the proposed stormwater facilities, inclusive of the rainwater management components, prior to approval for occupancy of the associated development.
- NR17. Pursuant to the City of Wilsonville's Public Works Standards, access shall be provided to all areas of the proposed water quality treatment facilities. At a minimum, at least one access shall be provided for maintenance and inspection.

Other:

- NR18. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities and proposed facilities (e.g. DEQ NPDES #1200-C permit).



City of Wilsonville

EXHIBIT C3 DB14-0009 et seq

From: Arn, Jason S. [<mailto:Jason.Arn@tvfr.com>]

Sent: Monday, April 21, 2014 9:51 AM

To: Edmonds, Blaise

Cc: Walters, Don

Subject: Re: PDP 3 Calais at Villebois

Blaise,

After reviewing the proposed plans for Calais at Villebois, Tualatin Valley Fire & Rescue has no comments on the single family subdivision. If you have questions or need further information, please feel free to contact me.

Thanks,

Jason Arn | Deputy Fire Marshal

Tualatin Valley Fire & Rescue

Direct: 503-259-1510

www.tvfr.com

Public Works Plan Review Comment Form

Plans for Review: Calais at Villebois

Return All Comments To: Dan Pauly

Due Date: April 29, 2014

Name	Page No.	Comments	Engineering's Response
Randy Watson		No Comments	
Matt Baker		No Comments	
Sherer/SM/ Reeder		What is planned for the open space on the south edge of the development? What is planned for Tract "W"?	
Arnie Gray		No Comments	
Ralph Thorp			
Jason Labrie		No Comments	
House/Gering			
Folz/Havens			



From: Young, Andrew F. <Andrew.Young@nwnatural.com>
Sent: Friday, April 18, 2014 7:09 AM
To: Pauly, Daniel
Cc: Keller, Robert
Subject: RE: Development Review Team Mailing (DB14-0009 et seq - Calais at Villebois)
Attachments: Grahams Ferry Tooze NWN.pdf

Good morning Daniel:

Our records show that we have 4" polyethylene mains in both Grahams Ferry Rd and Tooze Rd; however, they should be on the opposite sides of both roads from this proposed project. Please see the attached.

Thank you.

Respectfully,

Andrew F. Young, P.E.

Resource Center Engineer - Sherwood

NW Natural | 20285 SW Cipole Rd. | Sherwood, Oregon 97140

office: 503.226.4211 ext. 2980 | cell: 360.281.6169 | email: Andrew.Young@nwnatural.com

From: White, Shelley [<mailto:swhite@ci.wilsonville.or.us>]

Sent: Thursday, April 17, 2014 3:52 PM

To: Young, Andrew F.; Gray, Arnie; Jacobson, Barbara; Ben Baldwin (DevelopmentReview@trimet.org); Bill Rhoades (rhoadesw@wlwv.k12.or.us); Edmonds, Blaise; Bob Ebeling (Robert.W.EBELING@odot.state.or.us); Brian Harper (Brian.Harper@oregonmetro.gov); Kelley, Brian; Stevenson, Brian; Cosgrove, Bryan; Neamtzu, Chris; Stark, Dan; Pauly, Daniel; Kerber, Delora; Walters, Don; Parent, Gail; Heather Peck (heather.peck@aviation.state.or.us); Miller, Holly; James Rhodes (JRhodes@clackamas.us); Labrie, Jason; Massa Smith, Jen; John Malowney (john.malowney@pgn.com); Gail, Jon; (Karen.mohling@tvfr.com); Kenneth Parris (kenneth_parris@cable.comcast.com); Rappold, Kerry; Cheeley, Lance; Bushman, Luke; Ottenad, Mark; Brown, Martin; Baker, Matt; Ward, Mike; Wheeler, Mike; Kraushaar, Nancy; Duke, Pat; Region 1 Development Review Applications (Region1DEVREVApplications@odot.state.or.us); Keller, Robert; Simonton, Scott; Lashbrook, Stephan; Adams, Steve; Allen, Steve; Munsterman, Steve; Tiffany Ritchey (tiffany.ritchey@pgn.com); Tom Maier (Thomas.Maier@awin.com); Ty Darby (Ty.Darby@tvfr.com)

Subject: Development Review Team Mailing (DB14-0009 et seq - Calais at Villebois)

Development Review Team Members,

Please find the attached DRT mailing for your review:

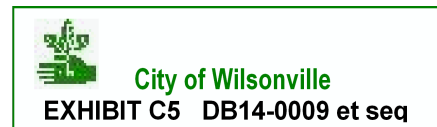
DB14-0009 et seq: [Calais at Villebois \(PDP-3 North\)](#)

Please note that comments and/or conditions of approval are due to Daniel Pauly by 4:00 pm on April 29, 2014 for a May 12, 2014 public hearing.

Thank you,

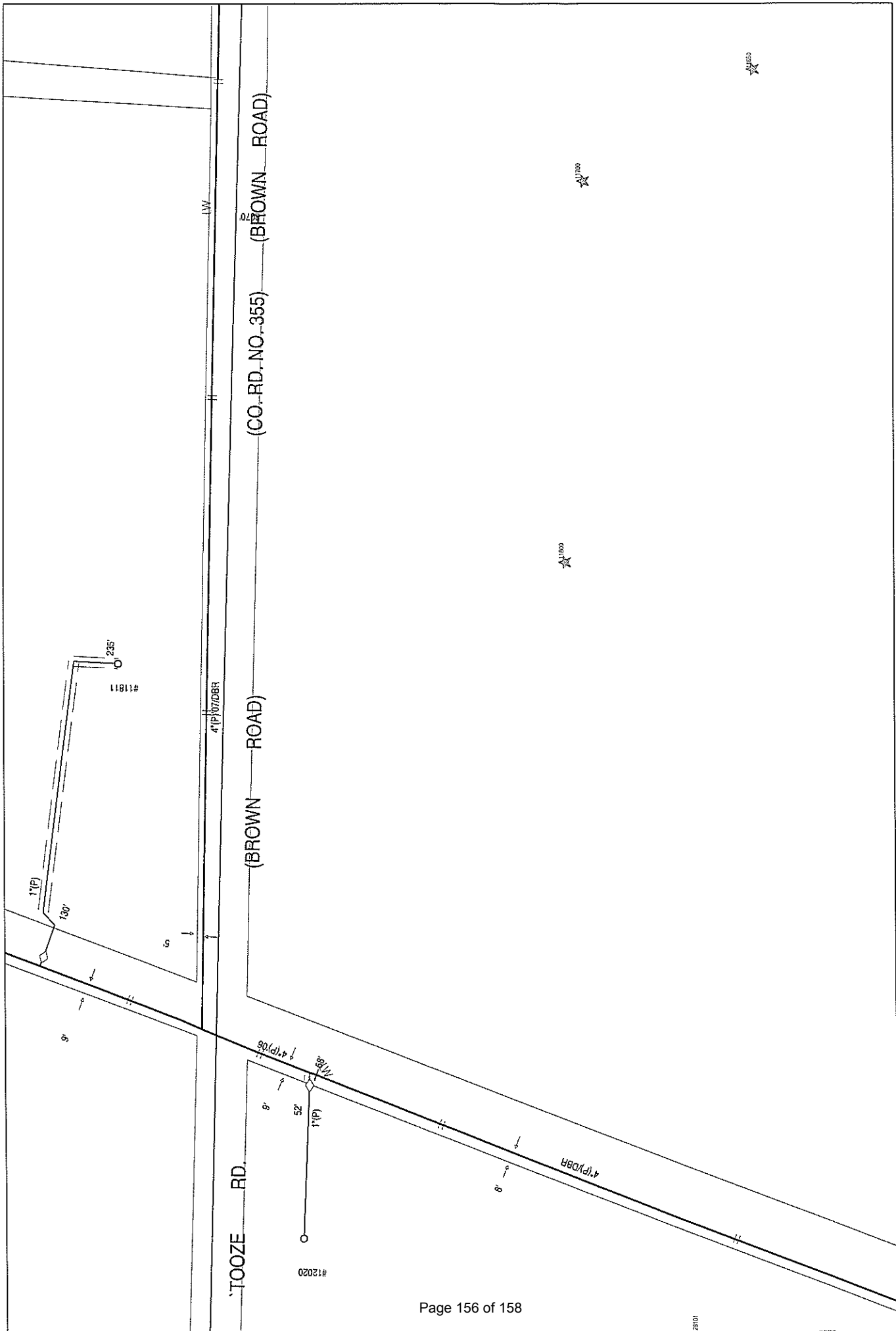
Shelley White

Administrative Assistant



City of Wilsonville
Ph: 503 570-1575
swhite@ci.wilsonville.or.us

DISCLOSURE NOTICE: Messages to and from this E-mail address may be subject to the Oregon Public Records Law.



From: Adams, Steve
Sent: Wednesday, April 30, 2014 7:31 AM
To: Stacy Connery; Pauly, Daniel
Cc: Jessie King; Amber Shasky-Bell
Subject: RE: Calais Questions/Comments

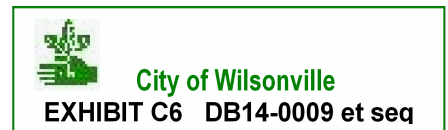
Based on the revised configuration of Tract "H" you can delete PFC 37. However, a new PFC condition needs to be added, "Alley Tract "H" stops short of the Oslo Street right-of-way; Applicant shall provide a hard surface pedestrian connection between this alley tract and the public sidewalk on north side of Oslo Street."

Also, please modify PFC 40 to the applicant dedicating 7.5 feet of ROW for a total half street ROW of 37.5. It will be slightly different from all of the other VB subdivisions along GFR that have an additional 8.5 feet of ROW, but in reality it doesn't really matter since the street has a linear green on the east side and the Applicant (or HOA) maintains all of the landscaping anyway.

As for acquiring Tax Lot #1591 it is covered in the Development Agreement and is the responsibility of the City.

Also, we need to add another condition to the Plat Conditions: "Applicant shall provide a public sidewalk easement for those portions of the 10-ft sidewalk adjacent to Grahams Ferry Road that are not within the public right-of-way."

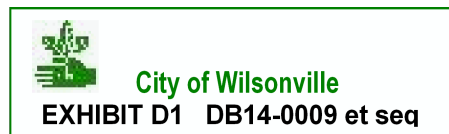
Thanks, Steve

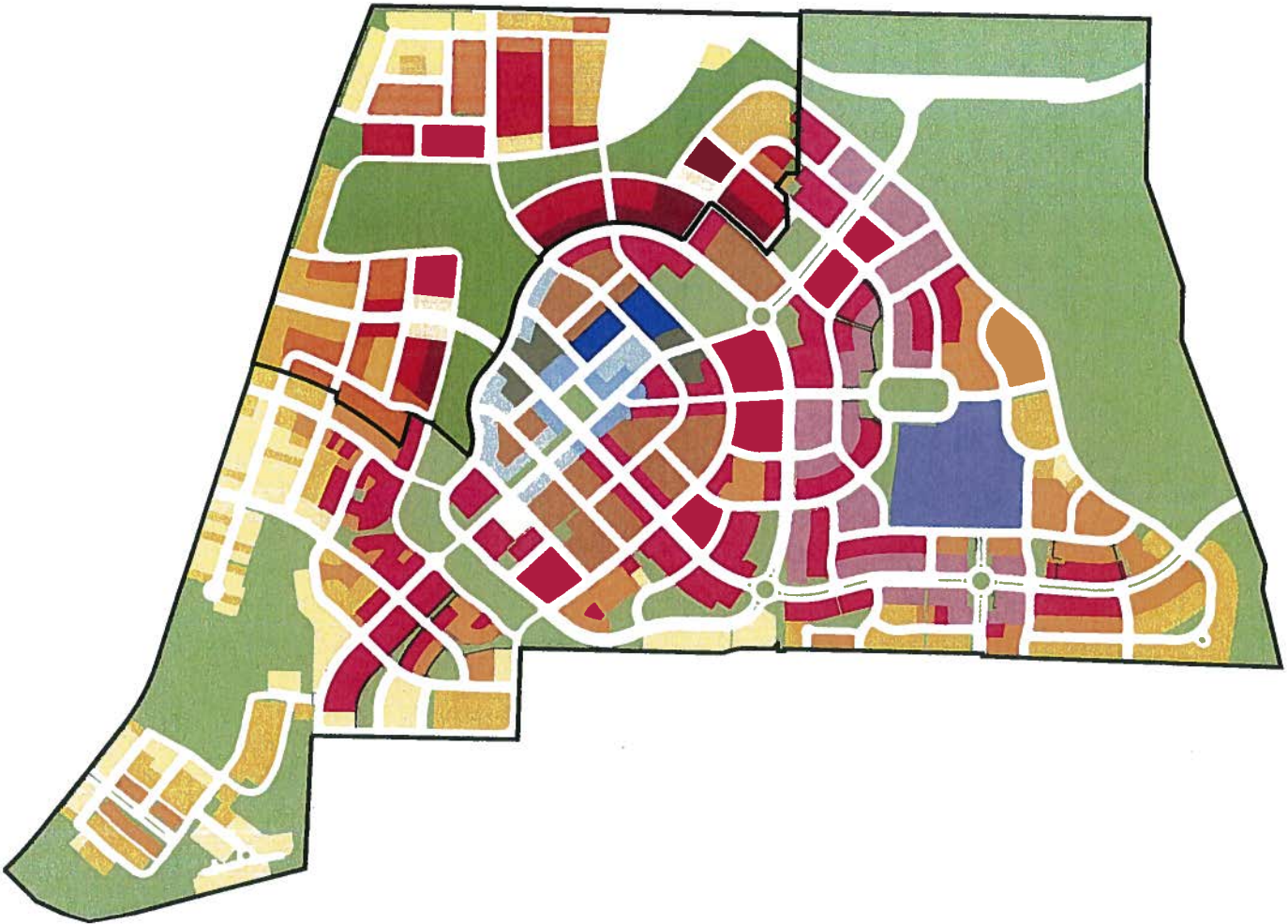


From: Tanya Stricker <Tanya.Stricker@sammedical.com>
Sent: Friday, April 25, 2014 11:08 AM
To: Pauly, Daniel
Subject: Calais at Villebois PDP 3 North: 84 -Lot Single-Family Subdivision Comments

Hi,
I wanted to note my comments for the proposed subdivision.
This area is currently unincorporated Clackamas County and is not part of Wilsonville. It is also outside the UGB. I strongly oppose this development. First, Villebois is not sold out nor built up in entirety. This area will impose more traffic on roads that are not designed to handle additional traffic flow.
In addition, this is counter to current land laws and does not benefit the residents of this area.
Wilsonville should not be able to annex this land to build more houses. It is a ploy for the city to earn more money through tax dollars. There are already too many new residents, due to the huge amount of apartments built. The roads, schools, etc. cannot handle the growth. Wilsonville is on the way to becoming the next Sherwood – with the associated traffic woes.

Tanya Stricker



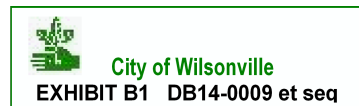


Amendment of Specific Area Plan - North

SAP Modification & SRIR Addendum Review

Submitted to City of Wilsonville, Oregon
March 31, 2014

POLYGON  **NORTHWEST COMPANY**



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FOR
AMENDMENT TO SPECIFIC AREA PLAN - NORTH**

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- IB) FORM/ DOCUMENTATION OF OWNERSHIP**
- IC) COPY OF CERTIFICATION OF ASSESSMENTS & LIENS**
- ID) FEE CALCULATION/COPY OF CHECK**
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- IIB) REDUCED DRAWINGS**
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Section I

General Information

IA
Introductory Narrative

**AMENDMENT OF SPECIFIC AREA PLAN - NORTH
INTRODUCTORY NARRATIVE (SECTION IA)**

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I. GENERAL INFORMATION

Applicant:

Villebois, LLC
1022 SW Salmon Street, Suite 450
Portland, OR 97205
Tel: (503) 222-7258
Contact: Wayne Rembold

Polygon Northwest Company
109 E. 13th Street
Vancouver, WA 98660
Tel: (360) 695-7700
Fax: (425) 455-0462
Contact: Fred Gast

Property Owners:

Villebois, LLC
1022 SW Salmon Street, Ste 450
Portland, Oregon 97205
Contact: Wayne Rembold
(Tax Lots 1200 & 1205)

Charles & Carolyn Taber
11800 SW Tooze Road
Wilsonville, Oregon 97070
(Tax Lots 1202)

Consultant Team:

Primary Contact:

Stacy Connery
Pacific Community Design, Inc.
Tel: (503) 941-9484
Fax: (503) 941-9485
Email: stacy@pacific-community.com

Process Planner/Civil
Engineer/Surveyor:

Pacific Community Design, Inc.
12564 SW Main Street
Tigard, Oregon 97223
Tel: (503) 941-9484
Fax: (503) 941-9485
Contact: Stacy Connery, AICP
Jim Lange, PE
Patrick Espinosa, PE
Travis Jansen, PLS/PE

Landscape Architect: **Otten Landscape Architects, Inc.**
3933 SW Kelly Ave., Suite B
Portland, Oregon 97239
Tel: (503) 972-0311
Contact: Janet Otten, ASLA
Kristina Durant

Arborist: **Morgan Holen & Associates, LLC**
3 Monroe Parkway, Suite P 220
Lake Oswego, Oregon 97035
Tel: (971) 409-9354
Contact: Morgan Holen

Environmental Consultant: **SWCA**
1220 SW Morrison Street, Ste. 700
Portland, OR 97205
Tel: (503) 224-0333
Contact: Stacy Benjamin
C. Mirth Walker

Site and Proposal Information:

Site Location: SAP North of Villebois Village

Tax Lots: Tax Lots 1200, 1202 & 1205
Township 3 South, Range 1 West, Section 15

Size: 103.7 acres (15.16 acres in Phase 3)

Comprehensive Plan Designation: Residential - Village (R-V)

Existing Zoning: Clackamas County Rural Residential Farm Forest 5-Acre (RRFF-5)

Proposed Zoning: Village (V)

Proposal: SAP - North Amendment
SRIR Addendum Review

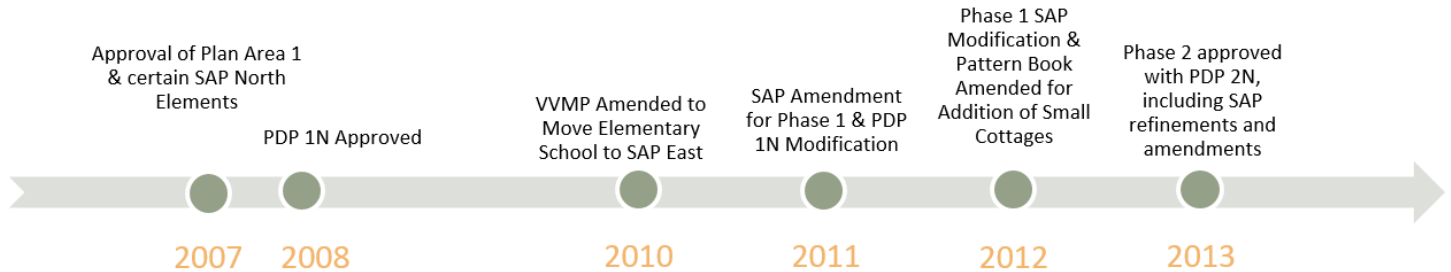
II. PROPOSAL SUMMARY & HISTORICAL CONTEXT

This application is a request to amend Specific Area Plan (SAP) - North to reflect previous approvals for Phase 1 and Phase 2, add information for Phase 3, and identify the area containing future phases. This application also requests approval of an SRIR Review for updated impacts to the Area of Limited Conflicted Use (ALCU).

HISTORY OF SAP NORTH

SAP North has a complex history, as it has evolved through a number of planning approvals over the last several years. The timeline below summarizes SAP North approvals.

TIMELINE OF SAP NORTH APPROVALS



2007

An application for SAP North was first submitted and approved in 2007 as Casefile No. DB07–0054. At the time of the 2007 submittal, the applicant (West Hills/Arbor Homes) did not have access to parcels within later phases of SAP North, and was unable to obtain access to conduct detailed evaluations required for a SAP application. Additionally, certain information was not yet available about the elementary school site, including a specific site plan, an analysis of traffic and circulation, and specific architecture. The original approval of SAP North was divided into two areas, Plan Area 1 and Plan Area 2, to address this lack of detail available for later SAP North phases. Plan Area 1 was characterized as the area now identified as Phase 1 of SAP North. Plan Area 2 included subsequent phases of SAP North, including the proposed area of Phase 3. SAP North was approved for Plan Area 1, and certain components of SAP North were approved for Plan Area 2. With Plan Area 1, a Master Signage and Wayfinding Plan and Fence Plan, Architectural Pattern Book and Master Fencing Plan, Community Elements Book, and Rainwater Program and Plan were approved for the entirety of SAP North.

2008

A Preliminary Development Plan, Zone Map Amendment, Tentative Subdivision Plat, Final Development Plan, and Type C Tree Removal Plan for Phase 1 were submitted and approved in 2008 as Case Files DB07-0087 through DB07-0090 and DB08-0004. However, PDP 1N was not constructed and the property sat vacant for several years until Polygon Northwest Company purchased the property.

2010

The *Villebois Village Master Plan* was amended in 2010 to move the location of the elementary school from SAP North to SAP East. Land uses and residential unit counts were updated on Figure 1 of the *Master Plan* to reflect this amendment. The amended *Villebois Village Master Plan* was adopted through Ordinance 681.

2011

In 2011, a SAP Modification, Preliminary Development Plan, Tentative Subdivision Plat, and Final Development Plan were submitted and approved for Phase 1 of SAP North (aka “Tonquin Woods No. 2 and No. 3”) as Case Files DB11-0024 through DB11-0027. The 2011 SAP Modification altered the location/mix and density/distribution of residential land uses for Phase 1. Site improvements and residential dwellings within Phase 1 have since been constructed.

2012

In 2012, a modification for Phase 1 of SAP North was approved to replace Row Houses with Small Cottages for Lots 28-39 to meet market needs. The SAP Modification for small cottages in Phase 1 was approved as Case File No. DB12-0066. An amendment to the SAP North Architectural Pattern Book was submitted to add information for Small Cottages, which was approved as Case File DB12-0067. Copies of the final adopted Pattern Book were submitted to the City in May 2013. The amended pattern book applies to the entirety of SAP North and a copy is provided in Notebook Section IIH.

2013

In 2013, Phase 2 of SAP North received PDP planning approval in June 2013 as Case File No. DB13-0020 et al. PDP 2N was accompanied by SAP North Refinements (DB13-0021), and by a SAP North Amendment (DB13-0022) to update phasing for Phase 2. *Master Plan* and SAP refinements were also submitted and approved to realign streets within future phases of SAP North, as reflected on the attached SAP drawings (see Notebook Section IIB).

DESCRIPTION OF SAP NORTH AMENDMENT

As described above, Phase 1 and Phase 2 have already been approved. These approved plans are reflected in the enclosed SAP Drawings (see Notebook Section IIB).

A phasing amendment is included with this application to amend the area of Phase 3 and identify the area of future phases, as shown on the attached *Phasing Plan* (see Notebook Section IIB). Future phases of development within SAP North will be required to submit a SAP Amendment(s) to add specific information not included with previous SAP North approvals.

In 2007, certain components of SAP North were approved with Phase 1 for the entirety of the SAP. These components include the Master Signage and Wayfinding Plan, Architectural Pattern Book and Master Fencing Plan, Community Elements Book, and Rainwater Program. Copies of these items approved in 2007 are included in this Notebook for reference.

The following components are provided with this application:

- SAP Drawings (including phasing amendment) for entirety of SAP North
- Utility and Drainage Reports for entirety of SAP North
- Traffic Analysis for Phase 3
- Historic & Cultural Resource Inventory for Phase 3
- SRIR Addendum for Phase 3
- Tree Report for Phase 3

This application also requests minor refinements to the alignment and location of streets, mix of residential lots and residential density, parks and open spaces, and water quality/rainwater facilities shown on the *Villebois Village Master Plan* for the proposed area of Phase 3. These refinements are further described in Section III of this Narrative and within the Supporting Compliance Report (see Notebook Section IIA).

Section I of this Application Notebook includes general information regarding the request, including this 'Introductory Narrative' and copies of the application form, review fees and notification mailing list. Section II of this Application Notebook includes more specific and detailed components of the proposal, which are listed as follows. Those items that are specific to Phase 3 are noted below with a reference to Phase 3.

- Section IIA - Supporting Compliance Report
- Section IIB - Reduced SAP Plan Set
- Section IIC - Utility & Drainage Reports
- Section IID - Traffic Analysis (Phase 3)
- Section IIE - Historic / Cultural Resource Inventory (Phase 3)
- Section IIF - Significant Resource Impact Report (SRIR) Addendum
- Section IIG - Tree Report (Phase 3)
- Section IIH - Architectural Pattern Book (*No Amendments*)
- Section III - Community Elements Book (*No Amendments*)
- Section IIJ - Master Signage and Wayfinding Plan (*No Amendments*)
- Section IIK - Rainwater Management Book (*No Amendments*)
- Section IIL - Compliance with SAP North Conditions of Approval

A separate notebook that includes applications for the Phase 3 North Preliminary Development Plan (PDP), Tentative Plat, Zone Change, Tree Removal Plan, and Final Development Plan (FDP) has been submitted concurrently and will be reviewed sequentially with this SAP Amendment. The PDP submittal introduces additional names for the proposed development appropriate to each review stage. These names include 'PDP 3N' and "Calais at Villebois," which is the proposed plat name for recording purposes.

III. DESCRIPTION OF PHASE 3 & PROPOSED REFINEMENTS

LAND USES

The land uses and density proposed with Phase 3 of SAP - North are generally consistent with the land uses and density shown in the *Villebois Village Master Plan*. *Figure 1 - Land Use Plan* of the *Master Plan* shows a mix of smalls, standards and larges within the subject area, with larges around the edges of the development and smaller lots concentrated in the internal blocks. Refinements to the mix of land uses in Phase 3 include fewer smalls and standards, and the addition of mediums, in the central portion of the site. A standard lot has been removed in the northwestern site corner in order to provide a pocket park. Additionally, residential lots shown in the southwest site corner are not provided in order to retain the treed wetland through the provision of open space area. Large lots are concentrated towards the edge of Phase 3, with more mediums and smalls approaching the Village Center. The addition of mediums adds to the range of dwelling units within the subject site while

maintaining the general land use pattern consisting of larger lots along the edges of Villebois.

A *Land Use Plan* is provided for Phase 3 (see Notebook Section IIB), which shows the distribution of residential land use types as ranges of potential units by block. Phase 3 of SAP North proposes a total of 84 residential units, including 32 smalls, 26 mediums, 3 standards, and 23 larges. Table A compares the total number of units currently shown in the *Master Plan* Figure 1 - Land Use Table with the number of units resulting from the proposed refinement, per the applicable land use categories. Lots within Phase 3 fall within the two land use categories: medium/standard/large/estate and small/small cottage/row houses/neighborhood apartments. As shown in Table A, the proposed refinements do not exceed the 10% standard. Therefore, the proposed refinements do not significantly alter the overall distribution or availability of land uses within Phase 3 of SAP North.

In addition, this proposal results in a total of 2,615 units within Villebois, which remains above the minimum density of 2,300 units required to be obtained across Villebois. The total unit count for Villebois Village is shown in Table B.

Table A: Unit Count Comparison

	SAP North Unit Count within MP	Proposed SAP North Unit Count	% Change
Medium/Standard/ Large/Estate	162	174	+7.4%
Small/Small Cottage/Row Houses/Neighborhood Apts.	302	273	-9.6%
TOTAL	464	447	-3.6%

Table B: Villebois Village Units Count

LAND USE	SAP NORTH	SAP SOUTH	SAP EAST	SAP CENTRAL	TOTAL
Estate	22	0	0	0	22
Large	43	104	0	0	145
Standard	20	68	49	0	139
Medium	89	127	112	0	328
subtotal	174	299	161	0	634
Small Detached	214	158	226	8	606
Small Attached / Cottage	49	0	147	9	205
Rowhouse	0	103	42	138	283
Nbhd Apartments	10	21	0	0	31
Village Apartments	0	0	0	411	411
Condos	0	0	0	124	124
Urban Apartments	0	0	0	90	90
Mixed Use Condos	0	0	0	104	104
Specialty Condos	0	0	0	127	127
subtotal	273	282	415	1,011	1,981
TOTAL UNITS	447	581	576	1,011	2,615

The refinements described above improve the overall aesthetic and functional use of the proposed plan by continuing the land use pattern of Villebois, in which larger lots are located along the edges of Villebois and in areas further away from the Village Center.

PARKS & OPEN SPACE

Description of the parks and open spaces in Phase 3, as shown in the *Master Plan* and proposed with this application (reflecting minor refinements), is provided below. Parks and open space areas added through minor refinements are shown in underline.

Master Plan

The parks, trails and open space within Phase 3 of SAP North are generally consistent with the parks, trails and open spaces shown in the *Villebois Village Master Plan*, when considering the proposed minor refinements. The *Villebois Village Master Plan* only shows a narrow portion of Open Space 2 along the southern edge of Phase 3, which is approximately 0.21 acres in size. Except for this narrow portion of OS-2, the *Master Plan* does not show any additional parks and open spaces within Phase 3. The proposed minor refinements to parks and open spaces add a pocket park, an open space area, and various landscape tracts/linear greens to Phase 3.

Additions to Parks and Open Spaces in Phase 3

The **pocket park** within Phase 3 provides a bicycle and pedestrian connection to adjacent streets and recreational opportunities through the provision of a child play structure and an active lawn area. The approximate size of the pocket park is 0.14 acres.

An existing forested wetland is present in the southwest site corner, which was not included in the City's Natural Resource Inventory and that does not meet the criteria for adding wetlands into the SROZ. However, the wetland is heavily treed and is an attractive natural amenity that can be incorporated into the design of Phase 3. An **open space area** has been added to the southwest site corner to retain this existing forested wetland. The open space area added to the southwest site corner is approximately 0.98 acres in size.

Linear greens/landscape tracts have been added throughout Phase 3, in areas between residential lots and the adjacent streets or in areas providing pedestrian connections. A total of 0.70 acres of linear greens/landscape tracts are provided with Phase 3 of SAP - North. The provision of landscaping tracts provides a sense of open space, as well as functional connectivity to streets and open space areas adjacent to the subject site.

The proposed refinements significantly increase the overall area of parks and open spaces within Phase 3. As previously mentioned, the *Master Plan* shows a total of approximately 0.21 acres of parks and open space in Phase 3. With the addition of linear greens/landscape tracts, a pocket park, and an open space area, approximately 1.82 acres are added to Phase 3, for a total of approximately 2.03 acres of parks and open spaces.

Furthermore, the refinements described above enhance aesthetic and functional uses of parks and open spaces, while retaining on-site natural features. The open space area in the southwest site corner adds opportunity for passive recreation with area for quiet contemplation and viewing of the natural area. The pocket park adds opportunity for more active recreation with a play structure, pedestrian/bicycle connection, and lawn area. The provision of additional open space in the southwest site corner also retains the existing tree wetland, better protecting natural features and incorporating them into the site design. In addition, linear greens create a sense of green space throughout the subject site.

UTILITIES

Sanitary Sewer

The Utility Plan (see Notebook Section IIB) shows the proposed sanitary system for Phase 3 of SAP North. A copy of the supporting utility report for SAP North is included in Notebook Section IIC. Sanitary service can be adequately provided to Phase 3 in compliance with the *Villebois Village Master Plan* and the City of Wilsonville Wastewater Master Plan. No refinements to the *Master Plan* for sanitary sewer are proposed.

Water

The Utility Plan (see Notebook Section IIB) shows the proposed water system for Phase 3 of SAP North. Water service can be adequately provided to the subject area in compliance with the *Villebois Village Master Plan* and the City's Water System Master Plan, as shown on the attached *Utility Plan* (see Notebook Section IIB). The 18-inch main in Grahams Ferry Road from Barber Street Road to Tooze Road has been constructed. Additionally, the City has already installed the 18-inch main from Barber Street from Brown Road to Grahams Ferry. No refinements to the *Master Plan* for water are proposed.

Stormwater

The *Utility Plan* (see Notebook Section IIB) shows the proposed stormwater system for Phase 3 of SAP North. A copy of the supporting utility and drainage report for SAP North is included in Notebook Section IIC, which demonstrates that the stormwater system will meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards. Onsite stormwater/water quality/rainwater facilities are shown along Grahams Ferry Road. Due to site elevation, it is not possible to provide these facilities between Grahams Ferry Road and residential lots. A bioretention cell is provided in the southwestern site corner, adjacent to the retained wetland and site entrance from Grahams Ferry Road.

Rainwater

Rainwater Management Systems are integrated into parks and open space areas as shown on the *Utility Plan* and the *Park/Open Space/Pathways Plan* (see Notebook Section IIB). The Rainwater Management Plan for SAP North is provided in Notebook Section IIC. The *Villebois Village Master Plan* shows a water quality feature along the north edge of Phase 3 along Tooze Road and Grahams Ferry Road. However, due to site topography, it is not possible to provide rainwater management facilities in

these locations, except for in the southwestern site corner where a bioretention cell is provided adjacent to the retained wetland. With the proposed *Master Plan* refinements, bioretention swales are added along SW Oslo Street and within OS-2 along SW Palermo Street, where it is feasible to provide these features. Provision of these bioretention cells will ensure that this refinement does not cause reduction to the service or function of rainwater management.

CIRCULATION

The *Circulation Plan* and *Street Sections* (see Notebook Section IIB) show the circulation system proposed for Phase 3. The plan includes pedestrian/bicycle connections and a trail connection, as depicted on the *Park/Open Space/Pathways Plan* (see also Notebook Section IIB). The street network within Phase 3 of SAP - North is generally consistent with the street network shown in the amended *Villebois Village Master Plan*. No change in the functional classification of streets is proposed. The only refinements proposed are in relation to SW Iceland Lane, SW Oslo Street, and SW Belfast Lane. The *Master Plan* shows SW Iceland Lane with a southwest to northeast orientation with alignment towards the child play feature in Open Space 2. With the proposed refinement, SW Iceland Lane is proposed to have a straight north-south orientation with alignment towards residential lots, with the location adjusted slightly to the east. Circulation towards the child play area is maintained with SW Rome Avenue to provide an “eyes on the street” effect for park safety. The purpose of the refinement to SW Iceland Lane allows for smaller residential blocks, which provides better pedestrian connectivity. This street refinement also allows lots to have a north-south orientation for better sun exposure.

Additionally, the *Master Plan* shows access to/from Grahams Ferry Road from SW Firenze Street (Palermo Street) and shows a continuous street with general north-south alignment along the western portion of Phase 3 (Amsterdam Avenue/Belfast Lane). However, in order to retain the existing treed wetland in the southwest site corner, a portion of Amsterdam Avenue/Belfast Lane located adjacent to the wetland is removed and access to/from Grahams Ferry Road is taken from SW Oslo Street. Site circulation along the western portion of Phase 3 is maintained with the provision of SW Belfast Lane in the originally intended location, the continuation of SW Palermo Street along the north edge of OS-2 (in the planned location of Firenze Street), and a pedestrian path adjacent to the wetland in place of the removed street section, which provides connection between SW Oslo Street and SW Palermo Street.

The approved Community Elements Book (see Notebook Section III) identifies proposed locations of curb extensions within SAP - North. The proposed placement of curb extensions is consistent with the Community Elements Book. Therefore, a minor alteration is not needed or requested for curb extensions with this application.

PHASING

As depicted on the attached *Phasing Plan* (see Notebook Section IIB), an amendment to the boundary of Phase 3 is proposed. Table C reflects approved unit counts for Phase 1 and Phase 2, which have been constructed or are in construction. Table C also lists the unit counts proposed with Phase 3 and the unit counts anticipated for

future phases as accounted for in the Land Use Table on Figure 1 of the *Villebois Village Master Plan*. The proposed amendment to SAP North identifies the area of future phases.

Table C: Specific Area Plan - North Proposed Unit Counts

Product Type	PDP 1N	PDP 2N	PDP 3N	Future Phases	Total
Estate	0	0	0	22	22
Large	0	0	23	20	43
Standard	2	10	3	5	20
Medium	30	6	26	27	89
Small	98	37	32	47	214
Small Cottage	12	37	0	0	49
Row House	0	0	0	0	0
Nbhd Apartment	0	0	0	10	10
Total	142	90	84	131	447

- * Approved on February 14, 2008 with DB07-0054 et al
- ** Approved on June 10, 2013 with DB11-0020 et al
- *** Proposed with this application
- **** Anticipated for Future Phases as accounted for in the Land Use Table on Figure 1 of the *Master Plan*

IV. SRIR ADDENDUM (OPEN SPACE 2)

A SRIR Report describing SROZ impacts and mitigation within OS-2 was submitted and approved in 2013 with PDP 2N (DB13-0020 et al). The attached SRIR Addendum has been prepared to evaluate updated impacts to SROZ (see Notebook Section IIF) with Phase 3 and to review compliance with the approved mitigation plan. This application requests approval of the SRIR Addendum.

A narrow portion of Open Space 2 (OS-2) identified as SROZ area is located along the southern edge of Phase 3, with the majority of OS-2 and associated SROZ area in Phase 2. In Phase 3, the SROZ area along the southern site edge is retained in an open space tract. The majority of Phase 3 is pasture land, with two (2) wetlands that were not included in the City’s Natural Resource Inventory and that do not meet the criteria for inclusion in the SROZ.

OS-2 includes nature trails meandering through the forest, benches, and a child play area. Development of the child play area located in Phase 2 was deferred to Phase 3, given that the area to the north of the child play area (i.e. Phase 3) was vacant pasture land at the time of PDP 2N approval and was not supportive of a safe and monitored park area for children. Nature trails, benches, and the child play area at the north edge of OS-2 will be established with Phase 3, as previously identified with the approved SRIR.

With PDP 2N (DB13-0020 et al), an impact area of 4,610 square feet for the child play area and an impact area of 325 square feet for grading and street improvements in Phase 3 was approved. Per Section 4.139.04 and as reflected in the approved SRIR Report, nature trails and benches in OS-2 are exempt from SROZ regulations. This amendment, as described in the attached SRIR Addendum, includes two additional impact areas (1,988 SF and 113 SF in size, respectively) for Phase 3 site improvements not previously accounted for in the approved SRIR Report. The approved and additional impact areas are depicted on the *SROZ Plan* (see Notebook Section IIB).

Proposed activities will only occur within the Area of Limited Conflicting Use within the SROZ. No wetlands within the site are a Title 3 Water Quality Resource Area. The Area of Limited Conflicting Use within the site totals 430,988 square feet. Within the attached SRIR Addendum (see Notebook Section IIF), Table 1 - Summary of Proposed SROZ Encroachments shows Phase 3 impact areas, including site grading for the construction of the child play area, bioretention cell, and street improvements. Proposed impacts have been limited to the extent feasible to allow development of the site while also protecting natural resources, allowing access to the natural resources through soft surface trails and the provision of a child play area, and providing the bioretention cell for rainwater management. Even with the additional impacts, the proposed impacts within the Area of Limited Conflicting Use total 4.3%, less than the allowable maximum of 5%.

The SRIR approved with PDP 2N included mitigation for construction impacts to the SROZ, including removal of invasive vegetation and mitigation plantings as described in the attached SRIR Addendum (see Notebook Section IIF). These elements are exempt from the SROZ regulations as described by LDO Section 4.139.04. To compensate for the above-described impacts to the SROZ, mitigation areas meeting a ratio of 2.5:1 (mitigation to encroachment) are required. The mitigation plan included a mitigation area of 46,212 square feet, which is more than the required amount of mitigation.

Proposed encroachments into the SROZ fall within allowable standards and are minimized to the extent feasible while still allowing development to occur. The encroachments will be rectified with mitigation previously approved with PDP 2N, which exceeds the amount required. The Applicant's proposal will result in a better plan and program for the natural resources on the site than could be achieved through strict application of the Code.

V. CONCLUSION

This Narrative, the Compliance Report in Section IIA of this Notebook, and the attached exhibits in Sections I and II of this Notebook describe the proposal and demonstrate compliance with the applicable provisions and standards of the *Villebois Village Master Plan*, the Village (V) Zone and other applicable sections of the Wilsonville Planning and Development Ordinance. The Applicant respectfully requests approval of the proposed amendments to SAP - North and approval of the SRIR Addendum Review.

IB
Documentation of Ownership

CITY OF WILSONVILLE

29799 SW Town Center Loop East
Wilsonville, OR 97070
Phone: 503.682.4960
Fax: 503.682.7025

Web: www.ci.wilsonville.or.us

Pre-Application meeting date: 11/21/13

Planning Division Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

TO BE COMPLETED BY APPLICANT:

Please PRINT legibly

Applicant:

Villebois LLC, Wayne Rembold (Master Planner)

Address: 1022 SW Salmon St., Suite 450, Portland, OR 97205

Phone: 503-222-7258

Fax: 503-222-4053

E-mail: _____

Property Owner of Tax Lots 1200 and 1205:
Villebois LLC (Wayne Rembold)
1022 SW Salmon Street, Suite 450, Portland, OR 97205

Property Owner:

Tax Lot 1202: Charles & Carolyn Taber

Address: 11800 SW Tooze Rd, Wilsonville, OR 97070

Phone: _____

Fax: _____

E-mail: _____

Authorized Representative:

Pacific Community Design (Stacy Connery)

Address: 12564 SW Main Street, Tigard, OR 97223

Phone: 503-941-9484

Fax: 503-941-9485

E-mail: stacy@pacific-community.com

Property Owner's Signature:



Printed Name: Wayne Rembold Date: 3/19/14

Applicant's Signature (if different from Property Owner):

Printed Name: _____ Date: _____

Site Location and Description:

Project Address if Available: n/a Suite/Unit _____

Project Location: Villebois Village - SAP North

Tax Map #(s): 3S 1W 15 Tax Lot #(s): _____ County: Washington Clackamas

Request: SAP North Amendment to update plan to reflect development approvals for PDP 1N and PDP 2N, to add information for Phase 3, and to identify future sequential phases

Project Type: Class I Class II Class III

Residential Commercial Industrial Other (describe below)

Application Type:

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Annexation | <input type="checkbox"/> Appeal | <input type="checkbox"/> Comp Plan Map Amend | <input type="checkbox"/> Conditional Use |
| <input type="checkbox"/> Final Plat | <input type="checkbox"/> Major Partition | <input type="checkbox"/> Minor Partition | <input type="checkbox"/> Parks Plan Review |
| <input type="checkbox"/> Plan Amendment | <input type="checkbox"/> Planned Development | <input type="checkbox"/> Preliminary Plat | <input type="checkbox"/> Request to Modify Conditions |
| <input type="checkbox"/> Request for Special Meeting | <input type="checkbox"/> Request for Time Extension | <input type="checkbox"/> Signs | <input type="checkbox"/> Site Design Review |
| <input type="checkbox"/> SROZ/SRIR Review | <input type="checkbox"/> Staff Interpretation | <input type="checkbox"/> Stage I Master Plan | <input type="checkbox"/> Stage II Final Plan |
| <input type="checkbox"/> Type C Tree Removal Plan | <input type="checkbox"/> Tree Removal Permit (B or C) | <input type="checkbox"/> Temporary Use | <input type="checkbox"/> Variance |
| <input checked="" type="checkbox"/> Villebois SAP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Waiver |
| <input type="checkbox"/> Zone Map Amendment | <input type="checkbox"/> Other Villebois FDP | | |

26
10
11
2d



Clackamas County Official Records
Sherry Hall, County Clerk 2007-047567

01108534200700475670030035 \$38.00

05/31/2007 02:43:33 PM

D-D Cnt=1 Str=10 LESLIE
\$15.00 \$11.00 \$10.00

After recording return to:
~~XXXXXXXX~~ Rembold Co.
~~XXXXXXXXXXXXXXXXXXXX~~ 1022 SW Salmon ST. #450
~~XXXXXXXXXXXXXXXXXXXX~~ Portland, OR 97205

Until a change is requested, all tax statements shall be sent to the following address: same as above.

~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~

LAWYERS TITLE INS. CORP. 899005370

STATUTORY WARRANTY DEED

Steven E. Rumpf, Trustee of the Steven E. Rumpf Revocable Living Trust dated March 9, 2001 and Geraldine Rumpf, Trustee of the Geraldine Rumpf Revocable Living Trust dated March 9, 2001, Grantor, conveys and warrants to Villebois LLC, an Oregon limited liability company, Grantee, the following described real property free of encumbrances except as specifically set forth herein:

SEE ATTACHED EXHIBIT "A"

Tax Account No. 00812491 & 00812534 & 01555178

This property is free of encumbrances, EXCEPT:
 SEE EXHIBIT ~~XXXXXXXXXXXX~~ 'B' with exceptions
 The true consideration for this conveyance is \$2,080,000.00

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY UNDER ORS 197.352. THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930 AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 197.352.

Dated: 30th day of May, 2007

St. E. Rumpf Trustee
 Steven E. Rumpf, Trustee

Geraldine Rumpf Trustee
 Geraldine Rumpf, Trustee

STATE OF OREGON
 COUNTY OF Clackamas

The foregoing Instrument was acknowledged before me this 30 day of May, 2007 by Steven E. Rumpf, Trustee and Geraldine Rumpf, Trustee.

Michelle L. Williams
 Notary Public State of Oregon
 My commission expires: 5/7/10

Order No. 89g0005370



Warranty Deed
 ORRQ 6/2005; Rev. 1/2006

Order No. 89g0005370

"EXHIBIT A"

A parcel of land located in Section 15, Township 3 South, Range 1 West, Willamette Meridian and in the Samuel B. Franklin D.L.C. No. 50, Clackamas County, Oregon and being more particularly described as follows:

Beginning at a point on the West line of Parcel 2, Partition Plat No. 1994-182, Clackamas County Plat Records, which bears North $88^{\circ}34'07''$ West, 479.76 feet and South $02^{\circ}14'35''$ West 504.00 feet from the North one-quarter corner of said Section 15, being the most Southerly Northeast corner of the property described in deed Document No. 93-31319, Clackamas County Deed Records; THENCE continuing along the West line of said Partition Plat and East line of said Deed Document, South $02^{\circ}14'35''$ West, 404.94 feet to a point on the North line of the property described as Parcel I in Deed Document No. 99-111865 Clackamas County Deed Records; THENCE along said North line, North $88^{\circ}34'09''$ West 861.99 feet to the Southeast corner of the land described as Parcel II in Deed Document No. 2000-050326; THENCE along the East line of said Deed, North $09^{\circ}19'56''$ West, 166.07 feet to a point on the Easterly right-of-way line of S.W. Graham's Ferry Road (County Road No. 13*); (*being 30.00 feet Easterly at right angle measure from the centerline of said road) THENCE along said right-of-way line North $17^{\circ}14'33''$ East, 16.42 feet to an angle point; THENCE continuing along said right-of-way line North $21^{\circ}00'24''$ East, 753.43 feet to the intersection of the East line of S.W. Graham's Ferry Road and the South line of S.W. Tooze Road (Brown Road, County Road No. 355*) (*being 20.00 feet Southerly at right angle measure from the centerline of said road); THENCE along the South line of said Tooze Road, South $88^{\circ}34'07''$ East, 310.68 feet to the Northwest corner of the land described in Deed Document No. 73-30403; THENCE along the West line of said Deed South $02^{\circ}14'35''$ West, 415.00 feet to the Northwest corner of the land described in Deed Document No. 90-53950 Clackamas County Deed Records, THENCE along the North line of said land and its Easterly extension thereof South $88^{\circ}34'07''$ East, 104.99 feet to the Southeast corner of the land described in Deed Document No. 90-53949, Clackamas County Deed Records; THENCE continuing along said East line, North $02^{\circ}14'35''$ East, 415.00 feet to a point on the South right-of-way line of said Tooze Road; THENCE continuing along said South right-of-way line, South $88^{\circ}34'07''$ East, 142.88 feet to the Northwest corner of the land described in Deed Document No. 73-30518; THENCE along the West line of said land South $02^{\circ}14'35''$ West, 484.00 feet to the Southwest corner of said land; THENCE along the South line of said land, South $88^{\circ}34'07''$ East 90.00 feet to the point of beginning.

2

Exhibit 'B'

1. The rights of the public in and to that portion of the herein described property lying within the limits of roads and highways.
2. An easement created by instrument, including the terms and provisions thereof,
Recorded : December 4, 1978
As : 78-51839
In favor of : Portland General Electric Company, an Oregon corporation
For : Underground distribution line
Affects Parcel III
3. The herein described property is within, and subject to the regulations and restrictions of, the Wilsonville West Side Urban Renewal Plan Urban Renewal Area, as imposed by the City of by instrument,
Recorded : November 12, 2003
As : 2003-150344
And any amendments thereto.
4. Encroachment of fence and building overhang on subject property onto property adjacent to the South as disclosed by Boundary line agreement recorded July 28, 2006 as 2006-069031.
5. Encroachments as disclosed by survey,
Dated : September 5-9, 2003
Prepared by : Alpha Engineering Inc.
Project No. : 398-019
1) Encroachment : Fence
Affects : Westerly line of Parcel I & III; Southerly line of Parcel III;
Easterly line of Parcel III; Northerly line of Parcel I;
Northerly and Northeasterly lines of Parcel I
2) Encroachment : Building
Affects : Southerly line of Parcel III

3

1-355

KNOW ALL MEN BY THESE PRESENTS, That ROBERT L. NELSON and DIANE F. NELSON, husband and wife, hereinafter called the grantor, for the consideration hereinafter stated, to grantor paid by CHARLES E. TABER and CAROLYN J. TABER, husband and wife

hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the said grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Washington and State of Oregon, described as follows, to-wit:

A parcel of land situated in the Samuel B. Franklin D.L.C., described as follows:

Beginning at a point on the Southerly right-of-way of Brown Road which is South 20.00 feet and West 727.82 feet from the North one-quarter corner of said Section 15, T. 3 S., R. 1 W., of the W.M.; thence West on the Southerly right-of-way of said Brown Road 90.00 feet; thence South 484.00 feet; thence East 90.00 feet; thence North 484.00 feet to the point of beginning.

(IF SPACE INSUFFICIENT, CONTINUE DESCRIPTION ON REVERSE SIDE)

To Have and to Hold the same unto the said grantee and grantee's heirs, successors and assigns forever. And said grantor hereby covenants to and with said grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances

and that grantor will warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever, except those claiming under the above described encumbrances.

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$30,000.00. However, the actual consideration consists of or includes other property or value given or promised which is part of the consideration (indicate which) 0.

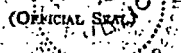
In construing this deed and where the context so requires, the singular includes the plural. WITNESS grantor's hand this 20 day of Sept, 1973.

Robert L. Nelson
Diane F. Nelson

STATE OF OREGON, County of Washington) ss. September 20, 1973. Personally appeared the above named Robert L. Nelson and Diane F. Nelson

and acknowledged the foregoing instrument to be their voluntary act and deed.

Before me: Lola B. Kinzie, Notary Public for Oregon. My commission expires 11-2-75



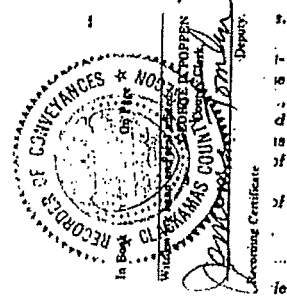
NOTE: The symbols between the symbols @, if not applicable, should be deleted. See Chapter 402, Oregon Laws 1967, as amended by the 1967 Special Session.

WARRANTY DEED

NELSON
TO
TABER

AFTER RECORDING RETURN TO
Pioneer National Title Insurance Co.
P.O. Box 38
Beaverton, Oregon 97005
ATTN: Lola Kinzie

STATE OF OREGON, County of Clatsop. I, George D. Poppen, County Clerk, Ex-Officio Recorder of Conveyances and Ex-Officio Clerk of the Circuit Court of the State of Oregon, for the County of Clatsop, do hereby certify that this instrument of writing was received for and recorded in the records of said County at 73 30403 1973 SEP 24 PM 4 28



Insured by Pioneer National Title Insurance Company

73 30403

IC
Certification of Assessments
And Liens



29799 SW Town Center Loop E
Wilsonville, Oregon 97070
(503) 682-1011
(503) 682-1015 Fax

CERTIFICATION OF ASSESSMENTS AND LIENS

"It is the policy of the City of Wilsonville that no permits of any kind shall either be issued or application processed for any applicant who owes or for any property for which there is any payment which is past due owing to the City of Wilsonville until such time as said sums owed are paid." (Resolution #796)

Project/Property Address: 28100 SW Grahams Ferry Road (TL 1205);
No site address for TL 1200

Aka Tax Lot(s) Tax Lots 1200 & 1205 on Map(s) Township 3 South, Range 1 West, Section 15

Applicant: Polygon Northwest Company (Fred Gast)

Address: 109 E. 13th Street, Vancouver, WA 98660

Property Owner: Villebois, LLC

Address: 1022 SW Salmon Street, Ste 450

Portland, Oregon 97205

In reference to the above, the City of Wilsonville records show that the following amount is due to the City:

Principal Amnt Due \$ 0 Current Non-Current

Comments: No liens at this time

Dated: 1/16/14

Finance Department: Vain N Helwig

(This certification shall be null and void 120 days following the Finance Department date of signature)



29799 SW Town Center Loop E
Wilsonville, Oregon 97070
(503) 682-1011
(503) 682-1015 Fax

CERTIFICATION OF ASSESSMENTS AND LIENS

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Project/Property Address: 11800 SW Tooze Road (TL 1202)

Aka Tax Lot(s) Tax Lot 1202 on Map(s) Township 3 South, Range 1 West, Section 15

Applicant: Polygon Northwest Company (Fred Gast)

Address: 109 E. 13th Street, Vancouver, WA 98660

Property Owner: Charles & Carolyn Taber

Address: 11800 SW Tooze Road, Wilsonville, OR 97070

In reference to the above, the City of Wilsonville records show that the following amount is due to the City:

Principal Amnt Due \$ 0 Current Non-Current

Comments: No liens at this time

Dated: 1/16/14

Finance Department: Vain N Helin

(This certification shall be null and void 120 days following the Finance Department date of signature)

ID
Fee Calculation

**Fee Calculation for SAP North Amendment
(3/26/14)**

Application	Calculations	Fee
Stage 1 - Villebois SAP Modification (SAP Amendment)	base fee - \$1280.00	on account
Stage 1 - Villebois SAP Modification (Refinements)	base fee - \$1280.00	on account
SRIR Review	base fee - \$1200.00	\$1,200.00
TOTAL FEES DUE		\$1,200.00

IE
Mailing List

31W10C 01900
Tonie Tollen
11681 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02000
Wilfrido Chavez Dominquez
11611 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02101
Dirk & Allison Anderson
11797 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02102
Michael Prigodich
27900 SW Grahams Ferry Rd
Sherwood, OR 97140

31W10C 02103
Sean & Kathleen McRae
11811 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02800
Cynthia Satterlund
12041 SW Tooze Rd
Sherwood, OR 97140

31W15 01100
City Of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

31W15 01200
Villebois LLC
1022 SW Salmon St #450
Portland, OR 97205

31W15 01202
Charles & Carolyn Taber
11800 SW Tooze Rd
Wilsonville, OR 97070

31W15 01203
Jay & Theresa Nims
11700 SW Tooze Rd
Wilsonville, OR 97070

31W15 01204
Dan Long
12020 SW Tooze Rd
Sherwood, OR 97140

31W15 01205
Villebois LLC
1022 SW Salmon St #450
Portland, OR 97205

31W15 01206
Richard & Shirley White
28101 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01300
Branch Gerald & Sheryl
28690 SW 35th Dr
Wilsonville, OR 97070

31W15 01500
Michelle Avolio
28303 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01501
James & Lisa Klienstuber
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01600
Bree Cuppoletti
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15BC00100
Charles & Patricia Holtz
28445 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01502
Neal Berg
Po Box 25472
Portland, OR 97298

31W15 01101
City Of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

31W15 01591
Lisa Klienstuber
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 02915
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660

31W15 02995
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660

31W15 02916
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660



Fidelity National Financial, Inc.
Customer Service
900 SW 5th Ave, Mezzanine
Portland, OR 97204
tel: 503-796-6663 fax: 503-796-6631
csrequest@fnf.com

Tuesday, January 14, 2014

The enclosed radius search was created using data purchased from Core Logic and Metro. This data is derived from county tax records and is deemed reliable, but is not guaranteed. Fidelity National Title cannot be held liable for any additions, deletions, or errors in this search.

This research was completed on the date stated above.

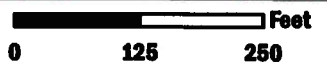
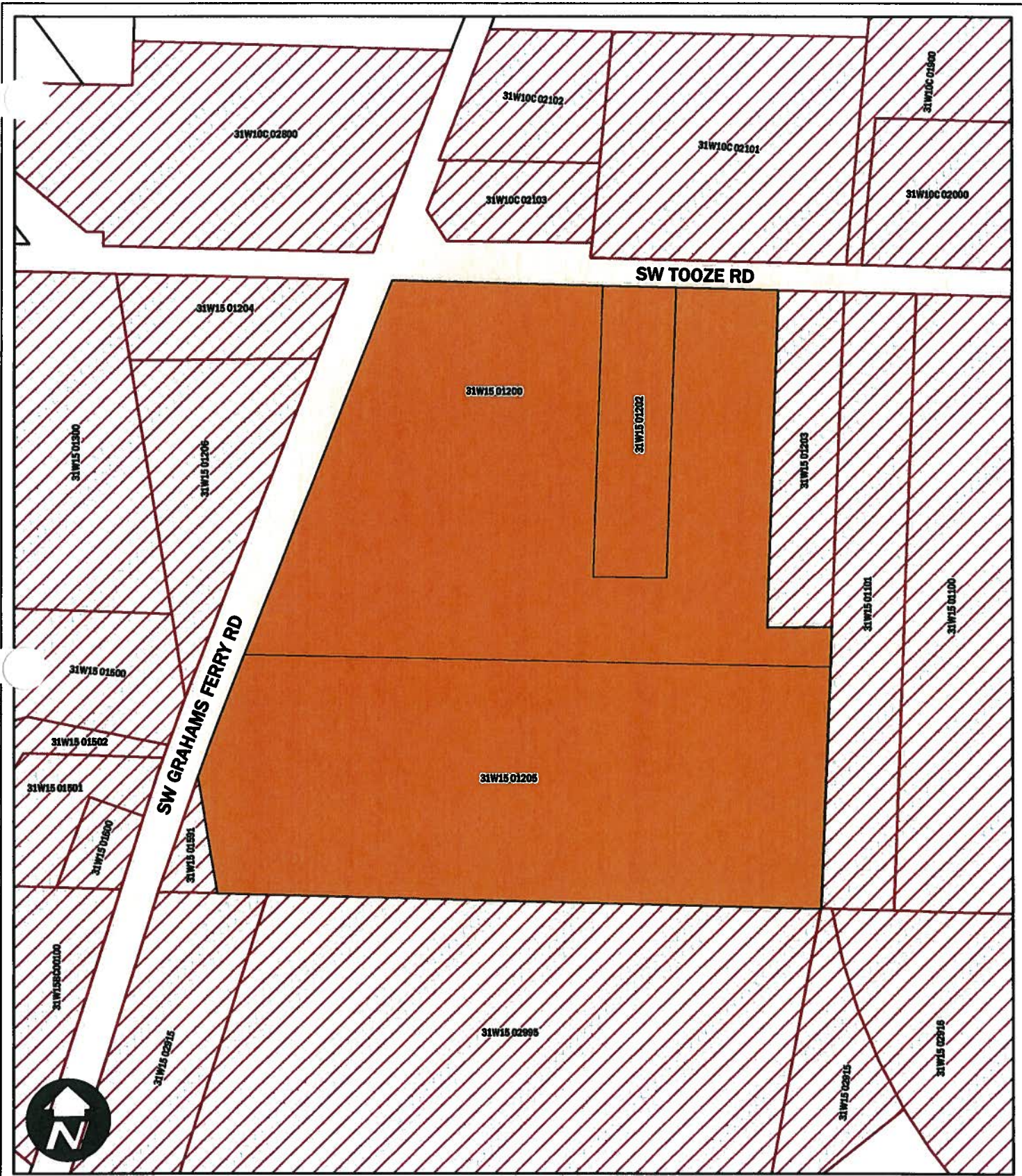
Thank you.

Enclosures:

- Data summary of parcels to be notified
- Map of subject parcel, radius, and parcels to be notified
- County assessor maps for parcels to be notified
- Labels

Fidelity National Title Company Of Oregon / Clackamas (OR)

Ref Parcel #	Owner Name	Site Address	Phone #
.W10C 01900	Tollen Tonie I Trustee	11681 SW Tooze Rd Wilsonville 97070	
31W10C 02000	Dominquez Wilfrido Chavez	11611 SW Tooze Rd Wilsonville 97070	
31W10C 02101	Anderson Dirk D & Allison B	11797 SW Tooze Rd Wilsonville 97070	
31W10C 02102	Prigodich Michael R	27900 SW Grahams Ferry Rd Sherwood	
31W10C 02103	McRae Sean G & Kathleen	11811 SW Tooze Rd Wilsonville 97070	
31W10C 02800	Satterlund Cynthia	12041 SW Tooze Rd Sherwood 97140	
31W15 01100	City of Wilsonville	11650 SW Tooze Rd Wilsonville 97070	971-224-2271
31W15 01200	Villebois LLC	*no Site Address*	
31W15 01202	Taber Charles E & Carolyn J	11800 SW Tooze Rd Wilsonville 97070	
31W15 01203	Nims Jay R & Theresa C	11700 SW Tooze Rd Wilsonville 97070	
31W15 01204	Long Dan J	12020 SW Tooze Rd Sherwood 97140	
31W15 01205	Villebois LLC	28100 SW Grahams Ferry Rd Wilsonville	
31W15 01206	White Richard L & Shirley L	28101 SW Grahams Ferry Rd Wilsonville	
31W15 01300	Branch Gerald I & Sheryl L	12150 SW Westfall Rd Sherwood 97140	
31W15 01500	Avolio Michelle J	28303 SW Grahams Ferry Rd Wilsonville	
31W15 01501	Klienstuber James D/Lisa L	28333 SW Grahams Ferry Rd Wilsonville	
31W15 01600	Cuppoletti Bree R	28333 SW Grahams Ferry Rd Wilsonville	
31W15BC00100	Holtz Charles & Patricia	28445 SW Grahams Ferry Rd Wilsonville	
31W15 01502	Berg Neal S	28315 SW Grahams Ferry Rd Wilsonville	
31W15 01101	City of Wilsonville	*no Site Address*	971-224-2271
31W15 01591	Klienstuber Lisa L	*no Site Address*	
31W15 02915	Pnw Home Builders LLC	*no Site Address*	
31W15 02995	Pnw Home Builders LLC	*no Site Address*	
31W15 02916	Pnw Home Builders LLC	*no Site Address*	

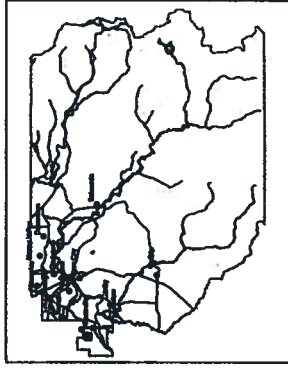


Public Notification Search

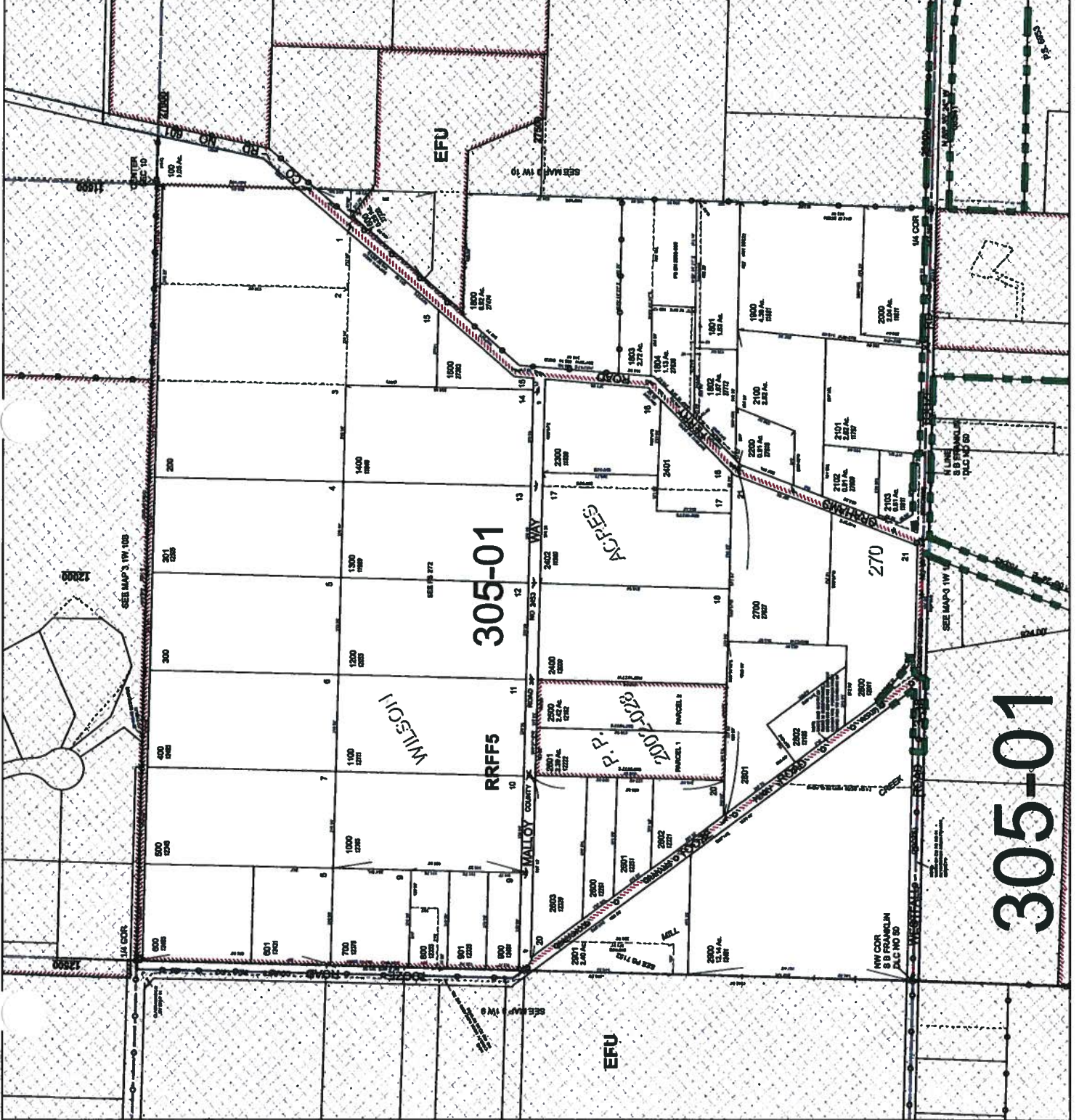
-  Subject
- Radius = 250'**
-  Notification Parcels

Prepared by: Fidelity National Title
 Data: CoreLogic, Metro RLIS
 Date: 1/14/2014
 This information is reliable, but not guaranteed. It is not a survey.

- Parcel Boundary
- - - Private Road ROW
- - - Historical Boundary
- - - Railroad Centerline
- Tax-Coded Area
- Map Irises
- Water Lines
- Land Use Zoning
- ▨ Fills
- ▨ Weir
- Corner
- Section Corner
- V1881 Line
- Cont. Lot Line
- - - D/LG Line
- - - P.L.S.S. Section Line
- - - Mender Line
- Historic Corridor 47
- Historic Corridor 27



THIS MAP IS FOR ASSESSMENT PURPOSES ONLY



305-01

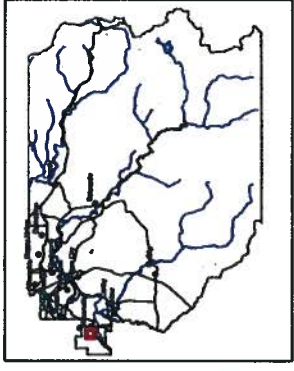
SECTION 15 T.3S. R.1. M.
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 WILSONVILLE

D. L. C.
 ROBERT V. SHORT DLC 46
 SAMUEL B. FRANKLIN DLC 50

Cancelled Taxlots

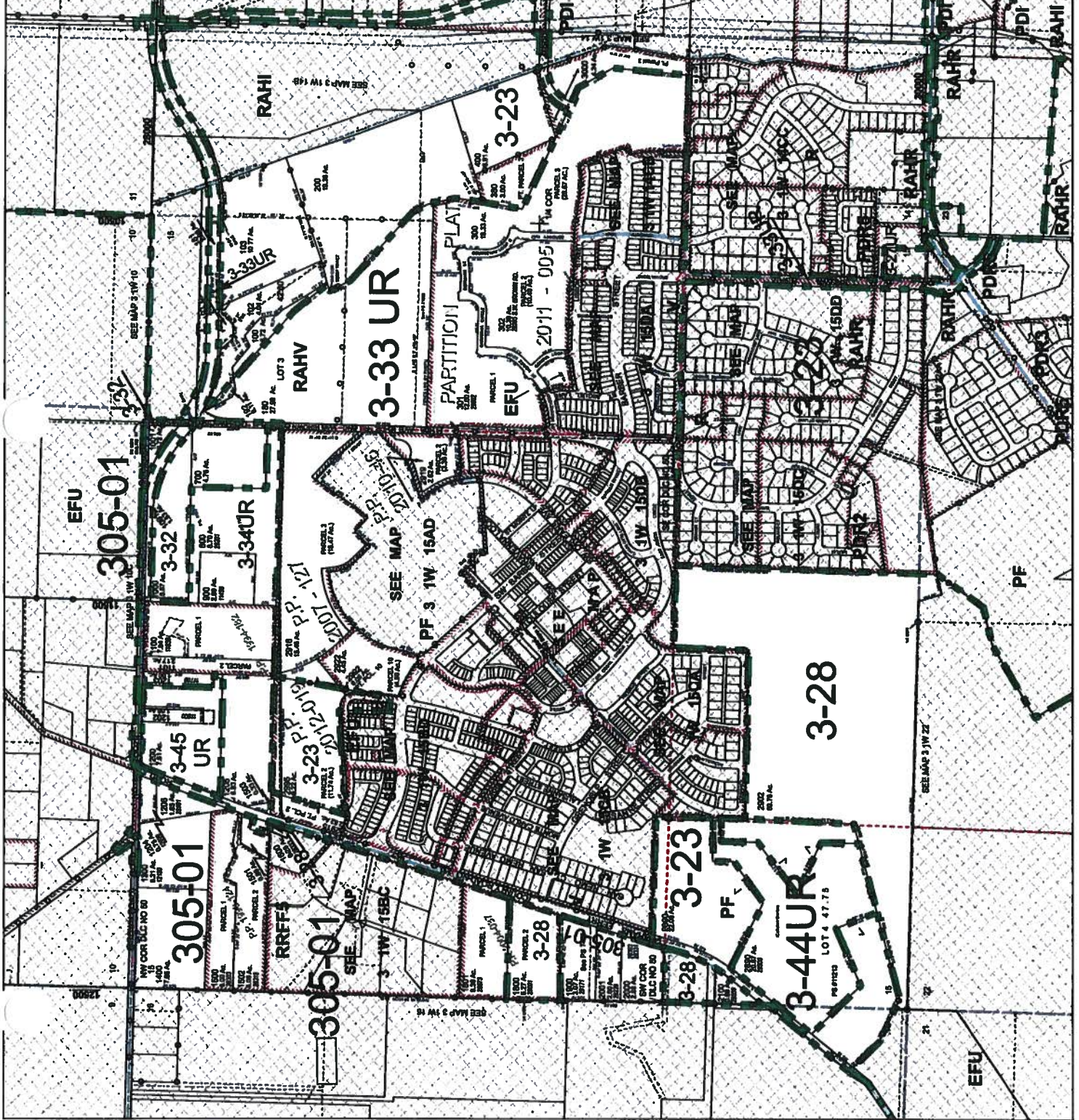
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300	30100

- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Railroad Centreline
- Map Index
- Water Lines
- Land Use Zoning
- PLS
- Water
- Corner
- Section Corner
- 1/18th Line
- Cont Lot Line
- DLC Line
- Mentor Line
- PLS Section Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT PURPOSES ONLY

3 1 W 15 & INDEX
 WILSONVILLE

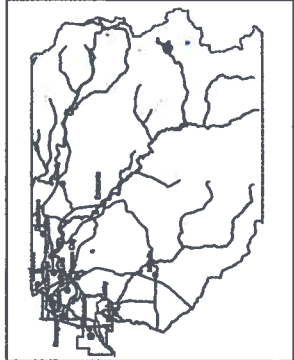


1 W 15 BC
 WILSONVILLE
 S.W. 1/4 N.W. 1/4 SEC. 15 T. 3S. R. 1W. W.M.
 Clackamas County
 1" = 100'

D. L. C.
 SAMUEL B. FRANKLIN NO. 50

Cancelled Tracts
 40
 20

- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Railroad Centerline
- Tan-Coded Lines
- Wetland Lines
- Land Use Zoning
- Fish
- Hazardous Waste
- Corner
- Section Corner
- 1/16th Line
- Cont. Lot Line
- DLG Line
- Member Line
- P.L.S.S. Section Line
- Historic Corridor 40
- Historic Corridor 20



THIS MAP IS FOR ASSESSMENT
 PURPOSES ONLY



3 1 W 15 BC
 WILSONVILLE



Section II

SAP Amendment

IIA
Supporting Compliance Report

**AMENDMENT OF SPECIFIC AREA PLAN - NORTH
SUPPORTING COMPLIANCE REPORT
(SECTION IIA)**

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I. VILLEBOIS VILLAGE MASTER PLAN

LAND USE

GENERAL - LAND USE PLAN

Goal

Villebois Village shall be a complete community that integrates land use, transportation, and natural resource elements to foster a unique sense of place and cohesiveness.

Policies

1. The *Villebois Village Master Plan* shall provide a complete community with a wide range of living choices, transportation choices, and working and shopping choices. Housing shall be provided in a mix of types and densities resulting in a minimum of 2,300 dwelling units within the *Villebois Village Master Plan* area.

Response: Specific Area Plan - North has been designed to be consistent with the *Villebois Village Master Plan*. Amendments to SAP North do not alter the vision of the *Villebois Village Master Plan* for a complete community with a wide range of living choices, transportation choices, and working and shopping choices. Phase 3 contributes to the mix of housing types and densities identified in the amended *Villebois Village Master Plan* through the provision of smalls, mediums, standards, and larges. The number of dwelling units shown exceeds the minimum requirement of 2,300 dwelling units within the *Master Plan* area. The applicable Village zone criteria for refinements are addressed below in Section II of this report.

2. Future development applications within the Villebois Village area shall provide land uses and other major components of the plan such as roadways and parks and open space in general compliance with their configuration as illustrated on *Figure 1 - Land Use Plan* and as refined by Specific Area Plans. The proposed uses for the Future Study Area Specific Area Plan Amendment to SAP South shall be those identified in *Figure 1 - Land Use Plan*, which includes residential uses being limited to single-family lots in the medium to estate land use category identified in Wilsonville Code Subsection 4.125 (.18) F. 1. a. iv. arranged in a similar pattern as other areas on the edges of Villebois. Due to its location outside the general trapezoidal shape of Villebois and distance from the Village Center and neighborhood commons as well as its relatively small size, the Future Study Area Specific Area Plan Amendment to SAP South shall not be considered a neighborhood plan as defined in Section 2.1 of the *Villebois Village Master Plan*.

Response: Specific Area Plan - North has been designed to be consistent with the concepts of *Villebois Village Master Plan* for the site area. SAP North, as depicted on the attached SAP drawings (see Notebook Section II), provides land uses, roadways, and parks and open space in general compliance with the configuration shown on the proposed *Figure 1- Land Use Plan* of the *Villebois Village Master Plan*. Within Phase 3, minor refinements to the *Master Plan* have been made to the mix of land uses and residential density, parks and open spaces, stormwater/rainwater facilities, and street alignment and location, as described in subsequent sections. Proposed residential uses continue to be within the Medium to Estate land use category and the Small to Neighborhood Apartment land use category. Additionally, land uses are arranged in a pattern similar to other areas on the edges of Villebois. Compliance with Section 4.125 (.18) is addressed in Section II of this Report.

3. The *Villebois Village* shall provide civic, recreational, educational and open space opportunities.

Response: Specific Area Plan - North provides civic, recreational, educational and open space opportunities that are generally consistent with those identified in the *Villebois Village Master Plan* for the subject area. Phase 3 will provide additional open space and recreation opportunities in Specific Area Plan - North than anticipated with the *Master Plan*.

4. The *Villebois Village* shall have full public services including: transportation; rainwater management; water; sanitary sewer; fire and police services; recreation, parks and open spaces; education; and transit.

Response: Specific Area Plan - North currently provides public services, including: transportation, rainwater management; water; sanitary sewer; fire and police services; recreation, parks and open spaces; education; and transit. The attached Drawings (see Notebook Section IIB) demonstrate that Specific Area Plan - North will continue to provide public services, including: transportation, rainwater management; water; sanitary sewer; recreation, and parks and open spaces. Therefore, SAP North, including Phase 3, will continue to have full public services.

5. Development of Villebois shall be guided by a Finance Plan and the City's Capital Improvement Plan, ensuring that the availability of services and development occur in accordance with the City's concurrency requirements (see Implementation Measure 4, below).

Response: The Finance Plan has already been adopted for Villebois. Development within Specific Area Plan - North will comply with guiding measures of the Finance Plan. Specific Area Plan - North will not alter the assumptions within the City's Capital Improvement Plan for SW Grahams Ferry Road.

Implementation Measures

1. Allow for unique planning and regulatory tools that are needed to realize the *Villebois Village Master Plan*. These tools shall include, but are not limited to: Specific Area Plans; Pattern Books; and Community Elements Books.

Response: The proposed SAP North amendment includes Drawings (see Notebook Section IIB) and a Utility and Drainage Report (see Notebook Section IIC) for SAP North, and a Traffic Analysis (see Notebook Section IID), Historic/Cultural Resource Inventory (see Notebook Section IIE), SRIR Addendum (see Notebook Section IIF), and Tree Report (see Notebook Section IIG) for Phase 3. An Architectural Pattern Book, Community Elements Book, Master Signage and Wayfinding Plan, and Rainwater Management Program were originally created and approved with Specific Area Plan - North. Copies of the approved SAP North books are provided in Notebook Sections IIH through IIK for reference. These applicable SAP North books that will be utilized with Phase 3. No amendments are proposed to the SAP North books.

2. Adopt the newly created Village zone district, which may be applied to the *Villebois Village Master Plan* area designated Residential-Village on the Comprehensive Plan Map. The new Village zone shall be based on the *Villebois Village Master Plan* Goals, Policies and Implementation Measures contained within this document.

Response: The subject area is currently outside city limits within Clackamas County area zoned Rural Residential Farm Forest 5-Acre (RRFF-5). Concurrent applications for annexation to the city and for a zone change to apply the Village zone have been submitted with an application for PDP 3N.

3. Refinements to the *Villebois Village Master Plan* are anticipated as more detailed plans are developed for the Specific Area Plans. Specific Area Plans may propose refinements to the *Villebois Village Master Plan* without requiring an amendment to the *Villebois Village Master Plan* provided the refinement is not significant. Non-significant refinements shall be defined in the Village (“V”) zone text and may include, but are not limited to: minor alterations to street alignments or minor changes in area or uses. Disagreement about whether a refinement is significant shall be resolved by a process provided in the Village (“V”) Zone text.

Response: SAP North (see Notebook Section IIB - *Reduced Drawings*) provides land uses, roadways, and parks and open space in general compliance with the configuration shown on the proposed *Figure 1- Land Use Plan* of the *Villebois Village Master Plan*. Within Phase 3, minor refinements to the *Master Plan* have been made to the mix of land uses and residential density, parks and open spaces, stormwater/rainwater facilities, and street alignment and location, as described in subsequent sections. Compliance with Section 4.125 (.18) is addressed in Section II of this Report.

4. The Master Planner shall coordinate with the City on the development of a Finance Plan for necessary urban services and public infrastructure. Each developer within Villebois Village will sign their own Development Agreement that will address the necessary urban services and public infrastructure as appropriate.

Response: The applicant has existing Development Agreements with the City that address necessary urban services and public infrastructure. The applicant will obtain additional Development Agreement(s) as needed.

5. The Specific Area Plan (SAP) Amendment to SAP South for the Future Study Area shall demonstrate compliance with the Villebois Village Master Plan, the City’s Comprehensive Plan and its sub-elements, the City’s Planning and Land Development Ordinance, and all other applicable regulatory requirements. The developer of the Future Study Area shall be responsible for obtaining any master plan or ordinance amendment(s) that may be necessitated by their proposal.

Response: This is a request to amend SAP North. Therefore, this policy is not applicable.

RESIDENTIAL NEIGHBORHOOD HOUSING

Goal

The Villebois Village shall provide neighborhoods consisting of a mix of homes for sale, apartments for rent, row homes, and single-family homes on a variety of lot sizes, as well as providing housing for individuals with special needs. The Villebois Village shall provide housing choices for people of a wide range of economic levels and stages of life through diversity in product type.

Policies

1. Each of the Villebois Village's neighborhoods shall include a wide variety of housing options and shall provide home ownership options ranging from affordable housing to estate lots.

Response: The *Land Use Plan* (see Notebook Section IIB) illustrates that Specific Area Plan - North will continue to provide for the wide variety of housing options and home ownership options identified in the *Villebois Village Master Plan*. Phase 3 will contribute to the availability of housing options in Specific Area Plan - North with the provision of small, medium, standard, and large residential lots. The Master Plan shows smalls, standards, and larges within Phase 3; this proposed amendment adds to housing options within Phase 3 with the addition of mediums through minor refinement, as described in subsequent report sections.

2. Affordable housing within Villebois shall include rental and home ownership opportunities.

Response: Rental and home ownership opportunities will continue to be available within Specific Area Plan - North. Phase 3 of SAP North includes rental and ownership opportunities through the provision of single-family dwellings of varying sizes.

3. The mix of housing shall be such that the Village development provides an overall average density of at least 10 dwelling units per net residential acre.

Response: With the proposed amendment, Villebois Village will continue to maintain an overall average density of at least 10 dwelling units per net residential acre. The density within Phase 1 and Phase 2 has been approved. The number of units within Phase 3 of SAP North is 84 within 8.64 net acres (approximately 9.72 units per net acre). The residential density of SAP North Phase 3 is consistent with other areas of Villebois Village in which larger lots are located along the edges of development. Furthermore, Phase 3 is located further from higher residential density associated with areas closer to the Village Center.

4. The Villebois Village shall accommodate a total of at least 2,300 dwelling units within the boundary of the *Villebois Village Master Plan*.

Response: This SAP North amendment will result in a total of 2,615 dwelling units within Villebois Village. Therefore, this request will not alter the ability of the overall project to meet the minimum requirement of 2,300 minimum dwelling units.

5. The Villebois Village shall provide a mix of housing types within each neighborhood and on each street to the greatest extent practicable.

Response: The attached plans (see Notebook Section IIB) illustrate that SAP North provides a mix of housing types generally consistent with the *Master Plan*. Phase 3 provides a mix of housing types to the greatest extent possible, ranging from small to large, while also providing a similar land use pattern to the other edges of Villebois. Additionally, this request adds mediums to the range of housing options in Phase 3 through minor refinement to the *Master Plan*.

6. The Villebois Village shall include community housing types consistent with Oregon Revised Statute 426.508(4), which requires no more than 10 acres be retained from the sale of the former Dammasch State Hospital property for development of community housing for chronically mentally ill persons. The City of Wilsonville, the

Oregon Department of Administrative Services, and the Mental Health and Developmental Disability Services Division shall jointly coordinate the identification of the acreage to be retained.

Response: The proposed amendments to Specific Area Plan - North will not impact the provision of community housing consistent with ORS 426.508 and contractual agreements between the State and the Master Planner.

7. The development standards and Specific Area Plans required by the Village zone shall be consistent with the Governor's Quality Development Objectives and the Governor's Livability Initiative.

Response: The Governor's Quality Development Objectives (QDO's), part of the Oregon Livability Initiative adopted in 1997, have guided the design and development of Villebois. The Development Objectives promote the building of strong livable communities, economic growth and the efficient use of public resources, and are listed as follows.

- Promote compact development within urban growth boundaries.
- Give priority to a quality mix of development that addresses the economic and community goals of a community and region.
- Encourage mixed-use, energy efficient development.
- Support development that is compatible with community and regional environmental concerns and available natural resources.
- Support development for a balance of jobs and affordable housing within a community.
- Promote sustainable local and regional economies.

The *Villebois Village Concept Plan*, the *Villebois Village Master Plan*, and the Village zone were developed to help guide the creation of a community that is consistent with these objectives. As demonstrated by compliance with the Goals, Policies and Implementation Measures of the *Villebois Village Master Plan* (see Section I of this report) and compliance with the Village zone (see Section II of this report), SAP North has been designed to be consistent with the Governor's Quality Development Objectives and the Governor's Livability Initiative. SAP North is part of a compact development within an urban growth boundary that gives priority to a quality mix of residential and mixed uses. SAP North was designed to address economic and community goals of the community and region by providing an energy efficient development pattern that offers multi-modal opportunities, maintaining compatibility with community and regional environmental concerns and available natural resources through wetland and tree preservation, providing housing within a community concerned about increasing housing options, including affordable housing opportunities, and promoting a sustainable community through neighborhood character that encourages residents to interact with their community. As demonstrated by this report, Specific Area Plan - North is consistent with the *Villebois Village Master Plan*, and is thereby consistent with the Governor's Quality Development Objectives.

8. Each neighborhood shall be designed to increase transportation options. Neighborhoods shall be bike and pedestrian friendly.

Response: The *Circulation Plan* and the *Park/Open Space/Pathways Plan* (see Notebook Section IIB) illustrate how SAP North is designed to increase transportation options for residents. This area is designed to be bike and pedestrian friendly.

9. Higher density residential uses shall be of a scale and design in keeping with the desired vision for Villebois as expressed in the *Villebois Village Concept Plan* and in the Policies and Implementation Measures of the *Villebois Village Master Plan*.

Response: Phase 1 has been approved and constructed, and Phase 2 has been approved and is the first phase of construction. Phase 3 of SAP North does not include the higher density residential uses associated with the Village Center. Phase 3 includes small, medium, standard, and large lots that will provide for detached residential units. Future phases of SAP North will be required to submit specific information and address compliance with this policy. Residential units will be of a scale and design consistent with the desired vision for Villebois as expressed in the *Villebois Village Concept Plan* and Policies and Implementation Measure of the *Villebois Village Master Plan*. This will be assured through compliance with the Architectural Pattern Book and the Design Standards of the Village zone.

10. Natural features shall be incorporated into the design of each neighborhood to maximize their aesthetic character while minimizing impacts to said natural features.

Response: The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) shows how the design of SAP North incorporates natural features to maximize their aesthetic character and minimize impacts to natural features. The *SROZ Plan* (see Notebook Section IIB) depicts the boundaries of the City's SROZ and shows proposed and approved impacts to the SROZ and approved mitigation. An addendum to the SRIR approved with PDP 2N (DB13-0020 et al) has been prepared to reflect updated SROZ impacts for Phase 3. The SRIR addendum is provided in Notebook Section IIF.

Phase 3 of SAP North predominantly consists of pasture area, with two wetland features and a portion of a upland forest preserve area/SROZ area along the southern site edge. To minimize the impacts to natural features, the existing treed wetland within the southwest corner of Phase 3 is retained in an open space tract. Landscaping and a bioretention cell have been designed within this area to limit impacts to the wetland while integrating natural features into site design. Additionally, the SROZ area along the southern site boundary is planned to be retained within an open space tract. Landscaping along the southern site edge and a trail extending to the south provide visual and physical connection to OS-2, a large upland forest preserve within Phase 2.

Implementation Measures

1. Ensure, through the development standards and Pattern Book(s) required by the Village zone, that the design and scale of dwellings are compatible with the compact, pedestrian-oriented character of the concepts contained in the *Villebois Village Concept Plan* and the contents of this *Villebois Village Master Plan*.

Response: The design and scale of dwellings will be compatible with the compact, pedestrian-oriented character of the concepts contained in the *Villebois Village Concept Plan* and the contents of this *Villebois Village Master Plan* through compliance with the Village zone Design Standards and the approved Architectural Pattern Book

(see Notebook Section IIH). These tools provide guidelines for evaluating the design and scale of dwellings within the subject area. Compliance with these tools will assure compatibility with the compact, pedestrian-oriented character of the project.

2. Create a set of design guidelines for the development of Pattern Books with the Village zone requirements. Pattern Books shall address, at a minimum, architectural styles and elements, scale and proportions, and land use patterns with lot diagrams.

Response: The Architectural Pattern Book adopted in 2005 and updated in 2013 includes architectural styles and elements, scale and proportions, and land use patterns with lot diagrams, and has been developed in accordance with the appropriate Village zone standards. A copy of the approved SAP North Architectural Pattern Book is provided in Notebook Section IIH. No amendments are proposed to the SAP North Architectural Pattern Book with this request.

3. Develop Affordable Housing objectives for Villebois. Develop strategies to accomplish desired variety of mixes and densities, and indicate how buildout of the Specific Area Plan implements those strategies and contributes to the overall Goals and Policies of the *Villebois Village Master Plan*. The affordable housing objectives and plan is to be submitted before, or together with the application for SAP Central.

Response: Strategies to accomplish the desired variety of mixes and densities have been submitted and approved with earlier phases of Villebois Village. Villebois is expected to exceed the minimum 2,300 residential units specified by DATELUP, with a total of 2,615 dwelling units resulting from this SAP North amendment. Villebois offers a range of housing types and estimated prices as well as some unique housing opportunities through the provision of community housing in accordance with ORS 426.508 and the inclusion of accessory dwellings. SAP North includes a mix of housing options with the provision of residential units ranging from neighborhood apartment to estate. Phase 3 contributes to the mix of housing options within SAP North with the provision of smalls, mediums, standards, and larges.

PARKS & OPEN SPACE / OFF-STREET TRAILS & PATHWAYS

Goal

The Parks system within Villebois Village shall create a range of experiences for its residents and visitors through an interconnected network of pathways, parks, trails, open space and other public spaces that protect and enhance the site's natural resources and connect Villebois to the larger regional park/open space system.

Policies

1. Parks and open space areas shall incorporate existing trees where feasible and large shade trees shall be planted in appropriate locations in parks and open spaces.

Response: Phase 3 predominantly consists of farm pasture area. Existing trees are concentrated within the northwest and southwest site corners and surrounding the existing dwellings. Trees within the southwestern site corner are retained within an open space tract. As feasible with the site design, other existing trees will be retained and trees will be planted where appropriate.

2. An interconnected trail system shall be created linking the park and open spaces and key destination points within Villebois and to the surrounding neighborhoods.

The trails system shall also provide loops of varying length to accommodate various activities such as walking, running and rollerblading.

Response: The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) show a system of interconnected trails and pathways that connect SAP North and parks and open spaces to surrounding neighborhoods and key destinations. Destination points include the parks and open space areas within SAP North and other areas of Villebois, the Village Center, and the elementary school within Villebois. The trail system within Phase 2 of SAP North, approved with PDP 2N (DB13–0020 et al), includes loops of varying length that will accommodate various types of activities. Future phases of SAP North will continue the major pathway system and provide connection to the trail system in OS-2. The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) also shows the provision of a trail connection to OS-2 and pedestrian/bike connections to Tooze Road and Grahams Ferry Road within Phase 3. Additionally, a trail is provided along residential lots and the retained wetland in the southwest site corner of Phase 3, providing connection from SW Oslo Street and SW Palermo Street.

3. Parks shall encourage the juxtaposition of various age-oriented facilities and activities, while maintaining adequate areas of calm.

Response: SAP North provides a variety of age-oriented facilities, ranging from child play structures to more active, hard surface sport courts. Opportunities for quiet reflection and passive interaction are provided within the forested area of OS-2. SAP North provides numerous other age-oriented facilities, passive and active activities, and areas of calm, as depicted on the *Parks/Open Space/Pathways Plan* in Notebook Section IIB.

This SAP Amendment adds both active and passive recreational opportunities within Phase 3. The pocket park in the northwest site corner will provide a child play structure, pedestrian/bicycle connection to the intersection of Grahams Ferry Road and Tooze Road, and a lawn area. Preservation of the treed wetland in the southwest site corner and the adjacent pedestrian connection will provide an opportunity for quiet reflection and passive recreational use. Therefore, the planned park and open space areas provide activities for a range of ages and activity levels.

4. Park designs shall encourage opportunities for wildlife habitat, such as plantings for wildlife foraging and/or habitat, bird, and/or bat boxes and other like elements.

Response: SAP North encourages opportunities for wildlife habitat by minimizing impacts to natural resources and incorporating forested and wetland areas into the site design. Nature trails, benches, and nature trail activity areas within OS-2 will be established in ways that preserve opportunities for wildlife habitat. Additionally, with the proposed amendment, the existing treed wetland in the southwestern site corner of Phase 3 is retained in an open space tract. Landscaping and a bioretention cell are planned within this open space area to minimize wetland impacts.

5. Gathering spaces in parks shall generate social interaction by adding layers of activity (Power of Ten).

Response: SAP North includes a range of activities and facilities within gathering spaces of parks and open spaces, as described above and depicted on the *Parks/Open Space/Pathways Plan* in Notebook Section IIB.

6. Build-out of the Villebois Village Master Plan shall comply with the City of Wilsonville SROZ regulations. Any encroachment into the SROZ will be reviewed for compliance or exemption as more detailed information is provided that will affect the SROZ areas. Adjustments in plan, street alignments, an intersections as well as rainwater facilities and pathways shall be made to comply with SROZ regulations.

Response: The *SROZ Plan* (see Notebook Section IIB) shows previously approved SROZ impacts in OS-2 and the updated impacts within Phase 3. PDP 1N impacts were approved with 2007 SAP Approval (DB07-0054 et al) and reflected in subsequent approvals. A Significant Resource Impact Report (SRIR) evaluating SROZ impacts and mitigation for Phase 2 and Phase 3 was approved with PDP 2N. A SRIR addendum is provided for updated SROZ impacts within Phase 3 (see Notebook Section IIF). Compliance with SROZ requirements is demonstrated in the attached SRIR addendum and in Section III of this report.

9. Parks and recreation spaces shall provide for flexibility over time to allow for adaptation to future community's park, recreation and open space needs.

Response: The parks and recreation spaces depicted on the *Park/Open Space/Pathways Plan* (see Notebook Section IIB) include designs that will be flexible overtime allowing for adaptation to future needs.

10. Integrated pest management practices, and other similar measures, shall be specified for the operation and maintenance of sports fields and other park uses in and adjacent to the floodplain.

Response: The floodplain is located in the eastern portion of Villebois and is associated with the Coffee Lake wetland complex. Therefore, this requirement does not apply to SAP North.

11. On-street parking will not be allowed along the frontages of parks and open spaces where views into and out of park spaces should be protected. Parking will be allowed along parks and open spaces in circumstances where it is necessary for the function of the park and will not obstruct the views into and out of the park area.

Response: On-street parking is not allowed along the frontages of the parks and open spaces in order to provide for views into and out of park spaces. This is documented with the *Circulation Plan* and *Street Sections* (see Notebook Section IIB), which identify where parking is planned.

Implementation Measures

1. Future and pending development applications within Villebois (Specific Area Plans, Preliminary Development Plans and Final Development Plans) shall comply with the park, trail, open space system proposed in Figure 5 - Parks and Open Space Plan, Figure 5A - Recreational Experiences Plan, and Table 1: Parks Programming. Refinements may be approved in accordance with Village Zone section 4.125(.18)(F).

Response: Phase 3 of SAP North is generally consistent with Figure 5, Figure 5A and Table 1 of the *Master Plan*. Minor refinements are proposed to the parks and open space areas within Phase 3 of SAP North, which are described within subsequent sections of this report. Compliance with Section 4.125(.18)(F) is addressed in this Narrative.

2. The Master Planner shall submit the necessary application materials for a legislative plan amendment to Chapter 3 - Parks and Open Space of the Villebois Village Master Plan related to the detailed indoor and outdoor parks and recreation programming, and amenity package no later than January 1, 2006. Application materials shall include updated Villebois Village Master Plan findings, text, maps and figures as appropriate, and supporting technical data and analysis to address this issue as appropriate. Such amendments shall apply to pending and future Specific Area Plan (SAP) and Preliminary Plan (PDP) approvals.

Response: The amendment to Chapter 3 referenced in Implementation Measure 2, above, occurred in 2006. As demonstrated by this Supporting Compliance Report, the proposed plan complies with the applicable provisions of Chapter 3 - Parks and Open Space of the Villebois Village Master Plan.

3. Parks and open spaces shall be designed to incorporate native vegetation, landforms, and hydrology to the fullest extent possible.

Response: As shown on the *Park/Trail/Open Space Plan* (see Notebook Section IIB), native vegetation, landforms, and hydrology are incorporated in parks and open spaces to the extent feasible. Parks and open space areas are designed to incorporate native vegetation by retaining existing trees in park and open space areas where feasible. Landforms are incorporated through minimal grading within parks and no grading within SROZ open space areas (except for identified impact areas). Hydrology is incorporated in parks and open space tracts through the retention of the existing wetland in the southwest site corner.

4. Each Specific Area Plan shall include a Community Elements Book that (1) meets the requirements of Master Plan Chapter 3; (2) specifies the value system and methodology for tree preservation, protection and tree planting; and (3) provides a proposed plant list. The Community Elements Book also includes specifications for site furnishings and play structures. Proposed parks shall closely comply with the specifications of the applicable Community Elements Book.

Response: A Community Elements Book was submitted and approved with the 2007 application for Specific Area Plan - North (DB07-0054 et al). This application includes a copy of the approved SAP North Community Elements Book (see Notebook Section III). No amendments to the SAP North Community Elements Book are proposed.

5. Artwork is encouraged to be incorporated into parks.

Response: Space has been reserved for placement of artwork in parks closer to the Village Center and within neighborhood and community gathering spaces. This SAP amendment does not alter this approach.

6. The interface with Graham Oaks Natural Areas should contain enhancements such as trail connections, landscaping, gateway features, seating and overlook opportunities.

Response: The Graham Oaks Natural Area is located to the south of Villebois Village, abutting areas of SAP South. Therefore, this policy is not applicable to SAP North.

7. The ability to recreate year round shall be preserved through measures such as: the provision of some hard surfaces that function in the wet season; areas shaded from the sun; areas protected from the rain; safely lit areas and indoor recreation opportunities.

Response: Specific Area Plan - North includes a variety of year-round recreation and open space opportunities, including multi-use trails, hard surface sports areas, and play and park structures. The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) illustrates how Phase 3 will contribute additional parks and open space areas that contribute to the ability to recreate year round. Through the preservation of existing trees within parks and open space areas, shade from the sun and rain is provided adjacent to the retained wetland and within OS-2.

9. The design of Villebois shall retain the maximum number of existing trees practicable that are six inches or more DBH in the “Important” or “Good” tree rating categories, which are defined in the Community Elements Books. Trees rated “Moderate” shall be evaluated on an individual basis as regards retention. Native species of trees and trees with historical importance shall be given consideration for retention.

Response: The attached *Tree Preservation Plan* (see Notebook Section IIB) depicts the approved tree preservation and removal for Phase 1 and Phase 2 and information added for Phase 3. The *Tree Preservation Plan* (see Notebook Section IIB) identifies the inventoried existing trees, their classification and their whether they will be/were retained or removed. For Phase 3, specific methodology used to determine DBH and tree ratings is described in the Tree Report (see Notebook Section IIG). Future Phases will be required to submit tree preservation information through a SAP Amendment. SAP North complies with this policy by retaining trees that are six inches or more in DBH and rated “Important” and “Good” to the extent feasible.

The majority of Phase 3 is pasture area, with trees concentrated in the southwest site corner and adjacent to existing dwellings. To minimize the impacts to existing trees within Phase 3, trees within the southwest site corner are retained within an open space tract. Trees throughout the site are retained within residential lots and landscape tracts where feasible. No trees with an “Important” rating are present within the site. Efforts have been undertaken in the site layout to retain as many “Good” trees as practicable. Of the trees proposed for removal, trees are primarily proposed for removal because of poor or hazardous tree condition (65%) or construction (35%). Additional description of the proposed *Tree Preservation Plan* for Phase 3 is provided in subsequent sections of this report and in the Tree Report prepared by the project Arborist.

10. Each Specific Area Plan, Preliminary Development Plan and Final Development Plan shall include tree preservation plans and planting plans to indicate proposed tree planting within parks and along streets and descriptions of the size of trees when planted and upon maturity.

Response: The attached SAP Drawings (see Notebook Section IIB) include specific information on tree preservation and street tree plans for Phase 3 and reflect Phase

1 and Phase 2 approvals. Future Phases will be required to submit additional information regarding tree preservation and plantings through a SAP Amendment. Street Tree Master Plan and Specs are included in the approved SAP North Community Elements Book, a copy of which is provided in Notebook Section III.

12. Through time, the Developers shall have a responsibility to participate in planning, implementing and securing funding sources for a wetland naturalization and enhancement plan for the Coffee Lake wetland complex. These wetlands are adjacent to Coffee Creek and within the boundary of Villebois. The wetland naturalization and enhancement plan shall be initiated and completed with the phased development of the Village.

Response: The Coffee Lake wetland area is adjacent to the eastern portion of Villebois. Therefore, this policy measure is not applicable to Specific Area Plan - North.

13. The Villebois Master Plan shall comply with the Significant Resource Overlay Zone (SROZ) regulations. Proposed encroachments into the SROZ for exempt and non-exempt development shall be reviewed for compliance with the requirements of Section 4.139 of the Wilsonville Code.

Response: Compliance with SROZ requirements for Phase 1, Phase 2, and approved impacts within Phase 3 has been demonstrated with previous approvals. An SRIR evaluating the SROZ impacts and mitigation in OS-2 was approved with PDP 2N. A SRIR addendum is provided for updated SROZ impacts within Phase 3 (see Notebook Section IIF). This application includes a request for a SRIR Addendum Review for the updated impacts submitted for Phase 3. The *SROZ Plan* (see Notebook Section IIB) shows the updated impacts to the SROZ within Phase 3, as well as previously approved impacts and mitigation area in OS-2.

14. A conceptual plan for lighting of park spaces throughout Villebois is provided on the plan included in Appendix H. Future development applications shall comply with the lighting system proposed in Appendix H. Refinements may be approved in accordance with Village Zone Section 4.125(.18)(F).

Response: The conceptual plan for lighting of park spaces addresses major parks and open spaces within SAP North, such as the Tonquin Trail and the Neighborhood Commons. Phase 3 does not include a Neighborhood Commons or the Tonquin Trail. Appendix H does not require lighting in SAP North Phase 3 open space or park areas.

15. Each child play area shall include uses suitable for a range of age groups.

Response: The attached *Park/Open Space/Pathways Plan* (see Notebook Section IIB) illustrates the child play areas approved with Phase 1 and Phase 2 and proposed for Phase 3. Phase 3 provides a pocket park, including a play structure and lawn area. Additionally, the child play area within OS-2 to be developed with Phase 3 is designed for both younger and older children.

18. The park spaces included within each phase of development will be completed prior to occupancy of 50% of the housing units in that particular phase unless weather or other special circumstances prohibit completion, in which case bonding for the improvements shall be permitted.

Response: The Applicant/Developer will provide for completion of parks prior to occupancy of 50% of the housing units.

20. The adequacy, amount and location of the proposed parking (including ADA parking) necessary to serve the proposed park uses shall be evaluated in detail at the SAP and PDP level. Off-street parking may be required to serve the various park users.

Response: The parks and open space areas and on-street parking within Phase 1 and Phase 2 have been approved. Parks and open spaces within Phase 3, including a pocket park and open space area, are anticipated to serve the immediate neighborhood and adjacent neighbors. The proposed park/open space uses within Phase 3 are not anticipated to require parking, as most users are anticipated to access these areas by walking or biking. Future Phases will be required to submit additional information regarding parks and open spaces and proposed parking through a SAP Amendment.

UTILITIES

Sanitary Sewer

Goal

The Villebois Village shall include adequate sanitary sewer service.

Policy

1. The sanitary sewer system for Villebois Village shall meet the necessary requirements for the City of Wilsonville Wastewater Master Plan.

Implementation Measures

1. Implement the following list of policies and projects of the City of Wilsonville Wastewater Master Plan:
 - Policies: 1-7; and
 - Projects: CIP-UD2.
2. Incorporate the construction of CIP-UD2 into the Finance Plan.
3. Insure the 537 gpm capacity of the Evergreen Road sewer line is not exceeded with Specific Area Plan - South application.
4. Insure the 340 gpm capacity of the Park at Merryfield sewer line is not exceeded with Specific Area Plan - South application.
5. At the time of development of the Future Study Area, replace private pump station with Public Sanitary Sewer Lift Station build consistent with Technical Appendix I.

Response: The *Utility Plan* (see Notebook Section IIB) shows the approved sanitary system within Phase 1 and Phase 2, and the proposed sanitary system within Phase 3. The sanitary system within Phase 3 of SAP North will comply with Policies 1 through 7 of the City of Wilsonville Wastewater Master Plan, as demonstrated by the *Utility Plan* (see Notebook Section IIB) and the attached Utility & Drainage Report (see Notebook Section IIC). No refinements to sanitary sewer are proposed.

Water

Goal

The Villebois Village shall include adequate water service.

Policy

The water system for Villebois Village shall meet the necessary requirements of the City of Wilsonville Water System Master Plan.

Implementation Measures

1. Implement the following list of Water System Master Plan policies and projects with development of Villebois Village:
 - Policies: 1-7
 - Projects:
 - 1) 18-inch main in Barber Street from Kinsman Road to Brown Road
 - 2) 48-inch main in Kinsman Road from Barber Street to Boeckman Road
 - 3) 24-inch main in Boeckman Road from Kinsman Road to Villebois Drive
 - 4) 18-inch main in Villebois Drive from Boeckman Road to Barber Street
 - 5) 18-inch main from Barber Street from Brown Road to Grahams Ferry
 - 6) 18-inch main in Grahams Ferry Road from Barber Street to Tooze Road
 - 7) 12-inch main in Grahams Ferry Road from the Future Study Area to Barber Street
 - 8) 30-inch main in Tooze Road from Villebois Drive to Grahams Ferry Road
 - 9) 12-inch main in extension of Villebois Drive from Barber to the Future Study Area
 - 10) 12-inch main connections from Barber Street to Evergreen

Response: The *Utility Plan* (see Notebook Section IIB) shows the water system for SAP North, reflecting Phase 1 and Phase 2 approvals, and the proposed water system for Phase 3. The proposed water system will comply with Policies 1 through 7 of the Water System Master Plan. The 18-inch main in Grahams Ferry Road from Barber Street Road to Tooze Road has been constructed. Additionally, the City has already installed the 18-inch main from Barber Street from Brown Road to Grahams Ferry.

2. Incorporate the construction of the above referenced projects into the Finance Plan.

Response: Construction of water systems projects was incorporated into the Finance Plan in previous phases of Villebois.

Storm Drainage

Goal

The Villebois Village shall include adequate storm water systems to prevent unacceptable levels of flooding, protect receiving streams and water bodies from pollution and increased runoff rates due to development, and create a connection between people and the environment.

Policy

1. The onsite stormwater system for Villebois shall meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards.

Response: The *Utility Plan* (see Notebook Section IIB) shows the stormwater system for SAP North, reflecting Phase 1 and Phase 2 approvals, and the proposed stormwater system for Phase 3. A supporting Utility and Drainage Report is included in Notebook Section IIC, which demonstrates that the stormwater system will meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards.

2. Villebois Village shall strive to minimize the development “footprint” on the hydrological cycle through the combination of stormwater management and rainwater management.
3. Villebois Village shall integrate rainwater management systems into parks and open space areas.

Response: Rainwater Management Systems are integrated into parks and open space areas as shown on the *Park/Open Space/Pathways Plan* (see Notebook Section IIB). A copy of the approved Rainwater Management Program for SAP North is provided in Notebook Section IIK. A minor refinement is proposed to on-site water quality/stormwater/rainwater facilities within Phase 3 along Grahams Ferry Road and Tooze Road, as further described in Section 4.125(.18)(F).

Implementation Measures

3. Implement the following list of City Stormwater Master Plan policies and facilities:
 - Policies: 9.1-9.6
 - Projects: CLC-10

At a minimum CIP Project CLC-10 shall be complied with. Alternatives to CLC-10 shall be explored to additional restoration of historic flows. These alternatives, Options A and B, seek to restore historic flows to Arrowhead Creek thereby correcting the out of basin transfer that occurred with the construction of the Dammasch State Hospital. Analysis of these alternatives will be coordinated with the City, METRO, and affected property owners.

Response: The *Utility Plan* (see Notebook Section IIB) shows the stormwater system for Specific Area Plan - North, reflecting Phase 1 and Phase 2 approvals, and the proposed stormwater system for Phase 3. A supporting utility report in Notebook Section IIC demonstrates that the stormwater system will meet the necessary requirements of the City of Wilsonville Stormwater Master Plan and Public Works Standards. CLC-10 was completed several years ago with phasing of Specific Area Plan - South. This proposed amendment does not alter this Implementation Measure.

4. Develop a Rainwater Management Program with the first Specific Area Plan that will provide opportunities for integrating water quality and detention into the site’s natural features and the proposed urban form, thus developing a green, natural, aesthetically pleasing rainwater management system. This program will provide the specific goal of reducing the increase in runoff from the 90th percentile of all rain events, mimicking pre-development hydrology and keeping Villebois Village true to its development goal of minimal negative impacts to the existing system. In addition to this standard, the program will provide guidelines and standards for the design of all stormwater systems challenging them to be creative and unique while meeting necessary requirements.

Response: A copy of the approved Rainwater Management Program is provided in Notebook Section IIK. No changes are proposed to the Rainwater Management Program.

5. Construct CLC-10 as defined or implement Option A or B as proposed. Construction of CLC-10, or selection of an option to modify CLC-10, is to occur in accordance with the terms specific in the memorandum of understanding between the City/Villebois and Metro (Metro contract #926225).

6. Incorporate the construction of CLC-10 or as modified by Option A or B into the Finance Plan.

Response: CLC-10 was completed several years ago with phasing of Specific Area Plan - South. This is a request for amendment to SAP North. Therefore, this proposed amendment does not alter this Implementation Measure.

7. Insure that on-going costs to maintain rainwater systems in public right-of-way are included in the Finance Plan.
11. Pursuant to the City's Stormwater Master Plan Policies 9.2.4 and 9.2.5, maintenance of stormwater conveyance facilities, including detention/retention facilities will be planned as part of the Specific Area Plans for the Villebois Village.

Response: Ownership and maintenance of stormwater conveyance facilities for Phase 1 and Phase 2 has been addressed through the Ownership & Maintenance Agreement prepared with PDP 1N and PDP 2N. An Ownership & Maintenance Agreement addressing ownership and maintenance of stormwater conveyance facilities in Phase 3 and future phases will be prepared at the final plat review stage.

12. Complete the study of Options A and B with regard to CIP Project CLC-10 in accordance with the terms specified in the memorandum of understanding between the City/Villebois and Metro (Metro contract #926225). The study shall consider at least the following actions, which are required to obtain approval of the City Engineer:
 - Coordinate with and obtain approval of Metro and the City of Wilsonville for integration of a potential detention facility into the design of the Graham Oaks Natural Area. Obtain appropriate easements as required for said facility.
13. The City shall include the *Villebois Village Master Plan*, including the finalized concept of CLC-10, in future updates of the City of Wilsonville Stormwater Master Plan.

Response: CLC-10 was completed several years ago with phasing of Specific Area Plan - South. Amendments are proposed to SAP North to reflect previous approvals and add information for Phase 3. Therefore, this proposed amendment does not alter this Implementation Measure.

CIRCULATION

Goal

The Villebois Village shall provide for a circulation system that is designed to reflect the principles of smart growth.

Policy

1. The Villebois Village shall encourage alternatives to the automobile, while accommodating all travel modes, including passenger cars, trucks, buses, bicycles and pedestrians.

Implementing Measures

2. The *Villebois Village Master Plan* includes the following alternative street sections. Any proposed alternative street sections not included in the list below shall follow the review of procedure established in the 2003 TSP.

- On-street parking on Major Collector (VVMP street section D) and Minor Collector (VVMP street section E).
- Increase planter to 8' and median to 15' on Major Collector (VVMP section D), which increase right-of-way to 65' and curb-to-curb to 92'.
- Increase planter to 7.5' and stripe parking and bike lane on Residential Street (VVMP street section G), which increases curb-to-curb and right-of-way widths.
- Increase sidewalk widths on Residential Streets (VVMP street sections H, I, J and K) and increase planter strip widths on Residential Streets (VVMP street sections I, J, K, and L).
- Reduce curb-to-curb widths to 20' and not allowing parking on Residential Streets (VVMP street sections J, K, and M).

Response: SAP - North implements the street sections approved with the *Villebois Village Master Plan*. Phase 3 includes minor refinements to the alignment and location of Iceland Lane, to the location of access from Grahams Ferry Road, to remove a portion of the continuous street (Amsterdam Avenue/Belfast Lane) along the western site edge in order to retain the on-site wetland.

3. Roundabout options at intersections not already identified on *Figure 7 - Street Plan of the Villebois Village Master Plan* shall be reviewed through the major alternative process.

Response: Phase 1 has been constructed and Phase 2 is in construction. No roundabouts are included with Phase 3 of SAP North.

4. Requests for major alternatives for access spacing less than 600 feet on Grahams Ferry Road will follow the process outlined in Wilsonville TSP Implementation Measure 4.1.1.b(3). If this major alternative request is approved, access standards shall be resolved. For publicly constructed streets, these standards may be waived for major alternatives by the City Council and for minor alternatives by the City Engineer. A major alternative is one that involves a significant change from the standards impacting capacity and speed, that changes pedestrian safety and convenience, or that alters large areas of required landscaping. Examples include but are not limited to changing the number of lanes, moving a sidewalk from the property-line to the curb-line, using alternatives to standard curb, gutter, and median systems for managing stormwater, or eliminating the landscaped strip. A minor alternative is one that involves a small change from the standards that does not affect capacity or speed and does not diminish safety or aesthetics for the project as a whole. Examples include but are not limited to moving a sidewalk to go around landscape features, or a small narrowing of lanes to fit tight right-of-way.

Response: SAP - North provides more than the required 600 foot access spacing on Grahams Ferry Road (see Notebook Section IIB). This SAP amendment does not include a request for a major alternative for access spacing.

5. Curb extensions may be utilized within the Villebois Village area under the following basic principles for their placement and design:
 - A minimum of 20-foot face-of-curb- to face-of-curb street width shall be provided at all residential street intersections, even where curb extensions are located. In the Village Center (inside the Village Loop), the minimum curb-to-curb street width should be 22 feet, in order to accommodate delivery and garbage truck movements.
 - Fire trucks, buses, and single-unit trucks (i.e., garbage trucks) shall be able to negotiate from collector/arterial streets without crossing the collector/arterial

street centerline. Fire trucks shall be able to negotiate through residential streets, although it is acceptable for them to cross the street centerline on residential streets.

- Passenger car turning movements shall be able to stay within the street centerline on all streets.
- Bike lanes shall not be forced into vehicle travel lanes.

Placement of curb extensions shall be reviewed through the City's minor alteration process with Specific Area Plans.

Response: The *Circulation Plan* (see Notebook Section IIB) includes the approved placement of curb extensions within Phase 1 and Phase 2 and the proposed placement of curb extensions within Phase 3. The placement of the curb extensions within Phase 3 is consistent with the Curb Extension Concept Plan in the SAP North Community Elements Book.

6. Street and pathway alignments shall be demonstrated to be in compliance with Significant Resource Overlay Zone (SROZ) regulations with Specific Area Plans.

Response: Street and pathway alignments within SAP North comply with SROZ requirements, as described in Section III of this report and in the SRIR Addendum (see Notebook Section IIF). The *SROZ Plan* (see Notebook Section IIB) shows the approved impacts and mitigation within OS-2, as well as the updated impacts in Phase 3, which are further described in the SRIR Addendum (see Notebook Section IIF).

7. Pedestrian and bicycle connectivity shall be provided between public and private street termination points and adjacent trails/pathways at the discretion of the City Engineer.

Response: The *Circulation Plan* and the *Street Sections* (see Notebook Section IIB) illustrate the street system within SAP North, including shared roadways for bicyclists and sidewalks. The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) shows pedestrian/bicycle connections to adjacent streets or parks and open spaces throughout SAP North. Amendments to add specific information for Phase 3 continue this approach.

II. VILLAGE (V) ZONE

(.02) PERMITTED USES

Examples of principle uses that typically permitted:

- A. Single Family Detached Dwellings
- H. Non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar recreational and community uses owned and operated either publicly or by an owners association.

Response: Land uses within Phase 1 and Phase 2 have been approved. Proposed uses within SAP North that are permitted pursuant to subsection (.02) are generally shown on the *Land Use Key* and *Land Use Plan* (see Notebook Section IIB). SAP North includes a range of single-family detached dwellings and park and open space areas.

(.05) DEVELOPMENT STANDARDS APPLYING TO ALL DEVELOPMENTS IN THE VILLAGE ZONE

In addition to other applicable provisions of the Wilsonville Planning and Land Development Ordinance, all development in the Village zone shall be subject to Tables V-1 through V-4, and to the following. If there is conflict between the provisions of the Village zone and other portions of the Code, then the provisions of this section shall apply.

A. Block, Alley, Pedestrian and Bicycle Standards:

1. Maximums Block Perimeter: 1,800 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent a block perimeter from meeting this standard.
2. Maximum spacing between streets for local access: 530 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent street extensions from meeting this standard. Under such circumstances, intervening pedestrian and bicycle access shall be provided, with a maximum spacing of 330 feet from those local streets, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions from meeting this standard.

Response: Circulation patterns within Phase 1 and Phase 2, and within a portion of Future Phases, are shown on the attached SAP Drawings (see Notebook Section IIB). Phase 1 has been constructed and Phase 2 is in construction. Additional information for Future Phases will be required through a SAP Amendment.

Circulation patterns within Phase 3 of SAP North are dictated by the 600-foot access spacing standard on SW Grahams Ferry Road, located along the western site boundary, and SW Tooze Road, located along the northern site boundary (City of Wilsonville Transportation System Plan requirement for a minor arterial). The presence of SROZ along the southern property line and development patterns within PDP 2N to the south also influence circulation patterns within SAP North Phase 3. Blocks within the proposed PDP plan meet the maximum 1,800-foot block perimeter, except as follows.

- The block bounded by SW Oslo Street, SW Belfast Lane, SW Barcelona Street, the eastern site boundary, Tooze Road, and SW Grahams Ferry Road can only be developed to the eastern property line. In addition, circulation within these streets along the western and north portions of the site is dictated by the 600 foot access spacing standard for minor arterials, which applies to both Grahams Ferry Road and Tooze Road. A pedestrian/bicycle connection to Tooze Road is provided between Lots 14 and 15 and to the intersection of Grahams Ferry Road and Tooze Road between Lots 8 and 9 within the pocket park.
- The block bounded by Palermo Street, SW Rome Avenue, SW Oslo Street, and the western site boundary can only be developed to the western and southern property lines. The alignment of SW Palermo Street is limited by the presence of upland forest preserve in the southwestern corner of the site and along the southern portion of the site, and by the existing portion of SW Palermo Street within Phase 2. In addition, circulation within these streets along the western portion of the site is dictated by the 600 foot Grahams Ferry Road spacing

standard. A pedestrian/bicycle connection is provided along the eastern edge of the open space tract (adjacent to the retained wetland).

- The block bounded by SW Barcelona Street, SW Iceland Lane, and SW Oslo Street, and the block bounded by SW Oslo Street, SW Rome Avenue, and SW Palermo Street, can only be developed to the eastern property line. The extension of SW Barcelona Street and SW Oslo Street and construction of SW Ravenna Loop/Paris Avenue is anticipated to occur with future development of parcels to the east. Compliance with the block perimeter and street spacing standards will be addressed at such a time as these streets are extended.

Other blocks within Phase 3 not mentioned above meet the maximum 1,800 foot block perimeter and maximum 530 street spacing requirements.

B. Access: All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer.

Response: As shown on the attached drawings (see Notebook Section IIB), all lots in Phase 3 with access to a public street and an alley shall take vehicular access from the alley to a garage or parking area. Compliance with this standard for Phase 1 and Phase 2 was addressed with previous approvals. Future Phases will be required to address this standard.

- C. Trailers, travel trailers, mobile coaches, or any altered variation thereof shall not be used for the purpose of conducting a trade or calling, or for storage of material, unless approved for such purpose as a temporary use.**

Response: No trailers, travel trailers, mobile coaches, or such vehicles will be used for the purpose of conducting a trade or calling or for the storage of material unless approved as a temporary use.

D. Fences:

i. General Provisions:

- a. Fencing in the Village Zone shall be in compliance with the Master Fencing Program in the Adopted Architectural Pattern Book for the appropriate SAP.
- b. When two or more properties with different properties abut, the property with the largest front yard setback requirement shall be used to determine the length and height of the shared side yard fence, as required by Section 4.125(0.05)(D)(1)(a).
- c. The Development Review Board may, in their discretion, require such fencing as deemed necessary to promote and provide traffic safety, noise mitigation, and nuisance abatement, and the compatibility of different uses permitted on adjacent lots of the same zone and on adjacent lots of different zones.

2. Residential:

- a. The maximum height of any fence located in the required front yard of a residential development shall not exceed three (3) feet.
- b. Fences on residential lots shall not include chain link, barbed wire, razor wire, electrically charged wire, or be constructed of

sheathing material such as plywood or flake board. Fences in residential areas that protect wetlands, or other sensitive areas, may be chain link.

Response: The SAP North Master Fencing Plan is part of the SAP - North Architectural Pattern Book. A copy of the approved SAP North Pattern Book, which will be utilized with SAP North Phase 3, is provided in Notebook Section IIH. No amendments to the SAP North Master Fencing Plan are proposed.

Residential lot fencing occurs when each home is constructed, details of which are provided with Building Permit review. Residential lot fencing will occur in compliance with the fencing specified for the specific lot type and style in accordance with the SAP North Master Fencing Plan (see Notebook Section IIH).

E. Recreational Area in Multi-Family Residential and Mixed Use Developments

Response: Phase 1 through Phase 3 of SAP North include lots for the single family residential homes; therefore this standard does not apply. Future phases of SAP North will be required to demonstrate compliance with these standard(s).

F. Fire Protection:

1. All structures shall include a rated fire suppression system (i.e., sprinklers), as approved by the Fire Marshal

Response: All of the homes within the proposed SAP - North Phase 3 will include appropriate fire suppression systems. This will be verified with review of future building permit applications.

Table V-1 Development Standards

Response: All of the lots will be developed with single family detached dwelling units that meet minimum lot size specifications as defined in the SAP - North Architectural Pattern Book. No buildings are proposed with this application. Compliance with these standards will be reviewed with the Tentative Plat in conjunction with the PDP application and the subsequent Final Plat.

Single-Family Dwellings

Minimum lot size: 2,250 square feet

Minimum lot width: 35 feet

Minimum lot depth: 50 feet

Response: Lots will be designed to meet the applicable minimum lot size requirement and meet the applicable minimum lot width and depth specified for Small, Medium, Standard, and Large lots in the SAP - North Architectural Pattern Book, with allowed variations for site features, e.g. road alignment and site topography. The Tentative Plat depicting proposed lot sizes and dimensions will be reviewed in conjunction with the PDP.

(.06) STANDARDS APPLYING TO COMMERCIAL USES

A. All commercial uses shall be subject to the following:

1. A Neighborhood Center shall only be located at a Neighborhood Commons

Response: Areas of SAP North are located within the conceptual neighborhood area in the northern portion of Villebois Village. As shown on the Neighborhood Concept Diagram in the *Master Plan*, a Neighborhood Commons is located within Future Phases of SAP North. Therefore, Future Phases of SAP North will be required to address this standard and add information for the Neighborhood Commons.

(.07) GENERAL REGULATIONS - OFF-STREET PARKING, LOADING & BICYCLE PARKING

Except as required by Subsections (A) through (D), below, the requirements of Section 4.155 shall apply within the village zone.

A. General Provisions:

1. The provision and maintenance of off-street parking spaces is a continuing obligation of the property owner. The standards set forth herein shall be considered by the Development Review Board as minimum criteria.
2. The Board shall have the authority to grant variances or refinements to these standards in keeping with the purposes and objectives set forth in this zone.

Response: The applicant acknowledges that the provision and maintenance of off-street parking is the continuing obligation of the property owner. There are no variances or refinements to the standards of this section proposed with this application.

B. Minimum and Maximum Off-Street Parking Requirements:

1. Table V-2, Off-Street Parking Requirements, below, shall be used to determine the minimum and maximum parking standards for noted land uses. The number of required parking spaces shown in Table V-2 shall be determined by rounding to the nearest whole parking space...

Table V-2: Off-Street Parking Requirements

Category	Min. Vehicle Spaces	Max. Vehicle Spaces	Bicycle Short Term	Bicycle Long Term
Single Family Detached Dwelling Units	1.0 / DU	NR	NR	NR
Row Houses	1.0 / DU	NR	NR	NR

Response: Each of the proposed homes will provide a minimum of a two-car garage in compliance with this standard.

C. Minimum Off-Street Loading Requirements:

Response: SAP - North includes lots for development of single family homes; therefore no loading areas are required.

D. Bicycle Parking Requirements:

Response: SAP - North includes single family detached dwelling units. There is no bicycle parking requirement for these unit types, as noted in *Table V-2* above, therefore these standards do not apply.

(.08) OPEN SPACE

Open space shall be provided as follows:

- A. In all residential developments and in mixed-use developments where the majority of the developed square footage is to be in residential use, at least twenty-five percent (25%) of the area shall be open space, excluding street pavement and surface parking. In multi-phased developments, individual phases are not required to meet the 25% standard as long as an approved Specific Area Plan demonstrates that the overall development shall provide a minimum of 25% open space. Required front yard areas shall not be counted towards the required open space area. Required rear yard areas and other landscaped areas that are not within required front or side yards may be counted as part of the required open space.
- B. Open space area required by this Section may, at the discretion of the Development Review Board, be protected by a conservation easement or dedicated to the City, either rights in fee or easement, without altering the density or other development standards of the proposed development. Provided that, if the dedication is for public park purposes, the size and amount of the proposed dedication shall meet the criteria of the City of Wilsonville standards. The square footage of any land, whether dedicated or not, which is used for open space shall be deemed a part of the development site for the purpose of computing density or allowable lot coverage. See SROZ provisions, Section 4.139.10.
- C. The Development Review Board may specify the method of assuring the long-term protection and maintenance of open space and/or recreational areas. Where such protection or maintenance are the responsibility of a private party or homeowners' association, the City Attorney shall review and approve any pertinent bylaws, covenants, or agreements prior to recordation.

Response: *Figure 5 - Parks & Open Space Plan of the Villebois Village Master Plan* indicates that there are 58.42 acres of parks and 101.31 acres of open space for a total of 159.73 acres within Villebois, approximately 33%. Parks and open spaces in Phase 1 and Phase 2 have already received approval. Phase 3 of SAP - North is generally consistent with the *Villebois Village Master Plan* when considering minor refinements proposed to the *Master Plan*. In fact, a pocket park, open space area, and various landscape greens are added to Phase 3, increasing the total area of parks and open spaces within Phase 3. Therefore, Phase 3 is consistent with the overall development and provides adequate parks and open spaces.

(.09) STREET & ACCESS IMPROVEMENT STANDARDS

- A. Except as noted below, the provisions of Section 4.177 apply within the Village zone:
 - 1. General provisions:
 - a) All street alignment and access improvements shall conform to Figures 7, 8, 9A, and 9B of the *Villebois Village Master Plan*, or as refined in the

Specific Area Plan, Preliminary Development Plan, or Final Development Plan and the following standards:

Response: Street alignments and access improvements within Phase 3 of SAP North are generally consistent with the *Villebois Village Master Plan*. Minor refinements are proposed to the alignment and location of SW Iceland Lane, location of access to/from Grahams Ferry Road, and to a portion of the continuous street (Amsterdam Avenue/Belfast Lane) with a general north-south orientation along the western portion of Phase 3, as further described in subsequent sections of this report. Compliance with the standards of subsection (.09) is addressed below.

- i. All street improvements shall conform to the Public Works Standards and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.

Response: Phase 1 has already been constructed and Phase 2 is in the first phase of construction. Street improvements within Phase 3 of SAP North will comply with the applicable Public Works Standards. The street system within Phase 3 is designed to provide for the continuation of streets within Villebois and to adjoining streets according to the *Master Plan*. The street system within Phase 3 is shown on the *Circulation Plan* (see Notebook Section IIB).

- ii. All streets shall be developed according to the Master Plan.

Response: The street system of SAP North is illustrated on the *Circulation Plan* (see Notebook Section IIB). All streets in Phase 3 will be developed in accordance with the *Master Plan*, with the minor refinement described in subsequent sections of this report.

2. Intersections of streets

- a) **Angles:** Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.
- b) **Intersections:** If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety (90) degrees shall require approval by the City Engineer after consultation with the Fire District.

Response: The attached drawings (see Notebook Section IIB) demonstrate that all proposed streets will intersect at angles consistent with the above standards.

- c) **Offsets:** Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:
 - 1) 1000 ft. for major arterials
 - 2) 600 ft. for minor arterials
 - 3) 100 ft. for major collector
 - 4) 50 ft. for minor collector

Response: The attached drawings (see Notebook Section IIB) demonstrate that opposing intersections on public streets are offset, as appropriate, so that no danger to the traveling public is created.

d) Curb Extensions:

1) Curb extensions at intersections shall be shown on the Specific Area Plans required in subsection 4.125(.18)(C) through (F), below, and shall:

- Not obstruct bicycle lanes on collector streets.
- Provide a minimum 20 foot wide clear distance between curb extensions all local residential street intersections shall have, shall meet minimum turning radius requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.

Response: Proposed curb extensions within Phase 3 are shown on the *Circulation Plan* (see Notebook Section IIB), none of which are located on collector streets. The attached drawings illustrate that all street intersections will have a minimum 20 foot wide clear distance between curb extensions.

3. Street grades shall be a maximum of 6% on arterials and 8% for collector and local streets. Where topographic conditions dictate, grades in excess of 8%, but not more than 12%, may be permitted for short distances, as approved by the City Engineer, where topographic conditions or existing improvements warrant modification of these standards.

Response: Phase 1 has already been constructed and Phase 2 is in the first phase of construction. The *Grading Plan* (see Notebook Section IIB) demonstrates that proposed streets within Phase 3 can comply with this standard.

4. Centerline Radius Street Curves:

The minimum centerline radius street curves shall be as follows:

- a) Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by City Engineer.
- b) Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- c) Local streets: 75 feet

Response: Phase 1 has already been constructed and Phase 2 is in the first phase of construction. The *Circulation Plan* (see Notebook Section IIB) demonstrates that all streets with Phase 3 will comply with the above standards.

5. Rights-of-way:

- a) See (.09) (A), above.

Response: Proposed rights-of-way within Phase 3 of SAP North are shown on the attached drawings (see Section IIB). Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of final plat(s) in accordance with Section 4.177.

6. Access drives.

- a) See (.09) (A), above.
- b) 16 feet for two-way traffic.

Response: The attached drawings (see Notebook Section IIB) demonstrate that all proposed access drives within Phase 3 of SAP North will have a minimum improvement width of 16 feet and will provide two-way travel. In accordance with Section 4.177, all access drives will be constructed with a hard surface capable of carrying a 23-ton load. All access drives will include dedicated easements for fire access and will be designed to provide a clear travel lane free from any obstructions.

7. Clear Vision Areas

- a) See (.09) (A), above.

Response: The *Circulation* Plan (see Notebook Section IIB) illustrates that clear vision areas can be provided in compliance with the Section 4.177.

8. Vertical clearance:

- a) See (.09) (A), above.

Response: The *Circulation* Plan (See Notebook Section IIB) illustrates that vertical clearance can be provided in compliance with the Section 4.177.

9. Interim Improvement Standard:

- a) See (.09) (A), above.

Response: With Phase 3, an interim street section improvement will be provided on Grahams Ferry Road to create consistency with street improvements completed with earlier phases of SAP North and phased development of SAP South. Interim street section improvements are also planned on Tooze Road, to be provided by the City of Wilsonville.

(.10) SIDEWALK AND PATHWAY IMPROVEMENT STANDARDS

- A. The provisions of Section 4.178 shall apply within the Village zone.

Response: As previously described, Phase 1 has been constructed and Phase 2 is in the first phase of construction. All sidewalks and pathways within Phase 3 of SAP North will be constructed in accordance with the standards of Section 4.178 and the *Villebois Village Master Plan*.

(.11) LANDSCAPING, SCREENING AND BUFFERING

- A. Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:
1. Streets in the Village zone shall be developed with street trees as described in the *Community Elements Book*.

Response: The *Community Elements Book* includes the *Street Tree Master Plan* for SAP - North. A copy of the approved SAP North *Elements Book* to be utilized with Phase 3 of SAP North is provided in Notebook Section III. Phase 3 of SAP North will comply with the *Street Tree Master Plan* and the appropriate standards of Section 4.176.

(.12) MASTER SIGNAGE AND WAYFINDING

- A. All signage and wayfinding elements within the Village Zone shall be in compliance with the adopted *Signage and Wayfinding Master Plan* for the appropriate SAP.

- B. Provisions of Section 4.156.01 through 4.156.11 shall apply in the Village Zone except subsections 4.156.07 and 4.156.08. Portions of Section 4.156.08 pertaining to Town Center may be used for comparison purposes to assess conceptually whether signage is allowed in an equitable manner throughout the City. Sections 4.156.01 through 4.156.11 are not to be used for direct comparison of sign standards.
- C. The Master Signage and Wayfinding Plan is the Master Sign Plan for the applicable SAP.
- D. In the event of conflict between applicable standards of Section 4.156.11 and this subsection or the applicable Master Signage and Wayfinding Plan, this subsection and the Master Signage and Wayfinding Plan shall take precedence.
- E. The following signs may be permitted in the Village Zone, subject to the conditions of this Section.
 - 1. Site Signs
 - a. Signs that capture attention establishing a sense of arrival to Villebois and to areas within Villebois.
 - 2. Site Directional
 - a. Permanent mounted signs informing and directing the public to major destinations within Villebois.
 - 3. Retail Signs
 - a. Signs which identify the retail uses, including bulkhead signs, blade signs, temporary window signs and permanent window signs designed to identify storefronts and provide information regarding the retail uses.
 - 4. Informational Signs
 - a. Permanent mounted signs located along and adjacent to travel ways providing information to residents and visitors traveling within Villebois.
 - 5. Flags and Banners
 - a. Permanent and temporary pole mounted signage intended to identify the graphic identity of Villebois and to identify seasonal events taking place within the Villebois Community.
- F. Dimensions and square footage of signs are defined in the Master Signage and Wayfinding Plan for the appropriate SAP.
- G. Signage locations are specified in the Master Signage and Wayfinding Plan for the appropriate SAP.
- H. The number of signs permitted is specified in the Master and Signage Wayfinding Plan for the appropriate SAP.

Response: A Secondary Site Identifier is located at the site entrance from Grahams Ferry Road. All signage within Phase 3 of SAP North will comply with the SAP - North Master Signage & Wayfinding Plan, a copy of which is provided in Notebook Section IIJ.

(.13) DESIGN PRINCIPLES APPLYING TO THE VILLAGE ZONE

- A. The following design principles reflect the fundamental concepts, and support the objectives of the *Villebois Village Master Plan*, and guide the fundamental qualities of the built environment within the Village zone.
1. The design of landscape, streets, public places and buildings shall create a place of distinct character.
 2. The landscape, streets, public places and buildings within individual development projects shall be considered related and connected components of the *Villebois Village Master Plan*.
 3. The design of buildings shall functionally relate to adjacent open space, gateways, street orientation, and other features as shown in the *Villebois Village Master Plan*.
 4. The design of buildings and landscape shall functionally relate to sunlight, climate, and topography in a way that acknowledges these conditions as particular to the Willamette Valley.
 5. The design of buildings shall incorporate regional architectural character and regional building practices.
 6. The design of buildings shall include architectural diversity and variety in its built form.
 7. The design of buildings shall contribute to the vitality of the street environment through incorporation of storefronts, windows, and entrances facing the sidewalk.
 8. The design of streets and public spaces shall provide for and promote pedestrian safety, connectivity and activity.
 9. The design of buildings and landscape shall minimize the visual impact of, and screen views of off-street parking from streets.
 10. The design of exterior lighting shall minimize off-site impacts, yet enable functionality.

Response: The SAP Drawings (see Notebook Section IIB), the Architectural Pattern Book (see Notebook Section IIH) and the Community Elements Book (see Notebook Section III) are intended to guide the Preliminary Development Plan and Final Development Plan applications to achieve a built environment that reflects the fundamental concepts and objectives of the *Master Plan*. The Design Principles of Section (.13) have driven the development of the SAP Drawings. Phase 3 will work in concert with the Design Principles, the approved SAP North Architectural Pattern Book (see Notebook Section IIH), and the approved SAP North Community Elements Book (see Notebook Section III) to assure that the vision of Villebois is realized. This report demonstrates that the components SAP North are consistent with the Goals, Policies and Implementation Measures of the *Villebois Village Master Plan* (see Section I of this report).

(.14) DESIGN STANDARDS APPLYING TO THE VILLAGE ZONE

- A. The following design standards implement the Design Principles found in (.13), above, and enumerate the architectural details and design requirements applicable to buildings and other features within the Village (V) zone. The Design Standards are based primarily on the features, types, and details of the residential traditions in the Northwest, but are not

intended to mandate a particular style or fashion. All development within the Village zone shall incorporate the following:

1. Generally:

- a. Flag lots are not permitted.

Response: No flag lots are proposed. Compliance with this standard will be assured during review of the PDP application.

- b. The minimum lot depth for a single-family dwelling with an accessory dwelling unit shall be 70 feet.

Response: The Architectural Standard Book standardizes lot depth of Medium, Standard, and Large Lots at lengths that exceed 70 feet (minimum of 71 ft. for Medium Lots, and 90 ft. for Standard Lots and Large Lots). Therefore, Medium, Standard, and Large Lots meet the minimum lot depth requirement for a single family dwelling with an accessory dwelling unit. However, no accessory dwelling units are proposed with this application.

- c. Village Center lots may have multiple front lines.

Response: SAP North is not located in the Village Center; therefore this standard does not apply.

- d. For Village Center lots facing two or more streets, two of the facades shall be subject to the minimum frontage width requirement. Where multiple buildings are located on one lot, the facades of all buildings shall be used to calculate the Minimum Building Frontage Width.

Response: SAP North is not located in the Village Center; therefore this standard does not apply.

2. Building and site design shall include:

- a. Proportions and massing of architectural elements consistent with those established in an approved Architectural Pattern Book or Village Center Architectural Standards.
- b. Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Pattern Book, Community Elements Book or approved Village Center Design.
- c. Protective overhangs or recesses at windows and doors.
- d. Raised stoops, terraces or porches at single-family dwellings.
- e. Exposed gutters, scuppers, and downspouts, or approved equivalent.
- f. The protection of existing significant trees as identified in an approved Community Elements Book.
- g. A landscape plan in compliance with Sections (.07) and (.11), above.
- h. Building elevations of block complexes shall not repeat an elevation found on an adjacent block.

- i. Building elevations of detached buildings shall not repeat an elevation found on buildings on adjacent lots.
- j. A porch shall have no more than three walls.
- k. A garage shall provide enclosure for the storage of no more than three vehicles.

Response: The above Design Standards are incorporated into the Architectural Pattern Book (see Notebook Section IIH), which is intended to identify architectural details and design features for use with SAP North. The above Design Standards are also incorporated into the Community Elements Book (see Notebook Section III), which is intended to identify important contributing elements that establish a coherent community identity. Conformance with the Pattern Book and Community Elements Book will assure consistency with the Design Standards of subsection (.14). Subsequent applications will review building and site design for consistency with the Pattern Book and Community Elements Book.

The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) conceptually depicts the landscape and program elements for the park/trail/open space areas of SAP North. The *Tree Preservation Plan* (see Notebook Section IIB) identifies and inventories existing trees, their condition, and whether they are proposed to be retained or removed. Phase 1 has been constructed and Phase 2 is in the first phase of construction. The concurrent Preliminary Development Plan and Final Development Plan applications for Phase 3 North advance these drawings with detailed analysis of site-specific development.

- 3. Lighting and site furnishings shall be in compliance with the approved Architectural Pattern Book, Community Elements Book, or approved Village Center Architectural Standards.

Response: A standardized design for lighting and site furnishings is included in the approved SAP North Community Elements Book (see Notebook Section III). Conformance with the Community Elements Book will assure consistency of lighting and site furnishings within Phase 3.

- 4. Building systems, as noted in Tables V-3 and V-4 (Permitted Materials and Configurations), below, shall comply with the materials, applications and configurations required therein.

Response: The criteria of Tables V-3 and V-4 (Permitted Materials & Configurations) are referenced in the SAP North Architectural Pattern Book (see Notebook Section IIH). Subsequent building permit applications will review buildings for consistency with the criteria of Tables V-3 and V-4 and the Pattern Book.

(.18) VILLAGE ZONE DEVELOPMENT PERMIT PROCESS

C. Specific Area Plan (SAP) Application Procedures.

- 1. Purpose - A SAP is intended to advance the design of the Villebois Village Master Plan.
- 2. If not initiated by the City Council, Planning Commission or Development Review Board, an application for SAP approval shall be submitted by the Master Planner, and shall be accompanied by payment of a fee established in accordance with the City's fee schedule.

Response: The proposed amendments to SAP North to add information for Phase 3, reflect approvals for Phase 1 and Phase 2, and identify future phase areas, is intended to advance the design of the *Villebois Village Master Plan*. The proposed SAP North amendment has been initiated by the Master Planner. The submittal of the SAP North amendment was accompanied by payment for a fee established by the City (see Notebook Section IC).

D. SAP Application Submittal Requirements:

1. Existing Conditions - An application for SAP approval shall specifically and clearly show the following features and information on maps, drawings, application form or attachments. The SAP shall be drawn at a scale of 1" = 100' (unless otherwise indicated) and may include multiple sheets depicting the entire SAP area, as follows:
 - a) Date, north arrow and scale of drawing.
 - b) The boundaries of the Specific Area Plan as may be refined and in keeping with the intent of the Villebois Village Master Plan's conceptual location of SAPs.
 - c) A vicinity map showing the location of the SAP sufficient to define its location and boundaries and Clackamas County Tax Assessor's map numbers of the tract boundaries. The vicinity map shall clearly identify the nearest cross streets.
 - d) An aerial photograph (at 1" = 500') of the proposed site and properties within 50 feet of the SAP boundary.
 - e) The size, dimensions, and zoning of each lot or parcel tax lot and Tax Assessor's map designations for the SAP and properties within 50 feet of the SAP boundary.
 - f) The location, dimensions and names, as appropriate, of existing and platted streets and alleys on and within 50 feet of the perimeter of the SAP, together with the location of existing and planned easements, sidewalks, bike routes and bikeways, trails, and the location of other important features such as section lines, section corners, and City boundary lines. The plan shall also identify all trees 6 inches and greater d.b.h. on the project site only.
 - g) Contour lines shall relate to North American Vertical Datum of 1988 and be at minimum intervals as follows:
 - i) One (1) foot contours for slopes of up to five percent (5%);
 - ii) Two (2) foot contours for slopes from six percent (6%) to twelve (12%);
 - iii) Five (5) foot contours for slopes from twelve percent (12%) to twenty percent (20%). These slopes shall be clearly identified, and
 - iv) Ten (10) foot contours for slopes exceeding twenty percent (20%).
 - h) The location of areas designated Significant Resource Overlay Zone (SROZ), and associated 25-foot Impact Areas, within the SAP and within 50 feet of the SAP boundary, as required by Section 4.139.

Response: The attached drawings for SAP North (see Notebook Section IIB) provide the information required above, as applicable to this request.

2. SAP Development Information - The following information shall also be shown at a scale of 1" = 100' and may include multiple sheets depicting the entire SAP area.
 - a) A site circulation plan showing the approximate location of proposed vehicular, bicycle and pedestrian access points and circulation patterns, and parking and loading areas.
 - b) The approximate location of all proposed streets, alleys, other public ways, curb extensions, sidewalks, bicycle and pedestrian accessways, neighborhood commons, and easements on. The map shall identify existing subdivisions and development and un-subdivided land ownerships adjacent to the proposed SAP site.
 - c) The approximate projected location, acreage, type and density of the proposed development. For the residential portions of the SAP, the master developer shall identify: 1) the overall minimum and maximum number of housing units to be provided and 2) the overall minimum and maximum number of housing units to be provided, by housing type.
 - d) The approximate locations of proposed parks, playgrounds or other outdoor play areas, outdoor common areas, usable open spaces, and natural resource areas or features proposed for preservation. This information shall include identification of areas proposed to be dedicated or otherwise preserved for public use and those open areas to be maintained and controlled by the owners of the property and their successors in interest for private use. This information shall be provided in tabular form, and shall reconcile all such areas as may have been adjusted through prior approvals.
 - e) A composite utility plan illustrating existing and proposed water, sanitary sewer, and storm drainage facilities necessary to serve the SAP.
 - f) A grading plan illustrating existing and proposed contours as prescribed previously in this section.
 - g) A development sequencing plan
 - h) A utilities sequencing plan
 - i) A bicycle and pedestrian circulation plan
 - j) A tree removal and tree protection plan

Response: The attached drawings (see Notebook Section IIB) provide the applicable information required above.

- k) A property owner list, as required by Section 4.035.

Response: A mailing list for property owners within 250 feet of the subject site is provided with this application (see Notebook Section ID).

- l) At the applicant's expense, the City shall have a Traffic Impact Analysis prepared, as required by Section 4.030(.02)(B), to review the anticipated traffic impacts of the proposed development. This traffic report shall include an analysis of the impact of the SAP on the local street and road network, and shall specify the maximum projected average daily trips and maximum parking demand

associated with buildout of the entire SAP, and it shall meet Subsection 4.140(.09)(J)(2).

Response: A copy of the Traffic Impact Analysis is provided in Notebook Section IID.

m) A master signage and wayfinding plan

Response: A copy of the approved SAP North Master Signage and Wayfinding is provided in Notebook Section IIJ. No amendments are proposed to the SAP North Master Signage and Wayfinding Plan.

n) A rainwater management program

Response: See Notebook Section IIK for the Rainwater Management Book. No amendments are proposed to the Rainwater Management Book.

3. Architectural Pattern Book - An Architectural Pattern Book shall be submitted to all development outside the Village Center Boundary, addressing the following:

a) Illustrate areas within the Specific Area Plan covered by the Architectural Pattern Book.

b) An explanation of how the Architectural Pattern Book is organized, and how it is to be used.

c) Define specific standards for architecture, color, texture, materials, and other design elements.

d) Include a measurement or checklist system to facilitate review of development conformity with the Architectural Pattern Book.

e) Include the following information for all row houses, duplexes, and single-family detached housing inside and outside of the Village Center, and for all other buildings outside of the Village Center, including Neighborhood Center(s) within the SAP:

i. Illustrate and describe the Regional and Climatic conditions affecting the SAP, and the proposed building types including:

- Relationship of indoor and outdoor spaces.
- Design for rainwater paths including roof forms, gutters, scuppers and downspouts.
- Design for natural day-lighting.
- Massing and materials

f) Illustrate and describe examples of appropriate architectural styles and how they would be applied to specific land use types, including the definitions (i.e., specifications) of the elements, massing, and façade composition for each style including:

- i. Architectural precedent and/or historic relevance of each style.
- ii. Massing, proportions, and roof forms, including details.
- iii. Doors, windows and entrances showing trim types and details.
- iv. Porches, chimneys and unique features or details.
- v. Materials, colors, light fixtures and accents.

- vi. Downspouts and gutters.
- g) Illustrate and describe examples of appropriate exterior lighting types, and how their design:
 - i. Minimizes glare.
 - ii. Minimizes emission of light beyond the boundaries of a development site.
 - iii. Conserves energy.
 - iv. Maintains nighttime safety, utility, security, and productivity.
 - v. Minimizes the unnatural brightening of the night sky.
- h) A Master Fencing Program illustrating and describing the specifications and materials for fencing within the SAP.

Response: The approved SAP - North Architectural Pattern Book (see Notebook Section IIH) includes information addressing all of the above items. No amendments to the Pattern Book are proposed.

- 4. Community Elements Book - A Community Elements Book shall be submitted, including the following:
 - a) Lighting Master Plan and Specifications, which address the requirements of Section 4.125(.18)(D)(3)(g)
 - b) Lighting Master Plan and Specifications
 - c) Site Furnishings Master Plan Specifications
 - d) Curb Extensions Master Plan and Specifications
 - e) Street Sign Master Plan and Specifications meeting Street Tree Master Plan and Specifications
 - f) Post Box Specifications
 - g) Bollard Specifications
 - h) Trash Receptacle Specifications
 - i) Recycling Receptacle Specifications
 - j) Bench Specifications
 - k) Bicycle Rack and Locker Specifications
 - l) Playground Equipment Specifications
 - m) Master Plan List and Specification

Response: A standardized design for the above-listed elements is included in the approved SAP North Community Elements Book, a copy of which is provided in Notebook Section III. No amendments are proposed to the SAP North Community Elements Book.

- 5. Rainwater Management Program - A Rainwater Management Program shall be submitted, addressing the following:
 - a) Provision for opportunities to integrate water quality, detention, and infiltration into SAP's natural features and proposed development areas;
 - b) Provision of methods reducing the increase in runoff from the 90th percentile of all rain events and meet pre-development hydrology to the greatest extent practicable;
 - c) Identification of guidelines and standards for the design of all Rainwater Management Systems within the SAP, that:
 - i. Manage the ¼-inch, 24-hour rainfall event at pre-development levels.

- ii. Mitigate 100% of impervious area from private areas within public areas and/or private areas (i.e. parks and open space areas, public street rights-of-way).
- iii. Mitigate 100% of impervious area from all public areas within public areas (i.e. parks and open space areas, public street rights-of-way).
- iv. Remove 70% of Total Suspended Solids (TSS) for ¼-inch, 24-hour storm event for all development areas.
- v. Remove 65% of Phosphorus for ¼-inch, 24-hour storm event for all development areas.
- vi. Integrate compost-amended topsoil in all areas to be landscaped to help detain runoff, reduce irrigation and fertilizer needs, and create a sustainable, low-maintenance landscape.
- vii. Treatment associated with stormwater runoff will be considered in meeting Total Suspended Solids (TSS) and Phosphorus removal requirements.

Response: A standardized design for the above-listed elements is included in the approved Rainwater Management Book, a copy of which is provided in Notebook Section IIK. No amendments to the Rainwater Management Book are proposed.

- 6. Master Signage and Wayfinding - A Master Signage and Wayfinding Plan shall be submitted with an SAP application and shall address the following:
 - a) Illustrate the boundaries of the SAP covered by the Master Signage and Wayfinding Plan.
 - b) An explanation of how the Master Signage and Wayfinding Plan is organized and how it will be used.
 - c) Define specific standards for signage and wayfinding elements within the subject SAP.
 - d) Define specifications for logo, typography, symbols and color palate.

Response: A standardized design for the above-listed elements is included in the approved SAP North Master Signage and Wayfinding Plan, a copy of which is provided in Notebook Section IIJ. No amendments are proposed to the Master Signage and Wayfinding Plan.

- 8. SAP Narrative Statement - A narrative statement shall be submitted addressing the following:
 - a) A description, approximate location and timing of each proposed phase of development within the SAP.

Response: The Introductory Narrative (see Section IA) includes a description and timing of the proposed development phasing for SAP North. This is further detailed in the concurrent PDP application for Phase 3. Additional phasing information will be required to be included with future PDP applications for subsequent phases.

- b) An explanation of how the proposed complies with the applicable standards of this section.

Response: Section II of this report provides explanation of how the proposed development is consistent with the standards of the Village zone.

- c) A statement describing the impacts of the proposed development on natural resources within the SAP and how the proposed development complies with the applicable requirements of Chapter 4.

Response: The Introductory Narrative (see Section IA) provides a description of the impacts of the proposed development on natural resources within Phase 3 of SAP North. Compliance with the applicable requirements of Chapter 4 is demonstrated in Section III of this report and within the attached SRIR Addendum (see Notebook Section IIF).

- d) Includes a description of the goals and objectives of the Villebois Village Master Plan and the Design Principles of the V Zone, and how they will be met for the specified land use area.

Response: Section I of this report provides an explanation of how the proposed development is consistent with the *Villebois Village Master Plan*. Section II of this report provides an explanation of how the proposed development will meet the Design Principles of the Village zone.

- e) Includes information demonstrating how the Pattern Book satisfies the goals and concepts of the Villebois Village Master Plan, the Design Principles and Design Standards of the Village zone.

Response: Section I of this report provides an explanation of how the proposed Pattern Book amendments satisfy the goals and concepts of the *Villebois Village Master Plan*. Section II of this report provides an explanation of how the proposed Pattern Book will meet the Design Principles and Design Standards of the Village zone.

- f) Where applicable, a written description of the proposal's conformance with the Village Center Design Principles and Standards.

Response: Specific Area Plan - North does not include areas within the Village Center. Therefore, the above standard is not applicable to this application.

E. SAP Approval Process and Review Criteria

1. An application for SAP approval shall be reviewed using the following procedures:
 - a) Notice of a public hearing before the Development Review Board regarding a proposed SAP shall be made in accordance with the procedures contained in Section 4.012.

Response: In accordance with the procedures contained in Section 4.012, the City shall provide notice of a public hearing before the Development Review Board on the proposed amendment to SAP North.

- b) The Development Review Board may approve an application for SAP approval only upon finding the following approval criteria are met:
 1. That the proposed SAP:

- a) Is consistent with the standards identified in this section.

Response: Section II of this report provides an explanation of how the proposed amendment to SAP North is consistent with the standards of the Village zone.

- b) Complies with the applicable standards of the Planning and Land Development Ordinance, and

Response: Section III of this report provides an explanation of how the proposed amendment is consistent with the applicable standards of the Planning and Land Development Ordinance.

- c) Is consistent with the Villebois Village Master Plan. Those elements of the Village Master Plan with which the SAP must be consistent are the Plan's Goals, Policies, and Implementation Measures, and, except as the text otherwise provides, Figures 1, 5, 6A, 7, 8, 9A and 9B.

Response: Section I of this report provides an explanation of how the proposed SAP amendment with minor refinements is consistent with the Goals, Policies and Implementation Measures and Figures of the *Villebois Village Master Plan*, as applicable to this request.

- 2. If the SAP is to be phased, as enabled by Section 4.125(.18)(D)(2)(g) and (h), that the phasing schedule is reasonable.

Response: The attached *Phasing Plan* (see Notebook Section IIB) depicts the phasing of SAP North. The *Phasing Plan* reflects the 2011 SAP North approval (DB11-0024 et al) for Phase 1 and the PDP 2N (DB13-0020 et al) approval for Phase 2, and shows the proposed phasing for Phase 3. The subsequent phases of SAP North are identified as "Future Phases," as additional information will be required for the Future Phases of SAP North.

F. Refinements to Approved Villebois Village Master Plan

- 1. In the process of reviewing a SAP for consistency with the Villebois Village Master Plan, the Development Review Board may approve refinements, but not amendments, to the Master Plan. Refinements to the Villebois Village Master Plan may be approved by the Development Review Board as set forth in Section (.18)(F)(2), below. Amendments to the Villebois Village Master Plan may be approved by the Planning Commission as set forth in Section 4.032(.01)(B).

- a) Refinements to the Master Plan are defined as:

- i. Changes to the street network or functional classification of streets that do not significantly reduce circulation system function or connectivity for vehicles, bicycles or pedestrians.

Response: The proposed street system within SAP North is generally consistent with the *Villebois Village Master Plan*. The *Master Plan* shows SW Iceland Lane with a southwest to northeast orientation with alignment towards the child play feature in Open Space 2. With the proposed refinement, SW Iceland Lane is proposed to have a straight north-south orientation with alignment towards residential lots, with the location adjusted slightly to the east. Circulation towards the child play area is maintained with the provision of SW Rome Avenue to maintain an "eyes on the street"

effect for park safety. The purpose of the refinement to SW Iceland Lane allows for smaller residential blocks, which provides better pedestrian connectivity. This street refinement also allows lots to be oriented directly towards the west for greater sun exposure.

Additionally, the Master Plan shows access from Grahams Ferry Road taken from SW Firenze Street (Palermo Street) and a continuous street with north-south alignment along the western portion of Phase 3 (Amsterdam Avenue/Belfast Lane). However, in order to retain the existing treed wetland in the southwest site corner, access to/from Grahams Ferry Road will occur with SW Oslo Street, and a portion of Amsterdam Avenue/Belfast Lane adjacent to the wetland is removed. With the proposed refinement, access from Grahams Ferry Road is taken from SW Oslo Street. Site circulation along the western portion of Phase 3 is maintained with the provision of SW Belfast Lane in the originally intended location, the continuation of SW Palermo Street along the northern edge of OS-2 in the planned location of Firenze Street, and a pedestrian path adjacent to the wetland to replace the removed portion of Belfast Lane, which connects SW Oslo Street and SW Palermo Street.

These refinements do not affect the function of the circulation system or connectivity for vehicles, bicycles or pedestrians.

- ii. **Changes to the nature or location of parks, trails or open space that to not significantly reduce function, usability, connectivity, or overall distribution or availability of these uses in the Specific Area Plan.**

Response: The *Villebois Village Master Plan* only shows a narrow portion of Open Space 2 along the southern edge of Phase 3, which is approximately 0.21 acres in size. The majority of OS-2 is located in Phase 2 of SAP North. The child play area shown on the north side of OS-2 is planned to be provided with Phase 3. The *Master Plan* does not show any additional parks and open spaces within Phase 3. The proposed additions to parks and open spaces in Phase 3, as depicted on the *Master Plan*, are described below. The areas of added parks and open spaces are underlined.

Proposed Additions to Parks & Open Spaces

With this amendment, a **pocket park** is added to the northwest corner of Phase 3. The pocket park added to Phase 3 provides a bicycle and pedestrian connection to adjacent streets, and recreational opportunities through the provision of a child play structure and a small lawn area. The size of the pocket park is approximately 0.14 acres.

The *Master Plan* depicts the southwest corner as a portion of upland forest preserve, however this area is not identified as part of the City's SROZ. An existing wetland not included in the City's Natural Resource Inventory and not meeting the criteria for adding wetlands into the SROZ is also present in the southwestern site corner. An open space area has been added to the southwest site corner to retain the existing forested area and wetland. The additional open space area is approximately 0.98 acres in size.

Linear greens/landscape tracts have been added throughout Phase 3, in areas between residential lots and the adjacent street or providing pedestrian connections.

A total of 0.70 acres of linear greens/landscape tracts are provided with Phase 3 of SAP - North.

The refinements described above add approximately 1.82 acres to the parks and open spaces in SAP North with the provision of landscape tracts/linear greens and an open space area not shown on the *Master Plan*. The total area of parks and open spaces proposed within Phase 3 is 2.03 acres. These refinements do not reduce function, usability, connectivity, or overall distribution or availability of these uses.

- iii. **Changes to the nature or location of utilities or storm water facilities that do not significantly reduce the service or function of the utility or facility.**

Response: The utilities and storm water facilities within Phase 3 are generally consistent with the utilities and storm water facilities shown in the *Villebois Village Master Plan*. The only refinements are in relation to the on-site water quality/rainwater facilities shown on the northern edge of Phase 3 along Tooze Road and on the western edge of Phase 3 along Grahams Ferry Road (except for the southwest site corner). In the southwest site corner, a bioretention cell is provided adjacent to the retained wetland and site entrance from Grahams Ferry Road. Due to site topography/elevation, it is not possible to provide stormwater/rainwater management facilities in the aforementioned locations. However, bioretention swales are added along SW Oslo Street and within the open space area along the southern site edge. The provision of bioretention cells within these areas of the site will ensure that this refinement does not cause reduction to the service or function of rainwater management.

- iv. **Changes to the location or mix of land uses that do not significantly alter the overall distribution or availability of uses in the affected SAP.**
- v. **A change in density that does not exceed ten percent, provided such density change does not result in fewer than 2,300 dwelling units in the Village.**

Response: *Figure 1 - Land Use Plan* of the *Master Plan* shows a mix of smalls, standards and larges within Phase 3, with larger lots around the edges of the development and smaller lots concentrated in areas closer to the Village Center.

Refinements to the mix and locations of land uses include fewer smalls and standards, and the addition of mediums, in the central portion of the site. Large lots are concentrated towards the edge of Phase 3, with more mediums and smalls approaching the Village Center, consistent with the land use pattern throughout Villebois.

Residential land uses are shown on the *Master Plan* in the southwestern and northwestern site corners. A standard lot has been removed in the northwestern site corner in order to provide the pocket park. Additionally, residential lots are not provided in the southwestern site corner in order to retain the existing forested area and wetland. With this change to the location of land uses, the proposed refinement better integrates natural features into the site design and increases the overall area of parks and open spaces within Phase 3.

Phase 3 of SAP North proposes a total of 84 residential units, including 32 smalls, 26 mediums, 3 standards, and 23 larges. As described above, the proposed refinements do not significantly alter the overall distribution or availability of uses within Phase 3

of SAP North. The table below compares the total number of units currently shown in the *Master Plan - Figure 1 Land Use Table* for SAP North and the total number of units with the proposed refinement, with comparison between the applicable land use categories.

	SAP North Unit Count within MP	Proposed SAP North Unit Count	% Change
Medium/Standard/ Large/Estate	162	174	+7.4%
Small/Small Cottage/Row Houses/Neighborhood Apts.	302	273	-9.6%
TOTAL	464	447	-3.6%

The proposed refinements do not exceed the 10% standard. This proposal results in a total of 2,615 units within Villebois, which remains above the minimum density of 2,300 units required to be obtained across Villebois. The proposed refinements comply with the quantifiable and qualitative standards set forth in this code section as they do not significantly alter the overall availability or distribution of uses.

- vi. Changes that are significant under the above definitions, but necessary to protect an important community resource or improve the function of collector or minor arterial roadways.
- b) As used herein, “significant” means:
 - 1) More than ten percent of any quantifiable matter, requirement, or performance measure, as specified in (.18)(F)(1)(a), above, or,
 - 2) That which negatively affects any important, qualitative feature of the subject, as specified in (.18) (F)(1)(a), above.

Response: The refinements described above are not “significant” according to the above code definition. The proposed refinements are not more than 10% of any quantifiable matter, requirement, or performance measure. The proposed refinements do not negatively affect any important, qualitative feature of the project.

- 2. Refinements meeting the above definition may be approved by the DRB upon the demonstration and finding that:
 - a) The refinements will equally or better meet the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.

Response: As demonstrated with Section I of this report, SAP North, along with the proposed refinements for Phase 3, equally or better meets the Goals, Policies and Implementation Measures of the *Villebois Village Master Plan*. The refinements described above improve the overall aesthetic and functional use of the proposed plan by adding area and features to parks and open spaces system, better retaining on-site

natural features, integrating rainwater management systems into open space area, and continuing the land use pattern of Villebois.

The proposed refinements will better meet the following Goals, Policies and Implementation Measures of the *Villebois Village Master Plan*.

- **Utilities - Storm Water Policy 3** - Villebois Village shall integrate rainwater management systems into parks and open space areas.

The proposed refinements better integrate rainwater management systems into parks and open space areas through the provision of bioretention cells within the southwestern site corner adjacent to the retained wetland and within the OS-2 area along the southern edge of Phase 3.

- **Land Use, General Land Use Plan Goal** - *Villebois Village shall be a complete community that integrates land use, transportation, and natural resource elements to foster a unique sense of place and cohesiveness.*

Phase 3 plan better integrates transportation and natural resource elements with land uses and transportation through the addition of landscape tracts and the pedestrian/bicycle connection within the pocket park. Landscape areas contribute to a sense of place and green space throughout the development. The additional pedestrian/bicycle path provides connection from residential areas to the intersection of Grahams Ferry Road and Tooze Road through the pocket park area.

- **Land Use, Residential Neighborhood Housing Policy 1** - *Each of the Villebois Village's neighborhoods shall include a wide variety of housing options and shall provide home ownership options ranging from affordable housing to estate lots.*

Phase 3 adds to the variety of housing options within Villebois with the addition of medium lots. A greater proportion of lots in the smaller land use category, including affordable housing opportunities, is located within the Village Center. The proposed refinements are consistent with the land use pattern of Villebois, where larger lots are located around the edges of site development (e.g. along Grahams Ferry Road and Tooze Road), further from the higher density areas associated with the Village Center.

- **Land Use, Residential Neighborhood Housing Policy 10** - *Natural features shall be incorporated into the design of each neighborhood to maximize their aesthetic character while minimizing impacts to said natural features.*

The proposed refinements retain the existing forested wetland in the southwest site corner through the addition of the open space tract. Retaining the treed wetland area adds to the aesthetic character of the neighborhood while protecting existing on-site natural features.

In summary, the proposed refinements will better integrate green spaces throughout the PDP and add to the range of housing options in SAP North. As the proposed refinements will not compromise the project's ability to comply with all other Goals, Policies and Implementation Measures of the *Villebois Village Master Plan*, they will equally meet all other Goals, Policies and Implementation Measures of the *Villebois Village Master Plan*.

- b) **The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the SAP and Village area, and**

Response: As described throughout this report, and within the SRIR Addendum (see Section IIF), the proposed refinements will not result in significant detrimental impacts to the environment or natural or scenic resources within Phase 3 and the Village area. Furthermore, the addition of open space in the southwest corner will retain the existing forested wetland.

- c) The refinement will not preclude an adjoining or subsequent SAP area from development consistent with the Master Plan.

Response: Phase 2 of SAP North is located immediately to the south of Phase 3 and was approved with PDP 2N (DB13-0020 et al). Future phases not yet approved are located to the east of Phase 3. This SAP amendment reflects the prior Phase 2 approval, identifies future subsequent phasing, and is consistent with planned circulation patterns. Therefore, the proposed amendments will not preclude an adjoining or subsequent SAP area from development consistent with the *Master Plan*.

- 3. Amendments are defined as changes to elements of the Master Plan not constituting a refinement. Amendments to the Master Plan must follow the same procedures applicable to adoption of the Master Plan itself.

Response: This application does not include any amendment to the *Master Plan*. All of the proposed changes fall within the definition of refinements and are addressed within this report.

III. WILSONVILLE PLANNING & LAND DEVELOPMENT ORDINANCE

SECTION 4.139 SIGNIFICANT RESOURCE OVERLAY ZONE

Section 4.139.01 Purpose

The Significant Resource Overlay Zone (SROZ) is intended to be used with any underlying base zone as shown on the City of Wilsonville Zoning Map. The purpose of the Significant Resource Overlay Zone is to implement the goals and policies of the Comprehensive Plan relating to natural resources, open space, environment, flood hazard, and the Willamette River Greenway. In addition, the purposes of these regulations are to achieve compliance with the requirements of the Metro Urban Growth Management Functional Plan (UGMFP) relating to significant natural resources. It is not the intent of this ordinance to prevent development where the impacts to significant resources can be minimized or mitigated.

Section 4.139.02 Where These Regulations Apply

The regulations of this Section apply to the portion of any lot or development site, which is within a Significant Resource Overlay Zone and its associated “Impact Areas.” The text provisions of the Significant Resource Overlay Zone ordinance take precedence over the Significant Resource Overlay Zone maps. The Significant Resource Overlay Zone is described by boundary lines shown on the City of Wilsonville Significant Resource Overlay Zone Map. For the purpose of implementing the provisions of this Section, the Wilsonville Significant Resource Overlay Zone Map is used to determine whether a Significant Resource Impact Report (SRIR) is required. Through the development of an SRIR, a more specific determination can be made of possible impacts on the significant resources.

Unless otherwise exempted by these regulations, any development proposed to be located within the Significant Resource Overlay Zone and/or Impact Area must comply with these regulations. Where the provisions of this Section conflict with other provisions of the City of Wilsonville Planning and Land Development Ordinance, the more restrictive shall apply.

The SROZ represents the area within the outer boundary of all inventoried significant natural resources. The Significant Resource Overlay Zone includes all land identified and protected under Metro's UGMFP Title 3 Water Quality Resource Areas, as currently configured, significant wetlands, riparian corridors, and significant wildlife habitat that is inventoried and mapped on the Wilsonville Significant Resource Overlay Zone Map.

Response: The *Existing Conditions Plan* (see Notebook Section IIB) shows that Phase 3 is predominately pasture land, with two (2) wetland areas not identified on the City's Natural Resource Inventory, including a treed wetland in the southwest site corner, and a narrow portion of SROZ area along the southern edge of the site.

The *Park/Open Space/Pathways Plan* (see Notebook Section IIB) shows how the design of Phase 3 incorporates natural features to maximize their aesthetic character and minimize impacts to natural features. The existing forested wetland in the southwest site corner and the SROZ area along the southern site edge are retained in separate open space tracts.

The narrow portion of upland forest preserve along the southern edge of Phase 3 is designated as SROZ on the City of Wilsonville Significant Resource Overlay Zone Map. Impacts to the SROZ were submitted and approved with PDP 2N (DB13-0020 et al). An addendum to the SRIR report has been prepared to evaluate updated impacts to the SROZ (see Notebook Section IIF). The SRIR addendum also describes the previously approved mitigation plan, which includes a combination of enhancement and creation that more than exceeds requirements for mitigation. The *SROZ Plan* (see Notebook Section IIB) depicts updated SROZ impacts within Phase 3. This application includes a request for approval of Significant Resource Impact Report (SRIR) Addendum for Phase 3.

Section 4.139.04 Uses and Activities Exempt from These Regulations

A request for exemption shall be consistent with the submittal requirements listed under Section 4.139.06(.01)(B - I), as applicable to the exempt use and activity.

- (.08) The construction of new roads, pedestrian or bike paths into the SROZ in order to provide access to the sensitive area or across the sensitive area, provided the location of the crossing is consistent with the intent of the Wilsonville Comprehensive Plan. Roads and paths shall be constructed so as to minimize and repair disturbance to existing vegetation and slope stability.
- (.10) The removal of invasive vegetation such as Himalayan Blackberry, English Ivy, Poison Oak, Scots (Scotch) Broom or as defined as invasive in the Metro Native Plant List.
- (.11) The planting or propagation of any plant identified as native on the Metro Native Plant List. See Wilsonville Planning Division to obtain a copy of this list.

Response: As noted above, Phase 3 includes a narrow portion of OS-2 designated as SROZ along the southern site edge. Phase 3 includes a soft surface nature trail connection to OS-2 to the south. The majority of OS-2 is located within Phase 2. Soft-surface nature trails meandering through the forest and benches, located within OS-2, will be developed with Phase 3. Nature trails and benches at the north edge of OS-2 will be established as previously identified with the approved SRIR (DB13-0020 et al). Mitigation for impacts to the SROZ was also previously approved, including removal of invasive vegetation and mitigation plantings as described in the SRIR Addendum (see Notebook Section IIF). These elements are exempt from the SROZ regulations as described by Section 4.139.04.

Section 4.139.05 Significant Resource Overlay Zone Map Verification.

The map verification requirements described in this Section shall be met at the time an applicant requests a building permit, grading permit, tree removal permit, land division approval, or other land use decision. Map verification shall not be used to dispute whether the mapped Significant Resource Overlay Zone Boundary is a significant natural resource. Map refinements are subject to the requirements of Section 4.139.10(.01)(D).

Response: Verification of SROZ Boundary was completed with PDP 2N approval. This SAP Amendment remains consistent with the approved SROZ Boundary Verification.

Section 4.139.06 Significant Resource Impact Report (SRIR) and Review Criteria.

(.02) Application requirements for a Standard SRIR. The following requirements must be prepared and submitted as part of the SRIR evaluation for any development not included in paragraph A above:

Response: A standard SRIR for was submitted with PDP 2N (DB13-0020 et al) in compliance with the applicable application requirements of Section 4.139.06 (.02). The approved SRIR report included impacts in Phase 2 and Phase 3, and reflected approved impacts in Phase 1. A SRIR addendum prepared by SWCA Environmental Consultants is provided in Notebook Section IIF, which reviews updated impacts for Phase 3. Future Phases will be required to address SROZ standards through a SAP Amendment.

The impact area of 4,610 SF for the child play area and the impact area of 325 SF for site improvements in Phase 3 were approved with PDP 2N. This amendment, as described in the attached SRIR Addendum, adds two impact areas (1,988 SF and 113 SF in size, respectively) for site improvements not previously accounted for in the approved SRIR Report. Impacts to the ALCU continue to be less than 5% and mitigation continues to exceed required amounts.

(.03) SRIR Review Criteria. In addition to the normal Site Development Permit Application requirements as stated in the Planning and Land Development Ordinance, the following standards shall apply to the issuance of permits requiring an SRIR. The SRIR must demonstrate how these standards are met in a manner that meets the purposes of this Section.

A. Except as specifically authorized by this code, development shall be permitted only within the Area of Limited Conflicting Use (see definition) found within the SROZ;

Response: Proposed activities are only within the Area of Limited Conflicting Use within the SROZ.

B. Except as specifically authorized by this code, no development is permitted within Metro's Urban Growth Management Functional Plan Title 3 Water Quality Resource Areas, boundary;

Response: No wetland within Phase 3 is a Title 3 Water Quality Resource Area.

C. No more than five (5) percent of the Area of Limited Conflicting Use (see definition) located on a property may be impacted by a development proposal. On properties that are large enough to include Areas of Limited Conflicting Use on both sides of a waterway, no more than five (5) percent

of the Area of Limited Conflicting Use on each side of the riparian corridor may be impacted by a development proposal. This condition is cumulative to any successive development proposals on the subject property such that the total impact on the property shall not exceed five (5) percent;

Response: The Area of Limited Conflicting Use within the site totals 430,988 square feet. Proposed impacts within the Area of Limited Conflicting Use are 4.3%, which is less than the 5% allowed. The proposal complies with the above standard.

- D. Mitigation of the area to be impacted shall be consistent with Section 4.139.06 of this code and shall occur in accordance with the provisions of this Section;

Response: As described within the attached SRIR addendum (see Section IIF), the proposed mitigation continues to comply with Section 4.139.06.

- E. The impact on the Significant Resource is minimized by limiting the degree or magnitude of the action, by using appropriate technology or by taking affirmative steps to avoid, reduce or mitigate impacts.

Response: Proposed impacts have been limited to the extent feasible to allow development of Phase 3 while also protecting the portion of the upland forest preserve designated as SROZ along the southern site edge. This is demonstrated with the attached plans (see Section IIB) and the attached SRIR addendum (see Section IIF).

- F. The impacts to the Significant Resources will be rectified by restoring, rehabilitating, or creating enhanced resource values within the "replacement area" (see definitions) on the site or, where mitigation is not practical on-site, mitigation may occur in another location approved by the City.

Response: The proposed impacts to the on-site significant resources will be rectified with the previously approved mitigation area, which exceeds required amounts. The approved mitigation area is identified on the *SROZ Plan* in the attached drawings (see Section IIB) and described within the attached SRIR Addendum (see Section IIF).

- G. Non-structural fill used within the SROZ area shall primarily consist of natural materials similar to the soil types found on the site;

Response: Any non-structural fill within the SROZ area will consist primarily of natural materials similar to the soil types found on the site.

- H. The amount of fill used shall be the minimum required to practically achieve the project purpose.

Response: Fill used within the SROZ area will be limited to the minimum amount necessary to achieve the intended purpose.

- I. Other than measures taken to minimize turbidity during construction, stream turbidity shall not be significantly increased by any proposed development or alteration of the site.

Response: Proposed encroachments within the SROZ area will have no impact on turbidity as they do not affect any streams.

- J. Appropriate federal and state permits shall be obtained prior to the initiation of any activities regulated by the U.S. Army Corps of Engineers and the Oregon Division of State lands in any jurisdictional wetlands or water of the United States or State of Oregon, respectively.

Response: The appropriate federal and state permits will be obtained prior to start of site work.

Section 4.139.07 **Mitigation Standards**

Response: A mitigation plan was approved with PDP 2N, as described in the SRIR Addendum (see Notebook Section IIF). Mitigation will continue to occur in compliance with the requirements of Section 4.139.06.

Section 4.139.08 **Activities Requiring a Class I Administrative Review Process**

Response: No Class I activities are proposed with this development proposal.

Section 4.139.09 **Activities Requiring a Class II Administrative Review Process**

- (.01) The review of any action requiring an SRIR except:
- A. Activities and uses exempt under this Section;
 - B. Adjustments permitted as a Class I Administrative Review;
 - C. Adjustments permitted as part of a Development Review Board public hearing process.

Response: Table 1 - Summary of Proposed SROZ Encroachments, within the attached SRIR addendum (see Notebook Section IIF), describes the proposed activities that require the SRIR, including a child play area and grading for a portion of a residential street (SW Palermo Street) and bioretention cell(s). The *SROZ Plan* (see Notebook Section IIB) shows the approved and updated impact areas.

SECTION 4.156 **SIGN REGULATIONS**

Response: A copy of the approved SAP North Master Signage & Wayfinding Plan, to be utilized with Phase 3, is provided in Notebook Section IJJ. No amendments are proposed to the SAP North Master Signage & Wayfinding Plan.

SECTION 4.171 **GENERAL REGULATIONS - PROTECTION OF NATURAL FEATURES & OTHER RESOURCES**

(.02) **General Terrain Preparation**

- A. All developments shall be planned designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant land forms.
- B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code.
- C. In addition to any permits required under the Uniform Building Code, all developments shall be planned, designed, constructed and maintained so as to:
 - 1. Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.

2. Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.
3. Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

Response: The SAP Drawings (see Notebook Section IIB) demonstrate that SAP North and Phase 3 has been designed with maximum regard to natural terrain features and topography. Phase 1 has been constructed and Phase 2 is in the first phase of construction. Future Phases will be required to submit additional information and demonstrate compliance with these standards through an SAP Amendment. No hillside areas or floodplains are located within Phase 3. Phase 3 includes two (2) wetland areas that have not been identified on the City's Natural Resource Inventory or that meet the criteria for inclusion in the SROZ, including a treed wetland in the southwest site corner. These areas are illustrated by the *Existing Conditions* plan sheet (see Notebook Section IIB). The treed wetland in the southwest site corner is retained within an open space area. The *Tree Preservation Plan* shows proposed tree preservation and the *Grading Plan* conceptually shows proposed grading within the subject area. All subsequent grading, filling, and excavating will be done in accordance with the Uniform Building Code. Disturbance of soils and removal of trees and other native vegetation will be limited to the extent necessary to construct the proposed development. Construction will occur in a manner that avoids substantial probabilities of accelerated erosion; pollution, contamination or siltation of lakes, rivers, streams and wetlands; damage to vegetation; and injury to wildlife and fish habitats.

(.03) **Hillsides:** All developments proposed on slopes greater than 25% shall be limited to the extent that:

Response: Phase 3 of SAP - North does not include any areas of slopes in excess of 25%. Therefore, this standard does not apply to this application.

(.04) **Trees and Wooded Areas.**

- A. All developments shall be planned, designed, constructed and maintained so that:
 1. Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
 2. Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.
 3. Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
 1. Avoiding disturbance of the roots by grading and/or compacting activity.

2. Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.
3. Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
4. Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

Response: The *Tree Preservation Plan* (see Notebook Section IIB) depicts existing trees and identifies and ranks trees to be retained or removed in SAP North. The *Tree Preservation Plan* reflects previous approvals for Phase 1 and Phase 2 and proposed tree preservation and removal for Phase 3. Additional information will be required for Future Phases through a SAP Amendment.

A Tree Report (see Notebook Section IIG) has been prepared by Morgan Holen & Associates, LLC that inventories and evaluates the existing trees in Phase 3. The Tree Report includes a tree inventory indicating the common and species names, DBH, condition, and recommended treatment of on-site trees in Phase 3.

The majority of Phase 3 is pasture with trees concentrated around existing residential dwellings, the northwestern site corner, and the retained wetland located in the southwestern site corner. Existing trees within these areas are preserved to the extent feasible. The locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas. Trees located within the wetland area have not been inventoried and will be retained within an open space tract. No tree removal is proposed within the SROZ area.

Trees and forested areas to be preserved will be protected during site preparation and construction in accordance with City Public Works Design specifications and Section 4.171(.04).

(.05) **High Voltage Power line Easements and Rights of Way and Petroleum Pipeline Easements:**

- A. Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights of way and petroleum pipeline easement shall be carefully reviewed.
- B. Any proposed non-residential development within high voltage powerline easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

Response: Phase 3 does not contain any high voltage powerline or petroleum pipeline easements or rights of way.

(.06) **Hazards to Safety: Purpose:**

- A. To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- B. To protect lives and property from damage due to soil hazards.

- C. To protect lives and property from forest and brush fires.
- D. To avoid financial loss resulting from development in hazard areas.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety.

(.07) Standards for Earth Movement Hazard Areas:

- A. No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety. No earth movement hazard areas have been identified within the subject area.

(.08) Standards for Soil Hazard Areas:

- A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulleting and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety. No soil hazard areas have been identified within the subject area.

(.09) Historic Protection: Purpose:

- A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.

Response: A Historic and Cultural Resources Inventory for Phase 3 of SAP North is provided in Notebook Section IIE.

SECTION 4.172 FLOOD PLAIN REGULATIONS

Response: Phase 3 of SAP - North does not include any areas impacted by a 100-year flood plain. Therefore, the standards of Section 4.172 are not applicable.

SECTION 4.176 LANDSCAPING, SCREENING & BUFFERING

Response: The standards of Section 4.176 (Landscaping, Screening & Buffering) are not directly applicable to review of Phase 3 of SAP - North, since development is not proposed with the requested SAP amendment. Compliance of a proposed development phase(s) with the applicable landscaping, screening and buffering standards is addressed the associated Preliminary Development Plan and Final Development Plan (Site Design Review), as applicable to the respective review stage.

SECTION 4.178 SIDEWALK & PATHWAY STANDARDS

- (.01) Sidewalks. All sidewalks shall be concrete and a minimum of five (5) feet in width, except where the walk is adjacent to commercial storefronts. In such cases, they shall be increased to a minimum of ten (10) feet in width.
- (.02) Pathways
- A. Bicycle facilities shall be provided using a bicycle lane as the preferred facility design. The other facility designs described in the Public Works Standards shall only be used if the bike lane standard cannot be constructed due to physical or financial constraints. The order of preference for bicycle facilities is:
1. Bike lane.
 2. Shoulder bikeway.
 3. Shared roadway.
- (.03) Bicycle and pedestrian paths shall be located to provide a reasonably direct connection between likely destinations. A reasonable direct connection is a route which minimizes out-of-direction travel considering terrain, physical barriers, and safety. The objective of this standard is to achieve the equivalent of the ¼ mile grid of routes.
- (.04) Pathway Clearance.
- A. Vertical and horizontal clearance for bicycle and pedestrian paths is specified in the Public Works Standards.

Response: The SAP Drawings (see Notebook Section IIB) depict proposed sidewalks and pathways as applicable to Phase 3 in compliance with *Figures 9A and 9B - Street & Trail Sections of the Villebois Village Master Plan*.

SECTION 4.179 MIXED SOLID WASTE & RECYCLABLES STORAGE IN NEW MULTI-UNIT RESIDENTIAL & NON-RESIDENTIAL BUILDINGS

- (.01) All site plans for multi-unit residential and non-residential buildings submitted to the Wilsonville Planning Commission for approval shall include adequate storage space for mixed solid waste and source separated recyclables.

Response: Proposed uses identified within Phase 3 of SAP - North do not include multi-unit residential buildings. This section is not applicable to this request.

SECTION 4.600 TREE PRESERVATION AND PROTECTION

Section 4.600.50. Application For Tree Removal Permit

- (.02) Time of Application. Application for a Tree Removal Permit shall be made before removing or transplanting trees, except in emergency situations as provided in WC 4.600.40 (1)(B) above. Where the site is proposed for development necessitating site plan or plat review, application for a Tree Removal Permit shall be made as part of the site development application as specified in this subchapter.

Section 4.160.00 Application Review Procedure

- (.03) Reviewing Authority.
- B. Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a

Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council if subsequently reviewed by the Council.

Response: This request is for amendment to SAP North. No construction activities or tree removal are proposed with this application. However, the application materials provided with this SAP Amendment include a *Tree Preservation Plan* (see Notebook Section IIB) and a Tree Report (See Notebook Section IIG), which together depict the proposed tree preservation and removal for Phase 3 and the approved tree preservation and removal for Phase 1 and Phase 2. Additional information will be required for Future Phases through a SAP Amendment. An application for a Type C - Tree Preservation/Removal Plan is included in the concurrent Preliminary Development Plan application for Phase 3. Compliance with Sections 4.610.10 (.01) is described below, demonstrating the feasibility of the proposed *Tree Preservation Plan*.

Section 4.610.10. Standards for Tree Removal, Relocation or Replacement

(.01) Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:

- A. **Standard for the Significant Resource Overlay Zone.** The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this chapter.
- B. **Preservation and Conservation.** No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a principle shall be equal in concern and importance as other design principles.
- C. **Development Alternatives.** Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.
- D. **Land Clearing.** Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.
- E. **Residential Development.** Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.
- F. **Compliance with Statutes and Ordinances.** The proposed activity shall comply with all applicable statutes and ordinances.
- G. **Relocation or Replacement.** The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not to be removed in accordance with WC 4.620.10.
- H. **Limitation.** Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.
 1. **Necessary for Construction.** Where the applicant has shown to the satisfaction of the reviewing authority that removal or transplanting is necessary for the construction of a building, structure or other site

improvement and that there is no feasible and reasonable location alternative or design option on-site for a proposed building, structure or other site improvement; or a tree is located too close to an existing or proposed building or structures, or creates unsafe vision clearance.

2. Disease, Damage, or Nuisance, or Hazard. Where the tree is diseased, damaged, or in danger of falling, or presents a hazard as defined in WC 6.208, or is a nuisance as defined in WC 6.200 it seq., or creates unsafe vision clearance as defined in this code.
3. Interference. Where the tree interferes with the healthy growth of other trees, existing utility service or drainage, or utility work in a previously dedicated right-of-way, and it is not feasible to preserve the tree on site.
4. Other. Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.

Response: The *Tree Preservation Plan* (see Notebook Section IIB) reflects the approved tree preservation and removal within Phase 1 and Phase 2. Additional information for tree preservation and removal will be required for Future Phases, to be included with a SAP Amendment.

The *Tree Preservation Plan* (see Notebook Section IIB) depicts existing trees and identifies and ranks these trees to be retained or removed within Phase 3. A Tree Report prepared by Morgan Holen & Associates, LLC inventories and evaluates the existing trees (see Notebook Section IIG) in Phase 3. The Tree Report includes a tree inventory, which indicates the tree common name and species name, DBH, condition, and recommended treatment (i.e. recommendation to retain or remove). Specific Methodology used to determine DBH and tree ratings is described in the Tree Report (see Notebook Section IIG).

The majority of Phase 3 of SAP North is pasture with trees concentrated around existing residential dwellings, the northwestern site corner, and the retained wetland located in the southwestern site corner. The locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas to retain existing trees to the extent possible. The treed wetland in the southwest site corner is retained within an open space tract. Existing trees are retained within residential lots and landscape tracts where feasible. Furthermore, no tree removal is proposed within the SROZ area along the southern edge of Phase 3.

No trees with an “Important” rating are present within the site. The majority of trees within Phase 3 have a rating of Poor (19.5%) or Moderate (36.6%), and approximately 43.9% of trees have a “Good” rating. Efforts have been undertaken in the site layout to retain as many “Good” trees as practicable. Of the trees proposed for removal, trees are primarily proposed for removal because of poor or hazardous tree condition (65%) or construction (35%). Additional description of the proposed *Tree Preservation Plan* is provided in the Tree Report prepared by the project Arborist.

The applicable standards for a Type C Tree Removal Permit/Plan for tree removal are addressed in detail with the concurrent Preliminary Development Plan application materials. Trees and forested areas that are preserved will be protected during site preparation and construction in accordance with City Public Works design specifications and Section 4.171(.04).

IV. CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable Goals, Policies and Implementation Measures of the *Villebois Village Master Plan*, the applicable requirements of the Village zone, and other applicable requirements of the City of Wilsonville Planning & Land Development Ordinance. Therefore, the Applicant requests approval of the SAP North Amendment and SRIR Addendum Review.

IIB
Reduced Drawings

SPECIFIC AREA PLAN - NORTH

VILLEBOIS

CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
 109 E. 13TH ST.
 VANCOUVER, WA 98660
 [P] 503-221-1920
 CONTACT: FRED GAST

VILLEBOIS, LLC
 1022 SW SALMON ST., SUITE 450
 PORTLAND, OR 97205
 [P] 503-222-4053
 CONTACT: WAYNE REMBOLD

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Street
 Tigard, OR 97223
 [P] 503-941-9484
 CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Street
 TIGARD, OR 97223
 [P] 503-941-9484
 CONTACT: JESSIE KING, PE

SURVEYOR:

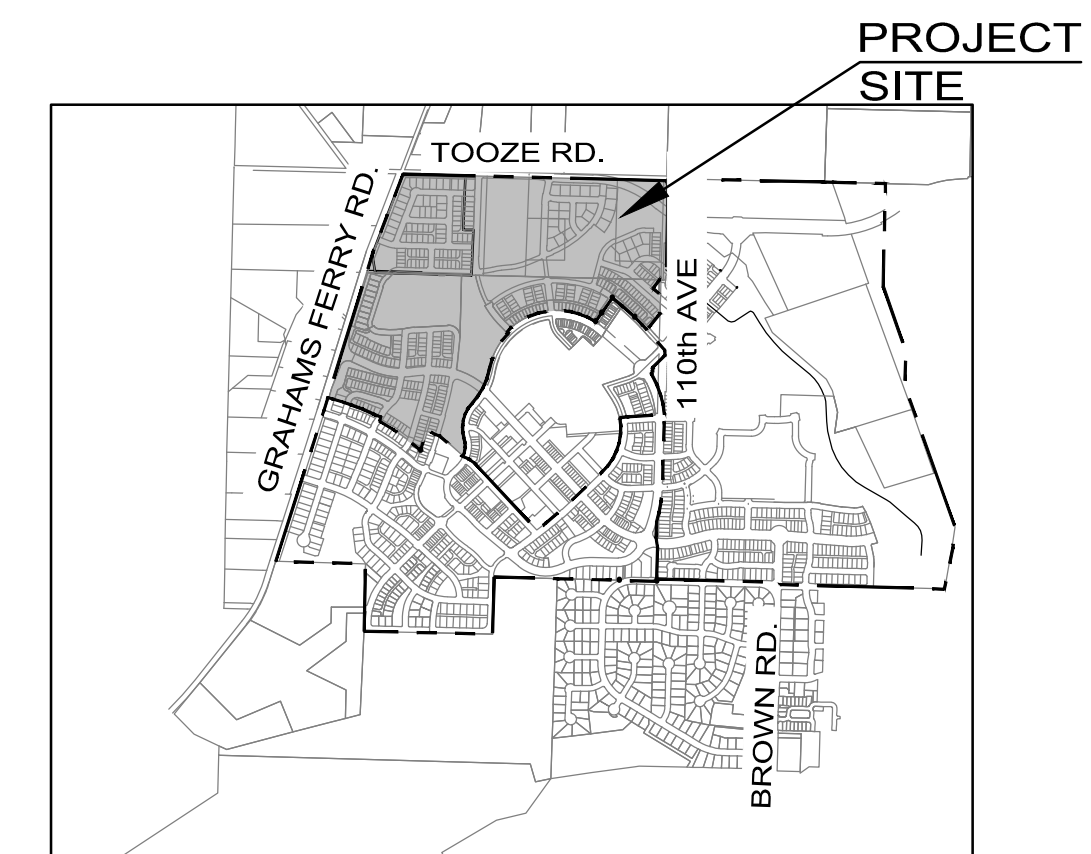
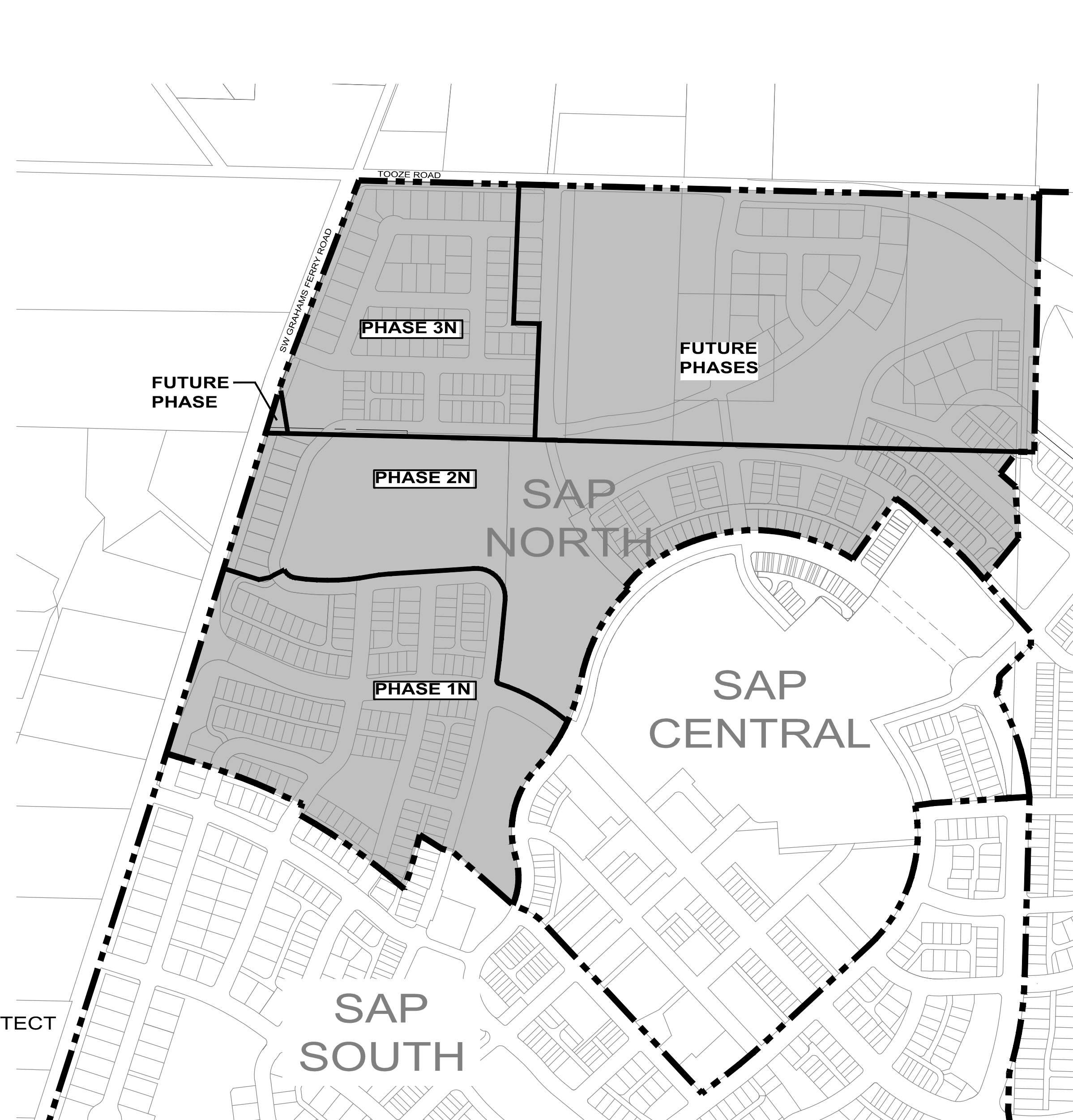
PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Street
 TIGARD, OR 97223
 [P] 503-941-9484
 CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

OTTEN LANDSCAPE ARCHITECTS, INC.
 3933 SW KELLY AVE, SUITE B
 PORTLAND, OR 97239
 [P] 503-972-0311
 CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
 15575 SW SEQUOIA PARKWAY, SUITE 100
 PORTLAND, OR 97224
 [P] 503-968-8787
 CONTACT: CRAIG WARE, PE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

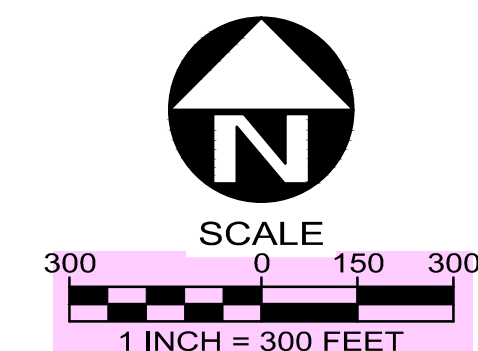
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- 2 PHASING PLAN
- 3 EXISTING CONDITIONS
- 4 AERIAL PHOTOGRAPH
- 5 LAND USE KEY
- 6 LAND USE PLAN
- 7 CIRCULATION PLAN
- 8 STREET SECTIONS
- 9 PARK/OPEN SPACE/PATHWAYS PLAN
- 10 SROZ PLAN
- 11 STREET TREE PLAN
- 12 TREE PRESERVATION PLAN
- 13 GRADING PLAN
- 14 UTILITY PLAN



POLYGON NW COMPANY



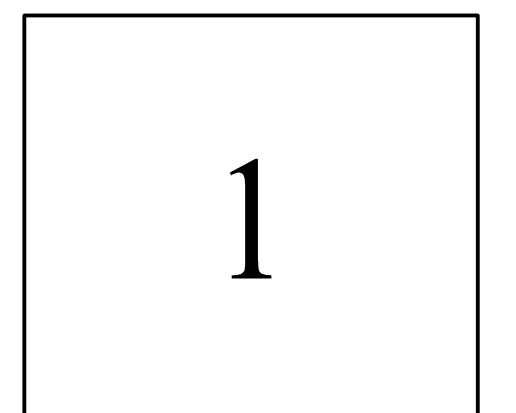
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 GEODESIGN, INC

SAP NORTH
 VILLEBOIS

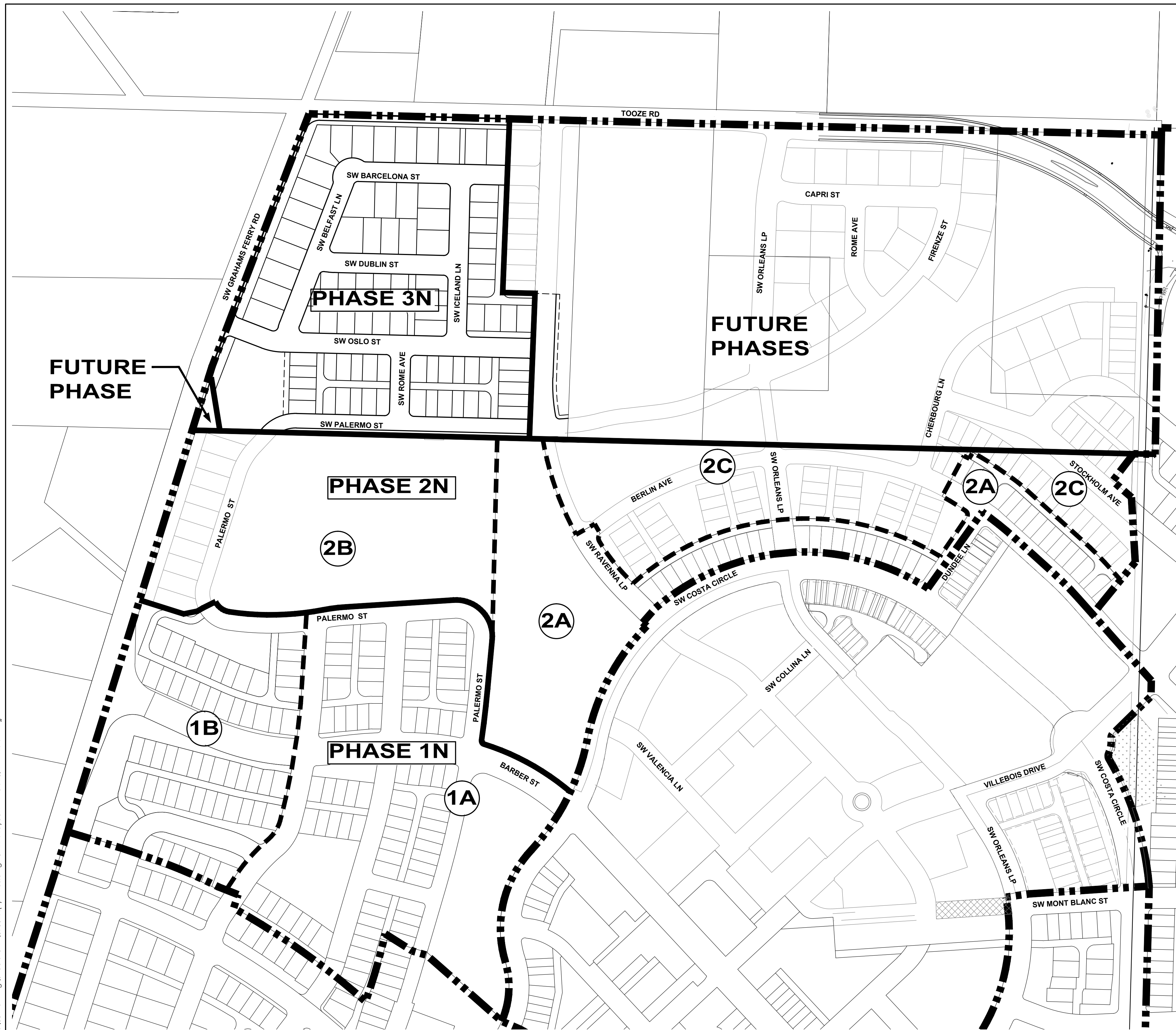
Specific
 Area Plan

Cover Sheet

DATE 3/25/14



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LEGEND:

- S.A.P. LINE
- - - S.A.P. PHASE LINE
- · - · P.D.P. CONSTRUCTION PHASE LINE
- (1A) S.A.P. PHASE NUMBER
- (1A) P.D.P. CONSTRUCTION PHASE NUMBER

PHASE 1N

PHASE 1N
APPROVED 08/25/11
DB11-0024 (PDP MODIFICATION)
DB11-0025
(SAP MODIFICATIONS & REFINEMENTS)

PHASE 2N
APPROVED 06/11/13
DB13-0020 (PDP)
DB11-0025
(SAP MODIFICATIONS & REFINEMENTS)

PHASE 3N
PROPOSED
DB14-0011 (PDP)
DB14-0012 & DB14-0013
(SAP MODIFICATIONS, REFINEMENTS & AMDNEMENTS)

FUTURE PHASES
TO BE DETERMINED



POLYGON NW COMPANY



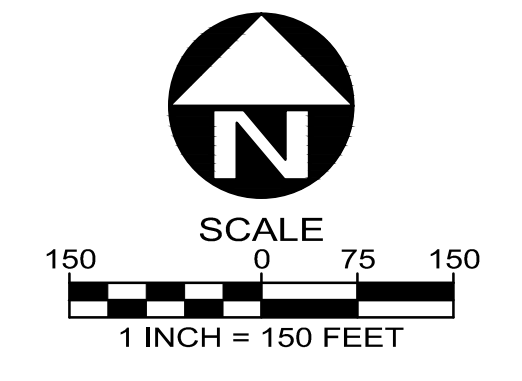
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GEODESIGN, INC.

SAP NORTH VILLEBOIS

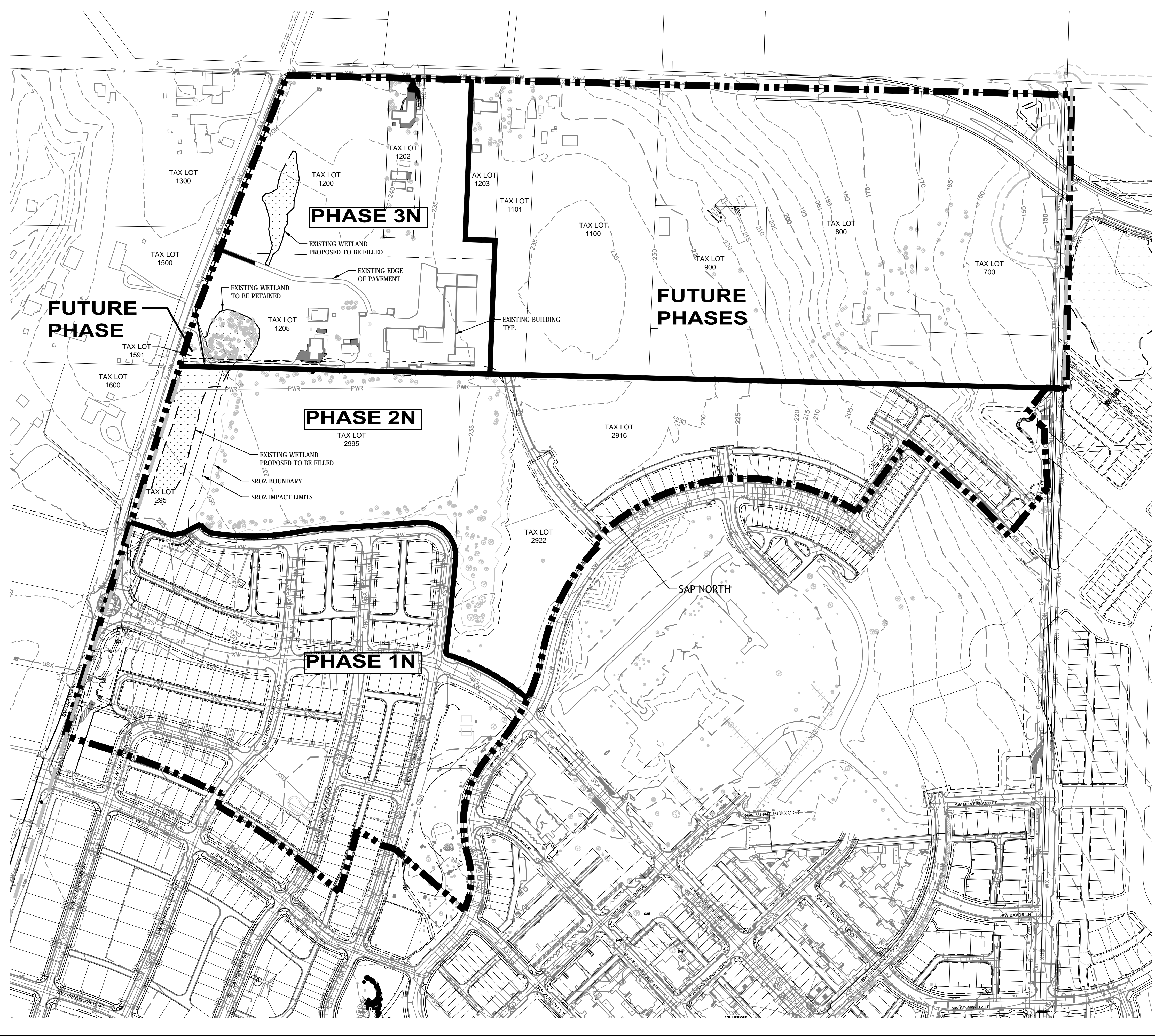
Specific Area Plan

Phasing Plan

DATE 3/25/14



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TAX MAP REFERENCE:
TOWNSHIP 3 SOUTH, RANGE 1 WEST,
SECTION 15, W.M., WILSONVILLE
OREGON.



Villebois



POLYGON NW COMPANY



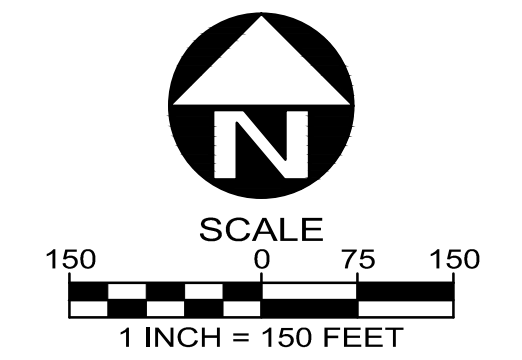
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GEODESIGN, INC

SAP NORTH
VILLEBOIS

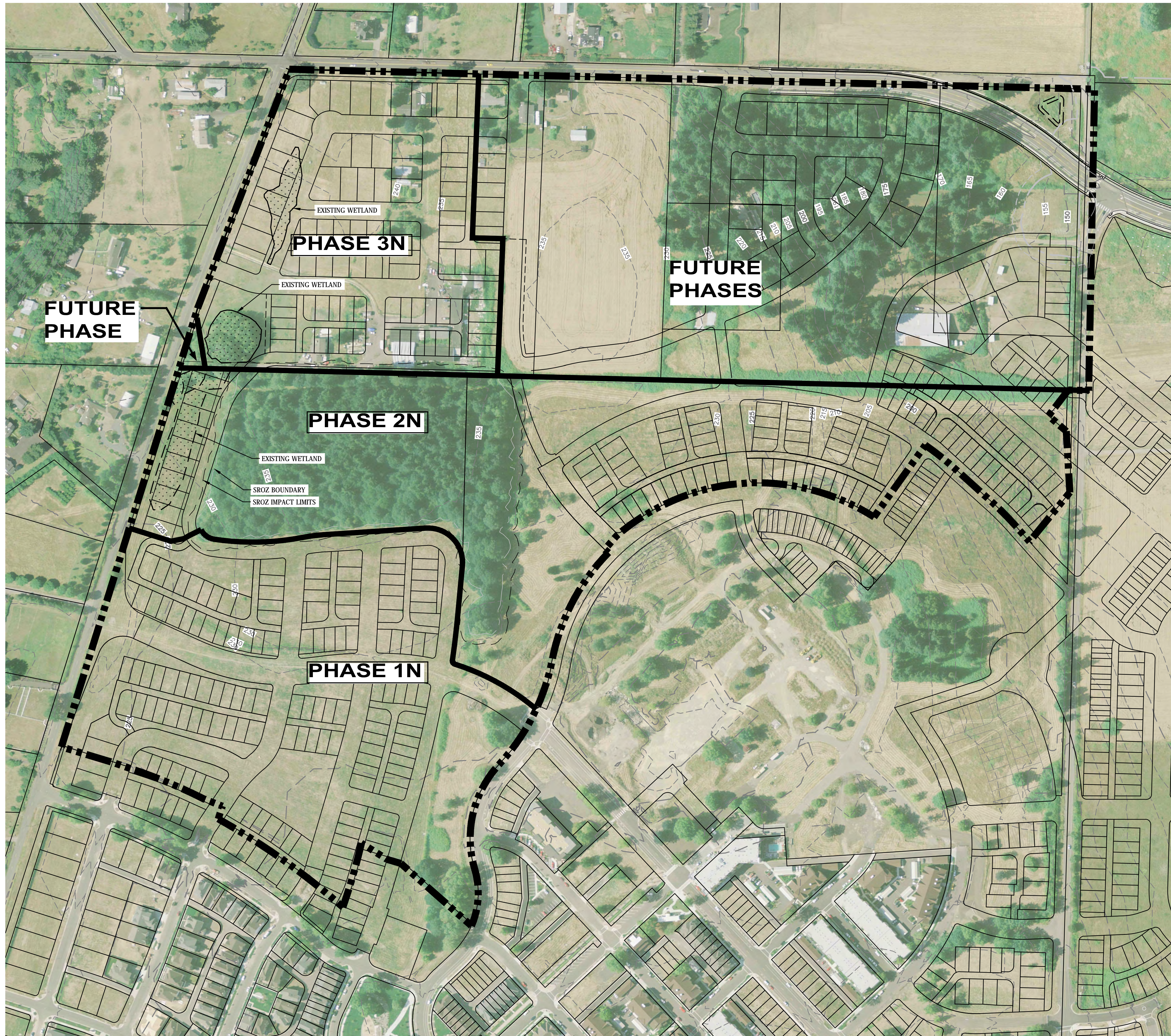
Specific
Area Plan

Existing
Conditions

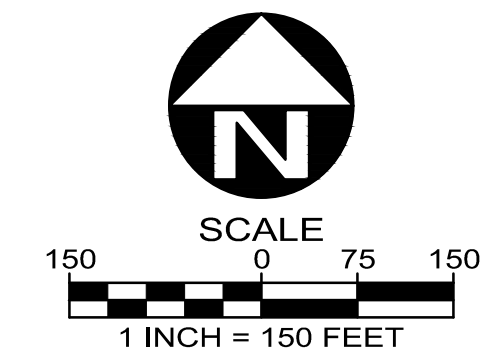
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Villebois



POLYGON NW COMPANY



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GEODESIGN, INC.

SAP NORTH
VILLEBOIS




Specific
Area Plan

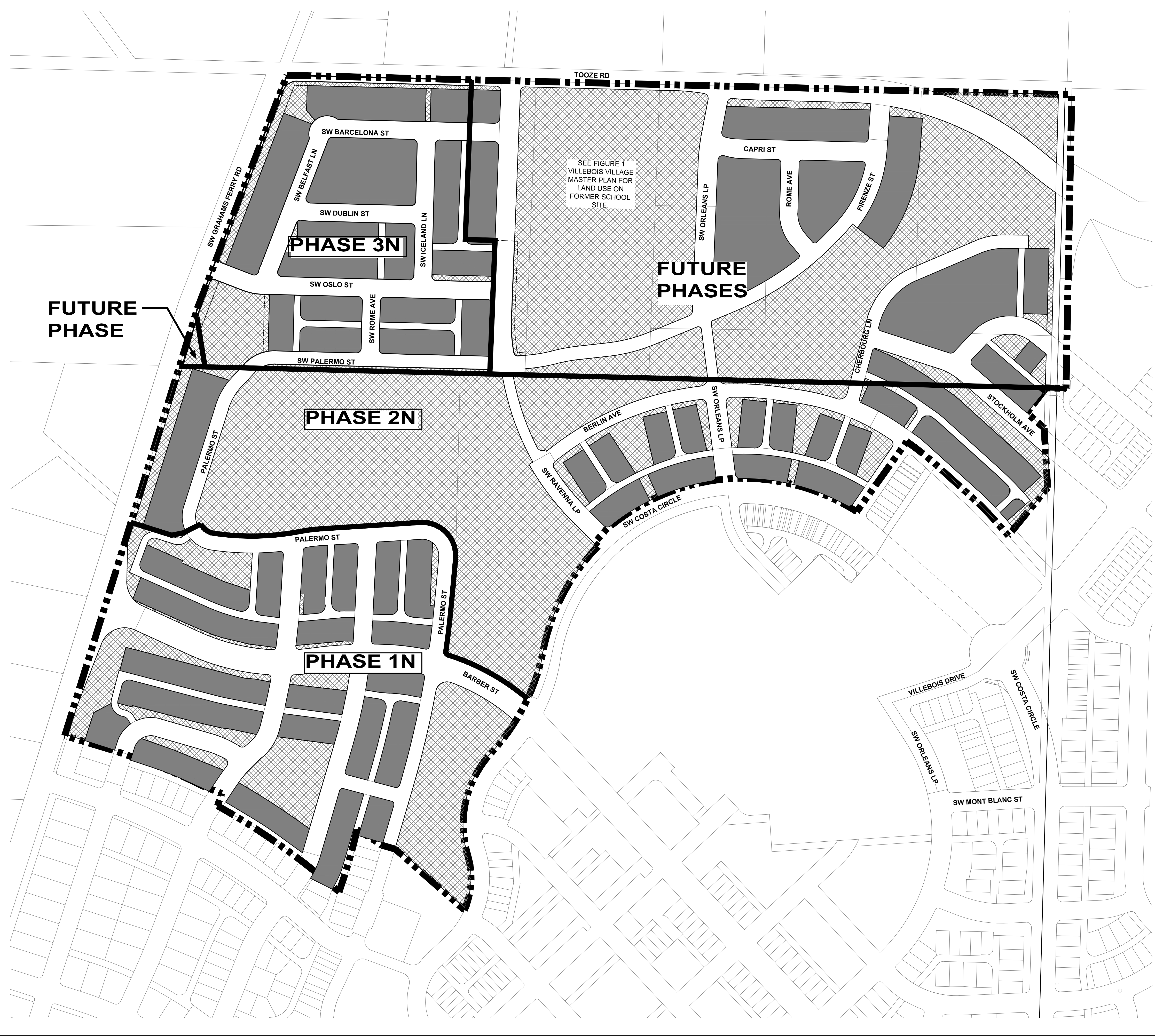
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Photograph

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LEGEND:

-  RESIDENTIAL
-  PARK/OPEN SPACE
-  PUBLIC ROADS, PRIVATE ALLEYS



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GEODESIGN, INC.

SAP NORTH
VILLEBOIS

Specific
Area Plan

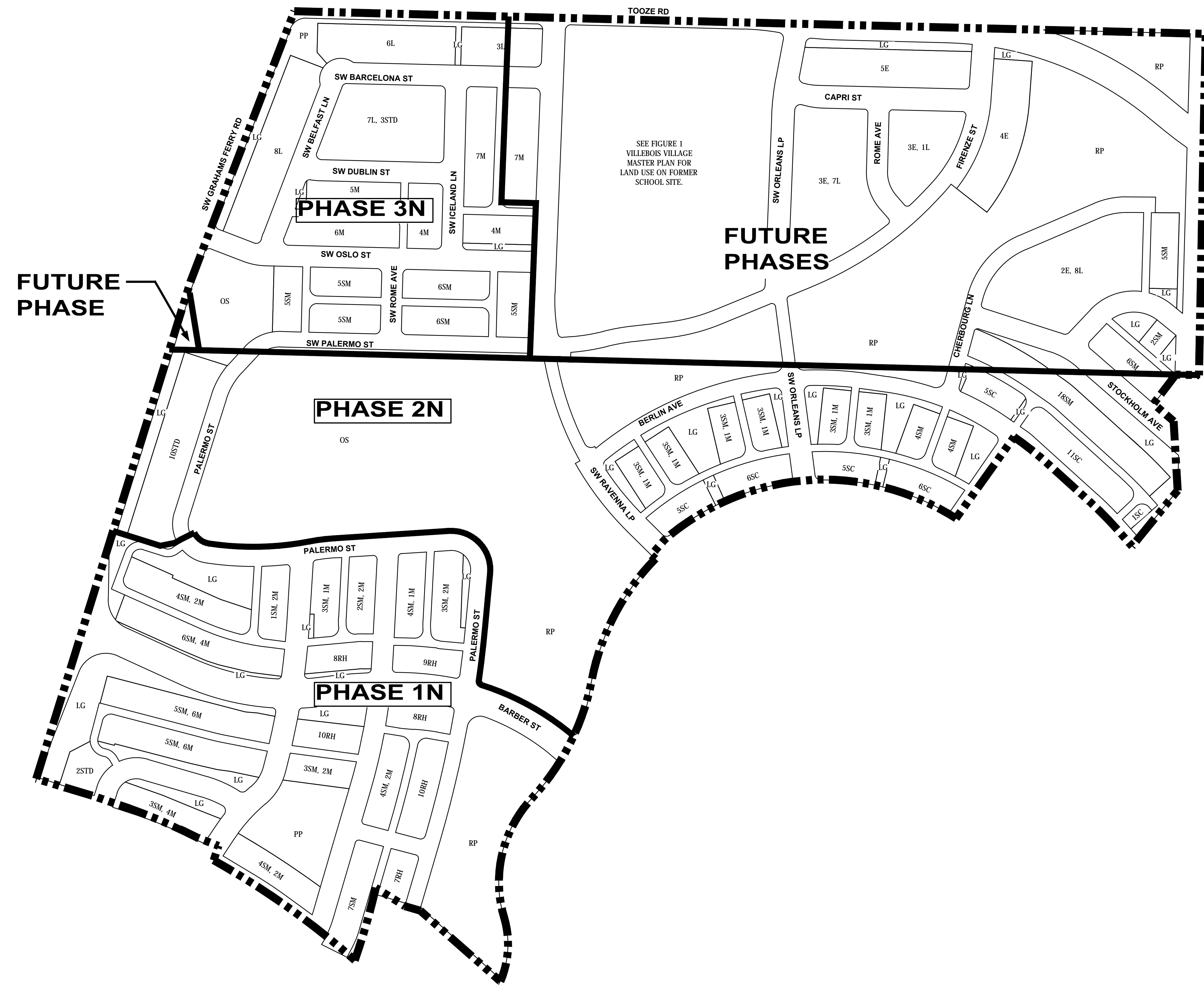
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Key

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LEGEND:

---	SAP SOUTH BOUNDARY
RH	ROW HOME LOTS
SC	COTTAGE LOTS
SM	SMALL LOTS
STD	STANDARD LOTS
M	MEDIUM LOTS
L	LARGE LOTS
E	ESTATE LOTS
OS	OPEN SPACE
PARK	PARK SPACE
RP	REGIONAL PARK
PP	POCKET PARK
LG	LINEAR GREEN
OS	OPEN SPACE



Villebois



POLYGON NW COMPANY



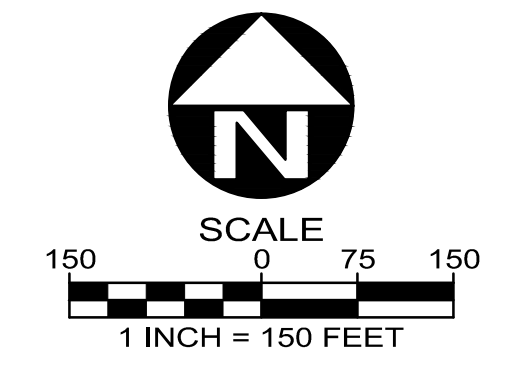
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SAP NORTH
VILLEBOIS

Specific
Area Plan

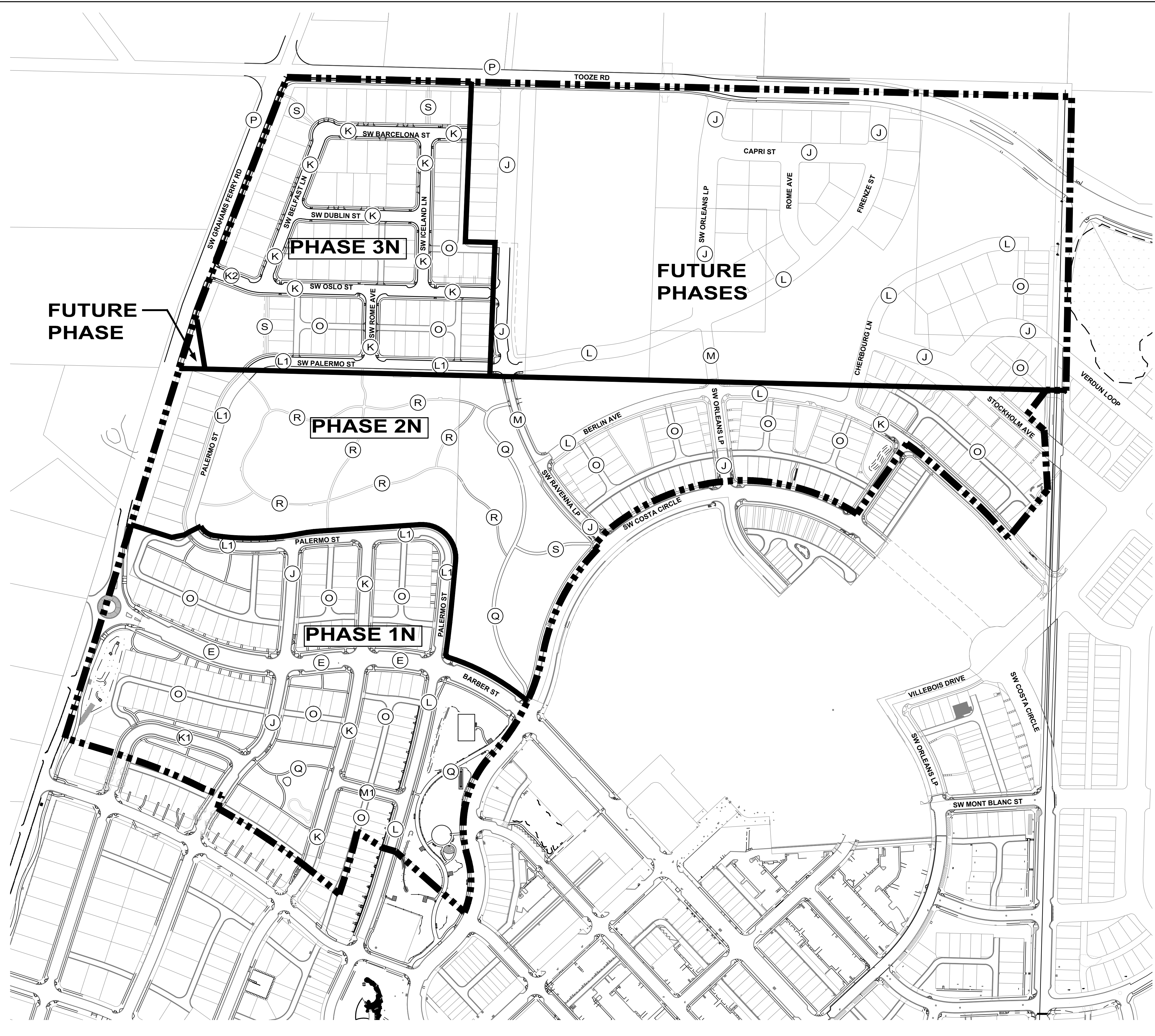
Land Use
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6

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LEGEND:

(L) ROAD SECTION TYPE
SEE SHEET 8 FOR DETAILS

■■■■ SAP NORTH



Villebois



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GEODESIGN, INC

SAP NORTH
VILLEBOIS

Specific
Area Plan

Circulation
Plan

150
0 75 150
SCALE
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DATE 3/25/14



Villebois



POLYGON NW COMPANY



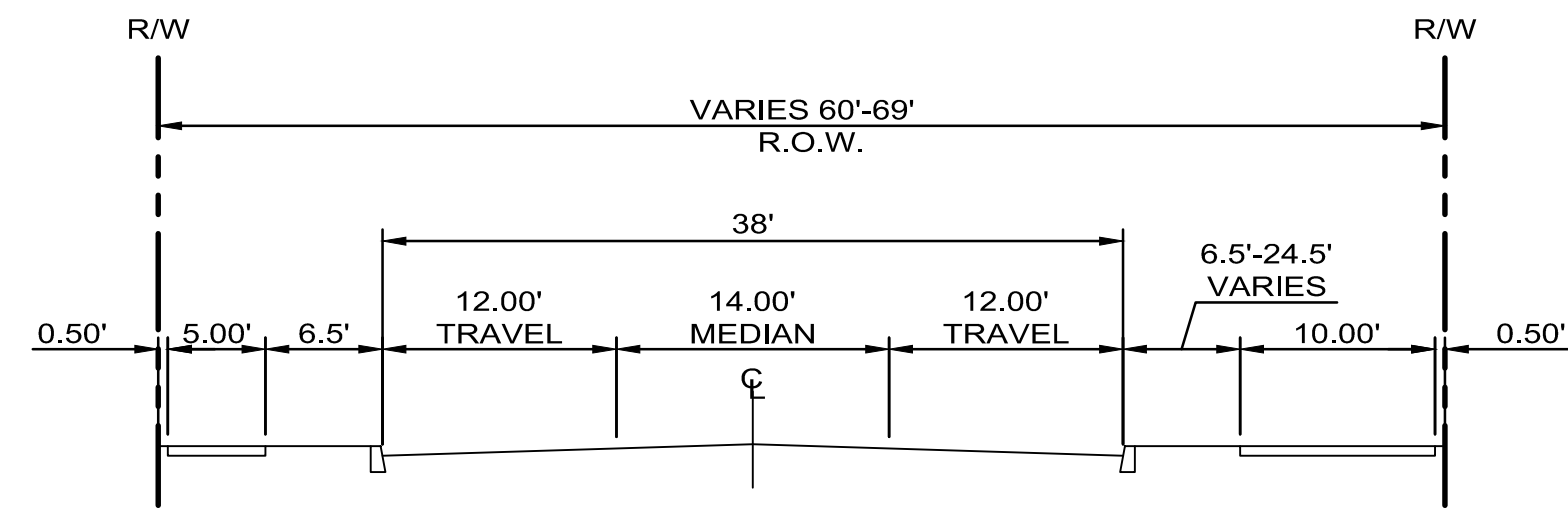
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GEODESIGN, INC.

SAP NORTH
VILLEBOIS

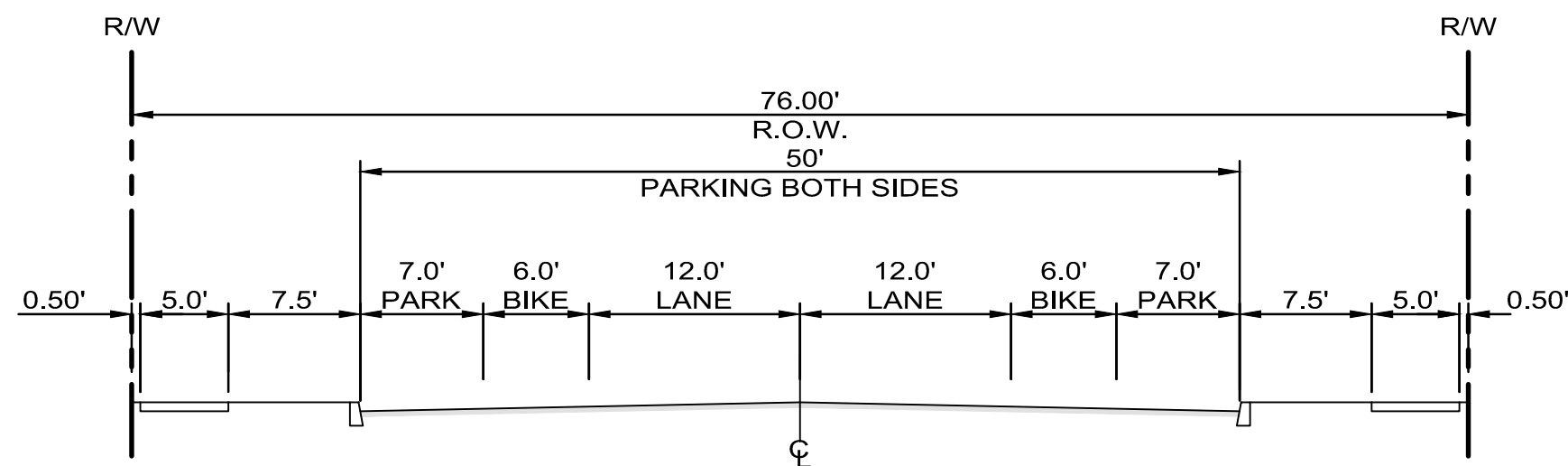
Specific
Area Plan

Street
Sections

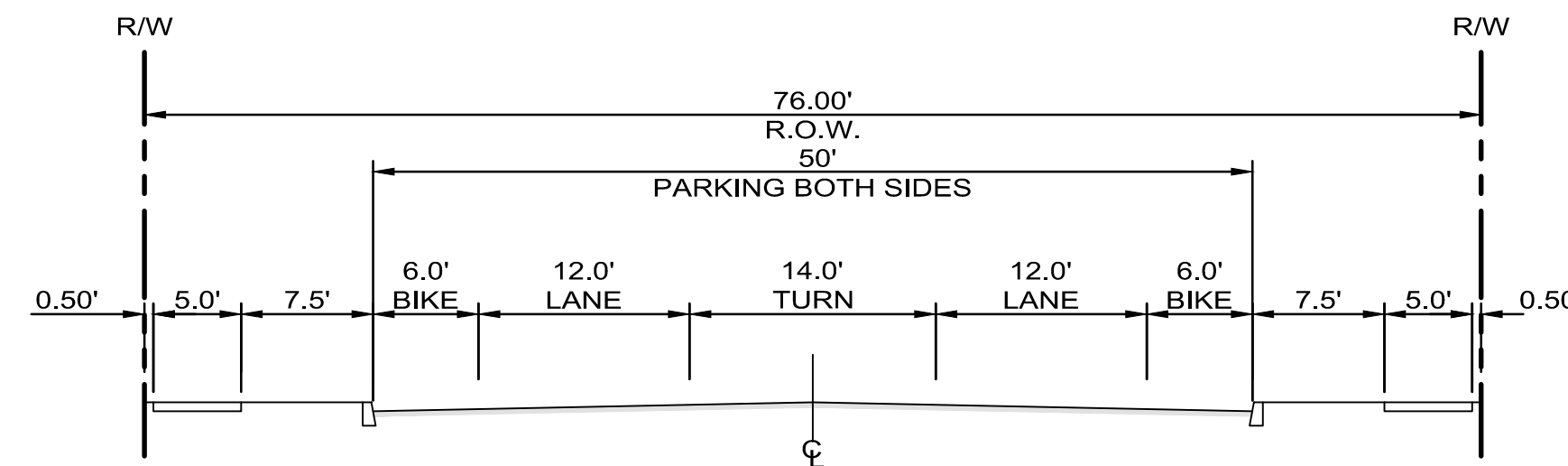
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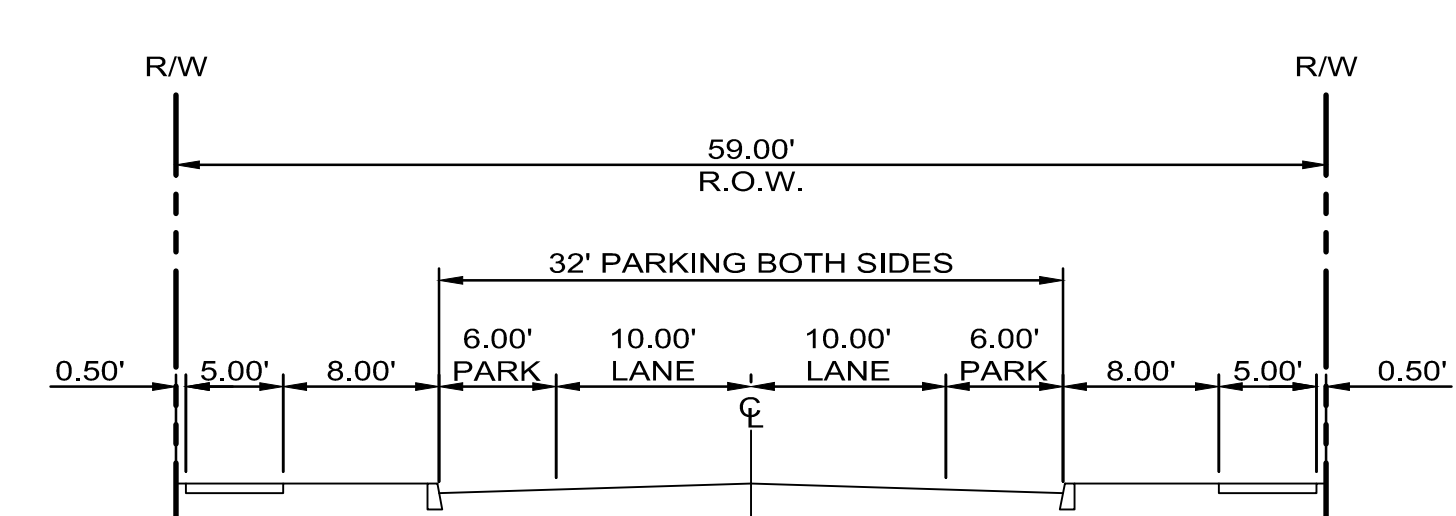
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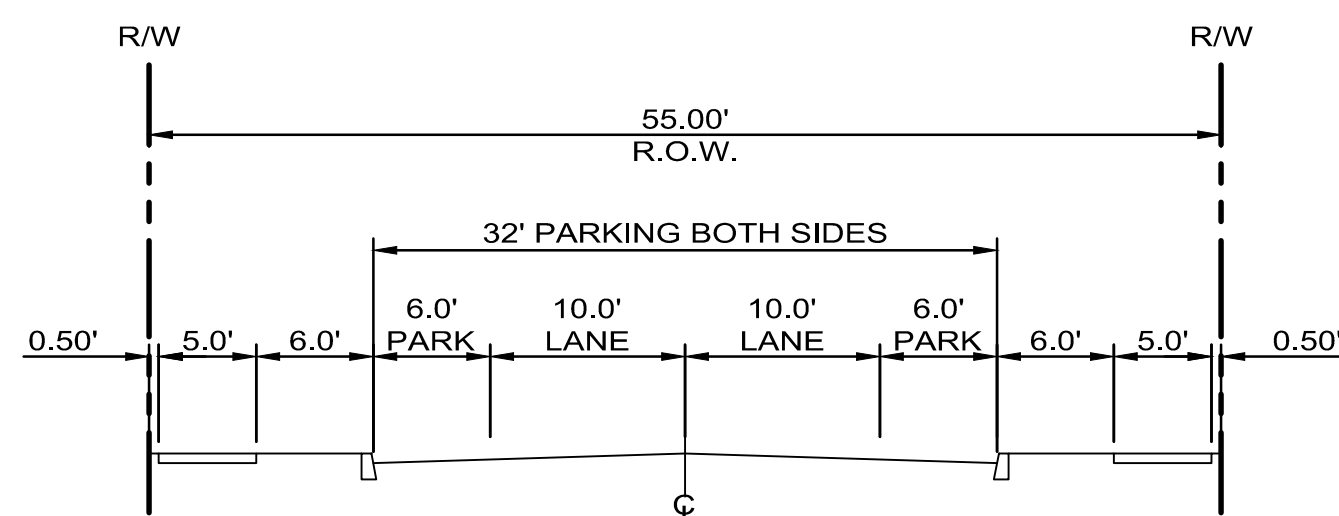
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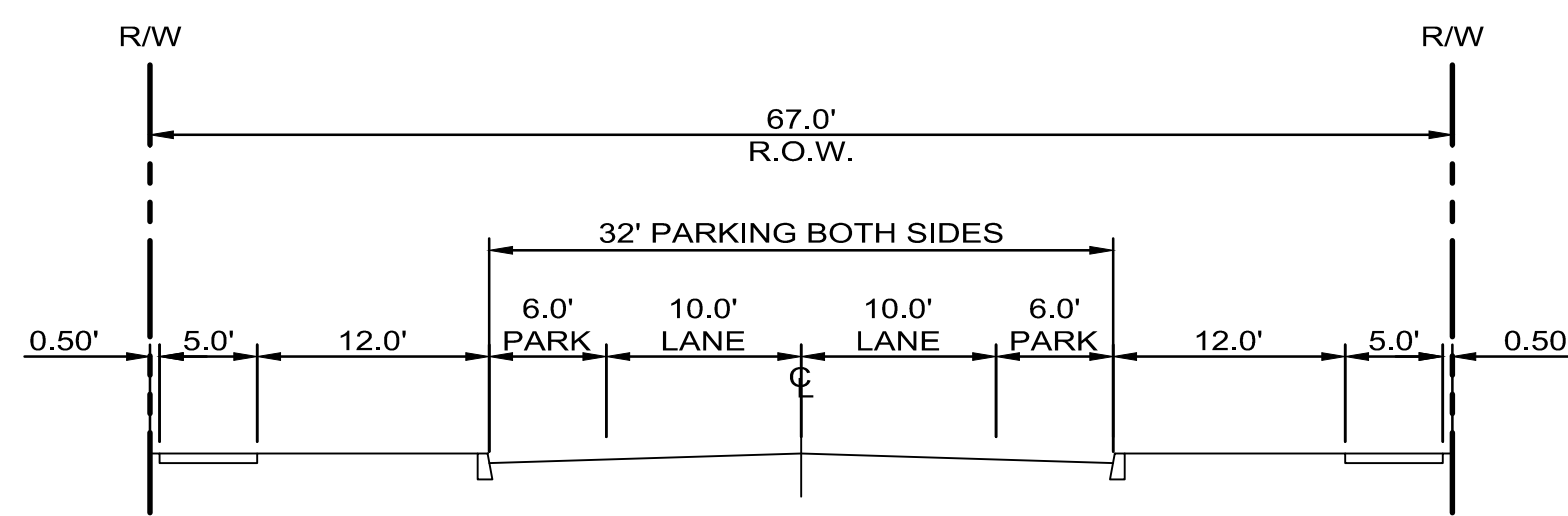
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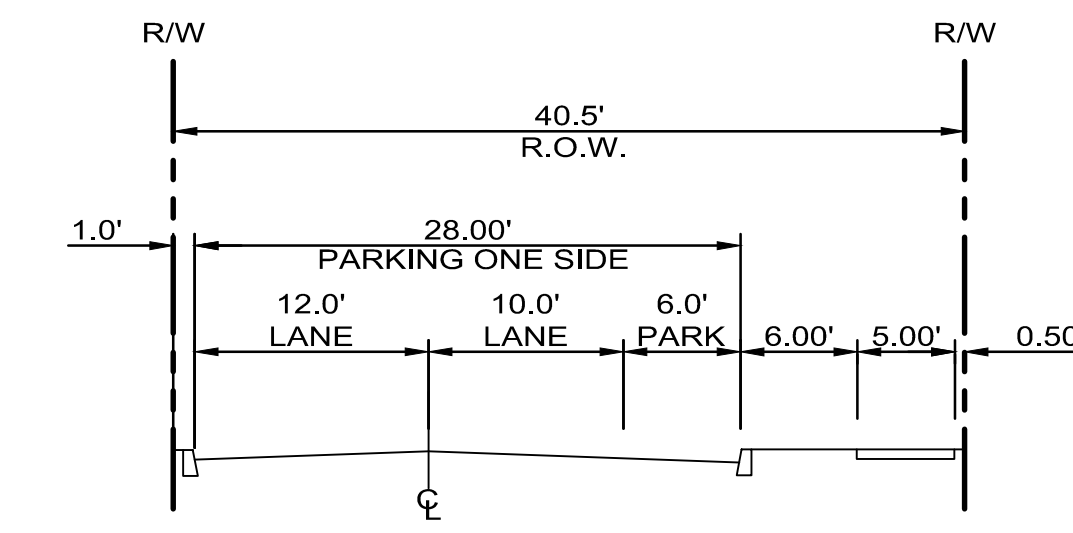
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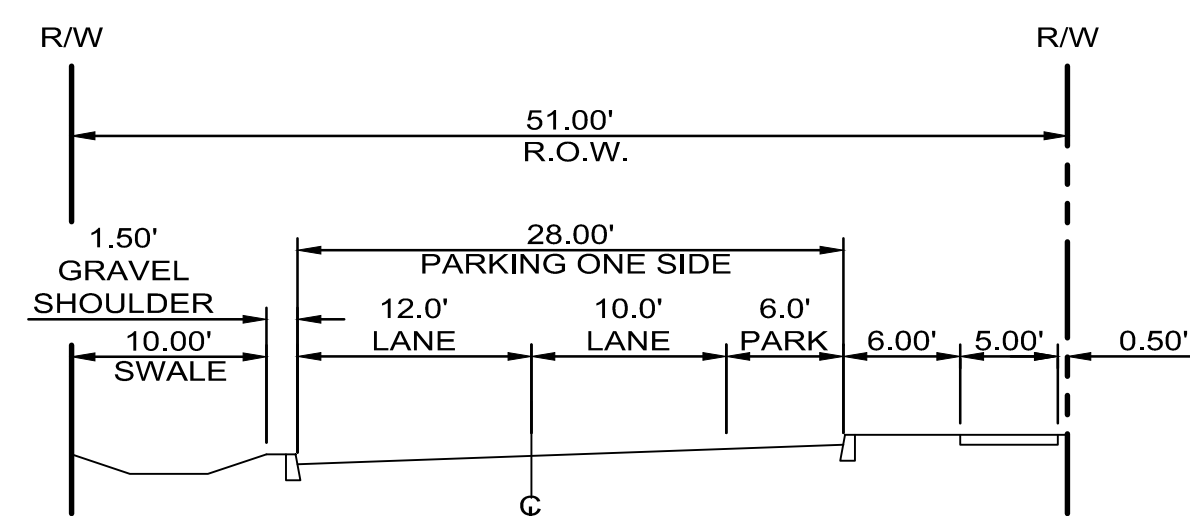
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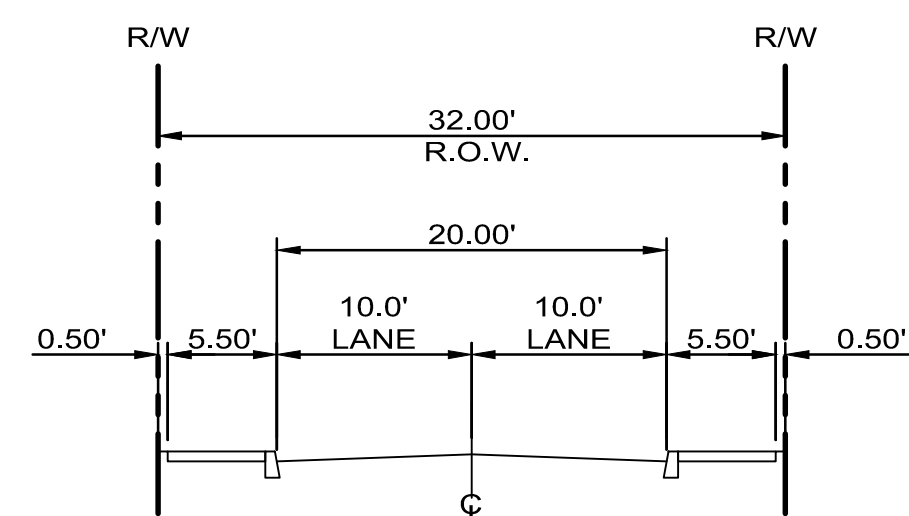
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NTS



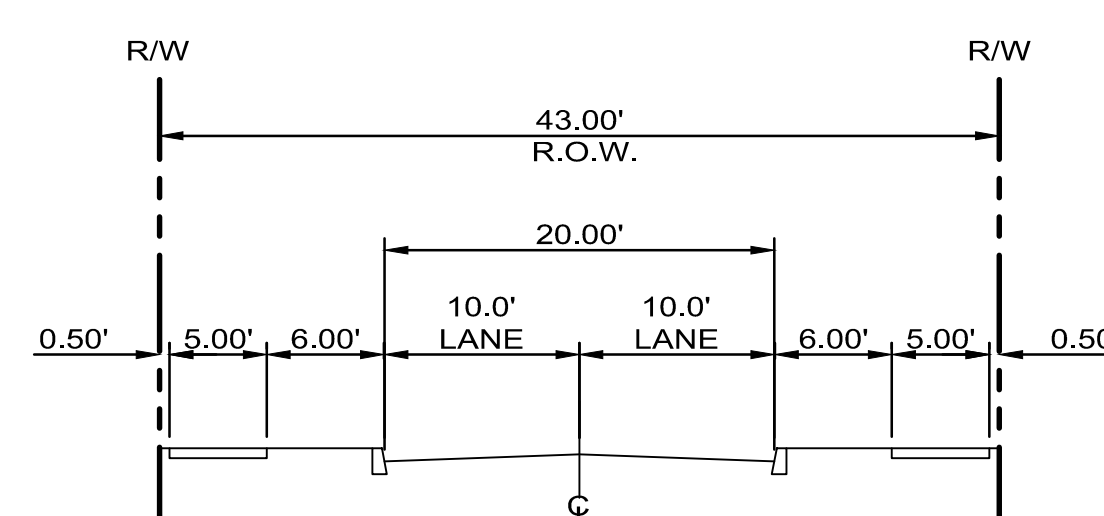
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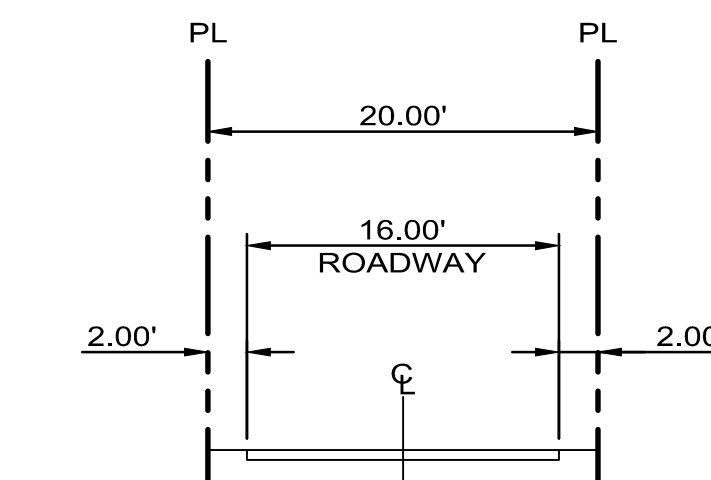
L1 RESIDENTIAL
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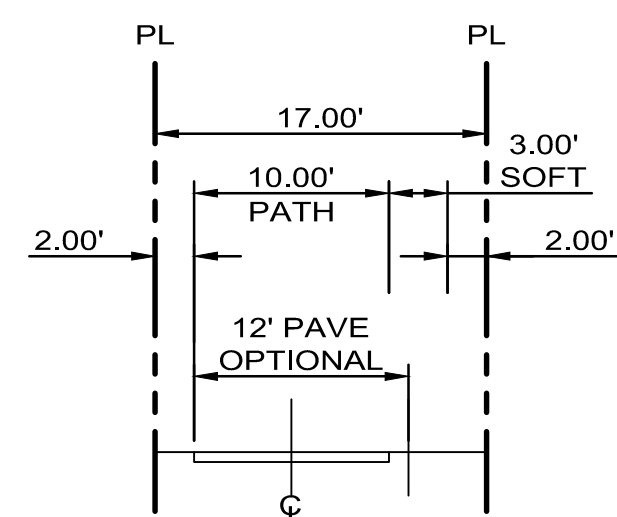
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PARKING
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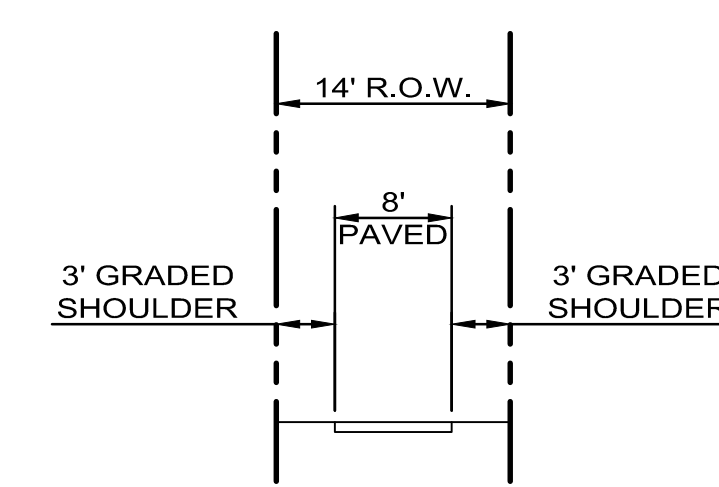
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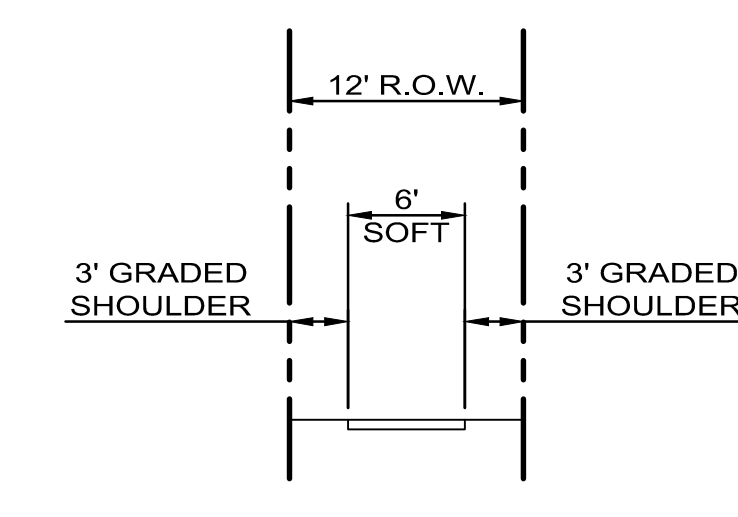
O PRIVATE LANE
NTS



Q MAJOR PATHWAY
NTS



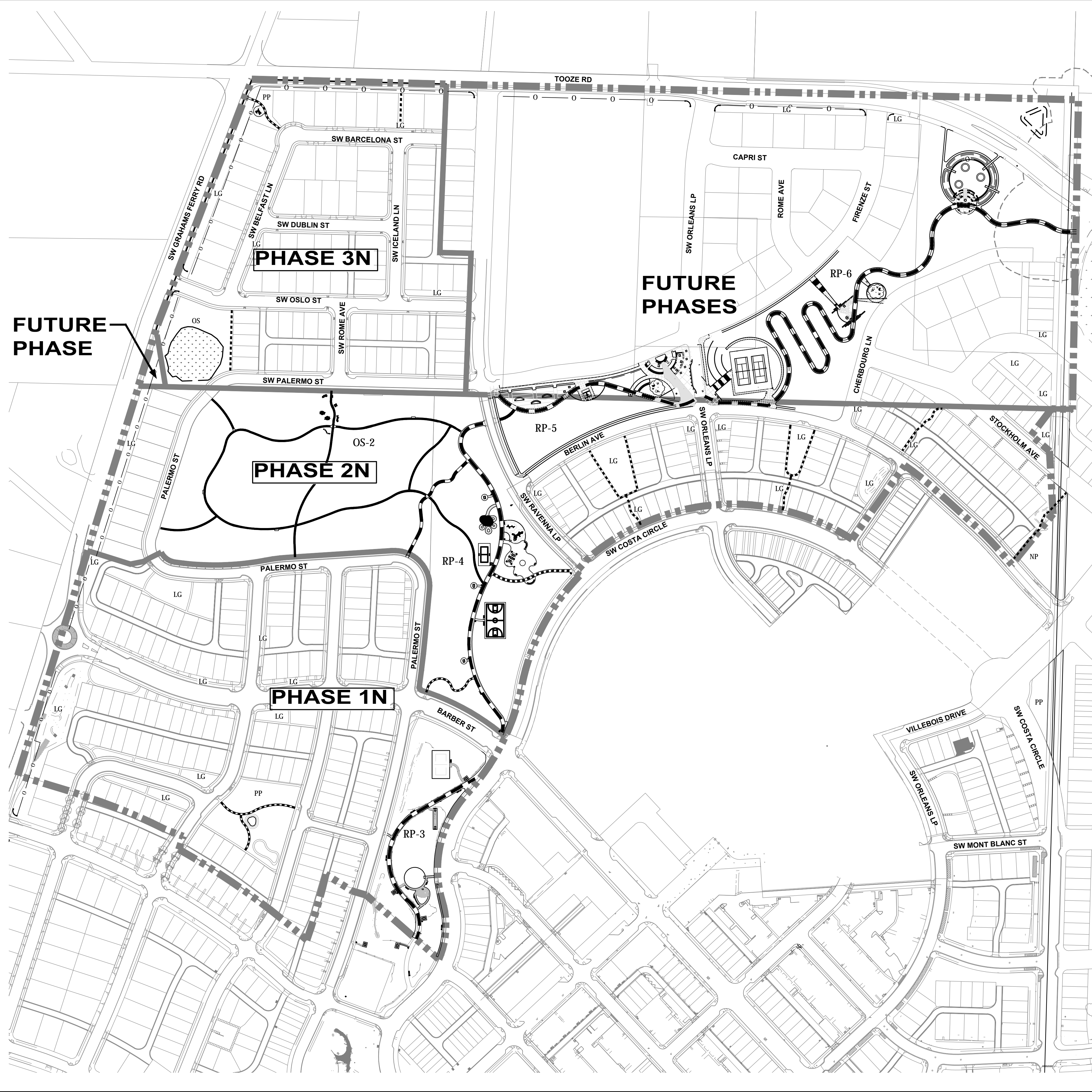
S MINOR PATHWAY
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R NATURE PATHWAY
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LEGEND:

- MAJOR PATHWAYS
- MINOR PATHWAYS
- NATURE TRAILS

RP-3
 Within SAP North, Regional Park component 3 includes a child play structure, a creative play area, a volleyball court, a large lawn area (200'x140'), benches, picnic tables, and may have stormwater / rainwater features.

RP-4 (6.14 acres)
 Regional Park component 4 is contiguous to the Upland Forest Preserve (OS-2). The Villebois Loop Trail traverses the park. This park includes a creative play area, a basketball court, a multipurpose sport court, and a large lawn area (160'x300'). In addition, the park includes a shelter with a barbeque, benches, picnic tables, a drinking fountain, and may have stormwater / rainwater features.

RP-5 (2.24 acres)
 Regional Park component 5 is located south of the approximately 10-acre City-owned parcel. Planning for the park includes a neighborhood commons area with a skate plaza, a transit stop, restrooms, picnic tables, benches, a barbeque, shelter, play structure, an overlook view to Mt. Hood, a drinking fountain, water feature, a lawn area (100'x500'), and may include a stormwater/ rainwater feature.

RP-6 (5.93 acres)
 Regional Park component 6 preserves several large groves of trees while also providing active and passive recreation opportunities. The park includes a two tennis court facility, a child play structure, a dog park, picnic tables, benches, a minor water feature and may include stormwater/rainwater features.

OS-2: Upland Forest Preserve (10.60 acres)
 This site is dominated by a large grove of conifer with some deciduous trees mixed in. The Villebois plan advocates removal of invasive species within this area (any work or impacts within the upland forest area shall comply with SROZ regulations). The forest is contiguous with the Villebois Greenway and the Villebois Loop Trail's Tonquin segment. Smaller soft-surface nature trails will meander through the forest and link neighborhoods on either side. This second-growth forest ecosystem will act as a habitat patch, valuable to small mammals, invertebrates and birds. Along the nature trails two benches for wildlife viewing and quiet contemplation will complement the undeveloped nature of this open space. Picnic tables, and a child play structure will provide recreation opportunities while complementing the existing site features.

Pocket Parks (PP)
 Small open spaces, or pocket parks, will be interspersed throughout the Villebois community. These spaces will incorporate important existing trees and provide recreational opportunities for residents. These open spaces will provide areas for community use that are convenient while helping to serve as a buffer between adjoining uses.

Linear Greens (LG)
 Linear Greens are small park areas that provide connectivity among parks and through blocks. Linear Greens include trails.

Nature Trails - Soft-surface trails within natural open spaces.

Minor Pathways - Pedestrian and bicycle connections between neighborhoods, traversing parks and linear greens.

Major Pathways - The Tonquin Trail, the Villebois Loop Trail, and the Coffee Lake-Wood Trail



Villebois



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PACIFIC COMMUNITY DESIGN
 OTTEN LANDSCAPE ARCHITECTS, INC.
 GEODESIGN, INC.

SAP NORTH VILLEBOIS

Specific Area Plan

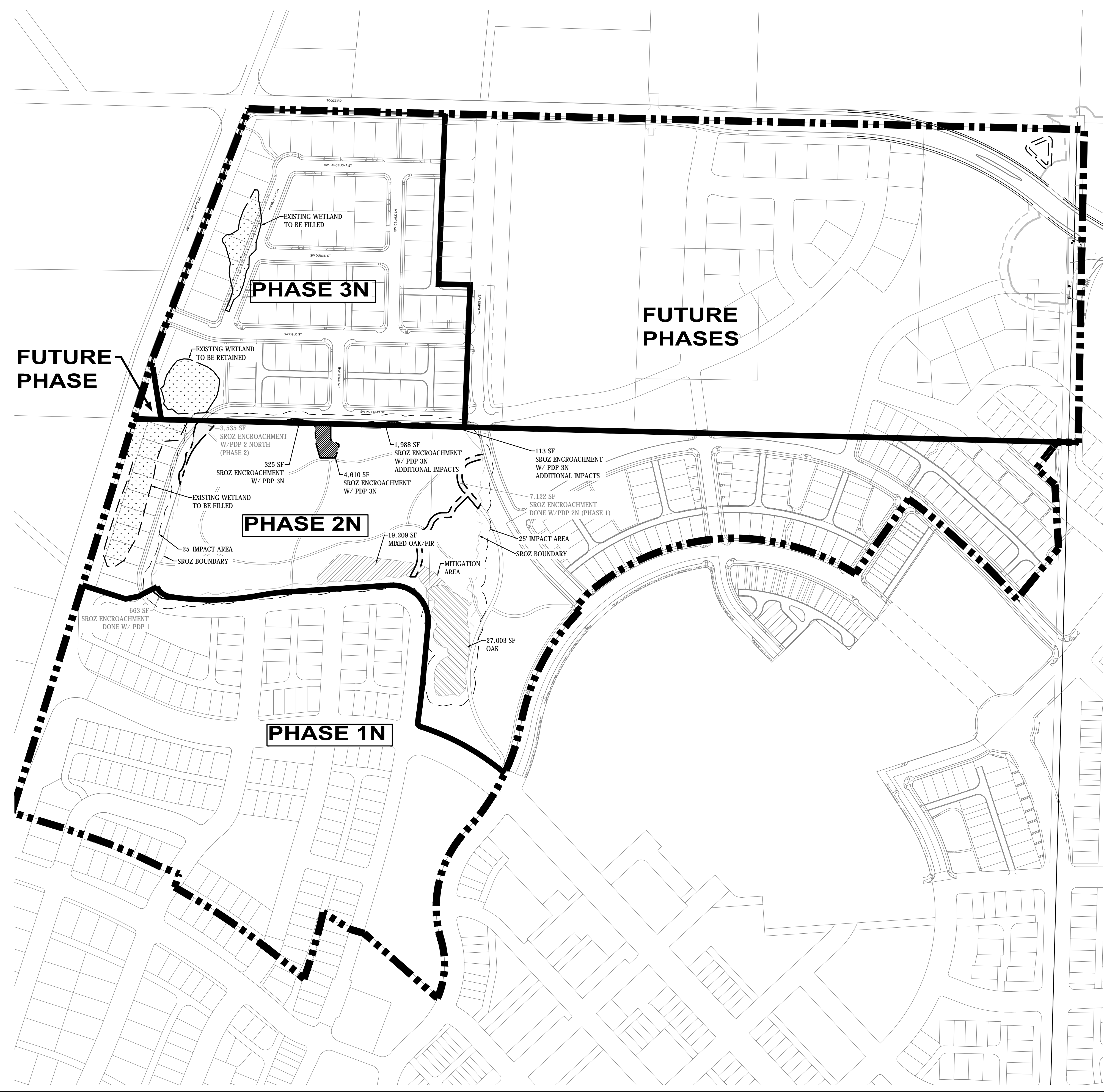
Park / Open Space / Pathways Plan

North arrow pointing up.

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 1 INCH = 150 FEET

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SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



Villebois



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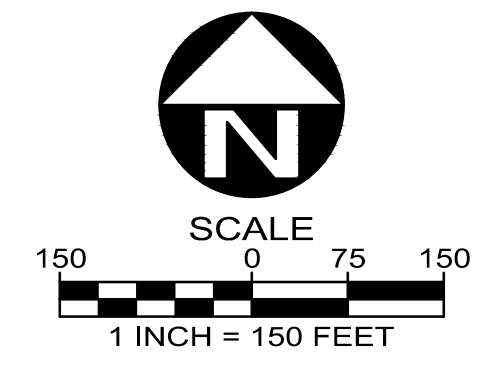
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GEODESIGN, INC

SAP NORTH VILLEBOIS

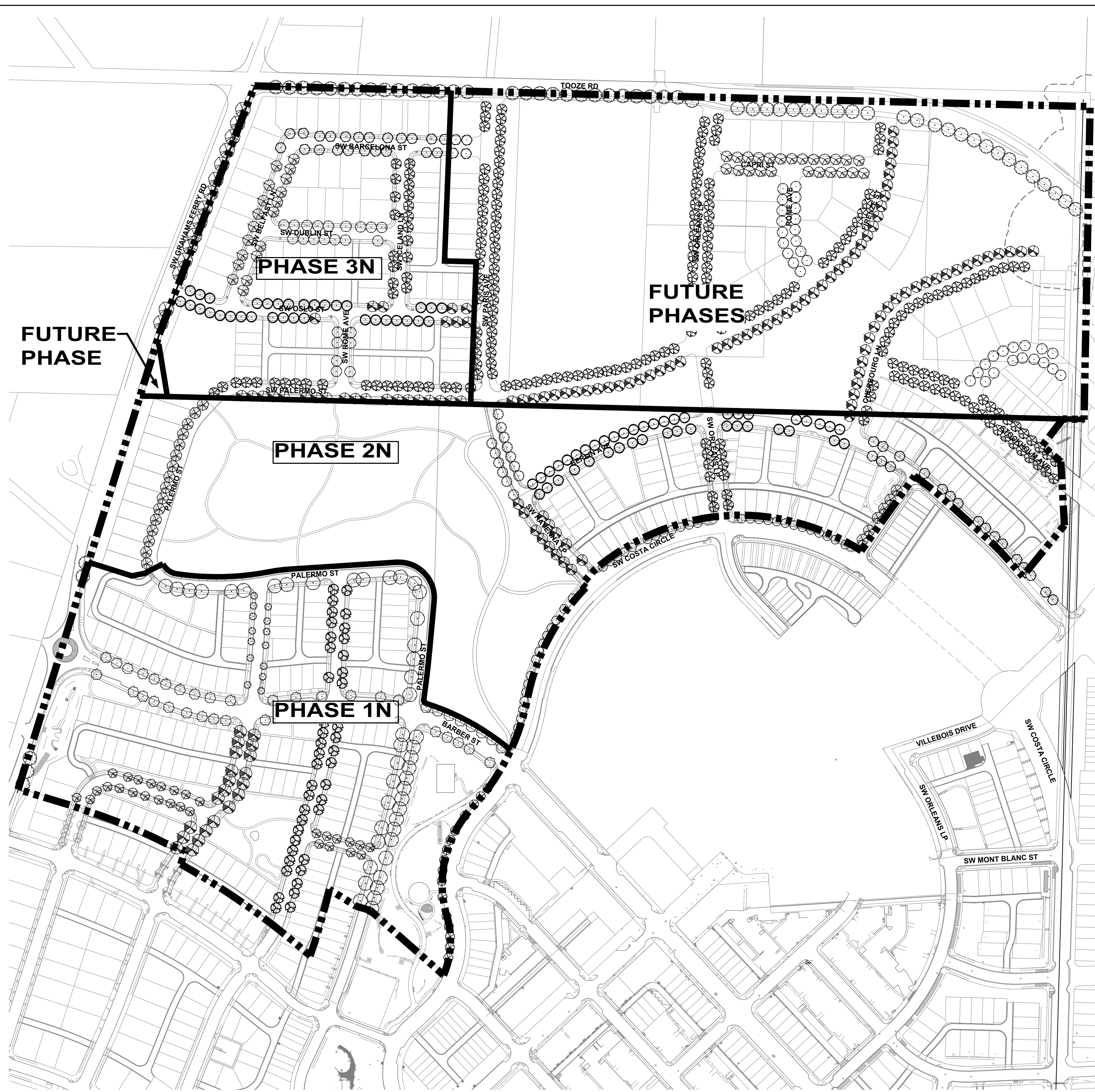
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SROZ Plan

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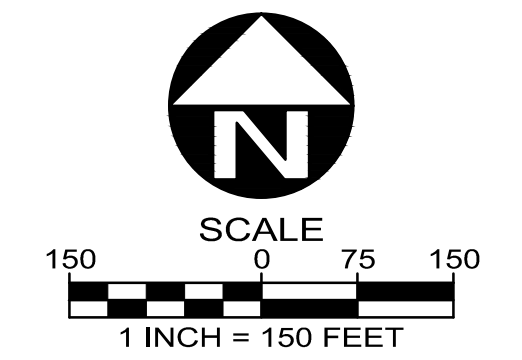


STREET TREE LEGEND- PHASE 1			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	QUERCUS ALBA White Oak	2" cal.	30' o.c.
	LIRIODENDRON TULIPIFERA Tulip Tree	2" cal.	30' o.c.
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	TILIA x EUCHLORA Crimean Linden	2" cal.	30' o.c.
	ACER RUBRUM "RED SUNSET" Red Sunset Maple	2" cal.	30' o.c.
	ZELKOVA SERR. "VILLAGE GREEN" Tulip Tree	2 1/2" cal.	35' o.c.
	CORNUS FLORIDA Flowering Dogwood	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2 1/2" cal.	40' o.c.

STREET TREE LEGEND- PHASE 2			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII "AUTUMN BLAZE" Autumn Blaze Maple	2" cal.	30' o.c.
	CLADRASTIS KENTUKEA Yellowwood	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	LIRIODENDRON TULIPIFERA Tulip Tree	2 1/2" cal.	25' o.c.
	QUERCUS ALBA White Oak	2" cal.	30' o.c.
	TILIA x EUCHLORA Crimean Linden	2" cal.	30' o.c.
	QUERCUS ALBA White Oak	2" cal.	30' o.c.

STREET TREE LEGEND- PHASE 3			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA "GREEN VASE" Green Vase Zelkova	2" cal.	30' o.c.

STREET TREE LEGEND- FUTURE PHASES			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA "GREEN VASE" Green Vase Zelkova	2" cal.	30' o.c.



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GEODESIGN, INC.

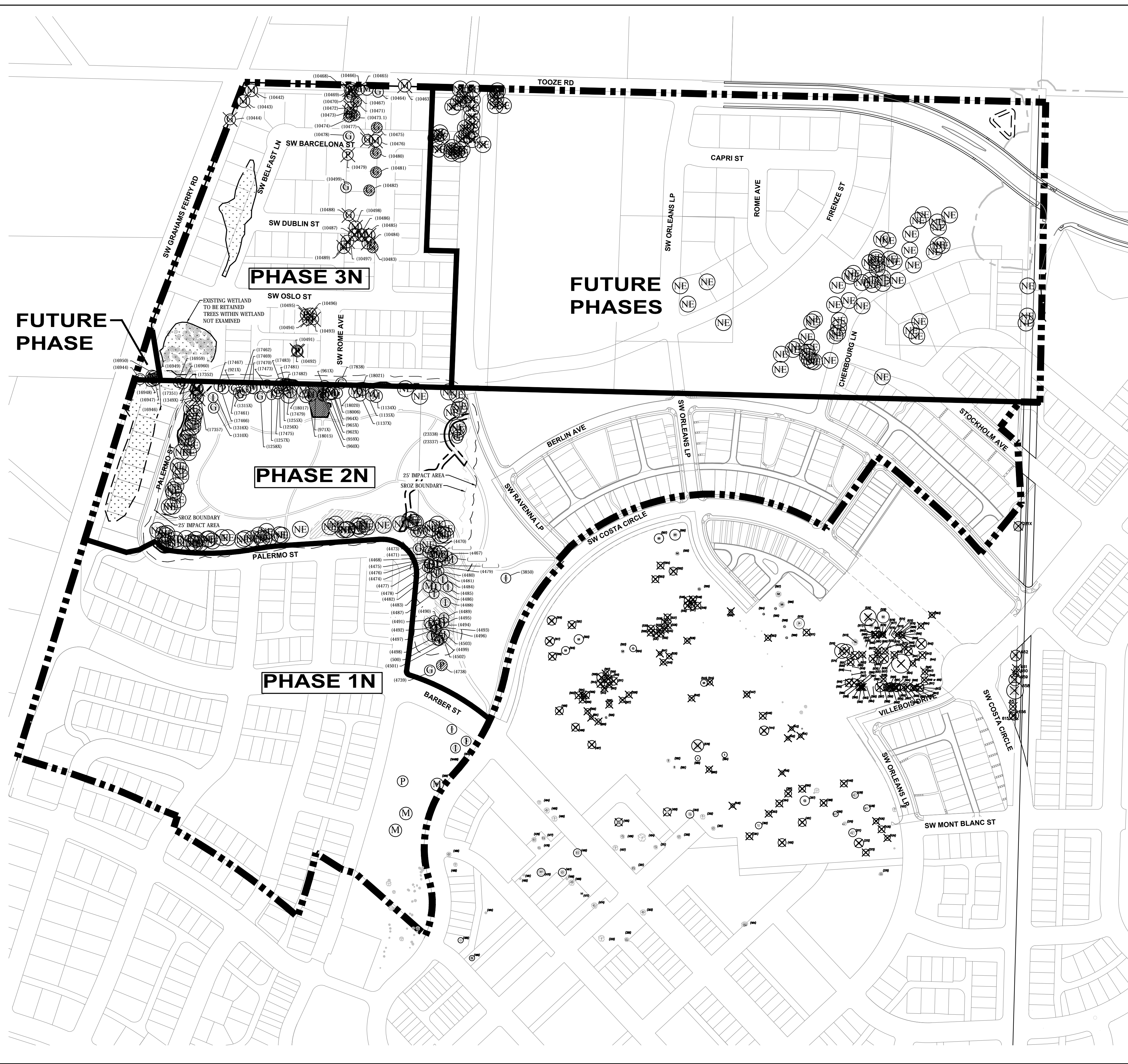
SAP NORTH VILLEBOIS

Specific Area Plan

Street Tree Plan

DATE 3/25/14

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LEGEND:

- I IMPORTANT
- G GOOD
- M MODERATE
- P POOR
- NE NOT EXAMINED
- (○) EXISTING TREES TO REMAIN
- (⊗) EXISTING TREES LIKELY TO BE REMOVED
- (⊗) EXISTING TREES TO BE REMOVED
- (▨) SROZ ENCROACHMENT AREA
- (▨) CREATED SROZ AREA
- (---) SROZ BOUNDARY LINE



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OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

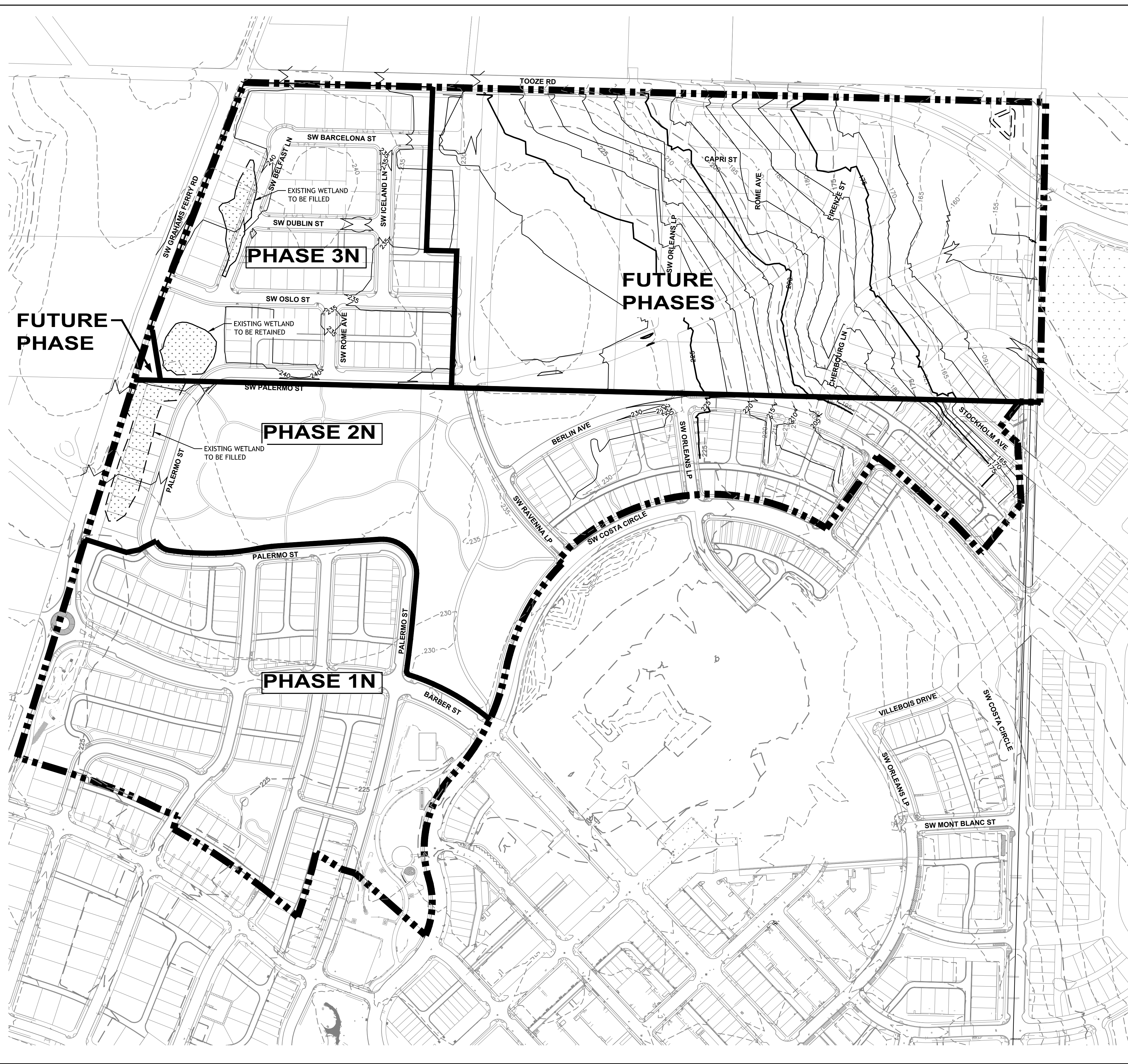
SAP NORTH VILLEBOIS

Specific Area Plan

Tree Preservation Plan

DATE 3/25/14

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LEGEND:

--- 175 ---	EX 5-FT CONTOUR
--- 200 ---	EX 25-FT CONTOUR
--- 175 ---	PROPOSED 5-FT CONTOUR
--- 200 ---	PROPOSED 25-FT CONTOUR
--- ---	SPECIFIC AREA PLAN BOUNDARY



Villebois



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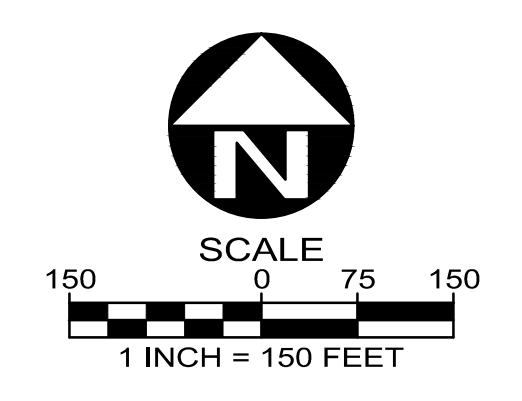
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GEODESIGN, INC

SAP NORTH
VILLEBOIS

Specific
Area Plan

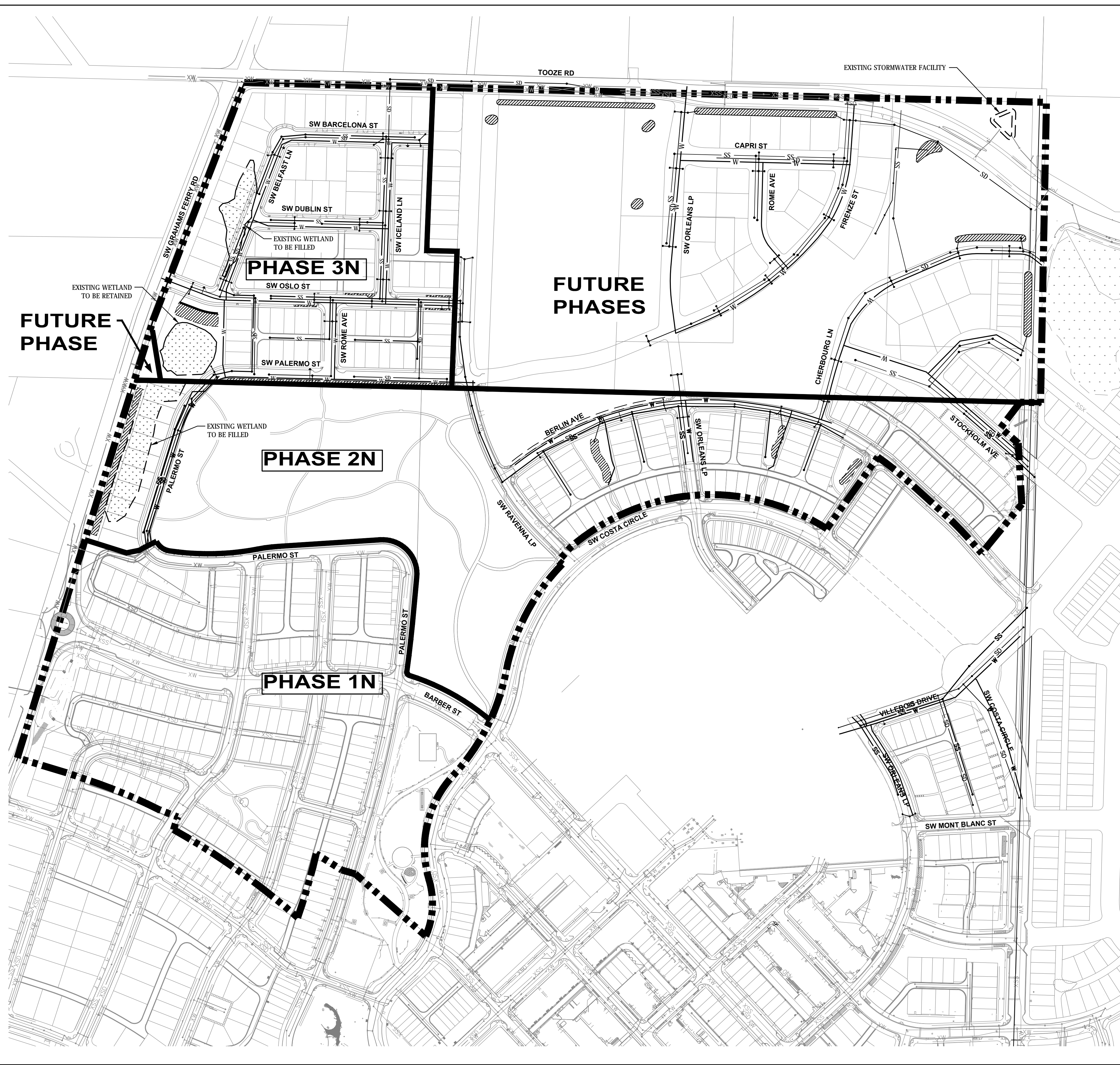
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13

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LEGEND:

- XSD — EXISTING STORM
- XSS — EXISTING SANITARY
- XW — EXISTING WATER
- SD — PROPOSED STORM
- SS — PROPOSED SANITARY GRAVITY MAIN
- W — PROPOSED WATER
- — PROPOSED STORM MANHOLE
- ⊙ — PROPOSED SEWER MANHOLE
- [Hatched Box] — BIORETENTION



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GEODESIGN, INC

SAP NORTH
VILLEBOIS

Specific
Area Plan

Utility
Plan

DATE 3/25/14

IIC
Utility & Drainage Report

SUMMARY OF SAP NORTH UTILITY & DRAINAGE REPORTS

A copy of the 2007 Mill Creek Basin Storm Drainage Report, Coffee Lake Creek Drainage Basin Storm Drainage Report, and the Rainwater Management Plan are submitted for SAP North (attached in this Notebook Section). These reports in conjunction with the previously approved 2011 (Phase 1) and 2013 (Phase 2) Utility & Drainage Reports apply to SAP North, in addition to the Utility and Drainage Report provided in the Section IIIC of the PDP 3N notebook.

2007

Submitted with DB07-0054 (SAP North)

- Mill Creek Basin Storm Drainage Report
- Coffee Lake Creek Drainage Basin Storm Drainage Report
- Rainwater Management Plan

2011

Approved for Phase 1 of PDP 1N (Tonquin Woods No. 2)

- Water Quality and Detention Analysis
- Sanitary Sewer Capacity Memo
- Rainwater Management Plan

2013

Approved for Phase 2 of PDP 1N (Tonquin Woods No. 4)

- Tonquin Woods No. 3 & Grahams Ferry Road Water Quality Detention Analysis
- Water Quality Analysis Report for Tonquin Meadows No. 3 (PDP 3E) included as attachment to Stormwater Detention and Water Quality Report
- Villebois PDP 1N B & PDP 4C Rainwater Management Plan for Coffee Lake Creek Basin
- Sanitary Sewer Capacity Memo



Villebois Village

SAP North: Mill Creek Basin Storm Drainage Report



Prepared for:
City of Wilsonville



Prepared by
Otak, Inc.



Project No. 13356

April 16, 2007
Updated June 29, 2007



Acknowledgements

Villebois Village

SAP North: Mill Creek Basin Storm Drainage Report

Submitted to:
City of Wilsonville

Prepared by:
Otak, Incorporated

Scott Schumaker, P.E.
Project Manager

Robert Schottman
Water Resource Engineer

Jessica Collins
Water Resource Designer



April 16, 2007
Updated June 29, 2007

Storm Drainage Report

SAP-North Mill Creek Basin

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Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Appendices

Appendix A: Exhibits

Figure A1: SAP North Existing Drainage Basin Boundaries

Figure A2: Mill Creek Discharge Point

Figure A3: SAP North Mill Creek Existing Drainage Basins

Figure A4: SAP North Mill Creek Proposed Drainage Basins

Appendix B: Soil Survey Map

Appendix C: Basin Descriptions

Appendix D: Detention Pond Design, HydroCAD Results

Appendix E: Water Quality Design

Storm Drainage Report

SAP-North Mill Creek Basin

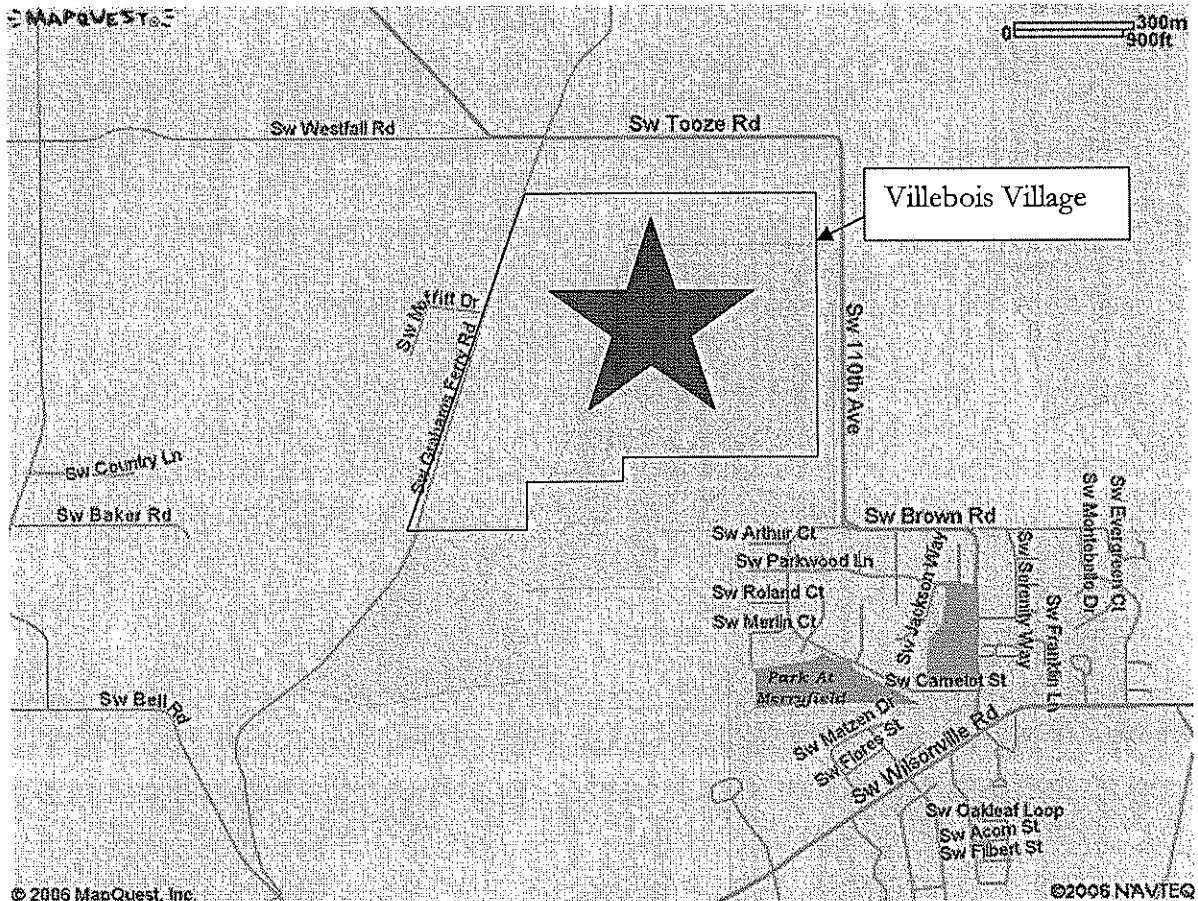


Figure 1, Vicinity Map Villebois Village (Wilsonville, Oregon)

Introduction

This report summarizes the hydrologic and hydraulic analyses pertaining to stormwater runoff from Specific Area Plan (SAP) North within the Mill Creek Basin. Stormwater runoff from SAP North will be divided among Mill Creek Basin, Arrowhead Creek Basin and Coffee Lake Creek Basin. The results provided in this report demonstrate compliance with discharge and water quality treatment requirements set forth by the City of Wilsonville. Results include the required and proposed stormwater detention storage volumes, points of discharge, and stormwater runoff flow compliance targets for SAP North. The portion of SAP North that is in Mill Creek Basin and Arrowhead Creek Basin requires stormwater detention and water quality treatment. The portion of SAP North that is within Coffee Lake Creek Basin will require water quality treatment only and will not be addressed in this report. All exhibits for this report can be found in Appendix A.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Please refer to the report titled *Villebois Village: Arrowhead Creek Basin Storm Drainage Report* (Arrowhead Creek Report) dated October 18, 2006 prepared by Otak Inc. (Project #13373) for storm drainage results regarding the area of SAP North in Arrowhead Creek Basin. Please refer to the report titled *Villebois SAP 4S Portion of Mill Creek Basin: Drainage Report* (4S Report) dated October 18, 2006 prepared by Otak Inc. (Project #13354) for storm drainage results regarding the portion of Mill Creek Basin located within SAP South Phase 4.

Please refer to the report titled *Villebois Village: Coffee Lake Creek Drainage Basin* (Coffee Lake Creek Report), updated July 3, 2007, prepared by Otak Inc. (Project #13356) for storm drainage results regarding the portion of Coffee Lake Creek drainage basin in SAP North.

Project Description

Zoning

Villebois Village is located within the City of Wilsonville and Clackamas County, and has been assigned the land use designation of Village (V) zone by the City of Wilsonville. Approval of the Villebois Village Master Plan, in concert with the City of Wilsonville Comprehensive Plan, has designated Villebois Village as a Residential Village. This land-use designation will allow SAP North to be developed as an urban village that will include single-family units, neighborhood row houses, parks and open spaces.

Proposed Land Use

The Mill Creek portion of SAP North is approximately 22.77 acres located within the Urban Growth Boundary (UGB) for Wilsonville, Oregon. SAP North is a mix of housing types, including single-family lots and row houses. The single-family lots vary in size. The project site also includes open park spaces.

Floodplain Analysis

The site is designated as Zone C by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Clackamas County, Oregon, Unincorporated Areas, Panel 140, August 4, 1987. Zone C designation is defined as an area of minimal flooding.

Existing Conditions – Conditions Pre-Hospital Construction

Topography

SAP North is composed of three drainage basins, Mill Creek Basin, Arrow Creek Basin, and Coffee Lake Creek Basin. The Mill Creek Basin, which is the focus of this report, discharges from SAP North to two ultimate locations referred to as Culvert 2 and Culvert 3. A small subbasin in the southeastern corner referred to as 2M, drains towards the south and ultimately discharges towards the west through a culvert (Culvert 2) under Graham's Ferry Road within the SAP South Phase 4 boundaries. Basin 2M is a portion of Shed D as analyzed in the SAP South Phase 4 project. The remaining portion of the Mill Creek Basin drains to the west and

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

discharges through a culvert (Culvert 3) under Graham's Ferry Road within the SAP North boundaries. This runoff is then directed across a pasture and then through another culvert in a private driveway. Under pre-developed conditions, SAP North was formerly dense forest land, wetland and pastures. See Figure A1 for an overview of SAP North within the Villebois Village and the above mentioned culverts. See Figure A2 for an exhibit of the existing Mill Creek discharge location and Figure A3 for the existing drainage basins for SAP North.

The southeastern portion of the site drains to Arrowhead Creek drainage basin. The north portion of the site drains to Coffee Lake Creek drainage basin. These areas are included within their specific Drainage Report.

Pre-hospital conditions are considered existing conditions as it is required in Section 301.4.03 titled *Water Quality Facility Design Criteria*. Post-development runoff rates from the proposed site must also not exceed the pre-hospital runoff rates.

Abutting Properties

Graham's Ferry Road borders the site to the west, and the Coffee Lake Creek Basin and Arrowhead Creek Basin border the Mill Creek Basin to the east. Tooze Road abuts the site further north of the Mill Creek Basin boundary.

Existing Land Use

The project site is currently in pastures, forests lands, and wetlands, and is divided by the same topographical high point that divides Mill Creek and Arrowhead Creek basins. Runoff from the western portion of SAP North is directed along the northern edge of the Dammasch State Hospital western entrance to the roadside ditches along Graham's Ferry Road, and ultimately to Mill Creek. Runoff from the southeastern portion flows to Arrowhead Creek Basin.

Onsite Natural and Constructed Channels

SAP North drains naturally to the southwest and southeast. There is a natural high point on the site that can be seen in the topography that divides Arrowhead and Mill Creek basins. The depression continues past the southern boundary of SAP North. After detention, SAP North, except a portion of Graham's Ferry Road (Basin 6N) will discharge to the natural on-site discharge location to Culvert 3 and Culvert 4.

Culvert 2 crosses Graham's Ferry Road. Under existing conditions, this culvert receives Shed D, Upper Graham's Ferry Road (as defined in the SAP South Phase 4 Report) and both 2M and 6N from the SAP North. The drainage is routed through Culvert 2, discharges to the east, and ultimately to Mill Creek

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Soils

The 1982 *Soil Survey of Clackamas County Area, Oregon*, published by the USDA Soil Conservation Service (SCS), identifies the hydrologic soil groups of the site as types C and D. Table 1 shows the soil types and corresponding hydrologic groups found in SAP North. Please refer to Appendix B for the project site soil map.

Soil Name	SCS Symbol	Hydrologic Group
Aloha silt loam <i>0 to 3 percent slopes</i>	1A	C
Aloha silt loam <i>3 to 6 percent slopes</i>	1B	C
Amity silt loam	3	D

For this stormwater analysis, the Conditions of Approval for SAP South provides guidance when determining curve numbers. The following SCS Curve Numbers (CN) was used:

- CN = 80 for open space and landscape;
- CN = 94 for commercial areas;
- CN = 98 for impervious surface areas (roadways);
- CN = 90 for residential development, one-eighth acre or less (townhouses); and
- CN = 83 for residential development, one-quarter acre.

SAP North contains wetlands and dense forested area under existing and proposed conditions. PDP-4S provides no CN values for these lands cover types; therefore, a CN of 80 was used for dense forested area land cover, and a CN of 98 was used for wetland land cover.

Hydrology

The Santa Barbara Urban Hydrograph (SBUH) method was used to calculate runoff rates generated under existing and developed conditions. Runoff rates were calculated for the project site in Mill Creek and were used for stormwater detention design. The *HydroCAD Stormwater Modeling System 2006* software program by *HydroCAD* was used to perform the SBUH calculations. Input parameters can be found in Appendix C and results of the hydrologic modeling are included in Appendix D. The City of Wilsonville *Public Works Standards* (2006) and *Stormwater Master Plan* (June 2001) were used as guidelines for hydrologic calculations. Precipitation data for the site was referenced from City of Wilsonville *Stormwater Master Plan*, as shown in Table 2.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Table 2 Precipitation Data from City of Wilsonville Stormwater Master Plan (2001)	
Return Event	24-hour Precipitation (inches)
2-year	2.50
10-year	3.50
25-year	4.00
100-year	4.50

Predevelopment Hydrologic Conditions

Under pre-developed conditions, the project site drains to three separate drainage basins: the Mill Creek Basin to the west, the Arrowhead Creek Basin to the southeast, and the Coffee Lake Creek Basin to the northeast. Please refer to Figure A3 for a map of the SAP North site in Mill Creek under pre-developed conditions.

Table 3 Pre-developed Conditions HydroCAD Input Parameters				
Basin ID	Impervious Area (acre)	Pervious Area (acre)	Time of Concentration (min)	Composite Curve Number (CN)
SAP North-Mill Creek Basin				
Basin 2NE	0.0	14.11	52.2	80
Basin 3NE	0.0	2.91	52.1	80
Basin 2ME	0.0	2.69	50.0	80
Basin 5NE	1.81	0.45	20.9	94.4
Basin 6NE	0.64	0.16	5.0	94.4
Total	2.61	20.32		
			Total Acreage	22.93

See Appendix C for pre-developed conditions impervious area, composite Curve Number and time of concentration calculations. Table 4 provides pre-developed runoff rates for SAP North Mill Creek. These flows will be matched by the post-developed rates and detention provided as necessary.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Table 4 Pre-developed Conditions Runoff Rates (cfs)				
Basin ID	2-Year	10-Year	25-Year	100-Year
SAP North-Mill Creek Basin				
Basin 2NE	1.25	2.78	3.64	4.54
Basin 3NE	0.26	0.57	0.75	0.94
Basin 5NE	0.89	1.36	1.59	1.82
Basin 6NE	0.35	0.55	0.65	0.76
<i>Culvert 3 Existing Flows**</i>	<i>2.63</i>	<i>5.11</i>	<i>6.46</i>	<i>7.87</i>
Culvert 2 Existing Flows (Shed D)*	1.34	2.96	3.87	4.82

*Shed D pre-developed conditions runoff rates were used to match flows under proposed conditions from Upper Graham's Ferry Road (SAP Phase 4) and a portion of 6N in SAP North that are eventually routed to Culvert 2. Shed D includes Basin 2ME.

**Existing flows equals sum of hydrographs; peaks may not coincide.

Proposed Conditions

The portion of Mill Creek Basin in SAP North incorporates Basins 1N through 5N, a portion of Graham's Ferry Road (Basin 6N), and Basin 2M from SAP South 4S. The boundaries of existing Basin 2M in SAP South 4S have changed under proposed conditions in this report. See Appendix A for a developed drainage basin delineation map for SAP North.

Composite CN values were calculated for impervious and pervious areas within each basin based on soil type and land use. See Appendix C for impervious area, composite CN and time of concentration calculations under proposed conditions. Times of concentration for each basin was entered in *HydroCAD* as calculated in Appendix C. Input parameters for proposed conditions are listed in Table 5, and the resulting flow rates are presented in Table 6. See Appendix D for proposed conditions runoff rates

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Table 5 Proposed Conditions HydroCAD Input Parameters					
Basin ID	Impervious Area (acre)	Pervious Area (acre)	Percent Impervious (%)	Composite Curve Number (CN)	Time of Concentration (min)
Basin 1N	3.55	1.38	71.9%	86.6	14.0
Basin 2N	1.75	1.24	58.5%	90.5	23.8
Basin 3N	0.00	3.86	100%	80.0	110.7
Basin 4N	1.51	2.75	54.9%	86.0	56.3
Basin 5N	1.80	0.45	80.0%	94.4	10.5
Basin 2M	2.01	0.75	73.0%	93.3	16.3
Pond Basin	0.46	0.47	50.0%	83.0	0.0
Subtotal	11.08	10.90			
Basin 6N	0.74	0.19	80.0%	94.4	5.0
Total	11.82	11.09			

*Not Applicable

Table 6 Proposed Conditions Runoff Rates (cfs)				
Basin ID	2-Year	10-Year	25-Year	100-Year
Basin 1ND	1.36	2.41	2.95	3.51
Basin 2ND	0.94	1.52	1.82	2.12
Basin 3ND	0.35	0.77	1.00	1.25
Basin 4ND	0.64	1.18	1.46	1.76
Basin 5ND	1.02	1.56	1.82	2.09
Basin 6ND	0.45	0.68	0.80	0.92
Basin 2MD	1.09	1.70	2.00	2.31

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Table 7 Comparison of Existing and Proposed Flows (cfs)				
	2-Year	10-Year	25-Year	100-Year
Culvert 2 - Existing (CB Culv2=Shed D)	1.34	2.96	3.87	4.82
Culvert 2 - Proposed (6N, Upper GF Road)	1.31	2.01	2.37	2.72
Culvert 3 - Existing (2NE, 3NE, 5NE, 6NE)	2.63	5.11	6.46	7.87
Culvert 3 - Proposed (1ND, 2ND, 3ND, 4ND, 5ND, 2MD, POND)	2.28	4.33	5.62	7.16

Rainwater Management – SAP North

Rainwater Management is defined as the mitigation of impervious area to provide treatment and management of rainfall during small storm events (less than 2-year—drizzle event). This is a portion of the stormwater management report that is addressed by Phase. Rainwater management components proposed for SAP North include bioretention cells, grassy swales, vegetated swales, deciduous trees, evergreen trees, permeable/turf pavers, and soil amendments. These rainwater management components are provided to treat runoff from impervious areas. Soil amendments will also be applied to all pervious areas. See *Villebois Village: Rainwater Management Plan SAP-North, updated June 27, 2007*, written by Otak Inc. for details regarding rainwater management mitigation and components for SAP North Phases 1 through 6. A portion of Phases 1 and 2 are in the Mill Creek Drainage Basin.

Collection and Conveyance

Stormwater runoff will be collected by a series of catch basins that discharge to a piped conveyance system. The onsite conveyance system is divided among the existing drainage basins. The conveyance system is designed to collect and convey runoff to stormwater detention and treatment facilities before discharging to the respective natural drainage systems. Conveyance calculations will be addressed during the construction document stage of each Phase within SAP North as delineated in Figure A4.

Upper Graham's Ferry Road, adjacent to SAP South and a portion of Graham's Ferry Road in SAP North will discharge through the existing Culvert 2. Proposed flows to Culvert 2 will not exceed existing flow rates for the 2-, 10- and 25-year storm events.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Detention ponds, Pond 1 (lower) and Pond 2 (upper), were analyzed for conveyance capacity. The 100-year storm event will be conveyed through the ponds. Both ponds have adequate capacity for conveyance of the 100-year storm event.

Water Quantity

Otak, Inc. provided the design for the stormwater detention facility located in the Mill Creek portion of SAP South Phase 4 (Ponds M and N), and Arrowhead creek watershed (Ponds E1, E2 and F) under full build-out conditions. This report will discuss stormwater facilities designed for the Mill Creek portion of SAP North Phases 1 and 2.

Two detention ponds in series will provide stormwater detention for runoff from the Mill Creek portion of SAP North. Pond 1 (upper) is the first pond in series. Pond 2 (lower) is the second pond in series. The bottom elevation of Pond 1 is set at roughly the same elevation as Pond 2 at 217.00. Each pond contains their own control structure, thus allowing full advantage of the storage capacity of both ponds. The 24-inch outfall for Pond 1 discharges directly into Pond 2. See Table 8 for detention pond performance. See Appendix D for HydroCAD design outputs for the detention ponds.

Return Period	Flow Compliance Target (cfs)	Flows Design Release Rate (cfs)	Water Surface Elevation		Maximum Storage (ft ³)	
			Upper Pond	Lower Pond	Upper Pond	Lower Pond
2-year	2.28	2.28	218.42	218.21	6,602	6,719
10-year	4.58	4.33	219.51	218.98	13,717	12,208
25-year	5.84	5.62	219.94	219.22	17,073	14,101
100-year	7.16	7.16	220.35	219.33	20,688	15,044

Post-detention flows will be routed to an offsite area west of the project site for discharge along a private driveway where the site naturally drains under existing conditions. Developed flow will not exceed existing flows at the point of compliance.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

Water Quality

Water quality treatment will be provided for runoff from the portion of Mill Creek Basin in SAP North. Runoff flows and volumes were calculated based on new impervious areas under proposed conditions for the project site.

Based on the City of Wilsonville Stormwater Master Plan, row house unit lots are assumed to be 85 percent impervious and 15 percent pervious and single-family detached home lots are assumed to be 60 percent impervious and 40 percent pervious. The road rights-of-way are assumed to be 80 percent impervious and 20 percent pervious. The school site was assumed to be 50 percent impervious and 50 percent pervious.

Using City of Wilsonville design standards, it is assumed that the water quality treatment facilities will remove 70 percent of the total suspended solid (TSS). One water quality treatment swale located in Pond 2 will provide water quality treatment for runoff from Basins 1N through 5N and Basin 2M. Treatment mitigation treatment will also be provided in the swale for the released portion of Graham's Ferry Road. The treatment facilities will be designed and incorporated into construction documents for SAP North Phase 1. The swale treats 0.80 cfs generated by approximately 10.61 acres of proposed impervious area. See Appendix E for WQV and WQF calculations and swale design.

Target Compliance

A review of the pre-developed versus post-developed conditions indicates compliance at the two ultimate discharge locations of the SAP North. These locations include Culvert 2, located south of the site in the SAP South Phase 4 area; and Culvert 3, just west of the site. Table 8 summarized the flows.

Culvert 3

Post-detention stormwater runoff from the Mill Creek portion of SAP North (Basins 1N through 5N and Basin 2M), will discharge to an outfall near a driveway on private property to the west of the project site. Flows being discharged along the private driveway will not be greater than existing flows at that location. Please see Figure A1 for private driveway outfall location. See Appendix D for HydroCAD existing and proposed outputs for the private driveway outfall.

Culvert 2

Stormwater runoff from a portion of Graham's Ferry in SAP North and Upper Graham's Ferry in Phase 4S will discharge to Culvert 2 (see 4S Report) located to the west of Phase 4S. Culvert 2 is approximately 15.5 feet long and is 12-inches in diameter at a 4.5 percent slope. Under existing conditions, stormwater runoff from Shed-D outfalls to Culvert 2, and then

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

onto private property to the west of the Villebois site. Under proposed conditions, runoff flow rates from a portion of Graham's Ferry Road are less than or equal to existing runoff flow from Shed-D; therefore, the culvert has the capacity and will not increase flow rates onto the private property. The culvert will be replaced as part of the Graham's Ferry Road widening and improvements. There are no known issues at the outlet or inlet of the culvert. See Appendix D for HydroCAD existing and proposed peak flow rates relevant to the Culvert 2 outfall.

Conclusion

This storm drainage report applies to the portion of the Mill Creek Basin in SAP North of the Villebois Development located in Wilsonville, Oregon requiring stormwater detention and water quality treatment. Stormwater will be collected with catch basins and conveyed through a pipe to two detention ponds in series, then discharged to an underground conveyance system. Stormwater detention and treatment will be provided in the lower detention pond located in the Mill Creek Basin in SAP North.

Storm Drainage Report

SAP-North Mill Creek Basin

Continued

References

City of Wilsonville, Oregon. *Public Works Standards*. 2006.

City of Wilsonville, Oregon. *Stormwater Master Plan*. June 2001.

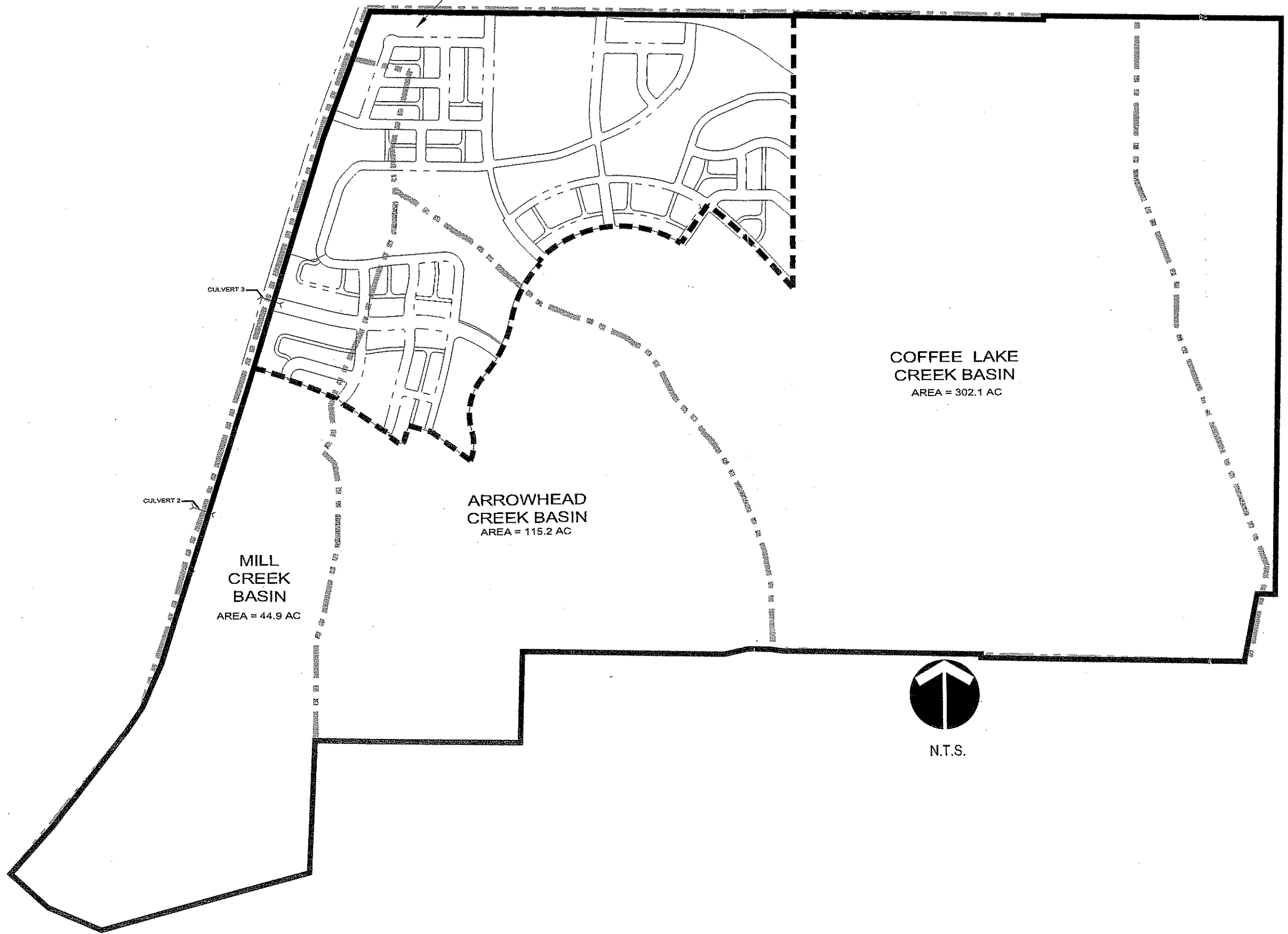
City of Wilsonville, Oregon (Development Review Board). *DB05-0075: PDP-4S: Preliminary Development Plan*. April 10, 2006.

Appendix A – Exhibits



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 P356x230
 P066x710
 P1
 S1

SAP NORTH



LEGEND:

- BASIN BOUNDARY
- SAP NORTH BOUNDARY
- VILLEBOIS VILLAGE

NO.	DATE	BY	REVISION COMMENTS	Design	Drawn	Checked	Date	Initial Issue Date



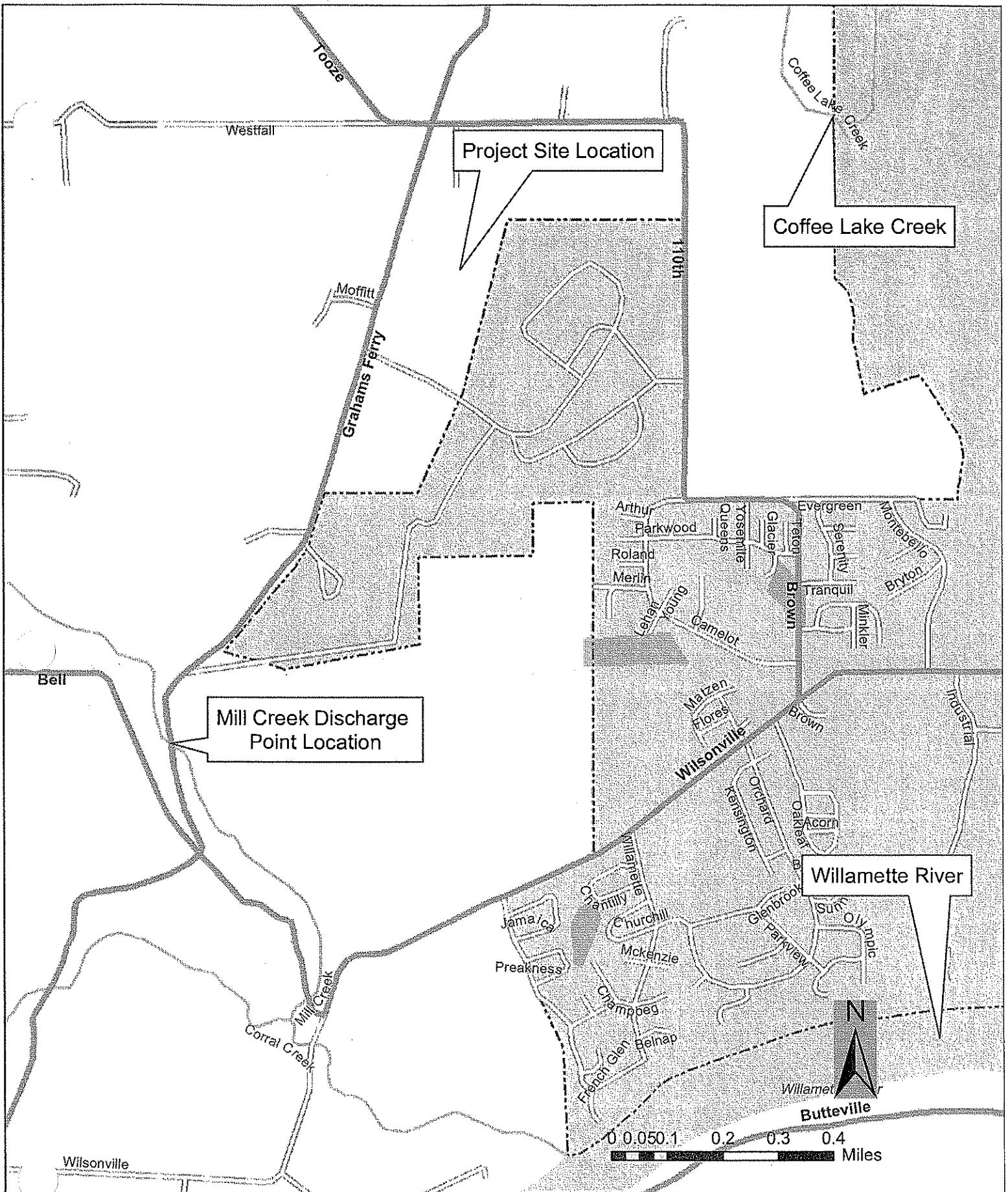
ARBOR VILLEBOIS
 SAP NORTH EXISTING DRAINAGE BASIN BOUNDARIES

Incorporated

17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3818
 FAX: (503) 635-5395
 Internet: WWW.OTAK.COM

13356
 Project No. Drawing No.
FIG. A1
 Sheet No.
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L:\G_LINDSAY\07/06/2007 1:28pm --> L:\PROJECT\13356\REPORTS\STORMWATER\MILL_CREEK\APPENDIX_A\FIGURE A1_DRAINAGE BASINS.DWG



Otak, Inc.
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035
 Phone: 503.635.3618
 Fax: 503.635.5395

Villebois Village: SAP North

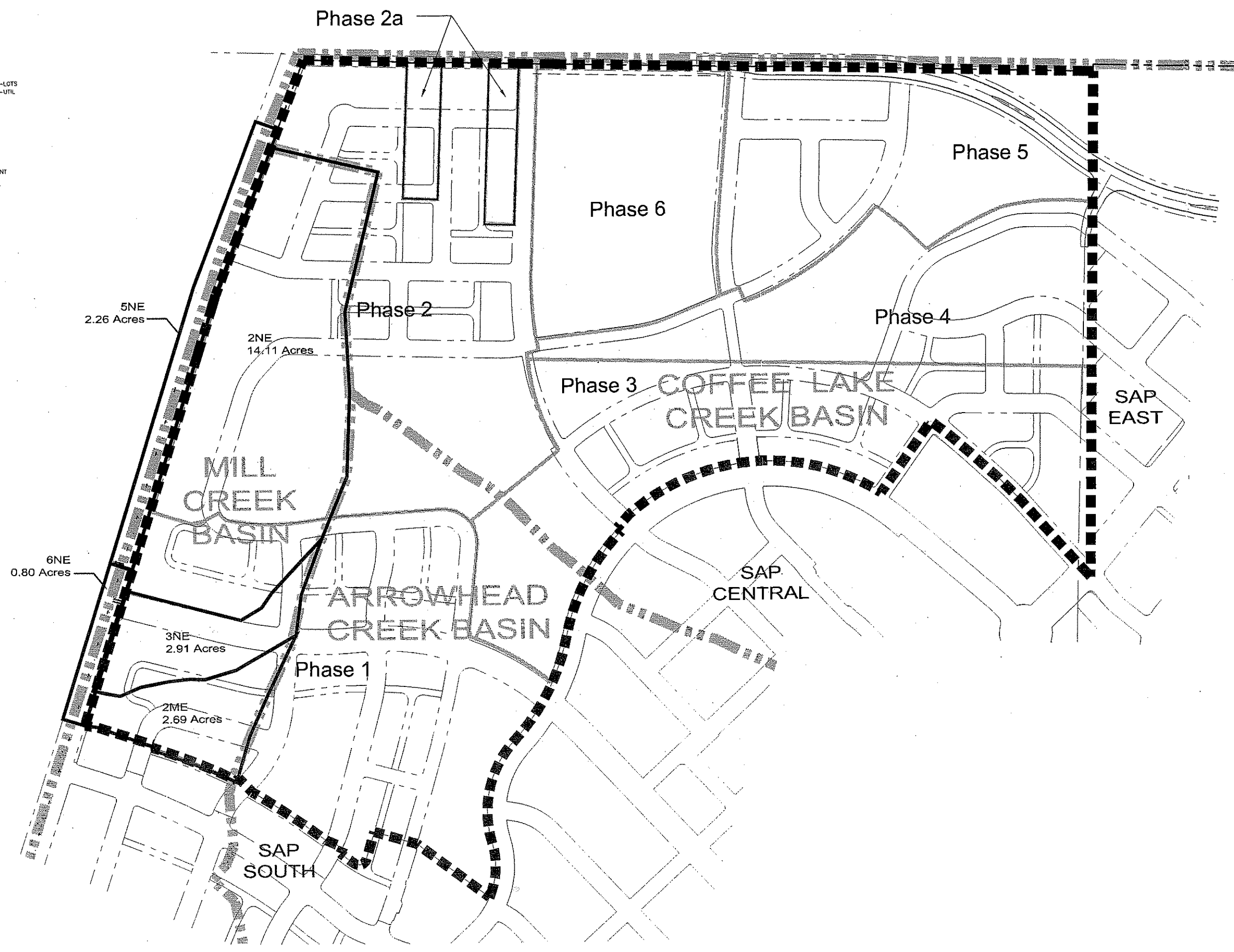
Wilsonville, Oregon

Figure A2: Mill Creek Discharge Point

Date:	April 12, 2007
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Project No.:	13356
File No.:	
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 P356X400

L:\C:\LINDSAY\07_08_2007\2_58pm --> L:\PROJECT\13356\REPORTS\STORWATER\MILL_CREEK\APPENDIX_A\FIGURE_A3_EXISTING_MILL_CREEK_DRAINAGE_BASINS.DWG



- LEGEND:**
- BASIN BOUNDARY
 - SAP NORTH BOUNDARY
 - PHASE LINE
 - EXISTING DRAINAGE BASIN BOUNDARY

NO.	DATE	BY	REVISION COMMENTS	Checked	Date	Initial Issue Date	M.D.H. B.J.N.

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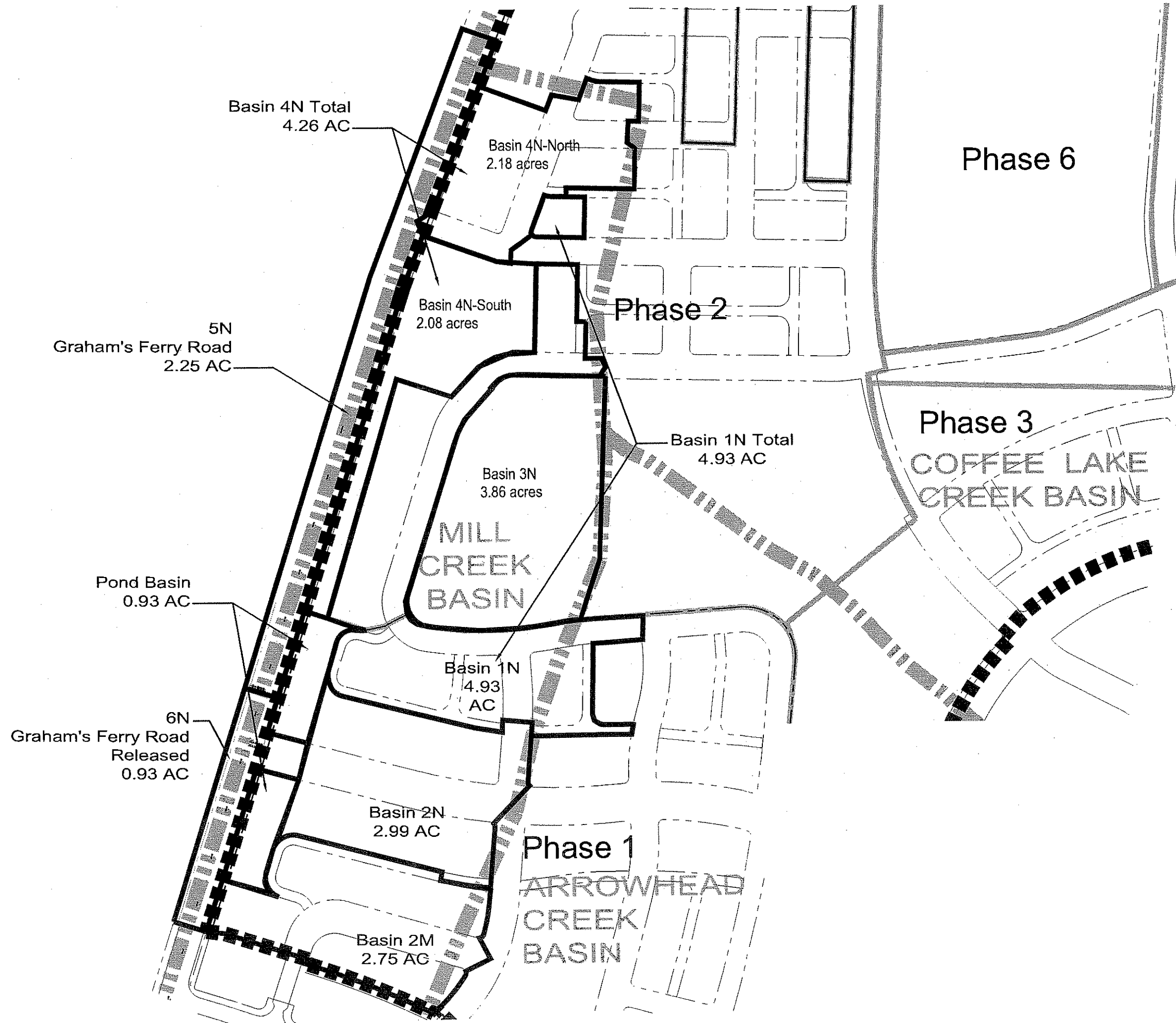
ARBOR VILIBOIS
 SAP NORTH MILL CREEK
 EXISTING DRAINAGE BASINS

otak
 Incorporated

17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3618
 FAX: (503) 635-5395
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13356
 Project No. Drawing No.
FIG. A3
 Sheet No.
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 PH15 CD-SURF
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 PH1C CD-LOTS
 PH1C CD-UTIL_REV



- LEGEND:**
- BASIN BOUNDARY
 - SAP NORTH BOUNDARY
 - PHASE LINE
 - PROPOSED DRAINAGE BASIN BOUNDARY

NO.	DATE	BY	REVISION COMMENTS	Design	Drawn	Checked	Date	Initial	Issue Date



ARBOR VILLEBOIS

SAP NORTH MILL CREEK
 PROPOSED DRAINAGE BASINS



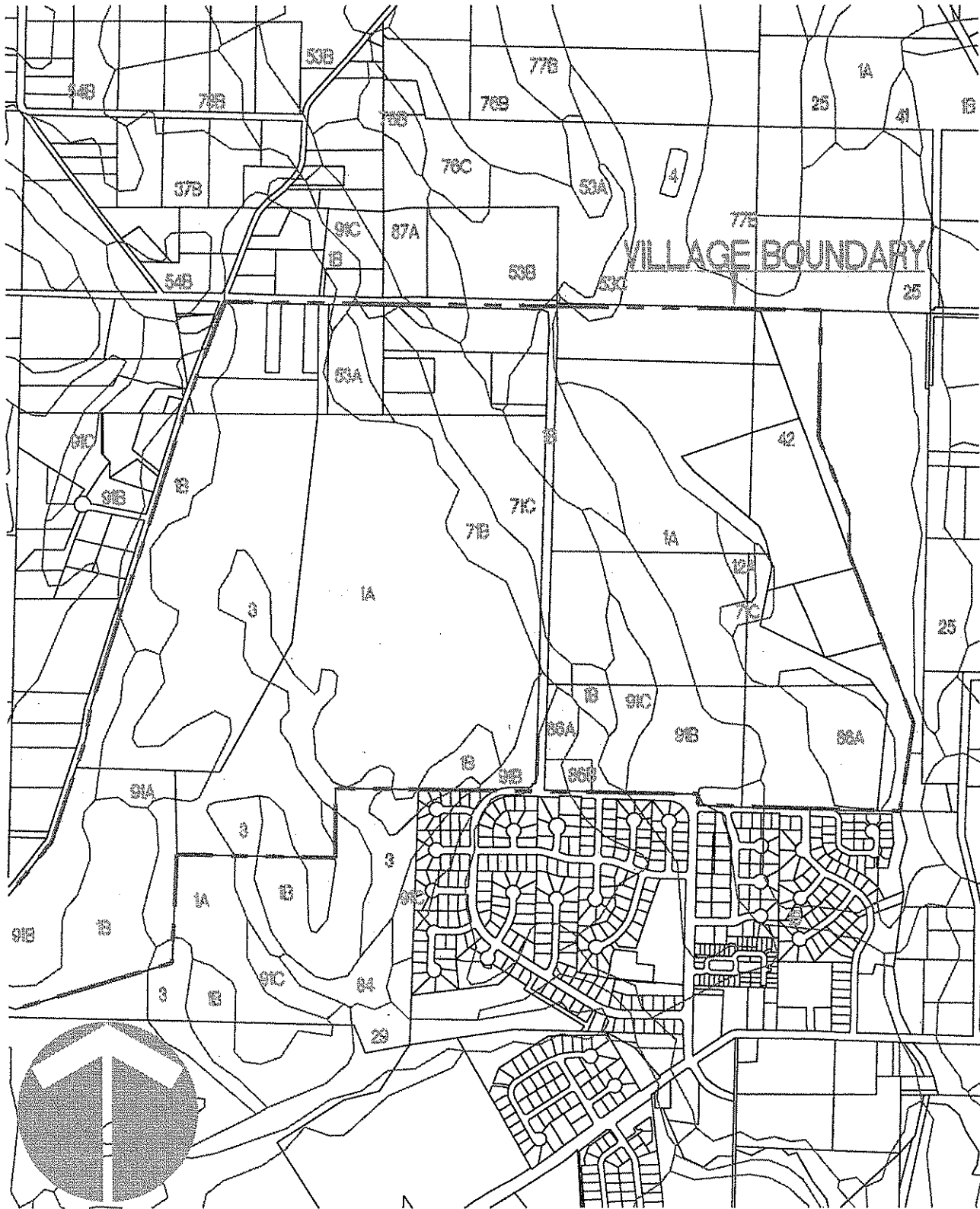
Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
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13356
 Project No. Drawing No.
FIG. A4
 Sheet No.
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Appendix B – Soil Survey





Prepared By Alpha 12/15/05

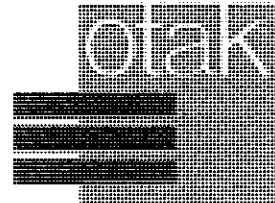
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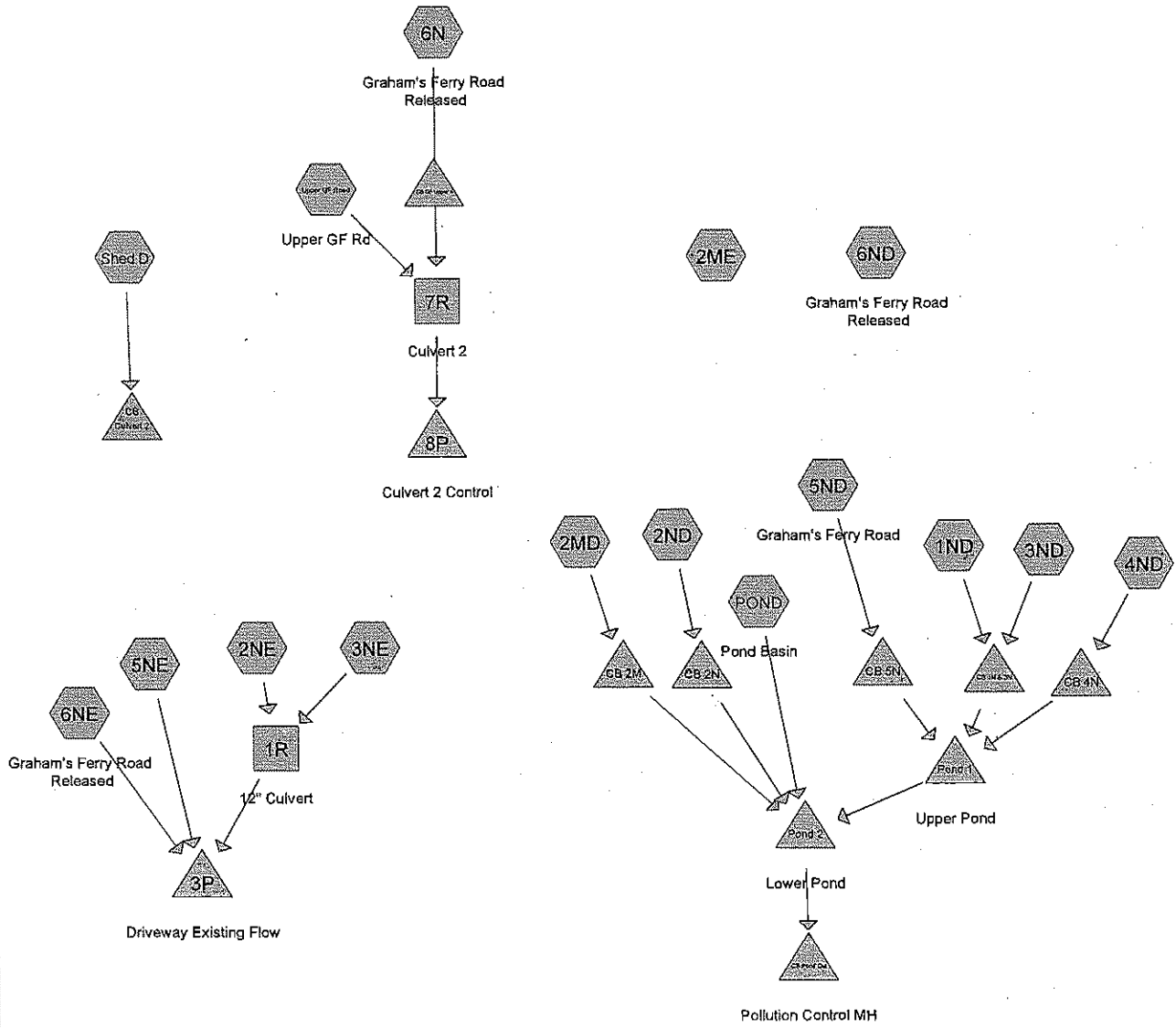
EXHIBIT B: SOIL SURVEY MAP

17355 SW Boones Ferry Road
 Lake Oswego, OR 97035
 Phone: (503) 635-3618
 FAX: (503) 635-5395



Appendix C – Basin Descriptions





Drainage Diagram for SAP North_Detention Two Pond 061907
 Prepared by Otak Consultants 6/28/2007
 HydroCAD® 8.00 s/n 004426 © 2006 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
0.470	69	(POND)
39.730	80	(2ME,2NE,3ND,3NE,4ND,Shed D)
4.930	87	(1ND)
2.990	91	(2ND)
2.980	92	(4ND,6N)
2.750	93	(2MD)
8.380	94	(5ND,5NE,6ND,6NE,Upper GF Road)
0.460	98	(POND)
<hr/>		
62.690		

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1ND:	Runoff Area=4.930 ac Runoff Depth=1.31" Tc=14.0 min CN=87/0 Runoff=1.36 cfs 0.539 af
Subcatchment 2MD:	Runoff Area=2.750 ac Runoff Depth=1.78" Flow Length=592' Tc=16.3 min CN=93/0 Runoff=1.09 cfs 0.408 af
Subcatchment 2ME:	Runoff Area=2.690 ac Runoff Depth=0.89" Flow Length=671' Tc=50.0 min CN=80/0 Runoff=0.24 cfs 0.199 af
Subcatchment 2ND:	Runoff Area=2.990 ac Runoff Depth=1.61" Flow Length=582' Tc=23.8 min CN=91/0 Runoff=0.94 cfs 0.401 af
Subcatchment 2NE:	Runoff Area=14.110 ac Runoff Depth=0.89" Flow Length=1,445' Slope=0.0130 '/' Tc=52.2 min CN=80/0 Runoff=1.25 cfs 1.045 af
Subcatchment 3ND:	Runoff Area=3.890 ac Runoff Depth=0.89" Flow Length=575' Slope=0.0190 '/' Tc=52.3 min CN=80/0 Runoff=0.35 cfs 0.288 af
Subcatchment 3NE:	Runoff Area=2.910 ac Runoff Depth=0.89" Flow Length=575' Slope=0.0191 '/' Tc=52.1 min CN=80/0 Runoff=0.26 cfs 0.216 af
Subcatchment 4ND:	Runoff Area=4.260 ac Runoff Depth=1.24" Flow Length=1,540' Tc=56.3 min CN=86/0 Runoff=0.64 cfs 0.441 af
Subcatchment 5ND: Graham's Ferry Road	Runoff Area=2.250 ac Runoff Depth=1.87" Flow Length=1,508' Tc=10.5 min CN=94/0 Runoff=1.02 cfs 0.351 af
Subcatchment 5NE:	Runoff Area=2.260 ac Runoff Depth=1.87" Flow Length=1,416' Tc=20.9 min CN=94/0 Runoff=0.89 cfs 0.352 af
Subcatchment 6N: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=1.69" Tc=5.0 min CN=92/0 Runoff=0.34 cfs 0.113 af
Subcatchment 6ND: Graham's Ferry Road Released	Runoff Area=0.930 ac Runoff Depth=1.87" Tc=5.0 min CN=94/0 Runoff=0.45 cfs 0.145 af
Subcatchment 6NE: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=1.87" Tc=5.0 min CN=94/0 Runoff=0.39 cfs 0.125 af
Subcatchment POND: Pond Basin	Runoff Area=0.930 ac Runoff Depth=1.34" Tc=0.0 min CN=69/98 Runoff=0.28 cfs 0.104 af
Subcatchment Shed D:	Runoff Area=14.050 ac Runoff Depth=0.89" Tc=45.2 min CN=80/0 Runoff=1.34 cfs 1.041 af

Subcatchment Upper GF Road: Upper GF Rd

Runoff Area=2.140 ac Runoff Depth=1.87"
Tc=10.8 min CN=94/0 Runoff=0.97 cfs 0.333 af

Total Runoff Area = 62.690 ac Runoff Volume = 6.100 af Average Runoff Depth = 1.17"
99.27% Pervious Area = 62.230 ac 0.73% Impervious Area = 0.460 ac

Subcatchment 1ND:

Runoff = 1.36 cfs @ 8.00 hrs, Volume= 0.539 af, Depth= 1.31"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
4.930	87	
4.930	87	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0					Direct Entry, Basin 1N Tc

Subcatchment 2MD:

Runoff = 1.09 cfs @ 8.00 hrs, Volume= 0.408 af, Depth= 1.78"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.750	93	
2.750	93	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	87	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
4.4	241	0.0020	0.91		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.0	264	0.0020	2.20	1.73	Circular Channel (pipe), storm pipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
16.3	592	Total			

Subcatchment 2ME:

Runoff = 0.24 cfs @ 8.33 hrs, Volume= 0.199 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.690	80	
2.690	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	221	0.0090	0.09		Sheet Flow, Grass: Dense n= 0.240 P2= 2.50"
8.1	450	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
50.0	671	Total			

Subcatchment 2ND:

Runoff = 0.94 cfs @ 8.01 hrs, Volume= 0.401 af, Depth= 1.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.990	91	
2.990	91	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	108	0.0050	0.09		Sheet Flow, Sheet Grass: Short n= 0.150 P2= 2.50"
0.8	140	0.0210	2.94		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.5	334	0.0020	2.20	1.73	Circular Channel (pipe), Stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
23.8	582	Total			

Subcatchment 2NE:

Runoff = 1.25 cfs @ 8.35 hrs, Volume= 1.045 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
14.110	80	
14.110	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	300	0.0130	0.18		Sheet Flow, Range n= 0.130 P2= 2.50"
23.9	1,145	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
52.2	1,445	Total			

Subcatchment 3ND:

Runoff = 0.35 cfs @ 8.35 hrs, Volume= 0.288 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
3.890	80	
3.890	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.2	200	0.0190	0.08		Sheet Flow, sheet flow
					Woods: Light underbrush n= 0.400 P2= 2.50"
9.1	375	0.0190	0.69		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
52.3	575	Total			

Subcatchment 3NE:

Runoff = 0.26 cfs @ 8.35 hrs, Volume= 0.216 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.910	80	
2.910	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.1	200	0.0191	0.08		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 2.50"
9.0	375	0.0191	0.69		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
52.1	575	Total			

Subcatchment 4ND:

Runoff = 0.64 cfs @ 8.25 hrs, Volume= 0.441 af, Depth= 1.24"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.080	80	
2.180	92	
4.260	86	Weighted Average

4.260 86 Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	180	0.0020	0.07		Sheet Flow, Street Flow Grass: Short n= 0.150 P2= 2.50"
1.0	120	0.0100	2.03		Shallow Concentrated Flow, gutter flow Paved Kv= 20.3 fps
0.6	245	0.0200	6.95	5.46	Circular Channel (pipe), stormdrain Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.1	995	0.0120	1.64		Shallow Concentrated Flow, Wetlands and Swales Grassed Waterway Kv= 15.0 fps
56.3	1,540	Total			

Subcatchment 5ND: Graham's Ferry Road

Runoff = 1.02 cfs @ 8.00 hrs, Volume= 0.351 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.250	94	
2.250	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	1,416	0.0127	2.29		Shallow Concentrated Flow, streetgutter Paved Kv= 20.3 fps
0.2	92	0.0200	6.95	5.46	Circular Channel (pipe), stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.5	1,508	Total			

Subcatchment 5NE:

Runoff = 0.89 cfs @ 8.00 hrs, Volume= 0.352 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.260	94	
2.260	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.22		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
19.5	1,316	0.0127	1.13		Shallow Concentrated Flow, Nearly Bare & Untilled Kv= 10.0 fps
20.9	1,416	Total			

Subcatchment 6N: Graham's Ferry Road Released

Runoff = 0.34 cfs @ 7.92 hrs, Volume= 0.113 af, Depth= 1.69"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
0.800	92	
0.800	92	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6ND: Graham's Ferry Road Released

Runoff = 0.45 cfs @ 7.91 hrs, Volume= 0.145 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
0.930	94	
0.930	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6NE: Graham's Ferry Road Released

Runoff = 0.39 cfs @ 7.91 hrs, Volume= 0.125 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
0.800	94	
0.800	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment POND: Pond Basin

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.28 cfs @ 7.85 hrs, Volume= 0.104 af, Depth= 1.34"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
0.460	98	
0.470	69	
0.930	83	Weighted Average
0.470	69	Pervious Area
0.460	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Subcatchment Shed D:

Runoff = 1.34 cfs @ 8.29 hrs, Volume= 1.041 af, Depth= 0.89"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
14.050	80	
14.050	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.2					Direct Entry, Shed D Tc

Subcatchment Upper GF Road: Upper GF Rd

Runoff = 0.97 cfs @ 8.00 hrs, Volume= 0.333 af, Depth= 1.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-year Storm Rainfall=2.50"

Area (ac)	CN	Description
2.140	94	
2.140	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Upper Graham's Ferry Tc

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1ND:	Runoff Area=4.930 ac Runoff Depth=2.18" Tc=14.0 min CN=87/0 Runoff=2.41 cfs 0.897 af
Subcatchment 2MD:	Runoff Area=2.750 ac Runoff Depth=2.73" Flow Length=592' Tc=16.3 min CN=93/0 Runoff=1.70 cfs 0.627 af
Subcatchment 2ME:	Runoff Area=2.690 ac Runoff Depth=1.64" Flow Length=671' Tc=50.0 min CN=80/0 Runoff=0.54 cfs 0.367 af
Subcatchment 2ND:	Runoff Area=2.990 ac Runoff Depth=2.54" Flow Length=582' Tc=23.8 min CN=91/0 Runoff=1.52 cfs 0.633 af
Subcatchment 2NE:	Runoff Area=14.110 ac Runoff Depth=1.64" Flow Length=1,445' Slope=0.0130 1/1 Tc=52.2 min CN=80/0 Runoff=2.78 cfs 1.924 af
Subcatchment 3ND:	Runoff Area=3.890 ac Runoff Depth=1.64" Flow Length=575' Slope=0.0190 1/1 Tc=52.3 min CN=80/0 Runoff=0.77 cfs 0.530 af
Subcatchment 3NE:	Runoff Area=2.910 ac Runoff Depth=1.64" Flow Length=575' Slope=0.0191 1/1 Tc=52.1 min CN=80/0 Runoff=0.57 cfs 0.397 af
Subcatchment 4ND:	Runoff Area=4.260 ac Runoff Depth=2.10" Flow Length=1,540' Tc=56.3 min CN=86/0 Runoff=1.18 cfs 0.745 af
Subcatchment 5ND: Graham's Ferry Road	Runoff Area=2.250 ac Runoff Depth=2.84" Flow Length=1,508' Tc=10.5 min CN=94/0 Runoff=1.56 cfs 0.532 af
Subcatchment 5NE:	Runoff Area=2.260 ac Runoff Depth=2.84" Flow Length=1,416' Tc=20.9 min CN=94/0 Runoff=1.36 cfs 0.534 af
Subcatchment 6N: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=2.64" Tc=5.0 min CN=92/0 Runoff=0.54 cfs 0.176 af
Subcatchment 6ND: Graham's Ferry Road Released	Runoff Area=0.930 ac Runoff Depth=2.84" Tc=5.0 min CN=94/0 Runoff=0.68 cfs 0.220 af
Subcatchment 6NE: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=2.84" Tc=5.0 min CN=94/0 Runoff=0.59 cfs 0.189 af
Subcatchment POND: Pond Basin	Runoff Area=0.930 ac Runoff Depth=2.10" Tc=0.0 min CN=69/98 Runoff=0.45 cfs 0.163 af
Subcatchment Shed D:	Runoff Area=14.050 ac Runoff Depth=1.64" Tc=45.2 min CN=80/0 Runoff=2.96 cfs 1.916 af

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SAP North_Detention Two Pond 061907
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Villebois
Type IA 24-hr 10-year Storm Rainfall=3.50"
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Subcatchment Upper GF Road: Upper GF Rd

Runoff Area=2.140 ac Runoff Depth=2.84"
Tc=10.8 min CN=94/0 Runoff=1.48 cfs 0.506 af

Total Runoff Area = 62.690 ac Runoff Volume = 10.354 af Average Runoff Depth = 1.98"
99.27% Pervious Area = 62.230 ac 0.73% Impervious Area = 0.460 ac

Subcatchment 1ND:

Runoff = 2.41 cfs @ 8.00 hrs, Volume= 0.897 af, Depth= 2.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
4.930	87	
4.930	87	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0					Direct Entry, Basin 1N Tc

Subcatchment 2MD:

Runoff = 1.70 cfs @ 8.00 hrs, Volume= 0.627 af, Depth= 2.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.750	93	
2.750	93	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	87	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
4.4	241	0.0020	0.91		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.0	264	0.0020	2.20	1.73	Circular Channel (pipe), storm pipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
16.3	592	Total			

Subcatchment 2ME:

Runoff = 0.54 cfs @ 8.23 hrs, Volume= 0.367 af, Depth= 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.690	80	
2.690	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	221	0.0090	0.09		Sheet Flow, Grass: Dense n= 0.240 P2= 2.50"
8.1	450	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
50.0	671	Total			

Subcatchment 2ND:

Runoff = 1.52 cfs @ 8.01 hrs, Volume= 0.633 af, Depth= 2.54"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.990	91	
2.990	91	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	108	0.0050	0.09		Sheet Flow, Sheet Grass: Short n= 0.150 P2= 2.50"
0.8	140	0.0210	2.94		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.5	334	0.0020	2.20	1.73	Circular Channel (pipe), Stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
23.8	582	Total			

Subcatchment 2NE:

Runoff = 2.78 cfs @ 8.24 hrs, Volume= 1.924 af, Depth= 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
14.110	80	
14.110	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	300	0.0130	0.18		Sheet Flow, Range n= 0.130 P2= 2.50"
23.9	1,145	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
52.2	1,445	Total			

Subcatchment 3ND:

Runoff = 0.77 cfs @ 8.24 hrs, Volume= 0.530 af, Depth= 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
3.890	80	
3.890	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.2	200	0.0190	0.08		Sheet Flow, sheet flow Woods: Light underbrush n= 0.400 P2= 2.50"
9.1	375	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
52.3	575	Total			

Subcatchment 3NE:

Runoff = 0.57 cfs @ 8.24 hrs, Volume= 0.397 af, Depth= 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.910	80	
2.910	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.1	200	0.0191	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.50"
9.0	375	0.0191	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
52.1	575	Total			

Subcatchment 4ND:

Runoff = 1.18 cfs @ 8.20 hrs, Volume= 0.745 af, Depth= 2.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.080	80	
2.180	92	
4.260	86	Weighted Average

4.260 86 Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	180	0.0020	0.07		Sheet Flow, Street Flow Grass: Short n= 0.150 P2= 2.50"
1.0	120	0.0100	2.03		Shallow Concentrated Flow, gutter flow Paved Kv= 20.3 fps
0.6	245	0.0200	6.95	5.46	Circular Channel (pipe), stormdrain Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.1	995	0.0120	1.64		Shallow Concentrated Flow, Wetlands and Swales Grassed Waterway Kv= 15.0 fps
56.3	1,540	Total			

Subcatchment 5ND: Graham's Ferry Road

Runoff = 1.56 cfs @ 7.98 hrs, Volume= 0.532 af, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.250	94	
2.250	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	1,416	0.0127	2.29		Shallow Concentrated Flow, streetgutter Paved Kv= 20.3 fps
0.2	92	0.0200	6.95	5.46	Circular Channel (pipe), stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.5	1,508	Total			

Subcatchment 5NE:

Runoff = 1.36 cfs @ 8.00 hrs, Volume= 0.534 af, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.260	94	
2.260	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.22		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
19.5	1,316	0.0127	1.13		Shallow Concentrated Flow, Nearly Bare & Untilled Kv= 10.0 fps
20.9	1,416	Total			

Subcatchment 6N: Graham's Ferry Road Released

Runoff = 0.54 cfs @ 7.91 hrs, Volume= 0.176 af, Depth= 2.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
0.800	92	
0.800	92	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6ND: Graham's Ferry Road Released

Runoff = 0.68 cfs @ 7.90 hrs, Volume= 0.220 af, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
0.930	94	
0.930	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6NE: Graham's Ferry Road Released

Runoff = 0.59 cfs @ 7.90 hrs, Volume= 0.189 af, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
0.800	94	
0.800	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment POND: Pond Basin

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.45 cfs @ 7.84 hrs, Volume= 0.163 af, Depth= 2.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
0.460	98	
0.470	69	
0.930	83	Weighted Average
0.470	69	Pervious Area
0.460	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Subcatchment Shed D:

Runoff = 2.96 cfs @ 8.19 hrs, Volume= 1.916 af, Depth= 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
14.050	80	
14.050	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.2					Direct Entry, Shed D Tc

Subcatchment Upper GF Road: Upper GF Rd

Runoff = 1.48 cfs @ 7.99 hrs, Volume= 0.506 af, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-year Storm Rainfall=3.50"

Area (ac)	CN	Description
2.140	94	
2.140	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Upper Graham's Ferry Tc

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1ND:	Runoff Area=4.930 ac Runoff Depth=2.64" Tc=14.0 min CN=87/0 Runoff=2.95 cfs 1.083 af
Subcatchment 2MD:	Runoff Area=2.750 ac Runoff Depth=3.22" Flow Length=592' Tc=16.3 min CN=93/0 Runoff=2.00 cfs 0.738 af
Subcatchment 2ME:	Runoff Area=2.690 ac Runoff Depth=2.04" Flow Length=671' Tc=50.0 min CN=80/0 Runoff=0.71 cfs 0.458 af
Subcatchment 2ND:	Runoff Area=2.990 ac Runoff Depth=3.02" Flow Length=582' Tc=23.8 min CN=91/0 Runoff=1.82 cfs 0.752 af
Subcatchment 2NE:	Runoff Area=14.110 ac Runoff Depth=2.04" Flow Length=1,445' Slope=0.0130 '/ Tc=52.2 min CN=80/0 Runoff=3.64 cfs 2.401 af
Subcatchment 3ND:	Runoff Area=3.890 ac Runoff Depth=2.04" Flow Length=575' Slope=0.0190 '/ Tc=52.3 min CN=80/0 Runoff=1.00 cfs 0.662 af
Subcatchment 3NE:	Runoff Area=2.910 ac Runoff Depth=2.04" Flow Length=575' Slope=0.0191 '/ Tc=52.1 min CN=80/0 Runoff=0.75 cfs 0.495 af
Subcatchment 4ND:	Runoff Area=4.260 ac Runoff Depth=2.55" Flow Length=1,540' Tc=56.3 min CN=86/0 Runoff=1.46 cfs 0.904 af
Subcatchment 5ND: Graham's Ferry Road	Runoff Area=2.250 ac Runoff Depth=3.32" Flow Length=1,508' Tc=10.5 min CN=94/0 Runoff=1.82 cfs 0.623 af
Subcatchment 5NE:	Runoff Area=2.260 ac Runoff Depth=3.32" Flow Length=1,416' Tc=20.9 min CN=94/0 Runoff=1.59 cfs 0.626 af
Subcatchment 6N: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=3.12" Tc=5.0 min CN=92/0 Runoff=0.65 cfs 0.208 af
Subcatchment 6ND: Graham's Ferry Road Released	Runoff Area=0.930 ac Runoff Depth=3.32" Tc=5.0 min CN=94/0 Runoff=0.80 cfs 0.258 af
Subcatchment 6NE: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=3.32" Tc=5.0 min CN=94/0 Runoff=0.69 cfs 0.222 af
Subcatchment POND: Pond Basin	Runoff Area=0.930 ac Runoff Depth=2.50" Tc=0.0 min CN=69/98 Runoff=0.55 cfs 0.194 af
Subcatchment Shed D:	Runoff Area=14.050 ac Runoff Depth=2.04" Tc=45.2 min CN=80/0 Runoff=3.87 cfs 2.390 af

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SAP North_Detention Two Pond 061907

Prepared by Otak Consultants

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Villebois

Type IA 24-hr 25-year Storm Rainfall=4.00"

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Subcatchment Upper GF Road: Upper GF Rd

Runoff Area=2.140 ac Runoff Depth=3.32"
Tc=10.8 min CN=94/0 Runoff=1.73 cfs 0.593 af

Total Runoff Area = 62.690 ac Runoff Volume = 12.606 af Average Runoff Depth = 2.41"
99.27% Pervious Area = 62.230 ac 0.73% Impervious Area = 0.460 ac

Subcatchment 1ND:

Runoff = 2.95 cfs @ 8.00 hrs, Volume= 1.083 af, Depth= 2.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
4.930	87	
4.930	87	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0					Direct Entry, Basin 1N Tc

Subcatchment 2MD:

Runoff = 2.00 cfs @ 8.00 hrs, Volume= 0.738 af, Depth= 3.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.750	93	
2.750	93	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	87	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
4.4	241	0.0020	0.91		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.0	264	0.0020	2.20	1.73	Circular Channel (pipe), storm pipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
16.3	592	Total			

Subcatchment 2ME:

Runoff = 0.71 cfs @ 8.20 hrs, Volume= 0.458 af, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.690	80	
2.690	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	221	0.0090	0.09		Sheet Flow, Grass: Dense n= 0.240 P2= 2.50"
8.1	450	0.0175	0.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
50.0	671	Total			

Subcatchment 2ND:

Runoff = 1.82 cfs @ 8.01 hrs, Volume= 0.752 af, Depth= 3.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.990	91	
2.990	91	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	108	0.0050	0.09		Sheet Flow, Sheet Grass: Short n= 0.150 P2= 2.50"
0.8	140	0.0210	2.94		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.5	334	0.0020	2.20	1.73	Circular Channel (pipe), Stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
23.8	582	Total			

Subcatchment 2NE:

Runoff = 3.64 cfs @ 8.22 hrs, Volume= 2.401 af, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
14.110	80	
14.110	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	300	0.0130	0.18		Sheet Flow, Range n= 0.130 P2= 2.50"
23.9	1,145	0.0130	0.80		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
52.2	1,445	Total			

Subcatchment 3ND:

Runoff = 1.00 cfs @ 8.22 hrs, Volume= 0.662 af, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
3.890	80	
3.890	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.2	200	0.0190	0.08		Sheet Flow, sheet flow
					Woods: Light underbrush n= 0.400 P2= 2.50"
9.1	375	0.0190	0.69		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
52.3	575	Total			

Subcatchment 3NE:

Runoff = 0.75 cfs @ 8.22 hrs, Volume= 0.495 af, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.910	80	
2.910	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.1	200	0.0191	0.08		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 2.50"
9.0	375	0.0191	0.69		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
52.1	575	Total			

Subcatchment 4ND:

Runoff = 1.46 cfs @ 8.18 hrs, Volume= 0.904 af, Depth= 2.55"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.080	80	
2.180	92	
4.260	86	Weighted Average

4.260 86 Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	180	0.0020	0.07		Sheet Flow, Street Flow Grass: Short n= 0.150 P2= 2.50"
1.0	120	0.0100	2.03		Shallow Concentrated Flow, gutter flow Paved Kv= 20.3 fps
0.6	245	0.0200	6.95	5.46	Circular Channel (pipe), stormdrain Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.1	995	0.0120	1.64		Shallow Concentrated Flow, Wetlands and Swales Grassed Waterway Kv= 15.0 fps
56.3	1,540	Total			

Subcatchment 5ND: Graham's Ferry Road

Runoff = 1.82 cfs @ 7.98 hrs, Volume= 0.623 af, Depth= 3.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.250	94	
2.250	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	1,416	0.0127	2.29		Shallow Concentrated Flow, streetgutter Paved Kv= 20.3 fps
0.2	92	0.0200	6.95	5.46	Circular Channel (pipe), stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.5	1,508	Total			

Subcatchment 5NE:

Runoff = 1.59 cfs @ 8.00 hrs, Volume= 0.626 af, Depth= 3.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.260	94	
2.260	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.22		Sheet Flow,
19.5	1,316	0.0127	1.13		Smooth surfaces n= 0.011 P2= 2.50"
20.9	1,416	Total			Shallow Concentrated Flow, Nearly Bare & Untilled Kv= 10.0 fps

Subcatchment 6N: Graham's Ferry Road Released

Runoff = 0.65 cfs @ 7.90 hrs, Volume= 0.208 af, Depth= 3.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
0.800	92	
0.800	92	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6ND: Graham's Ferry Road Released

Runoff = 0.80 cfs @ 7.89 hrs, Volume= 0.258 af, Depth= 3.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
0.930	94	
0.930	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6NE: Graham's Ferry Road Released

Runoff = 0.69 cfs @ 7.89 hrs, Volume= 0.222 af, Depth= 3.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
0.800	94	
0.800	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment POND: Pond Basin

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.55 cfs @ 7.84 hrs, Volume= 0.194 af, Depth= 2.50"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
0.460	98	
0.470	69	
0.930	83	Weighted Average
0.470	69	Pervious Area
0.460	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Subcatchment Shed D:

Runoff = 3.87 cfs @ 8.17 hrs, Volume= 2.390 af, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
14.050	80	
14.050	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.2					Direct Entry, Shed D Tc

Subcatchment Upper GF Road: Upper GF Rd

Runoff = 1.73 cfs @ 7.99 hrs, Volume= 0.593 af, Depth= 3.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-year Storm Rainfall=4.00"

Area (ac)	CN	Description
2.140	94	
2.140	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Upper Graham's Ferry Tc

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1ND:	Runoff Area=4.930 ac Runoff Depth=3.10" Tc=14.0 min CN=87/0 Runoff=3.51 cfs 1.273 af
Subcatchment 2MD:	Runoff Area=2.750 ac Runoff Depth=3.71" Flow Length=592' Tc=16.3 min CN=93/0 Runoff=2.31 cfs 0.850 af
Subcatchment 2ME:	Runoff Area=2.690 ac Runoff Depth=2.46" Flow Length=671' Tc=50.0 min CN=80/0 Runoff=0.88 cfs 0.552 af
Subcatchment 2ND:	Runoff Area=2.990 ac Runoff Depth=3.50" Flow Length=582' Tc=23.8 min CN=91/0 Runoff=2.12 cfs 0.872 af
Subcatchment 2NE:	Runoff Area=14.110 ac Runoff Depth=2.46" Flow Length=1,445' Slope=0.0130 '/' Tc=52.2 min CN=80/0 Runoff=4.54 cfs 2.894 af
Subcatchment 3ND:	Runoff Area=3.890 ac Runoff Depth=2.46" Flow Length=575' Slope=0.0190 '/' Tc=52.3 min CN=80/0 Runoff=1.25 cfs 0.798 af
Subcatchment 3NE:	Runoff Area=2.910 ac Runoff Depth=2.46" Flow Length=575' Slope=0.0191 '/' Tc=52.1 min CN=80/0 Runoff=0.94 cfs 0.597 af
Subcatchment 4ND:	Runoff Area=4.260 ac Runoff Depth=3.00" Flow Length=1,540' Tc=56.3 min CN=86/0 Runoff=1.76 cfs 1.066 af
Subcatchment 5ND: Graham's Ferry Road	Runoff Area=2.250 ac Runoff Depth=3.82" Flow Length=1,508' Tc=10.5 min CN=94/0 Runoff=2.09 cfs 0.715 af
Subcatchment 5NE:	Runoff Area=2.260 ac Runoff Depth=3.82" Flow Length=1,416' Tc=20.9 min CN=94/0 Runoff=1.82 cfs 0.719 af
Subcatchment 6N: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=3.60" Tc=5.0 min CN=92/0 Runoff=0.75 cfs 0.240 af
Subcatchment 6ND: Graham's Ferry Road Released	Runoff Area=0.930 ac Runoff Depth=3.82" Tc=5.0 min CN=94/0 Runoff=0.92 cfs 0.296 af
Subcatchment 6NE: Graham's Ferry Road Released	Runoff Area=0.800 ac Runoff Depth=3.82" Tc=5.0 min CN=94/0 Runoff=0.79 cfs 0.254 af
Subcatchment POND: Pond Basin	Runoff Area=0.930 ac Runoff Depth=2.92" Tc=0.0 min CN=69/98 Runoff=0.64 cfs 0.226 af
Subcatchment Shed D:	Runoff Area=14.050 ac Runoff Depth=2.46" Tc=45.2 min CN=80/0 Runoff=4.82 cfs 2.882 af

Subcatchment Upper GF Road: Upper GF Rd

Runoff Area=2.140 ac Runoff Depth=3.82"
Tc=10.8 min CN=94/0 Runoff=1.98 cfs 0.680 af

Total Runoff Area = 62.690 ac Runoff Volume = 14.914 af Average Runoff Depth = 2.85"
99.27% Pervious Area = 62.230 ac 0.73% Impervious Area = 0.460 ac

Subcatchment 1ND:

Runoff = 3.51 cfs @ 8.00 hrs, Volume= 1.273 af, Depth= 3.10"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
4.930	87	
4.930	87	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0					Direct Entry, Basin 1N Tc

Subcatchment 2MD:

Runoff = 2.31 cfs @ 8.00 hrs, Volume= 0.850 af, Depth= 3.71"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.750	93	
2.750	93	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	87	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
4.4	241	0.0020	0.91		Shallow Concentrated Flow, Street/Gutter Paved Kv= 20.3 fps
2.0	264	0.0020	2.20	1.73	Circular Channel (pipe), storm pipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
16.3	592	Total			

Subcatchment 2ME:

Runoff = 0.88 cfs @ 8.18 hrs, Volume= 0.552 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.690	80	
2.690	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	221	0.0090	0.09		Sheet Flow,
					Grass: Dense n= 0.240 P2= 2.50"
8.1	450	0.0175	0.93		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
50.0	671	Total			

Subcatchment 2ND:

Runoff = 2.12 cfs @ 8.01 hrs, Volume= 0.872 af, Depth= 3.50"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.990	91	
2.990	91	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	108	0.0050	0.09		Sheet Flow, Sheet
					Grass: Short n= 0.150 P2= 2.50"
0.8	140	0.0210	2.94		Shallow Concentrated Flow, Street/Gutter
					Paved Kv= 20.3 fps
2.5	334	0.0020	2.20	1.73	Circular Channel (pipe), Stormpipe
					Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.012 Concrete pipe, finished
23.8	582	Total			

Subcatchment 2NE:

Runoff = 4.54 cfs @ 8.20 hrs, Volume= 2.894 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
14.110	80	
14.110	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	300	0.0130	0.18		Sheet Flow,
					Range n= 0.130 P2= 2.50"
23.9	1,145	0.0130	0.80		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
52.2	1,445	Total			

Subcatchment 3ND:

Runoff = 1.25 cfs @ 8.20 hrs, Volume= 0.798 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
3.890	80	
3.890	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.2	200	0.0190	0.08		Sheet Flow, sheet flow Woods: Light underbrush n= 0.400 P2= 2.50"
9.1	375	0.0190	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
52.3	575	Total			

Subcatchment 3NE:

Runoff = 0.94 cfs @ 8.20 hrs, Volume= 0.597 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.910	80	
2.910	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.1	200	0.0191	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.50"
9.0	375	0.0191	0.69		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
52.1	575	Total			

Subcatchment 4ND:

Runoff = 1.76 cfs @ 8.17 hrs, Volume= 1.066 af, Depth= 3.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.080	80	
2.180	92	
4.260	86	Weighted Average

4.260 86 Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.6	180	0.0020	0.07		Sheet Flow, Street Flow Grass: Short n= 0.150 P2= 2.50"
1.0	120	0.0100	2.03		Shallow Concentrated Flow, gutter flow Paved Kv= 20.3 fps
0.6	245	0.0200	6.95	5.46	Circular Channel (pipe), stormdrain Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.1	995	0.0120	1.64		Shallow Concentrated Flow, Wetlands and Swales Grassed Waterway Kv= 15.0 fps
56.3	1,540	Total			

Subcatchment 5ND: Graham's Ferry Road

Runoff = 2.09 cfs @ 7.98 hrs, Volume= 0.715 af, Depth= 3.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.250	94	
2.250	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	1,416	0.0127	2.29		Shallow Concentrated Flow, streetgutter Paved Kv= 20.3 fps
0.2	92	0.0200	6.95	5.46	Circular Channel (pipe), stormpipe Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
10.5	1,508	Total			

Subcatchment 5NE:

Runoff = 1.82 cfs @ 8.00 hrs, Volume= 0.719 af, Depth= 3.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.260	94	
2.260	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0200	1.22		Sheet Flow,
19.5	1,316	0.0127	1.13		Smooth surfaces n= 0.011 P2= 2.50"
					Shallow Concentrated Flow,
					Nearly Bare & Untilled Kv= 10.0 fps
20.9	1,416	Total			

Subcatchment 6N: Graham's Ferry Road Released

Runoff = 0.75 cfs @ 7.90 hrs, Volume= 0.240 af, Depth= 3.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.800	92	
0.800	92	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6ND: Graham's Ferry Road Released

Runoff = 0.92 cfs @ 7.89 hrs, Volume= 0.296 af, Depth= 3.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.930	94	
0.930	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6NE: Graham's Ferry Road Released

Runoff = 0.79 cfs @ 7.89 hrs, Volume= 0.254 af, Depth= 3.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.800	94	
0.800	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment POND: Pond Basin

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.64 cfs @ 7.83 hrs, Volume= 0.226 af, Depth= 2.92"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
0.460	98	
0.470	69	
0.930	83	Weighted Average
0.470	69	Pervious Area
0.460	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry,

Subcatchment Shed D:

Runoff = 4.82 cfs @ 8.15 hrs, Volume= 2.882 af, Depth= 2.46"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
14.050	80	
14.050	80	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.2					Direct Entry, Shed D Tc

Subcatchment Upper GF Road: Upper GF Rd

Runoff = 1.98 cfs @ 7.98 hrs, Volume= 0.680 af, Depth= 3.82"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100-year Storm Rainfall=4.50"

Area (ac)	CN	Description
2.140	94	
2.140	94	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Upper Graham's Ferry Tc



Culvert 2 Control



Driveway Existing Flow



Upper Pond



Lower Pond



Pollution Control MH



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 3P: Driveway Existing Flow

Inflow=6.46 cfs 3.743 af
Primary=6.46 cfs 3.743 af

Pond 8P: Culvert 2 Control

Inflow=2.37 cfs 0.801 af
Primary=2.37 cfs 0.801 af

Pond CB Pond Out: Pollution Control MH

Peak Elev=211.94' Storage=0.003 af Inflow=5.62 cfs 4.936 af
24.0" x 260.0' Culvert Outflow=5.62 cfs 4.933 af

Pond Pond 1: Upper Pond

Peak Elev=219.94' Storage=17,073 cf Inflow=7.13 cfs 3.269 af
Outflow=3.74 cfs 3.255 af

Pond Pond 2: Lower Pond

Peak Elev=219.22' Storage=14,101 cf Inflow=6.64 cfs 4.936 af
Primary=5.62 cfs 4.936 af Secondary=0.00 cfs 0.000 af Outflow=5.62 cfs 4.936 af

Pond 3P: Driveway Existing Flow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.080 ac, Inflow Depth = 2.24" for 25-year Storm event
 Inflow = 6.46 cfs @ 8.01 hrs, Volume= 3.743 af
 Primary = 6.46 cfs @ 8.01 hrs, Volume= 3.743 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond 8P: Culvert 2 Control

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.940 ac, Inflow Depth = 3.27" for 25-year Storm event
 Inflow = 2.37 cfs @ 7.96 hrs, Volume= 0.801 af
 Primary = 2.37 cfs @ 7.96 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond CB Pond Out: Pollution Control MH

Inflow Area = 22.000 ac, Inflow Depth > 2.69" for 25-year Storm event
 Inflow = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af
 Outflow = 5.62 cfs @ 9.07 hrs, Volume= 4.933 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.62 cfs @ 9.07 hrs, Volume= 4.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 211.94' @ 9.07 hrs Surf.Area= 0.001 ac Storage= 0.003 af

Plug-Flow detention time= 1.1 min calculated for 4.932 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (857.1 - 856.6)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	0.009 af	6.00'D x 14.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	210.90'	24.0" x 260.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 209.00' S= 0.0073 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=5.62 cfs @ 9.07 hrs HW=211.94' (Free Discharge)
 1=Culvert (Barrel Controls 5.62 cfs @ 4.98 fps)

Pond Pond 1: Upper Pond

Inflow Area = 15.330 ac, Inflow Depth = 2.56" for 25-year Storm event
 Inflow = 7.13 cfs @ 8.00 hrs, Volume= 3.269 af
 Outflow = 3.74 cfs @ 9.21 hrs, Volume= 3.255 af, Atten= 48%, Lag= 72.4 min
 Primary = 3.74 cfs @ 9.21 hrs, Volume= 3.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.94' @ 9.16 hrs Surf.Area= 8,271 sf Storage= 17,073 cf

Plug-Flow detention time= 76.3 min calculated for 3.255 af (100% of inflow)
 Center-of-Mass det. time= 73.0 min (855.0 - 782.1)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	26,950 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.00	44	0	0
216.50	44	22	22
216.75	44	11	33
217.00	3,188	404	437
218.00	4,819	4,004	4,441
219.00	6,552	5,686	10,126
220.00	8,386	7,469	17,595
221.00	10,323	9,355	26,950

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	24.0" x 120.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 217.00' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	217.01'	8.0" Horiz. Orifice/Grate X 2.00 Limited to weir flow C= 0.600
#3	Device 1	219.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	220.50'	6.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.74 cfs @ 9.21 hrs HW=219.94' TW=219.21' (Dynamic Tailwater)

- 1=Culvert (Passes 3.74 cfs of 12.85 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.86 cfs @ 4.09 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 0.89 cfs @ 3.03 fps)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Pond 2: Lower Pond

Inflow Area = 22.000 ac, Inflow Depth > 2.69" for 25-year Storm event
 Inflow = 6.64 cfs @ 8.00 hrs, Volume= 4.936 af
 Outflow = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af, Atten= 15%, Lag= 64.1 min
 Primary = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.22' @ 9.06 hrs Surf.Area= 8,239 sf Storage= 14,101 cf

Plug-Flow detention time= 44.2 min calculated for 4.936 af (100% of inflow)
 Center-of-Mass det. time= 44.2 min (856.6 - 812.4)

Volume	Invert	Avail.Storage	Storage Description
#1	211.20'	31,761 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.20	16	0	0
211.50	16	5	5
216.99	16	88	93
217.00	4,446	22	115
218.00	6,090	5,268	5,383
219.00	7,836	6,963	12,346
220.00	9,682	8,759	21,105
221.00	11,631	10,657	31,761

Device	Routing	Invert	Outlet Devices
#1	Primary	211.20'	24.0" x 20.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 211.10' S= 0.0050 '/' Cc= 0.900 n= 0.013
#2	Device 1	211.21'	5.8" Horiz. Orifice/Grate C= 0.600
#3	Device 1	218.41'	1.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	219.20'	24.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
#5	Secondary	219.50'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Primary OutFlow Max=5.62 cfs @ 9.06 hrs HW=219.22' TW=211.94' (Dynamic Tailwater)

- ↑ 1=Culvert (Passes 5.62 cfs of 40.07 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 2.38 cfs @ 12.99 fps)
- ↑ 3=Sharp-Crested Rectangular Weir (Weir Controls 3.18 cfs @ 2.94 fps)
- ↑ 4=Orifice/Grate (Weir Controls 0.05 cfs @ 0.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=211.20' (Free Discharge)

- ↑ 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Basin 2NE

Total Basin Area (AC) 14.11

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0	0.00	0.00			0.00	0.00	-	-	94.4	C
Open Space	614,632	14.11	100.00			0.00	14.11	-	-	80	C
TOTAL		14.11	100.00			0.00	14.11				

Percent Impervious 0.00%
 Overall Composite Curve Number 80.0

Basin 3NE

Total Basin Area (AC) 2.91

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0	0.00	0.00			0.00	0.00	-	-	94.4	C
Open Space	126,760	2.91	100.00			0.00	2.91	-	-	80	C
TOTAL		2.91	100.00			0.00	2.91				

Percent Impervious 0.00%
 Overall Composite Curve Number 80.0

Basin 5NE

Total Basin Area (AC) 2.26

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	98,446	2.26	100.00			1.81	0.45	-	-	94.4	C
Road w/ Ditches	0	0.00	0.00			0.00	0.00	-	-	92.0	C
Open Space	0	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		2.26	100.00			1.81	0.45				

Percent Impervious 80.0%
 Overall Composite Curve Number 94.4

Basin 6NE

Total Basin Area (AC) 0.8

PROJECT: ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	34,848	0.80	100.00			0.64	0.16	-	-	94.4	C
Road w/ Ditches	0	0.00	0.00			0.00	0.00	-	-	92.0	C
Open Space	0	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		0.80	100.00			0.64	0.16				

Percent Impervious 80.00%
 Overall Composite Curve Number 94.4

Basin 2ME

Total Basin Area (AC) 2.69

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0	0.00	0.00			0.00	0.00	-	-	94.4	C
Open Space	117,176	2.69	100.00			0.00	2.69	-	-	80	C
TOTAL		2.69	100.00			0.00	2.69				

Percent Impervious 0.00%
 Overall Composite Curve Number 80.0

Basin 1ND

Total Basin Area (AC) 4.93

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	14,575.00	0.33	6.79	8	1400	0.26	0.08	98	80	--	C
Single Family Detached	100,124	2.30	46.62	23	2750	1.45	0.85	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	100,052	2.30	46.59			1.84	0.46	-	-	94.4	C
Open Space	0	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		4.93	100.00			3.55	1.38				

Percent Impervious 71.9%
 Overall Composite Curve Number 86.6

Basin 2ND

Total Basin Area (AC) 2.99

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

*Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted Cn for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	72,829	1.67	55.92	11	2750	0.69	0.98	98	80	87	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	57,415	1.32	44.08			1.05	0.26	-	-	94.4	C
Open Space	0	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		2.99	100.00			1.75	1.24				

Percent Impervious 58.59%
 Overall Composite Curve Number 90.5

Basin 3ND

Total Basin Area (AC) 3.86

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area		Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
			(%)	(%)							
Residential											
Row House	0.00	0.00	0.00	0.00	1400	0.00	0.00	98	80	-	C
Single Family Detached	0.00	0.00	0.00	0.00	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00	0.00		0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0.00	0.00	0.00	0.00		0.00	0.00	-	-	94.4	C
Open Space	168,142	3.86	100.00	0.00		0.00	3.86	-	-	80	C
TOTAL		3.86	100.00	0.00		0.00	3.86				

Percent Impervious 0.00%
 Overall Composite Curve Number 80.0

Basin 4ND-South

Total Basin Area (AC) 2.08

PROJECT: ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0.00	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0	0.00	0.00			0.00	0.00	-	-	94.4	C
Open Space	90,605	2.08	100.00			0.00	2.08	-	-	80	C
TOTAL		2.08	100.00			0.00	2.08				

Percent Impervious 0.00%
 Overall Composite Curve Number 80.0

Basin 4ND-North

Total Basin Area (AC) 2.18

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\Waterfiles\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	51,334.00	1.18	54.06	12	2750	0.76	0.42	98	80	92	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	34,666	0.80	36.51			0.75	0.04	-	-	94.4	C
Open Space (Wetland)	8,961	0.21	9.44			0.00	0.21	-	-	80	C
TOTAL		2.18	100.00			1.51	0.67				

Percent Impervious 69.2%
 Overall Composite Curve Number 91.5

Basin 5ND

Total Basin Area (AC) 2.25

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	--	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	--	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
Road w/ Ditches	0.00	0.00	0.00			0.00	0.00	-	-	92.0	C
SF of Streets/Alleys/SW	98,010	2.25	100.00			1.80	0.45	-	-	94.4	C
Open Space	0.00	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		2.25	100.00			1.80	0.45				

Percent Impervious 89.0%
 Overall Composite Curve Number 94.4

Basin 6ND

Total Basin Area (AC) 0.93

PROJECT: ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	1400	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	2750	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
Road w/ Ditches	0	0.00	0.00			0.00	0.00	-	-	92.0	C
SF of Streets/Alleys/SW	40,511	0.93	100.00			0.74	0.19	-	-	94.4	C
Open Space	0.00	0.00	0.00			0.00	0.00	-	-	80	C
TOTAL		0.93	100.00			0.74	0.19				

Percent Impervious 80.00%
 Overall Composite Curve Number 94.4

Basin 2MD

Total Basin Area (AC) 2.75

PROJECT : ARBOR VILLEBOIS MILL CREEK BASIN IN SAP NORTH
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Excel\Impervious Area and CN Calcs for Mill Creek 031407.xls

Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area		Impervious Area per Lot (SF)	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
			(%)	(%)							
Residential											
Row House	0.00	0.00	0.00	0.00	1400	0.00	0.00	98	80	-	C
Single Family Detached	75,741	1.74	63.23	1.26	2750	0.48	98	80	93		C
Other											
Commercial/Condo Lots	0.00	0.00	0.00	0.00		0.00	-	-	-	98	C
SF of Streets/Alleys/SW	40,570	0.93	33.87	0.75		0.19	-	-	-	94.4	C
Open Space	3,480	0.08	2.91	0.00		0.08	-	-	-	80	C
TOTAL		2.75	100.00	2.01		0.74					

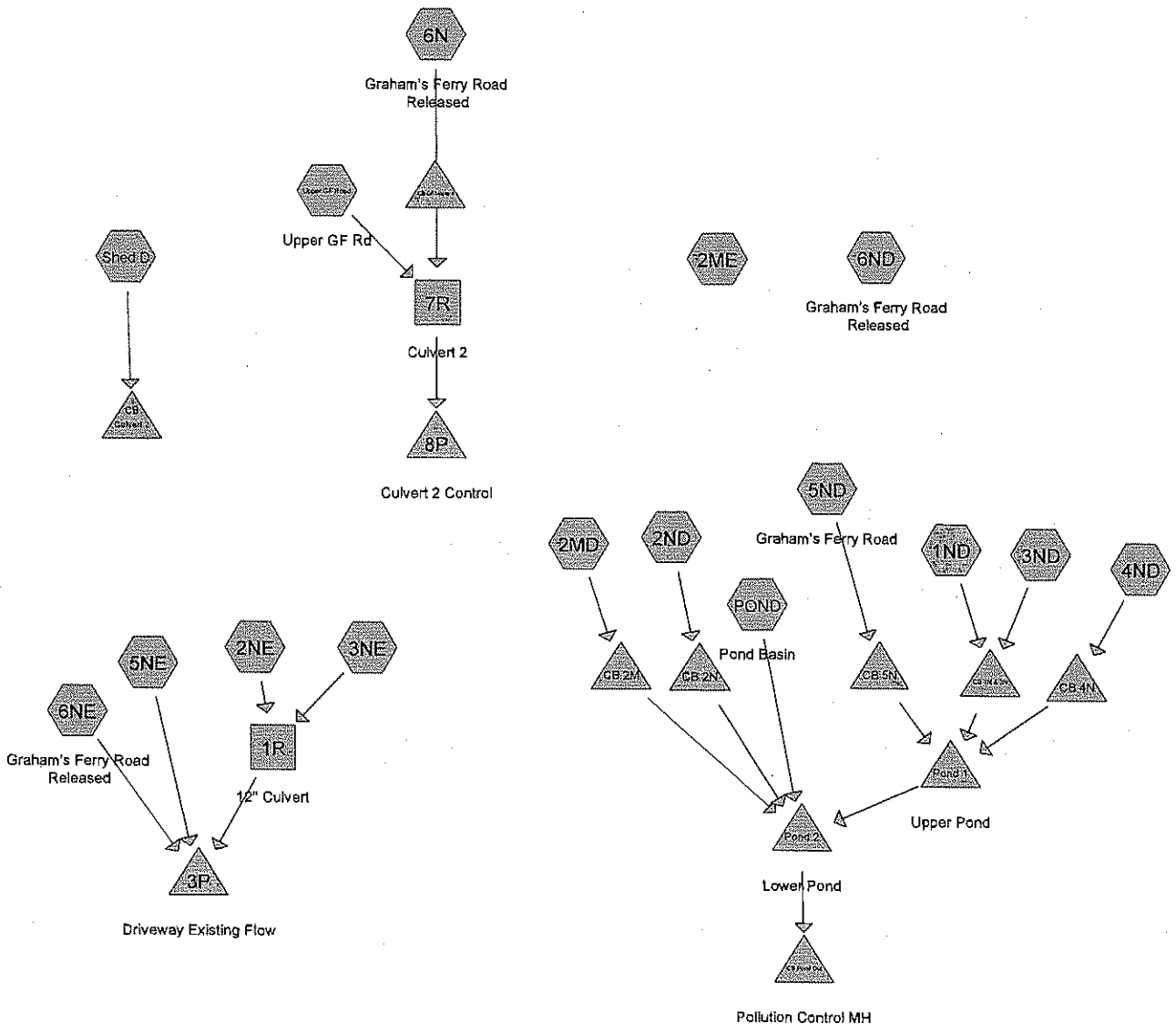
Percent Impervious 73.0%
 Overall Composite Curve Number 93.1

Appendix D – Detention Pond Design,
HydroCAD Results



Villebois Upper and Lower Ponds

Return Period	Flows [cfs]		Water Surface Elevation [ft]	
	Existing	Proposed	Upper Pond	Lower Pond
2	2.63	2.28	218.42	218.21
10	5.11	4.33	219.51	218.98
25	6.46	5.62	219.94	219.22
100	7.87	7.16	220.35	219.33



Drainage Diagram for SAP North_Detention Two Pond 061907
 Prepared by Otak Consultants 6/28/2007
 HydroCAD® 8.00 s/n 004426 © 2006 HydroCAD Software Solutions LLC

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 3P: Driveway Existing Flow

Inflow=2.63 cfs 1.737 af
Primary=2.63 cfs 1.737 af

Pond 8P: Culvert 2 Control

Inflow=1.31 cfs 0.446 af
Primary=1.31 cfs 0.446 af

Pond CB Pond Out: Pollution Control MH

Peak Elev=211.54' Storage=0.003 af Inflow=2.28 cfs 2.511 af
24.0" x 260.0' Culvert Outflow=2.28 cfs 2.509 af

Pond Pond 1: Upper Pond

Peak Elev=218.42' Storage=6,602 cf Inflow=3.30 cfs 1.615 af
Outflow=2.41 cfs 1.601 af

Pond Pond 2: Lower Pond

Peak Elev=218.21' Storage=6,719 cf Inflow=4.65 cfs 2.511 af
Primary=2.28 cfs 2.511 af Secondary=0.00 cfs 0.000 af Outflow=2.28 cfs 2.511 af

Pond 3P: Driveway Existing Flow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.080 ac, Inflow Depth = 1.04" for 2-year Storm event
 Inflow = 2.63 cfs @ 8.01 hrs, Volume= 1.737 af
 Primary = 2.63 cfs @ 8.01 hrs, Volume= 1.737 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond 8P: Culvert 2 Control

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.940 ac, Inflow Depth = 1.82" for 2-year Storm event
 Inflow = 1.31 cfs @ 7.98 hrs, Volume= 0.446 af
 Primary = 1.31 cfs @ 7.98 hrs, Volume= 0.446 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond CB Pond Out: Pollution Control MH

Inflow Area = 22.000 ac, Inflow Depth > 1.37" for 2-year Storm event
 Inflow = 2.28 cfs @ 9.83 hrs, Volume= 2.511 af
 Outflow = 2.28 cfs @ 9.83 hrs, Volume= 2.509 af, Atten= 0%, Lag= 0.1 min
 Primary = 2.28 cfs @ 9.83 hrs, Volume= 2.509 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 211.54' @ 9.83 hrs Surf.Area= 0.001 ac Storage= 0.003 af

Plug-Flow detention time= 2.2 min calculated for 2.509 af (100% of inflow)
 Center-of-Mass det. time= 0.9 min (850.3 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	0.009 af	6.00'D x 14.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	210.90'	24.0" x 260.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 209.00' S= 0.0073 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=2.28 cfs @ 9.83 hrs HW=211.54' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.28 cfs @ 3.96 fps)

Pond Pond 1: Upper Pond

Inflow Area = 15.330 ac, Inflow Depth = 1.26" for 2-year Storm event
 Inflow = 3.30 cfs @ 8.00 hrs, Volume= 1.615 af
 Outflow = 2.41 cfs @ 8.01 hrs, Volume= 1.601 af, Atten= 27%, Lag= 0.6 min
 Primary = 2.41 cfs @ 8.01 hrs, Volume= 1.601 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 218.42' @ 9.69 hrs Surf.Area= 5,542 sf Storage= 6,602 cf

Plug-Flow detention time= 59.1 min calculated for 1.601 af (99% of inflow)
 Center-of-Mass det. time= 53.1 min (872.1 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	26,950 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.00	44	0	0
216.50	44	22	22
216.75	44	11	33
217.00	3,188	404	437
218.00	4,819	4,004	4,441
219.00	6,552	5,686	10,126
220.00	8,386	7,469	17,595
221.00	10,323	9,355	26,950

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	24.0" x 120.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 217.00' S= 0.0000 ' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	217.01'	8.0" Horiz. Orifice/Grate X 2.00 Limited to weir flow C= 0.600
#3	Device 1	219.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	220.50'	6.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.42 cfs @ 8.01 hrs HW=217.96' TW=217.44' (Dynamic Tailwater)

- 1=Culvert (Passes 2.42 cfs of 2.42 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.42 cfs @ 3.46 fps)
- 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Pond 2: Lower Pond

Inflow Area = 22.000 ac, Inflow Depth > 1.37" for 2-year Storm event
 Inflow = 4.65 cfs @ 8.00 hrs, Volume= 2.511 af
 Outflow = 2.28 cfs @ 9.83 hrs, Volume= 2.511 af, Atten= 51%, Lag= 109.9 min
 Primary = 2.28 cfs @ 9.83 hrs, Volume= 2.511 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 218.21' @ 9.83 hrs Surf.Area= 6,462 sf Storage= 6,719 cf

Plug-Flow detention time= 18.6 min calculated for 2.511 af (100% of inflow)
 Center-of-Mass det. time= 18.6 min (849.4 - 830.8)

Volume	Invert	Avail.Storage	Storage Description
#1	211.20'	31,761 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.20	16	0	0
211.50	16	5	5
216.99	16	88	93
217.00	4,446	22	115
218.00	6,090	5,268	5,383
219.00	7,836	6,963	12,346
220.00	9,682	8,759	21,105
221.00	11,631	10,657	31,761

Device	Routing	Invert	Outlet Devices
#1	Primary	211.20'	24.0" x 20.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 211.10' S= 0.0050 '/' Cc= 0.900 n= 0.013
#2	Device 1	211.21'	5.8" Horiz. Orifice/Grate C= 0.600
#3	Device 1	218.41'	1.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	219.20'	24.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
#5	Secondary	219.50'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Primary OutFlow Max=2.28 cfs @ 9.83 hrs HW=218.21' TW=211.54' (Dynamic Tailwater)

- ↑ 1=Culvert (Passes 2.28 cfs of 37.09 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 2.28 cfs @ 12.44 fps)
- ↑ 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=211.20' (Free Discharge)

- ↑ 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 3P: Driveway Existing Flow

Inflow=5.11 cfs 3.044 af
Primary=5.11 cfs 3.044 af

Pond 8P: Culvert 2 Control

Inflow=2.01 cfs 0.681 af
Primary=2.01 cfs 0.681 af

Pond CB Pond Out: Pollution Control MH

Peak Elev=211.80' Storage=0.003 af Inflow=4.33 cfs 4.106 af
24.0" x 260.0' Culvert Outflow=4.33 cfs 4.104 af

Pond Pond 1: Upper Pond

Peak Elev=219.51' Storage=13,717 cf Inflow=5.81 cfs 2.700 af
Outflow=2.92 cfs 2.686 af

Pond Pond 2: Lower Pond

Peak Elev=218.98' Storage=12,208 cf Inflow=5.90 cfs 4.106 af
Primary=4.33 cfs 4.106 af Secondary=0.00 cfs 0.000 af Outflow=4.33 cfs 4.106 af

Pond 3P: Driveway Existing Flow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.080 ac, Inflow Depth = 1.82" for 10-year Storm event
 Inflow = 5.11 cfs @ 8.01 hrs, Volume= 3.044 af
 Primary = 5.11 cfs @ 8.01 hrs, Volume= 3.044 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond 8P: Culvert 2 Control

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.940 ac, Inflow Depth = 2.78" for 10-year Storm event
 Inflow = 2.01 cfs @ 7.97 hrs, Volume= 0.681 af
 Primary = 2.01 cfs @ 7.97 hrs, Volume= 0.681 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond CB Pond Out: Pollution Control MH

Inflow Area = 22.000 ac, Inflow Depth > 2.24" for 10-year Storm event
 Inflow = 4.33 cfs @ 9.30 hrs, Volume= 4.106 af
 Outflow = 4.33 cfs @ 9.30 hrs, Volume= 4.104 af, Atten= 0%, Lag= 0.1 min
 Primary = 4.33 cfs @ 9.30 hrs, Volume= 4.104 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 211.80' @ 9.30 hrs Surf.Area= 0.001 ac Storage= 0.003 af

Plug-Flow detention time= 1.3 min calculated for 4.103 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (860.0 - 859.4)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	0.009 af	6.00'D x 14.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	210.90'	24.0" x 260.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 209.00' S= 0.0073 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=4.33 cfs @ 9.30 hrs HW=211.80' (Free Discharge)
 ↑1=Culvert (Barrel Controls 4.33 cfs @ 4.67 fps)

Pond Pond 1: Upper Pond

Inflow Area = 15.330 ac, Inflow Depth = 2.11" for 10-year Storm event
 Inflow = 5.81 cfs @ 8.00 hrs, Volume= 2.700 af
 Outflow = 2.92 cfs @ 9.27 hrs, Volume= 2.686 af, Atten= 50%, Lag= 75.8 min
 Primary = 2.92 cfs @ 9.27 hrs, Volume= 2.686 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.51' @ 9.28 hrs Surf.Area= 7,490 sf Storage= 13,717 cf

Plug-Flow detention time= 73.4 min calculated for 2.686 af (99% of inflow)
 Center-of-Mass det. time= 69.5 min (861.3 - 791.8)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	26,950 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.00	44	0	0
216.50	44	22	22
216.75	44	11	33
217.00	3,188	404	437
218.00	4,819	4,004	4,441
219.00	6,552	5,686	10,126
220.00	8,386	7,469	17,595
221.00	10,323	9,355	26,950

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	24.0" x 120.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 217.00' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	217.01'	8.0" Horiz. Orifice/Grate X 2.00 Limited to weir flow C= 0.600
#3	Device 1	219.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	220.50'	6.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.92 cfs @ 9.27 hrs HW=219.51' TW=218.98' (Dynamic Tailwater)

- 1=Culvert (Passes 2.92 cfs of 11.00 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.45 cfs @ 3.50 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 0.48 cfs @ 2.34 fps)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Pond 2: Lower Pond

Inflow Area = 22.000 ac, Inflow Depth > 2.24" for 10-year Storm event
 Inflow = 5.90 cfs @ 8.00 hrs, Volume= 4.106 af
 Outflow = 4.33 cfs @ 9.30 hrs, Volume= 4.106 af, Atten= 27%, Lag= 77.9 min
 Primary = 4.33 cfs @ 9.30 hrs, Volume= 4.106 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 218.98' @ 9.30 hrs Surf.Area= 7,805 sf Storage= 12,208 cf

Plug-Flow detention time= 41.0 min calculated for 4.105 af (100% of inflow)
 Center-of-Mass det. time= 41.0 min (859.4 - 818.4)

Volume	Invert	Avail.Storage	Storage Description
#1	211.20'	31,761 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
211.20	16	0	0
211.50	16	5	5
216.99	16	88	93
217.00	4,446	22	115
218.00	6,090	5,268	5,383
219.00	7,836	6,963	12,346
220.00	9,682	8,759	21,105
221.00	11,631	10,657	31,761

Device	Routing	Invert	Outlet Devices
#1	Primary	211.20'	24.0" x 20.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 211.10' S= 0.0050 '/' Cc= 0.900 n= 0.013
#2	Device 1	211.21'	5.8" Horiz. Orifice/Grate C= 0.600
#3	Device 1	218.41'	1.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	219.20'	24.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
#5	Secondary	219.50'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Primary OutFlow Max=4.33 cfs @ 9.30 hrs HW=218.98' TW=211.80' (Dynamic Tailwater)

- ↳ 1=Culvert (Passes 4.33 cfs of 39.39 cfs potential flow)
- ↳ 2=Orifice/Grate (Orifice Controls 2.37 cfs @ 12.91 fps)
- ↳ 3=Sharp-Crested Rectangular Weir (Weir Controls 1.96 cfs @ 2.47 fps)
- ↳ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=211.20' (Free Discharge)

- ↳ 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 3P: Driveway Existing Flow

Inflow=6.46 cfs 3.743 af
Primary=6.46 cfs 3.743 af

Pond 8P: Culvert 2 Control

Inflow=2.37 cfs 0.801 af
Primary=2.37 cfs 0.801 af

Pond CB Pond Out: Pollution Control MH

Peak Elev=211.94' Storage=0.003 af Inflow=5.62 cfs 4.936 af
24.0" x 260.0' Culvert Outflow=5.62 cfs 4.933 af

Pond Pond 1: Upper Pond

Peak Elev=219.94' Storage=17,073 cf Inflow=7.13 cfs 3.269 af
Outflow=3.74 cfs 3.255 af

Pond Pond 2: Lower Pond

Peak Elev=219.22' Storage=14,101 cf Inflow=6.64 cfs 4.936 af
Primary=5.62 cfs 4.936 af Secondary=0.00 cfs 0.000 af Outflow=5.62 cfs 4.936 af

Pond 3P: Driveway Existing Flow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.080 ac, Inflow Depth = 2.24" for 25-year Storm event
 Inflow = 6.46 cfs @ 8.01 hrs, Volume= 3.743 af
 Primary = 6.46 cfs @ 8.01 hrs, Volume= 3.743 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond 8P: Culvert 2 Control

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.940 ac, Inflow Depth = 3.27" for 25-year Storm event
 Inflow = 2.37 cfs @ 7.96 hrs, Volume= 0.801 af
 Primary = 2.37 cfs @ 7.96 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond CB Pond Out: Pollution Control MH

Inflow Area = 22.000 ac, Inflow Depth > 2.69" for 25-year Storm event
 Inflow = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af
 Outflow = 5.62 cfs @ 9.07 hrs, Volume= 4.933 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.62 cfs @ 9.07 hrs, Volume= 4.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 211.94' @ 9.07 hrs Surf.Area= 0.001 ac Storage= 0.003 af

Plug-Flow detention time= 1.1 min calculated for 4.932 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (857.1 - 856.6)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	0.009 af	6.00'D x 14.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	210.90'	24.0" x 260.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 209.00' S= 0.0073 ' /' Cc= 0.900 n= 0.013

Primary OutFlow Max=5.62 cfs @ 9.07 hrs HW=211.94' (Free Discharge)
 1=Culvert (Barrel Controls 5.62 cfs @ 4.98 fps)

Pond Pond 1: Upper Pond

Inflow Area = 15.330 ac, Inflow Depth = 2.56" for 25-year Storm event
 Inflow = 7.13 cfs @ 8.00 hrs, Volume= 3.269 af
 Outflow = 3.74 cfs @ 9.21 hrs, Volume= 3.255 af, Atten= 48%, Lag= 72.4 min
 Primary = 3.74 cfs @ 9.21 hrs, Volume= 3.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.94' @ 9.16 hrs Surf.Area= 8,271 sf Storage= 17,073 cf

Plug-Flow detention time= 76.3 min calculated for 3.255 af (100% of inflow)
 Center-of-Mass det. time= 73.0 min (855.0 - 782.1)

Volume #1	Invert	Avail.Storage	Storage Description
	216.00'	26,950 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.00	44	0	0
216.50	44	22	22
216.75	44	11	33
217.00	3,188	404	437
218.00	4,819	4,004	4,441
219.00	6,552	5,686	10,126
220.00	8,386	7,469	17,595
221.00	10,323	9,355	26,950

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	24.0" x 120.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 217.00' S= 0.0000 ' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	217.01'	8.0" Horiz. Orifice/Grate X 2.00 Limited to weir flow C= 0.600
#3	Device 1	219.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	220.50'	6.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.74 cfs @ 9.21 hrs HW=219.94' TW=219.21' (Dynamic Tailwater)

- 1=Culvert (Passes 3.74 cfs of 12.85 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.86 cfs @ 4.09 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 0.89 cfs @ 3.03 fps)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Pond 2: Lower Pond

Inflow Area = 22.000 ac, Inflow Depth > 2.69" for 25-year Storm event
 Inflow = 6.64 cfs @ 8.00 hrs, Volume= 4.936 af
 Outflow = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af, Atten= 15%, Lag= 64.1 min
 Primary = 5.62 cfs @ 9.06 hrs, Volume= 4.936 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.22' @ 9.06 hrs Surf.Area= 8,239 sf Storage= 14,101 cf

Plug-Flow detention time= 44.2 min calculated for 4.936 af (100% of inflow)
 Center-of-Mass det. time= 44.2 min (856.6 - 812.4)

Volume	Invert	Avail. Storage	Storage Description
#1	211.20'	31,761 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)
211.20	16	0	0
211.50	16	5	5
216.99	16	88	93
217.00	4,446	22	115
218.00	6,090	5,268	5,383
219.00	7,836	6,963	12,346
220.00	9,682	8,759	21,105
221.00	11,631	10,657	31,761

Device	Routing	Invert	Outlet Devices
#1	Primary	211.20'	24.0" x 20.0' long Culvert CMP, square edge headwall; Ke= 0.500 Outlet Invert= 211.10' S= 0.0050 '/' Cc= 0.900 n= 0.013
#2	Device 1	211.21'	5.8" Horiz. Orifice/Grate C= 0.600
#3	Device 1	218.41'	1.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	219.20'	24.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
#5	Secondary	219.50'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Primary OutFlow Max=5.62 cfs @ 9.06 hrs HW=219.22' TW=211.94' (Dynamic Tailwater)

- ↳ 1=Culvert (Passes 5.62 cfs of 40.07 cfs potential flow)
- ↳ 2=Orifice/Grate (Orifice Controls 2.38 cfs @ 12.99 fps)
- ↳ 3=Sharp-Crested Rectangular Weir (Weir Controls 3.18 cfs @ 2.94 fps)
- ↳ 4=Orifice/Grate (Weir Controls 0.05 cfs @ 0.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=211.20' (Free Discharge)

- ↳ 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points x 3

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 3P: Driveway Existing Flow

Inflow=7.87 cfs 4.464 af
Primary=7.87 cfs 4.464 af

Pond 8P: Culvert 2 Control

Inflow=2.72 cfs 0.921 af
Primary=2.72 cfs 0.921 af

Pond CB Pond Out: Pollution Control MH

Peak Elev=212.09' Storage=0.003 af Inflow=7.16 cfs 5.780 af
24.0" x 260.0' Culvert Outflow=7.16 cfs 5.777 af

Pond Pond 1: Upper Pond

Peak Elev=220.35' Storage=20,688 cf Inflow=8.48 cfs 3.849 af
Outflow=4.65 cfs 3.835 af

Pond Pond 2: Lower Pond

Peak Elev=219.33' Storage=15,044 cf Inflow=7.93 cfs 5.780 af
Primary=7.16 cfs 5.780 af Secondary=0.00 cfs 0.000 af Outflow=7.16 cfs 5.780 af

Pond 3P: Driveway Existing Flow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.080 ac, Inflow Depth = 2.67" for 100-year Storm event
 Inflow = 7.87 cfs @ 8.01 hrs, Volume= 4.464 af
 Primary = 7.87 cfs @ 8.01 hrs, Volume= 4.464 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond 8P: Culvert 2 Control

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.940 ac, Inflow Depth = 3.76" for 100-year Storm event
 Inflow = 2.72 cfs @ 7.96 hrs, Volume= 0.921 af
 Primary = 2.72 cfs @ 7.96 hrs, Volume= 0.921 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Pond CB Pond Out: Pollution Control MH

Inflow Area = 22.000 ac, Inflow Depth > 3.15" for 100-year Storm event
 Inflow = 7.16 cfs @ 8.71 hrs, Volume= 5.780 af
 Outflow = 7.16 cfs @ 8.71 hrs, Volume= 5.777 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.16 cfs @ 8.71 hrs, Volume= 5.777 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 212.09' @ 8.71 hrs Surf.Area= 0.001 ac Storage= 0.003 af

Plug-Flow detention time= 1.0 min calculated for 5.777 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (850.4 - 849.9)

Volume	Invert	Avail.Storage	Storage Description
#1	207.00'	0.009 af	6.00'D x 14.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	210.90'	24.0" x 260.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 209.00' S= 0.0073 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=7.16 cfs @ 8.71 hrs HW=212.09' (Free Discharge)

↑1=Culvert (Barrel Controls 7.16 cfs @ 5.28 fps)

Pond Pond 1: Upper Pond

Inflow Area = 15.330 ac, Inflow Depth = 3.01" for 100-year Storm event
 Inflow = 8.48 cfs @ 8.00 hrs, Volume= 3.849 af
 Outflow = 4.65 cfs @ 9.09 hrs, Volume= 3.835 af, Atten= 45%, Lag= 65.3 min
 Primary = 4.65 cfs @ 9.09 hrs, Volume= 3.835 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 220.35' @ 9.04 hrs Surf.Area= 9,072 sf Storage= 20,688 cf

Plug-Flow detention time= 76.8 min calculated for 3.834 af (100% of inflow)
 Center-of-Mass det. time= 74.0 min (847.9 - 773.9)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	26,950 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
216.00	44	0	0
216.50	44	22	22
216.75	44	11	33
217.00	3,188	404	437
218.00	4,819	4,004	4,441
219.00	6,552	5,686	10,126
220.00	8,386	7,469	17,595
221.00	10,323	9,355	26,950

Device	Routing	Invert	Outlet Devices
#1	Primary	217.00'	24.0" x 120.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 217.00' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	217.01'	8.0" Horiz. Orifice/Grate X 2.00 Limited to weir flow C= 0.600
#3	Device 1	219.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	220.50'	6.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=4.65 cfs @ 9.09 hrs HW=220.35' TW=219.32' (Dynamic Tailwater)

- 1=Culvert (Passes 4.65 cfs of 15.39 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 3.42 cfs @ 4.90 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 1.23 cfs @ 3.63 fps)
- 4=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Pond 2: Lower Pond

Inflow Area = 22.000 ac, Inflow Depth > 3.15" for 100-year Storm event
 Inflow = 7.93 cfs @ 8.00 hrs, Volume= 5.780 af
 Outflow = 7.16 cfs @ 8.71 hrs, Volume= 5.780 af, Atten= 10%, Lag= 42.9 min
 Primary = 7.16 cfs @ 8.71 hrs, Volume= 5.780 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 219.33' @ 8.71 hrs Surf.Area= 8,448 sf Storage= 15,044 cf

Plug-Flow detention time= 43.8 min calculated for 5.780 af (100% of inflow)
 Center-of-Mass det. time= 43.8 min (849.9 - 806.1)

Volume	Invert	Avail. Storage	Storage Description
#1	211.20'	31,761 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)
211.20	16	0	0
211.50	16	5	5
216.99	16	88	93
217.00	4,446	22	115
218.00	6,090	5,268	5,383
219.00	7,836	6,963	12,346
220.00	9,682	8,759	21,105
221.00	11,631	10,657	31,761

Device	Routing	Invert	Outlet Devices
#1	Primary	211.20'	24.0" x 20.0' long Culvert CMP, square edge headwall, Ke= 0.500 Outlet Invert= 211.10' S= 0.0050 '/' Cc= 0.900 n= 0.013
#2	Device 1	211.21'	5.8" Horiz. Orifice/Grate C= 0.600
#3	Device 1	218.41'	1.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	219.20'	24.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
#5	Secondary	219.50'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.0' Crest Height

Primary OutFlow Max=7.16 cfs @ 8.71 hrs HW=219.33' TW=212.09' (Dynamic Tailwater)

- ↑ 1=Culvert (Passes 7.16 cfs of 40.40 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 2.38 cfs @ 12.96 fps)
- ↑ 3=Sharp-Crested Rectangular Weir (Weir Controls 3.80 cfs @ 3.14 fps)
- ↑ 4=Orifice/Grate (Weir Controls 0.98 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=211.20' (Free Discharge)

- ↑ 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Appendix E – Water Quality Design



Impervious Area for treatment

For Pond 1&2

10.61 acres

462262 sqft

Water Quality Flows for Swale

Site Input Data:

Existing Impervious Area= 78756 sq.ft. = 1.81 acres
Proposed Impervious Area = 462262 sq.ft. = 10.61 acres
New Impervious Area = 383505 sq.ft. = 8.80 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced by the water quality storm. 0.36 inches over 100-percent of the new impervious area

Water Quality Volume (WQV):

WQV= 11505 cu.ft

Water Quality Flow (WQF): The average design flow anticipated from the water quality storm

WQF = 0.799 cfs

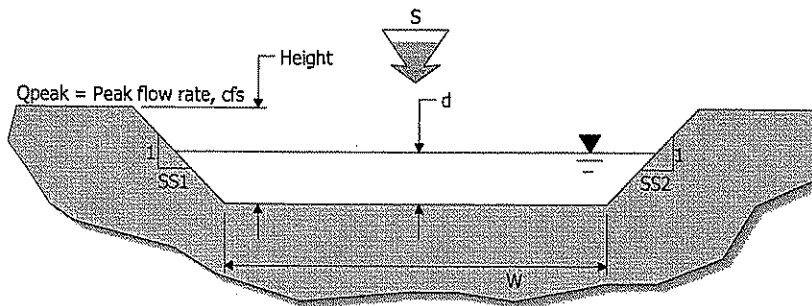


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Value	Unit
Side Slope 1	SS1	4	SS1:1
Side Slope 2	SS2	4	SS2:1
Swale Width	W	13	feet
Lengthwise Slope	S	0.005	feet/foot
Peak Flow Rate	Qpeak	0.799	cfs
Swale Height	Height	1.5	feet
Manning Coefficient	n	0.24	
Residence Time	T	9	min

Computed Data

Variable	Name	Value	Unit
Depth	d	3.61	inches
Cross-sectional Area	A	4.28	sf
Wetted Perimeter	WP	15.48	feet
Hydraulic Radius	R	0.28	feet
Computed Peak Flow Rate	Qpkcalc	0.79	cfs
Computed Peak Velocity	Vpkcalc	0.19	ft/sec
Computed Length	L	100	feet

Mill Creek Swale



Villebois Village

Coffee Lake Creek Drainage Basin

March 23, 2007
Updated July 3, 2007

Prepared for:
City of Wilsonville



Prepared by:
Otak, Inc



Project No. 13356

Acknowledgements

Villebois Village

**Coffee Lake Creek
Drainage Basin**

Submitted to:
City of Wilsonville

Prepared by:
Scott Shumaker, P.E.
Project Manager

Robert Schottman
Senior Water Resource Engineer

Jessica Collins
Water Resource Designer

Lindsay Mitchell
Civil Designer



March 23, 2007
Updated July 3, 2007

Storm Drainage Report

Coffee Lake Creek Drainage Basin

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Appendices

Appendix A: Exhibits

Figure A1 – SAP North Existing Drainage Basin Boundaries

Figure A2 – SAP North Comparative Phasing Plan

Figure A3 – SAP North Rainwater Management Components Location

Appendix B: Soil Survey

Appendix C: Pre-Developed and Developed Conditions

Appendix D: Water Quality Design

Storm Drainage Report

Coffee Lake Creek Drainage Basin

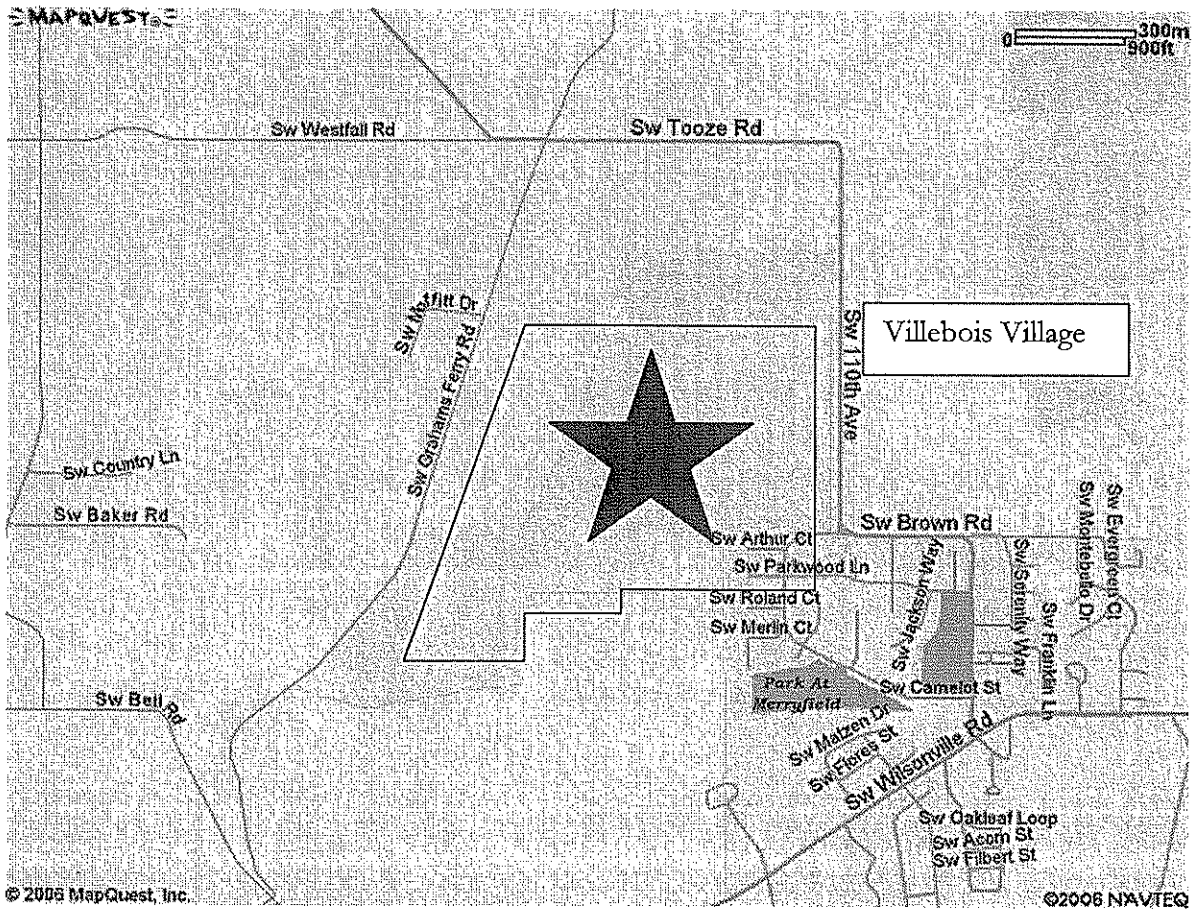


Figure 1, Vicinity Map Villebois Village (Wilsonville, Oregon)

Introduction

This report summarizes the hydrologic and hydraulic analyses pertaining to stormwater runoff from Specific Area Plan (SAP) North (Phases 1 through 6) in Coffee Lake Creek Basin. Stormwater runoff from SAP North will be divided among Mill Creek Basin, Arrowhead Creek Basin and Coffee Lake Creek Basin. Results provided in this report demonstrate compliance with discharge requirements set by the City of Wilsonville, Oregon. The portion of SAP North within the Coffee Lake Creek Basin will require water quality treatment, but will not require stormwater detention. This report provides results of water quality treatment design. The portion of SAP North within Mill Creek Basin and Arrowhead Creek Basin requiring stormwater detention and water quality treatment has been addressed in separate reports.

Please refer to the report titled *Villebois Village: Arrowhead Creek Basin Storm Drainage Report* (Arrowhead Creek Report) dated October 18, 2006 prepared by Otak Inc. (Project #13373) for storm drainage results regarding the area of SAP North in Arrowhead Creek Basin. Please refer to the reports titled *Villebois SAP 4S Portion of Mill Creek Basin: Drainage Report* (4S Report) dated October 18, 2006 prepared by Otak Inc. (Project #13354), and *Villebois SAP North*

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Portion of Mill Creek Basin: Drainage Report (Mill Creek Report) dated June 29, 2007 by Otak Inc. (Project # 13356) for storm drainage results regarding the Mill Creek drainage basin. Please refer to the report titled *Villebois Village: Rainwater Management for SAP-North Phases 1 – 6* (Rainwater Plan) updated June 27, 2007 prepared by Otak Inc. (Project #13356) for a discussion of rainwater components used for water quality treatment in Coffee Lake Creek Basin.

Project Description

Zoning

Villebois Village is located within Clackamas County, and has been assigned the land use designation of Village (V) zone by the City of Wilsonville. Approval of the Villebois Village Master Plan in concert with the City of Wilsonville Comprehensive Plan has designated Villebois Village as a Residential Village. This land-use designation will allow SAP North to be developed as an urban village that will include single-family units, neighborhood row houses, parks and open spaces.

Proposed Land Use

The Coffee Lake Creek portion of SAP North is 54.8 acres located within the Urban Growth Boundary (UGB) for Wilsonville, Oregon. Coffee Lake Creek Basin flows to the east into Coffee Lake Creek. SAP North is in a portion of all three existing drainage basins. Coffee Lake Creek drainage basin includes all or parts of Phases 2 through 6 of SAP North.

See Appendix A, Figure A1 for the drainage basin delineation.

Floodplain Analysis

The site is designated as Zone C by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Clackamas County, Oregon, Unincorporated Areas, Panel 140, August 4, 1987. Zone C designation is defined as an area of minimal flooding.

Conditions Pre-Hospital Construction

Topography

Coffee Lake Creek Basin generally drains from west to east where the runoff outfalls into Coffee Lake Creek. Water drains in all directions from a high point within Phase 2. A portion will drain to Graham's Ferry Road, while the balance will drain to Coffee Lake Creek. See Appendix A for a topographic map of the area under existing conditions.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Under pre-developed conditions, SAP North was formerly dense forest land, wetland and fields. Currently, SAP North has some residential buildout. See Appendix A for an exhibit of the existing drainage discharge locations and the site drainage basin boundaries.

Abutting Properties

SW Graham Ferry's Road borders the site to the west and Tooze Road is near the northern border of the site. Land east of the site is comprised of dense forest and farmland, also located within Coffee Lake Creek Basin.

The project site is currently a mixture of agricultural field, dense forest, and residential homes. The property to the south of SAP North was formerly part of the Dammasch State Hospital, and the Living Enrichment Center abuts SAP South further south.

Onsite Natural and Constructed Channels

Coffee Lake Creek Basin drains southeast to the existing on-site discharge location at Coffee Lake Creek.

Soils

The *1982 Soil Survey of Clackamas County Area, Oregon*, published by the USDA Soil Conservation Service (SCS), identifies the hydrologic soil groups of the site as types B and C. Table 1 shows the soil types and corresponding hydrologic groups found in SAP North Coffee Lake Creek Basin. Please refer to Appendix B for the project site soil map.

Storm Drainage Report
Coffee Lake Creek Drainage Basin
Continued

Table 1 Project Site Soils		
Soil Name	SCS Symbol	Hydrologic Group
Aloha silt loam <i>0 to 3 percent slopes</i>	1A	C
Aloha silt loam <i>3 to 6 percent slopes</i>	1B	C
Canderly <i>0 to 3 percent slopes</i>	12A	B
Humaquepts <i>ponded</i>	42	Not listed
Latourell loam <i>0 to 3 percent slopes</i>	53A	B
Quatama loam <i>3 to 8 percent slopes</i>	71B	C
Quatama loam <i>8 to 15 percent slopes</i>	71C	C
Willamette <i>0 to 3 percent slopes</i>	86A	C
Willamette <i>3 to 8 percent slopes</i>	86B	C
Woodburn <i>3 to 8 percent slopes</i>	91B	C
Woodburn silt loam <i>8 to 15 percent slopes</i>	91C	C

Hydrology

The City of Wilsonville *Public Works Standards* (2006) and *Stormwater Master Plan* (June 2001) were used as guidelines for hydrologic calculations. Precipitation data for the site was referenced from the City of Wilsonville *Stormwater Master Plan* as shown in Table 2.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Table 2 Precipitation Data from City of Wilsonville Stormwater Master Plan (2001)	
Return Event	24-hour Precipitation (inches)
2-year	2.50
10-year	3.50
25-year	4.00
50-year	4.25
100-year	4.50

Predevelopment Hydrologic Conditions

Under pre-developed conditions, the project site drains to three separate drainage basins: Mill Creek Basin to the west, Arrowhead Creek Basin to the southeast, and Coffee Lake Creek Basin to the east. Please refer to Appendix A for a map of the SAP North site in Coffee Lake Creek under pre-developed conditions.

Table 3 Pre-developed Conditions Parameters		
Subbasin ID	Impervious Area (acre)	Pervious Area (acre)
SAP North-Coffee Lake Creek Basin		
Phase 2*	0.0	13.94
Phase 2a	0.0	1.98
Phase 3*	0.0	14.86
Phase 4	0.0	11.20
Phase 5	0.0	12.98
Phase 6	0.0	10.07
Total	0.0	65.03

*A portion of Phases 2 and 3 under existing and proposed conditions is in Arrowhead Creek and Mill Creek Basins and is not addressed in this report.

Proposed Conditions

Under proposed conditions, SAP North incorporates portions of Mill Creek, Arrowhead Creek and Coffee Lake Creek Basins. The portion within Coffee Lake Creek Basin is addressed in this report. See Appendix A for a developed drainage basin delineation map for SAP North.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Impervious and pervious areas were determined for each phase. The total impervious and pervious areas under proposed conditions are presented in Table 4.

Table 4 Proposed Conditions Parameters			
Basin ID	Impervious Area (acre)	Pervious Area (acre)	Percent Impervious (%)
Phase 2*	6.84	7.10	51
Phase 2a	1.18	0.79	60
Phase 3*	7.65	7.22	52
Phase 4	3.95	7.25	35
Phase 5	5.03	7.96	39
Phase 6	5.04	5.04	50
Total	29.85	35.36	46

*Includes only area within the Coffee Lake Creek Basin

Rainwater Management – SAP North

Rainwater Management is a portion of the stormwater management plan that is organized by phase. Drainage reports are addressed by drainage basin. Rainwater management components proposed for SAP North include bioretention cells, grassy swales, vegetated swales, deciduous trees, evergreen trees, permeable/turf pavers, and soil amendments. These rainwater management components are provided to treat runoff from impervious areas. Soil amendments will also be applied to all pervious areas. See Rainwater Plan for details regarding rainwater management mitigation and components. Coffee Lake Creek encompasses Phases 2 through 6.

Collection and Conveyance

Stormwater runoff will be collected by a series of catch basins that discharge to a piped conveyance system. The onsite conveyance system is divided among the existing drainage basins. The conveyance system is designed to collect and convey runoff to stormwater treatment facilities before discharging to the respective natural drainage systems. Stormwater treatment facilities within the Coffee Lake Creek portion of the site are designed for stormwater treatment and flow mitigation.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Water Quantity

No detention is required in the entirety of Coffee Lake Creek Basin of the Villebois Village. Please see the *Villebois Village Master Plan* for a discussion of detention requirements for the Coffee Lake Creek basin within Villebois Village.

Water Quality

Water quality treatment will be provided for runoff from the portion of Coffee Lake Creek Basin in SAP North. Table 8 shows the water quality volume (WQV) and flows (WQF) calculated using the City of Wilsonville *Public Works Standards*. Flows were calculated based on new impervious areas under proposed conditions for the project site. Please see Appendix F for WQV and WQF calculations.

Based on the City of Wilsonville Stormwater Master Plan, row house unit lots are assumed to be 85 percent impervious and 15 percent pervious and single-family detached home lots are assumed to be 60 percent impervious and 40 percent pervious. The road rights-of-way are assumed to be 80 percent impervious and 20 percent pervious. The school site was assumed to be 50 percent impervious and 50 percent pervious.

Using City of Wilsonville design standards, it is assumed that the water quality treatment facilities will remove 70 percent of the total suspended solid (TSS). Water quality facilities will be placed throughout Coffee Lake Creek Basin in SAP North, treating specific impervious areas on site. The water quality facilities are also utilized as rainwater management facilities, as discussed in the SAP North Rainwater Management Report.

Water quality treatment swales will provide water quality treatment. Specifications for these treatment facilities have been incorporated into the SAP North drawings. All water quality treatment facilities are also being utilized as rainwater management components. See Table 5 for WQV and WQF calculations by Phase. See Table 6 for the list of rainwater components utilized for water quality treatment. See Figure A3 for rainwater management component locations. See Appendix D for detailed WQV calculations, WQF calculations and required treatment facility designs.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

Table 5 Water Quality Volumes and Flows			
Contributing Basin	Impervious Area (acres)	WQV (cf)	WQF (cfs)
Phases 2 and 2a	8.02	10,480	0.73
Phase 3	7.65	9,996	0.69
Phase 4	3.95	5,163	0.36
Phase 5	5.03	6,569	0.46
Phase 6	5.04	6,583	0.46
Total	29.69	38,791	2.70

Table 6 Rainwater Components Utilized for Water Quality Treatment		
Rainwater Component	Rainwater Component Type	Contributing Phases
2G	Grassy Swale	Phases 2 and 2a
3B	Vegetated Swale	Phase 3
4B	Vegetated Swale	Phase 4
5B	Grassy Swale	Phase 5
6A	Grassy Swale	Phase 6

Storm Outfall

Stormwater runoff from SAP North Coffee Lake Creek Basin will discharge to Coffee Lake Creek after collection, treatment and conveyance. Each water quality facility outfalls to the conveyance system that will route treated stormwater to Coffee Lake Creek.

Conclusion

This storm drainage report applies to the portion of Coffee Lake Creek in SAP North of the Villebois Village Development located in Wilsonville, Oregon requiring water quality treatment. This portion of Villebois Village does not require stormwater detention. Stormwater treatment will be provided in the portion of Coffee Lake Creek Basin lying within SAP North. Runoff will be collected by catch basins and then piped to a water quality treatment facility, and then discharged to a storm line conveyance system.

Storm Drainage Report

Coffee Lake Creek Drainage Basin

Continued

References

City of Wilsonville, Oregon. *Public Works Standards*. 2006.

City of Wilsonville, Oregon. *Stormwater Master Plan*. June 2001.

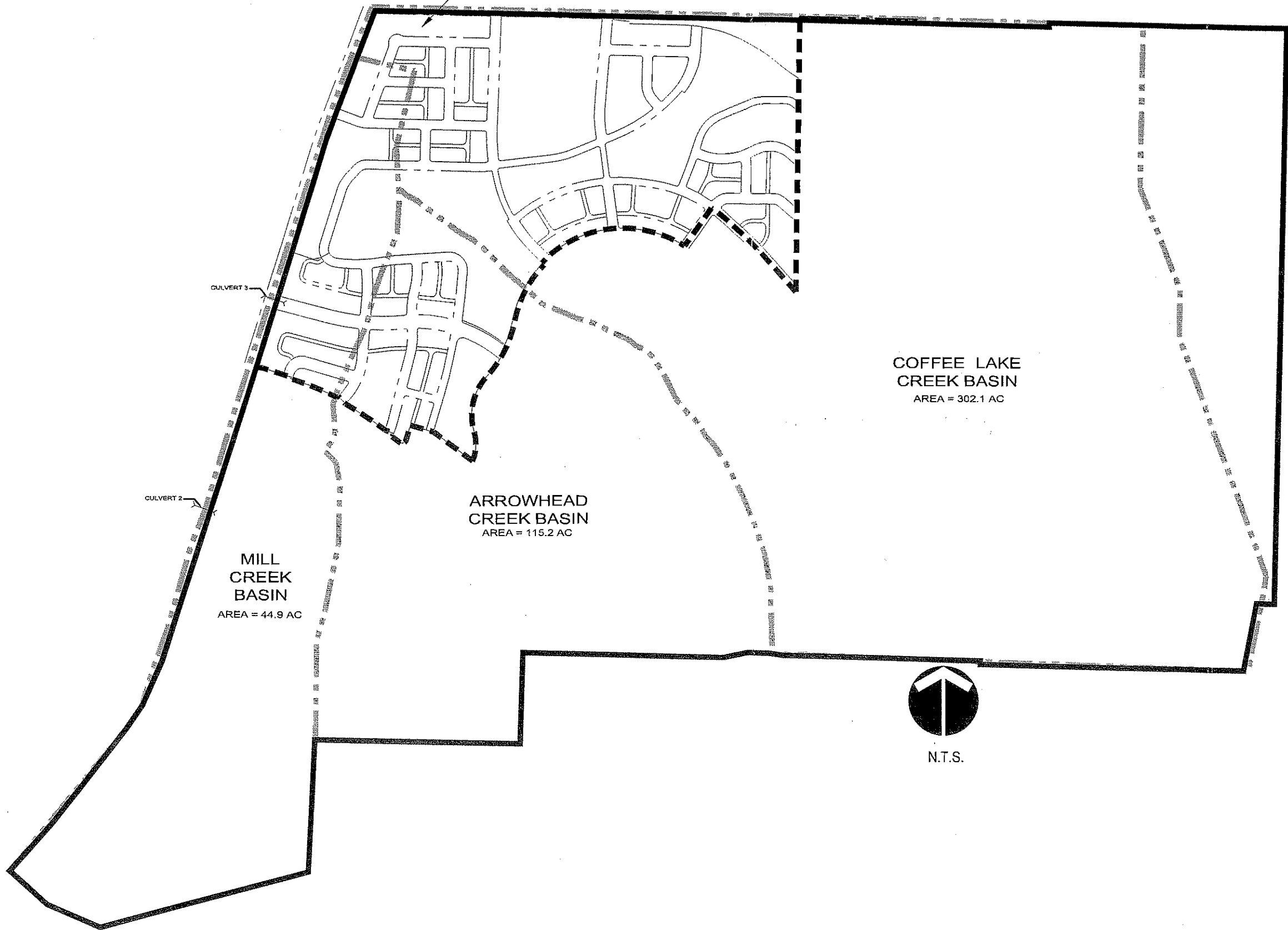
City of Wilsonville, Oregon (Development Review Board). *DB05-0075: PDP-4S: Preliminary Development Plan*. April 10, 2006.

Appendix A – Exhibits



XREF LIST
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 P356X230
 P066X230
 P356X230

SAP NORTH



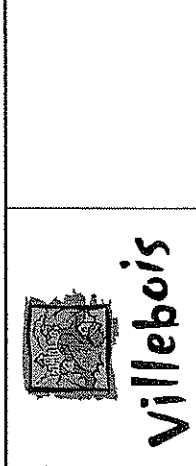
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- BASIN BOUNDARY
- SAP NORTH BOUNDARY
- VILLEBOIS VILLAGE



JAG: LINDSAY, 07/06/2007 11:50am --> L:\PROJECT\13356\REPORTS\STORMWATER\COFFEE LAKE CREEK\APPENDIX A\FIGURE A1_DRAINAGE BASINS.DWG

NO.	DATE	BY	REVISION COMMENTS



ARBOR VILLEBOIS
 SAP NORTH EXISTING DRAINAGE BASIN BOUNDARIES

otak
 Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-6217
 Phone: (503) 635-3618
 FAX: (503) 635-6395
 Internet: WWW.OTAK.COM

13356
 Project No. Drawing No.
FIG. A1
 Sheet No.
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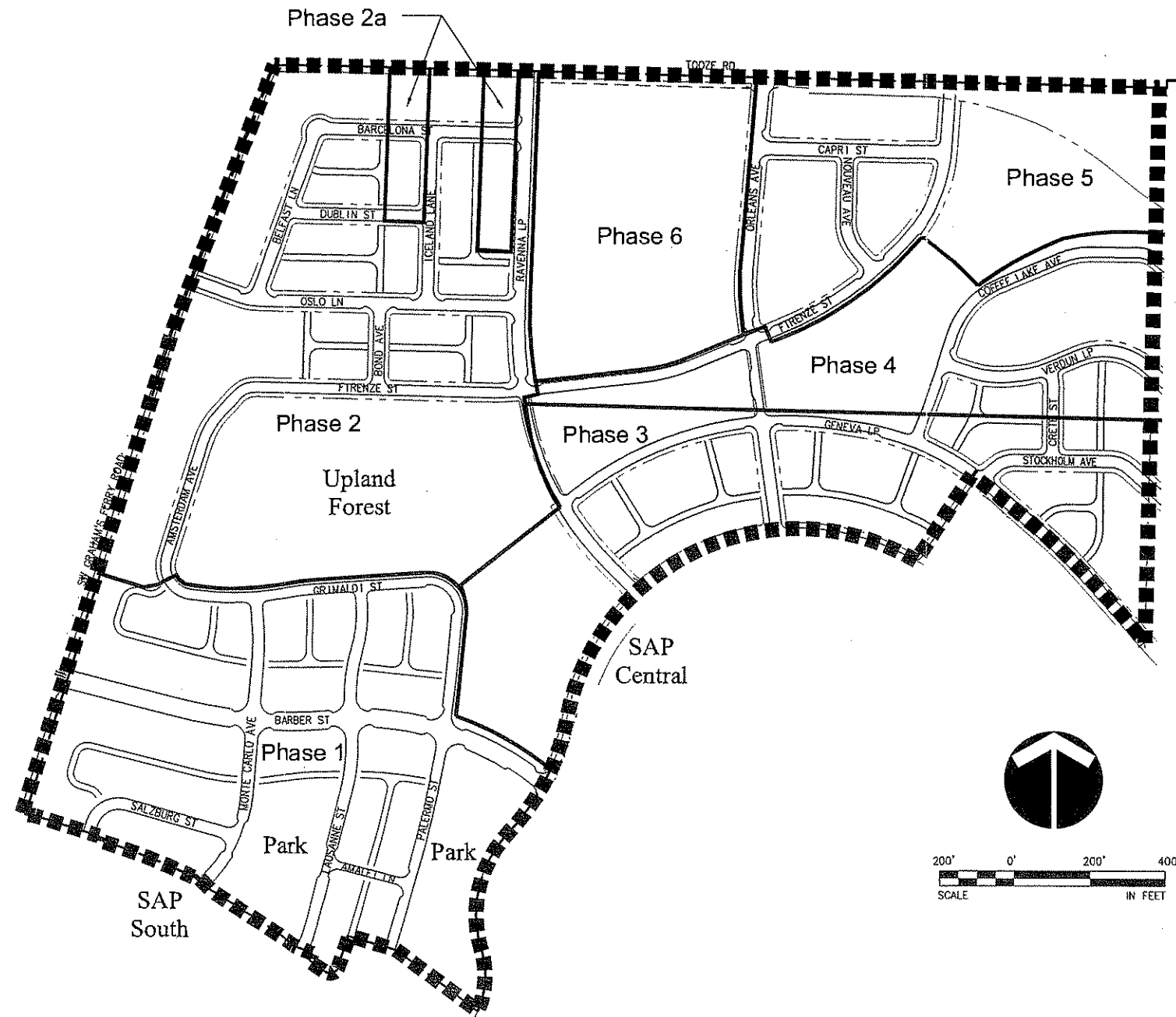
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 PD
 C355
 PH1S CD-LOTS
 PH1S CD-SURF
 PH1S CD-UTIL
 P356X230
 PH1C CD-LOTS
 AS-BUILT-PH2S
 AS-BUILT-PH2S
 P356X001

Table A.
Proposed Range of Residential Units

Product Type	Phase 1	Phase 2	Phase 2a	Phase 3	Phase 4	Phase 5	Phase 6 (School)	Total
Estate	0	0	0	0	2	15		17
Large	0	7	1	0	8	8		20
Standard	2	18	2	0	0	0		27
Medium	36	18	8	20	4	0		86
Small	54	30	4	36	9	0		133
Row House	52	31	0	31	0	0		114
Neighborhood Apartment	0	0	0	0	0	0		0
Total	144	104	15	87	23	23	0	397

Table B.
Proposed Acreages by Phase

	Phase 1	Phase 2	Phase 2a	Phase 3	Phase 4	Phase 5	Phase 6 (School)	Total
Proposed SAP-North	23.48 acres	27.40 acres	1.98 acres	17.65 acres	11.20 acres	12.98 acres	10.07 acres	104.76 acres



 SAP BOUNDARY
 PHASE LINE

Proposed SAP - North Phases



ARBOR VILLOBOIS
 SAP NORTH COMPARATIVE PHASING PLAN

otak
 Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 636-3618
 FAX: (503) 636-5385
 Internet: WWW.OTAK.COM

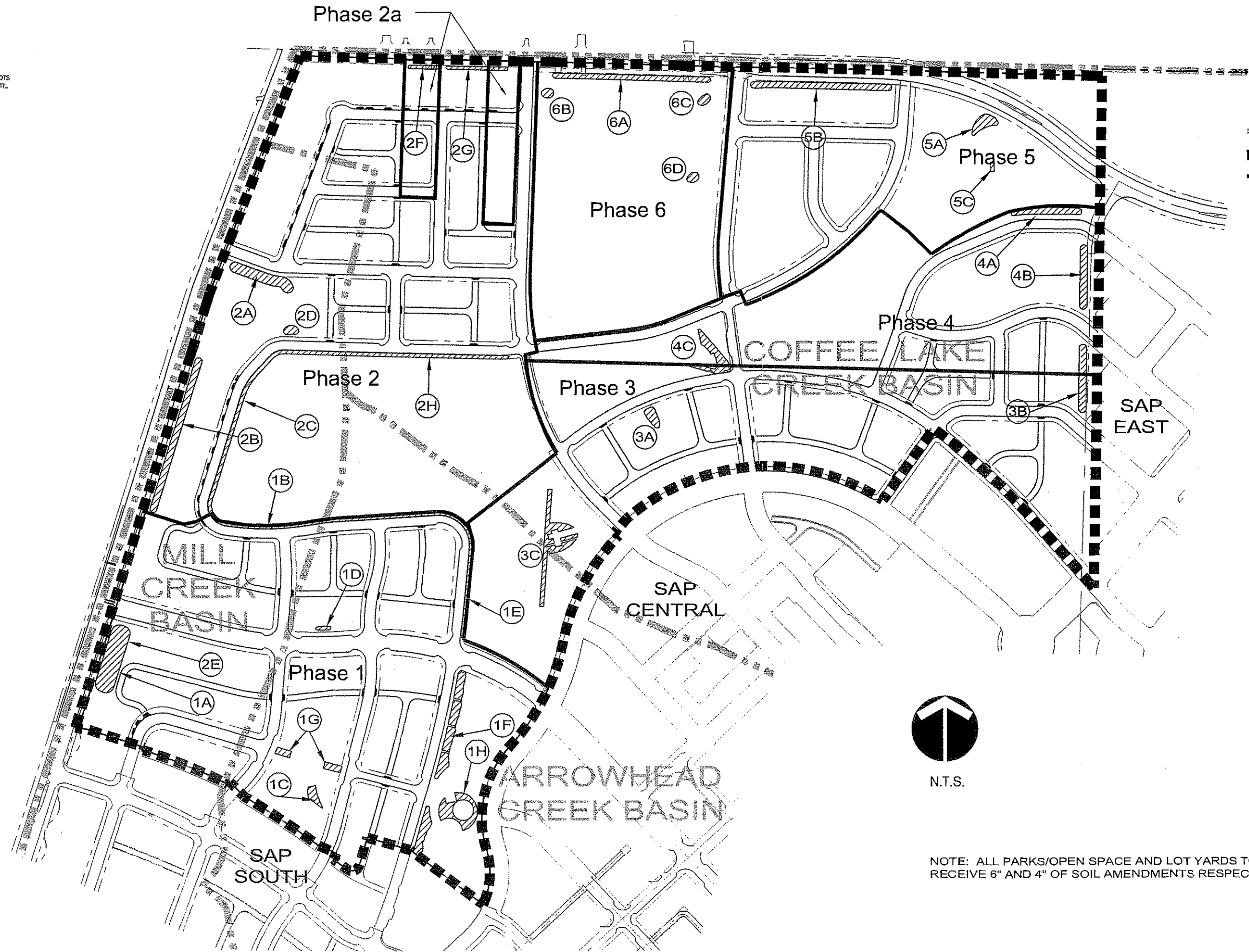
13356 P356P30
 Project No. Drawing No.
Fig A2
 Sheet No.
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NO.	DATE	BY	REVISION COMMENTS

LKO: UNDSAYM 07/06/2007 12:53am --> L:\PROJECT\13300\13356\REPORTS\STORMWATER\COFFEE LAKE CREEK\APPENDIX A\FIGURE A2_PHASES.DWG

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 0352X192
 0352X193
 03
 C
 PO
 C355X40
 PH1S CD-LOTS
 PH1S CD-SURF
 PH1S CD-UTIL
 P356X230
 AS-BUILT-PH2S CD-LOTS
 AS-BUILT-PH2S CD-UTIL
 P356X600
 P066X600
 P356X001
 SAP LINES
 0352XSAP EAST
 PH1E CD-LOTS
 PH1E CD-SURF
 PH1E CD-UTIL
 SAP EAST-SURF
 BOECKMAN-ALIGNMENT
 0352XSAP CENTRAL
 SAP-CENTRAL-SURF
 PH1C CD-LOTS
 PH1C CD-UTIL-REV

L:\PROJECTS\13356\REPORTS\STORMWATER\COFFEE LAKE CREEK\APPENDIX A\FIGURE A3_RAINWATER COMPONENT LOCATIONS.DWG



LEGEND:

- BASIN BOUNDARY
- SAP NORTH BOUNDARY
- PHASE LINE
- RAINWATER COMPONENT
P=PHASE NUMBER, X=COMPONENT DESIGNATION
- RAINWATER COMPONENT



NOTE: ALL PARKS/OPEN SPACE AND LOT YARDS TO RECEIVE 6" AND 4" OF SOIL AMENDMENTS RESPECTIVELY

NO.	DATE	BY	REVISION COMMENTS

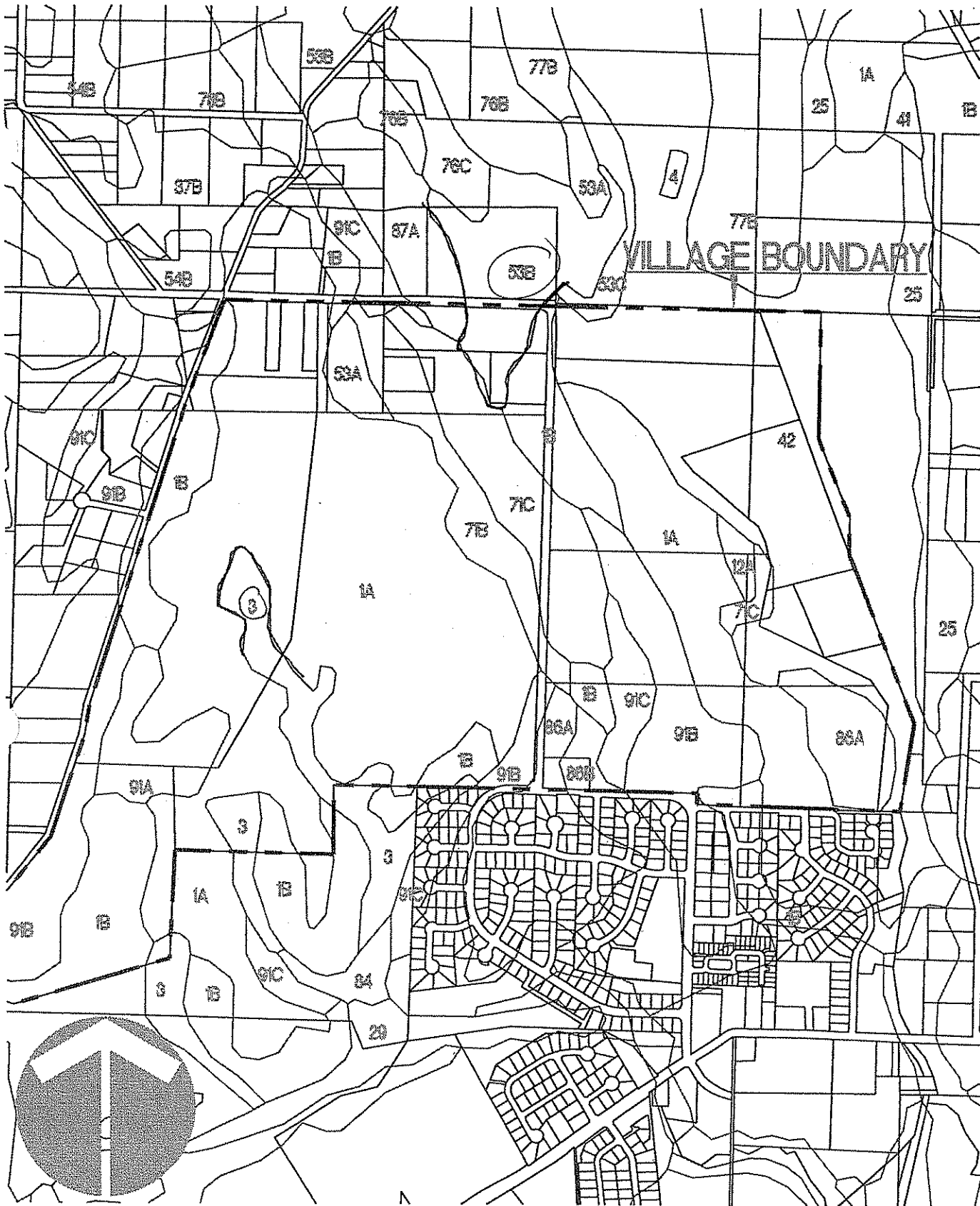
ARBOR VILLEBOIS
 SAP NORTH
 RAINWATER MANAGEMENT COMPONENT LOCATIONS

Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3518
 FAX: (503) 635-5395
 Internet: WWW.OTAK.COM

13356
 Project No. Drawing No.
FIG. A3
 Sheet No.
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Appendix B – Soil Survey





Prepared By Alpha 12/16/06

Reviewed By Otak 8/09/08

Plot # 13352

1"=1000'

EXHIBIT B: SOIL SURVEY MAP

17355 SW Boones Ferry Road
 Lake Oswego, OR 97035
 Phone: (503) 635-3618
 FAX: (503) 635-5395



Appendix C – Pre-Developed
And Developed Conditions



North-Phase 2

Total Basin Area (AC)	27.40
Total Impervious Area (AC)	10.00

VILLOBIS S&P NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\133001\3356\Reports\Stormwater\Coffee Lake Creek\Appendix C\Impervious Area Calculations

Mill Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (AC)	Impervious Area (AC)	Previous Area (AC)	Curve Number (Impervious)	Curve Number (Previous)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	17,187	0.39	1.44	9	85%	0.34	0.06	98	80	-	C
Single Family Detached	121,646	2.79	10.19	27	60%	1.68	1.12	98	80	91	C
Other	0.00	0.00	0.00			0.00	0.00	-	-	98	C
Commercial/Condo Lots	62,977	1.45	5.28		80%	1.16	0.29	-	-	94.4	C
SF of Streets/Alleys/SW	287,760	6.61	24.11		0%	0.00	6.61	-	-	80	C
Open Space						3.17	8.07				
TOTAL	489,570	11.24	41.02								

Percent Impervious: 28.2%

Arrowhead Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (AC)	Impervious Area (AC)	Previous Area (AC)	Curve Number (Impervious)	Curve Number (Previous)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	0.00	0.00	0.00	0	60%	0.00	0.00	98	80	-	C
Other	0.00	0.00	0.00			0.00	0.00	-	-	98	C
Commercial/Condo Lots	0.00	0.00	0.00		80%	0.00	0.00	-	-	94.4	C
SF of Streets/Alleys/SW	96,778	2.22	8.11		0%	0.00	2.22	-	-	80	C
Open Space						0.00	2.22				
TOTAL	96,778	2.22	8.11								

Percent Impervious: 0.0%

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot (AC)	Impervious Area (AC)	Previous Area (AC)	Curve Number (Impervious)	Curve Number (Previous)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	41,952	0.96	3.52	22	85%	0.82	0.14	98	80	-	C
Single Family Detached	178,033	4.09	14.92	47	60%	2.45	1.63	98	80	91	C
Other	0.00	0.00	0.00			0.00	0.00	-	-	98	C
Commercial/Condo Lots	194,113	4.46	16.27		80%	3.56	0.89	-	-	94.4	C
SF of Streets/Alleys/SW	192,948	4.43	16.17		0%	0.00	4.43	-	-	80	C
Open Space						6.84	7.10				
TOTAL	607,046	13.94	50.87								

Percent Impervious: 40.1%

North-Phase 2a

Total Basin Area (AC)	1.98
Total Impervious Area (AC)	1.18

PROJECT: **VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS**
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Rainwater\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	63,245	1.45	73.38	15	60%	0.87	0.58	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	17,019	0.39	19.75		80%	0.31	0.08	-	-	94.4	C
Open Space	5,928	0.14	6.88		0%	0.00	0.14	-	-	80	C
TOTAL	86,192	1.98	100.00			1.18	0.79				

Percent Impervious	59.8%
--------------------	-------

North-Phase 3

Total Basin Area (AC)	17.65
Total Impervious Area (AC)	7.65

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Rainwater\Impervious Area calcs.xls

Arrowhead Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	0.00	0.00	0.00	0	60%	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets / Alleys/SW	0.00	0.00	0.00		80%	0.00	0.00	-	-	94.4	C
Open Space	121,312	2.78	15.78		0%	0.00	2.78	-	-	80	C
TOTAL		121,312	2.78			0.00	2.78				

Percent Impervious: 0.0%

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	51,158	1.17	6.65	31	85%	1.00	0.18	98	80	-	C
Single Family Detached	203,567	4.67	26.48	56	60%	2.80	1.87	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets / Alleys/SW	209,453	4.81	27.24		80%	3.85	0.96	-	-	94.4	C
Open Space	183,340	4.21	23.85		0%	0.00	4.21	-	-	80	C
TOTAL		647,518	14.86			7.65	7.22				

Percent Impervious: 51.5%

North-Phase 4

Total Basin Area (AC)	11.20
Total Impervious Area (AC)	3.95

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\Water\Rainwater\Impervious Area\Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	143,046	3.28	29.32	23	60%	1.97	1.31	98	80	-	C
Other											
School	0	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets / Alleys / SW	107,820	2.48	22.10		80%	1.98	0.50	-	-	94.4	C
Open Space	237,054	5.44	48.58		0%	0.00	5.44	-	-	80	C
TOTAL	487,920	11.20	100.00			3.95	7.25				

Percent Impervious	35.3%
--------------------	-------

North-Phase 5

Total Basin Area (AC)	12.98
Total Impervious Area (AC)	5.03

VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Projects\133000\13356\WaterRes\Rainwater\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	202,192	4.64	35.75	23	60%	2.79	1.86	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	122,075	2.80	21.58		80%	2.24	0.56	-	-	94.4	C
Open Space	241,337	5.54	42.67		0%	0.00	5.54	-	-	80	C
TOTAL	565,604	12.98	100.00			5.03	7.96				

Percent Impervious: 38.7%

North-Phase 6

Total Basin Area (AC)	10.07
Total Impervious Area (AC)	5.04

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Revised\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot		Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
					Impervious Area or Percent	Impervious Area (AC)					
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	60%	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
School	438,851	10.07	100.00		50%	5.04	5.04	-	-	94.4	C
SF of Streets/Alleys/SW	0	0.00	0.00		80%	0.00	0.00	-	-	80	C
Open Space	0.00	0.00	0.00		0%	0.00	0.00	-	-	80	C
TOTAL	438,851	10.07	100.00			5.04	5.04				

Percent Impervious: 50.0%

Appendix D – Water Quality Design



Phase 2

Water Quality Treatment

Site Input Data:

Existing Impervious Area = 0 sq.ft. = 0.00 acres
Proposed Impervious Area = 297769 sq.ft. = 6.84 acres
New Impervious Area = 297769 sq.ft. = 6.84 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced by the water quality storm. 0.36 inches over 100-percent of the new impervious area

Water Quality Volume (WQV):

WQV = 8933 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.620 cfs

Phase 2a

Water Quality Treatment

Site Input Data:

Existing Impervious Area =
Proposed Impervious Area =
New Impervious Area =

0 sq.ft. = 0.00 acres
51562 sq.ft. = 1.18 acres
51562 sq.ft. = 1.18 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced
by the water quality storm.
0.36 inches over 100-
percent of the new
impervious area

Water Quality Volume (WQV):

WQV= 1547 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.107 cfs

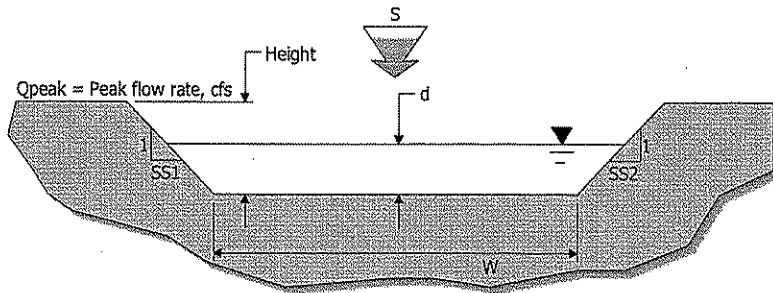


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Unit
Side Slope 1	SS1	4 SS1:1
Side Slope 2	SS2	4 SS2:1
Swale Width	W	6.5 feet
Lengthwise Slope	S	0.015 feet/foot
Peak Flow Rate	Qpeak	0.7 cfs
Swale Height	Height	1.5 feet
Manning Coefficient	n	0.24
Residence Time	T	9 min

Computed Data

Variable	Name	Unit
Depth	d	3.65 inches
Cross-sectional Area	A	2.34 sf
Wetted Perimeter	WP	9.01 feet
Hydraulic Radius	R	0.26 feet
Computed Peak Flow Rate	Qpkcalc	0.73 cfs
Computed Peak Velocity	Vpkcalc	0.31 ft/sec
Computed Length	L	167 feet

Phases 2 and 2a

Phase 3

Water Quality Treatment

Site Input Data:

Existing Impervious Area =
Proposed Impervious Area =
New Impervious Area =

0 0.00 acres
333187 7.65 acres
333187 7.65 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced
by the water quality storm.
0.36 inches over 100-
percent of the new
impervious area

Water Quality Volume (WQV):

WQV= 9996 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.694 cfs

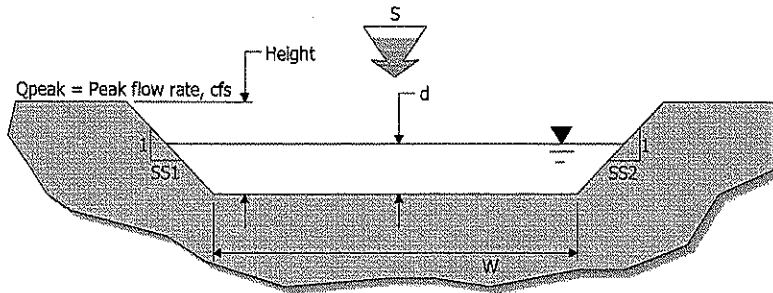


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Unit
Side Slope 1	SS1	4 SS1:1
Side Slope 2	SS2	4 SS2:1
Swale Width	W	4 feet
Lengthwise Slope	S	0.015 feet/foot
Peak Flow Rate	Qpeak	0.7 cfs
Swale Height	Height	1.5 feet
Manning Coefficient	n	0.24
Residence Time	T	9 min

Computed Data

Variable	Name	Unit
Depth	d	4.51 inches
Cross-sectional Area	A	2.07 sf
Wetted Perimeter	WP	7.10 feet
Hydraulic Radius	R	0.29 feet
Computed Peak Flow Rate	Qpkcalc	0.69 cfs
Computed Peak Velocity	Vpkcalc	0.33 ft/sec
Computed Length	L	180 feet

Phase 3

Phase 4

Water Quality Treatment

Site Input Data:

Existing Impervious Area = 0 sq.ft. = 0.00 acres
Proposed Impervious Area = 172084 sq.ft. = 3.95 acres
New Impervious Area = 172084 sq.ft. = 3.95 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced by the water quality storm.
0.36 inches over 100-percent of the new impervious area

Water Quality Volume (WQV):

WQV= 5163 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.359 cfs

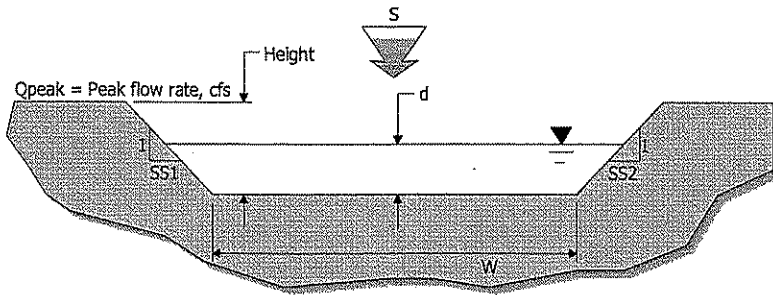


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Unit
Side Slope 1	SS1	4 SS1:1
Side Slope 2	SS2	4 SS2:1
Swale Width	W	2 feet
Lengthwise Slope	S	0.015 feet/foot
Peak Flow Rate	Qpeak	0.4 cfs
Swale Height	Height	1.5 feet
Manning Coefficient	n	0.24
Residence Time	T	9 min

Computed Data

Variable	Name	Unit
Depth	d	4.21 inches
Cross-sectional Area	A	1.20 sf
Wetted Perimeter	WP	4.90 feet
Hydraulic Radius	R	0.24 feet
Computed Peak Flow Rate	Qpkcalc	0.35 cfs
Computed Peak Velocity	Vpkcalc	0.30 ft/sec
Computed Length	L	160 feet

Phase 4

Phase 5

Water Quality Treatment

Site Input Data:

Existing Impervious Area = 0 sq.ft. = 0.00 acres
Proposed Impervious Area = 218975 sq.ft. = 5.03 acres
New Impervious Area = 218975 sq.ft. = 5.03 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced by the water quality storm.
0.36 inches over 100-percent of the new impervious area

Water Quality Volume (WQV):

WQV = 6569 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.456 cfs

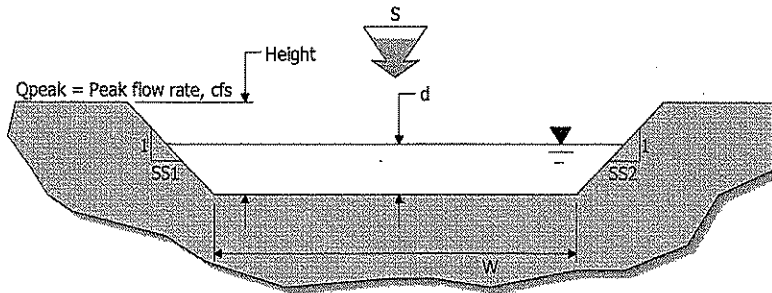


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Unit
Side Slope 1	SS1	4 SS1:1
Side Slope 2	SS2	4 SS2:1
Swale Width	W	5 feet
Lengthwise Slope	S	0.015 feet/foot
Peak Flow Rate	Qpeak	0.5 cfs
Swale Height	Height	1.5 feet
Manning Coefficient	n	0.24
Residence Time	T	9 min

Computed Data

Variable	Name	Unit
Depth	d	3.19 inches
Cross-sectional Area	A	1.61 sf
Wetted Perimeter	WP	7.19 feet
Hydraulic Radius	R	0.22 feet
Computed Peak Flow Rate	Qpkcalc	0.45 cfs
Computed Peak Velocity	Vpkcalc	0.28 ft/sec
Computed Length	L	151 feet

Phase 5

Phase 6

Water Quality Treatment

Site Input Data:

Existing Impervious Area = 0 sq.ft. = 0.00 acres
Proposed Impervious Area = 219426 sq.ft. = 5.04 acres
New Impervious Area = 219426 sq.ft. = 5.04 acres

Water Quality Storm:

0.36 inches
4 hours
96 hour return period event

volume of water produced
by the water quality storm.
0.36 inches over 100-
percent of the new
impervious area

Water Quality Volume (WQV):

WQV = 6583 cu.ft

Water Quality Flow (WQF):

The average design flow anticipated from the water quality storm

WQF = 0.457 cfs

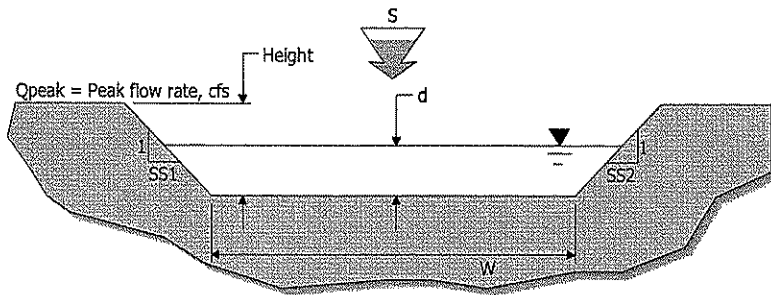


Diagram of Swale Variables Used in Spreadsheet

User-Supplied Data

Variable	Name	Unit
Side Slope 1	SS1	4 SS1:1
Side Slope 2	SS2	4 SS2:1
Swale Width	W	6.5 feet
Lengthwise Slope	S	0.015 feet/foot
Peak Flow Rate	Qpeak	0.5 cfs
Swale Height	Height	1.5 feet
Manning Coefficient	n	0.24
Residence Time	T	9 min

Computed Data

Variable	Name	Unit
Depth	d	2.78 inches
Cross-sectional Area	A	1.72 sf
Wetted Perimeter	WP	8.41 feet
Hydraulic Radius	R	0.20 feet
Computed Peak Flow Rate	Qpkcalc	0.45 cfs
Computed Peak Velocity	Vpkcalc	0.26 ft/sec
Computed Length	L	142 feet

Phase 6



Villebois Village

Rainwater Management Plan SAP - North

Prepared for:

City of Wilsonville



Prepared by

Otak, Inc.



Project No. 13356

June 27, 2007

Acknowledgements

Villebois Village

Rainwater Management Plan SAP - North

Submitted to:
City of Wilsonville

Prepared by:
Scott Shumaker, P.E.
Project Manager

Robert Schottman
Senior Water Resource Engineer

Jessica Collins
Water Resource Designer

Lindsay Mitchell
Civil Designer



June 27, 2007

Rainwater Management Plan

Villebois Village SAP-North

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Proposed Rainwater Management System.....	1
Rainwater Management Components.....	1
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Grassy Swale	2
Vegetated Swale	2
Permeable Pavers.....	3
Deciduous Trees.....	3
Evergreen Trees.....	3
Soil Amendments.....	3
Rainwater Management Procedure	4
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Appendices

Appendix A: Exhibits

 Figure A1 – SAP North Existing Drainage Basin Boundaries

 Figure A2 – SAP North Comparative Phasing Plan

 Figure A3 – SAP North Rainwater Management Component Locations

Appendix B: Impervious Area Calculations

Appendix C: Rainwater Management Component Calculations

Rainwater Management Plan

Villebois Village SAP-North

Introduction

Rainwater management is an important aspect of stormwater management in the Villebois Village. This Rainwater Management Plan provides a summary of design calculations pertaining to the proposed rainwater management components in the Specific Area Plan (SAP) North Phases 1 through 6 of Villebois Village located in Wilsonville, Oregon. Phase 6 for SAP-North is the site of a future school, which has not been designed yet, but for purposes of this report, assumptions were made on the type and quantity of rainwater management components for Phase 6. SAP-North is located in the northwest corner of the Villebois Village development site, and is approximately 104.8 acres consisting of 113 row houses and 283 single family homes. See Appendix A for Figures A1, an exhibit of the drainage basin boundaries, A2 for phase boundaries for SAP-North, and A3 for rainwater management components locations. Rainwater management facilities are proposed to also be utilized for meeting the City of Wilsonville's water quality treatment requirements for the Mill Creek Basin and Coffee Lake Creek Basin. Water quality treatment for the Arrowhead Creek Basin will be provided in Pond F, which is located in SAP South Phase 1.

This report will illustrate that the proposed components will comply with the requirements stated in *The Master Plan for the Villebois Village* and *the SAP-North Rainwater Management Plan*, which indicates specific rainwater management components that are required in Villebois Village. This plan discusses the methodology used to develop the Rainwater Management Plan for SAP – North and is consistent with the SAP-South Rainwater Management Program. This report provides a tabulation of the components utilized within each Phase and within Arrowhead Creek Basin, Mill Creek Basin and Coffee Lake Creek Basin.

Proposed Rainwater Management System

The seven rainwater management components proposed for SAP-North includes bioretention cells, grassy swales, vegetated swales, permeable pavers, soil amendments, evergreen trees, and deciduous trees. This combination of rainwater management components thereby satisfies the requirement of a minimum of three components within each SAP of the Villebois Village. The soil amendments (compost-amended top soil) rainwater management component will be applied to pervious areas for SAP-North.

Implementations of the proposed rainwater components located in the common areas and private lots of the development will effectively mitigate a minimum of 66 percent of the rainwater from the site, including streets, alleys, and buildings.

Rainwater Management Components

Seven rainwater management components will be implemented at SAP-North for a minimum of 66 percent mitigation.

Rainwater Management Plan

Villebois Village SAP-North

Continued

In general, conceptual planning for parks has placed more value on the provision of usable park spaces, thereby reducing opportunities for achieving the original goal of 100 percent rainwater compliance. Rainwater management components were sized accordingly.

A sizing factor is utilized to size the total surface area (sq ft) of each component to mitigate an amount of impervious area (sq ft). The sizing factor is applied to the impervious area to determine the rainwater component facility area. See Equation 1 for the sizing of rainwater components equation.

$$\text{Total Impervious Area Mitigated} = \text{Total Surface Area for Rainwater Component} \div \text{Sizing Factor}$$

Eq. 1

Bioretention Cell

A bioretention cell is a water quality and quantity rainwater management component. This component utilizes soil, woody plants, and herbaceous plants to mimic natural upland systems by detaining runoff in the soil. The cell utilizes biological, chemical, and physical properties of plants and microbes from soils to remove pollutants from stormwater runoff. For the purposes of rainwater management, detention ponds are considered bioretention cells. A sizing factor of 0.03 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Grassy Swale

Grassy swales are elongated depressions in the ground that serve as water quality and conveyance components of the rainwater management system. Grassy swales can assume various channel shapes including semicircular and trapezoidal. A variety of grasses are planted in the swale channel. Swales treat and attenuate runoff and also promote infiltration and allow pollutants to settle and/or filter out. Infiltration in swales is promoted by small pooled areas created by check dams. When designing a swale the following design criteria must be evaluated: soil suitability, slopes, dimensioning, type of native vegetation and plants, and landscaping aesthetics. A sizing factor of 0.07 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Vegetated Swale

Vegetated swales are elongated depressions in the ground that serve as water quality and conveyance components of the rainwater management system. Vegetated swales can assume various channel shapes including semicircular and trapezoidal. A variety of native trees, shrubs and grasses are planted in the swale channel. Similar to grassy swales, vegetated swales treat and attenuate runoff. They also promote infiltration and allow pollutants to settle and/or filter out. Infiltration in swales is promoted by small pooled areas created by check dams. When designing a swale the following design criteria must be evaluated: soil suitability, slopes,

Rainwater Management Plan

Villebois Village SAP-North

Continued

dimensioning, type of native vegetation and plants, and landscaping aesthetics. A sizing factor of 0.06 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Permeable Pavers

The purpose of permeable paver surfaces is to temporarily store surface runoff before infiltrating into the underlying soil, which is sometimes collected in underdrains or perforated pipes before being discharged into the conveyance system. Permeable pavement is manufactured in a variety of forms, including stone or concrete blocks with pore spaces and backfilled with gravel or sand or plastic rings that are planted with grass. The purpose of permeable pavers is to absorb precipitation and put water back in the ground. A sizing factor of 1 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Deciduous Trees

Deciduous trees serve multiple purposes as a rainwater management component including flow control, pollution reduction and stormwater cooling. Planting native trees and shrubs increases infiltration and provide hydrologic benefits such as evatranspiration, transpiration, and interception. Deciduous trees are able to hold rainwater on their leaves and branches, which allows for evaporation, flow retention and energy dissipation. Trees also provide shade, cool the pavement and reduce runoff temperatures, thereby limiting the heat island effect created by impervious surfaces. A lower runoff temperature helps keep waterways, such as streams and rivers healthy. A sizing factor of 0.01 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Evergreen Trees

Evergreen trees serve multiple purposes as a rainwater management component including flow control, pollution reduction and stormwater cooling. Planting native trees and shrubs increases infiltration and provide hydrologic benefits such as evatranspiration, transpiration, and interception. Evergreen trees retain some or most of their leaves or needles throughout the year allows for evaporation, flow retention and energy dissipation. Trees also provide shade, cool the pavement and reduce runoff temperatures, thereby limiting the heat island effect created by impervious surfaces. A lower runoff temperature helps keep waterways, such as streams and rivers healthy. A sizing factor of 0.005 (see Equation 1) is used to determine the total square footage being mitigated for rainwater management.

Soil Amendments

Soil Amendments improve the ability of existing onsite soils to manage rainwater by providing rainwater storage, sediment filtration, and microbial decomposition of pollutants in stormwater runoff. This component also promotes good soil conditions thereby providing

Rainwater Management Plan

Villebois Village SAP-North

Continued

optimal growing conditions for plants, and limiting the necessity of irrigation and fertilizers. Soil amendments are four inches deep on single family detached and row house lots, and six inches deep in parks and open spaces.

Rainwater Management Procedure

Portions of SAP-North are located in three different watershed drainage basins called Arrowhead Creek, Mill Creek and Coffee Lake Creek. The southwestern portion of SAP-North drains to Mill Creek, a small portion in the south-central area of the site drains to Arrowhead Creek, and the larger north, northeast, and east portions of the site drain to Coffee Lake Creek. Each development phase includes varying drainage areas for each watershed drainage basin. See the watershed drainage basin figure in Appendix A.

Total impervious area for Phases 1 through 5 for SAP-North is calculated under proposed conditions, while Phase 6 - School Site is based on an assumed 50 percent impervious ratio. The proposed lots are categorized into two land uses with assigned impervious areas for each individual land use. The single-family detached lots are assumed to have an impervious area equal to 60 percent of the total area, while row house lots are assumed to have an impervious area equal to 85 percent of the total area. Impervious areas attributable to total rights-of-way are quantified from the development planning layout for Phases 1 through 6 and equals 80 percent of total row area. Rights-of-way include streets, alleys, and sidewalks. The school site was assumed to be 50 percent impervious and 50 pervious.

The total SAP North area is approximately 104.8 acres and the total impervious area is approximately 45.5 acres; consisting of approximately 44 percent of the total SAP-North acreage. Calculations and results of the impervious area calculations are presented in Appendix B. The total impervious area is used to size rainwater management components for each phase. Amount of impervious area treated by each rainwater component is determined by using Equation 1. The proposed rainwater management components meet minimum requirement for impervious area mitigated for rainwater management in SAP-North.

An inventory of the rainwater components are summarized in Appendix C by project phasing (Table C-1, 'Rainwater Component Calculations'). The total impervious area effectively mitigated for rainwater management by each component is presented in Appendix C.

Conclusion

The cumulative treatment benefit provided by rainwater components proposed for SAP-North Phases 1 through 6 is that approximately 66 percent of the impervious area created by the development of Villebois Village SAP-North will be treated. This meets the 66 percent compliance target used for SAP South Phases 1 through 6.

Rainwater Management Plan

Villebois Village SAP-North

Continued

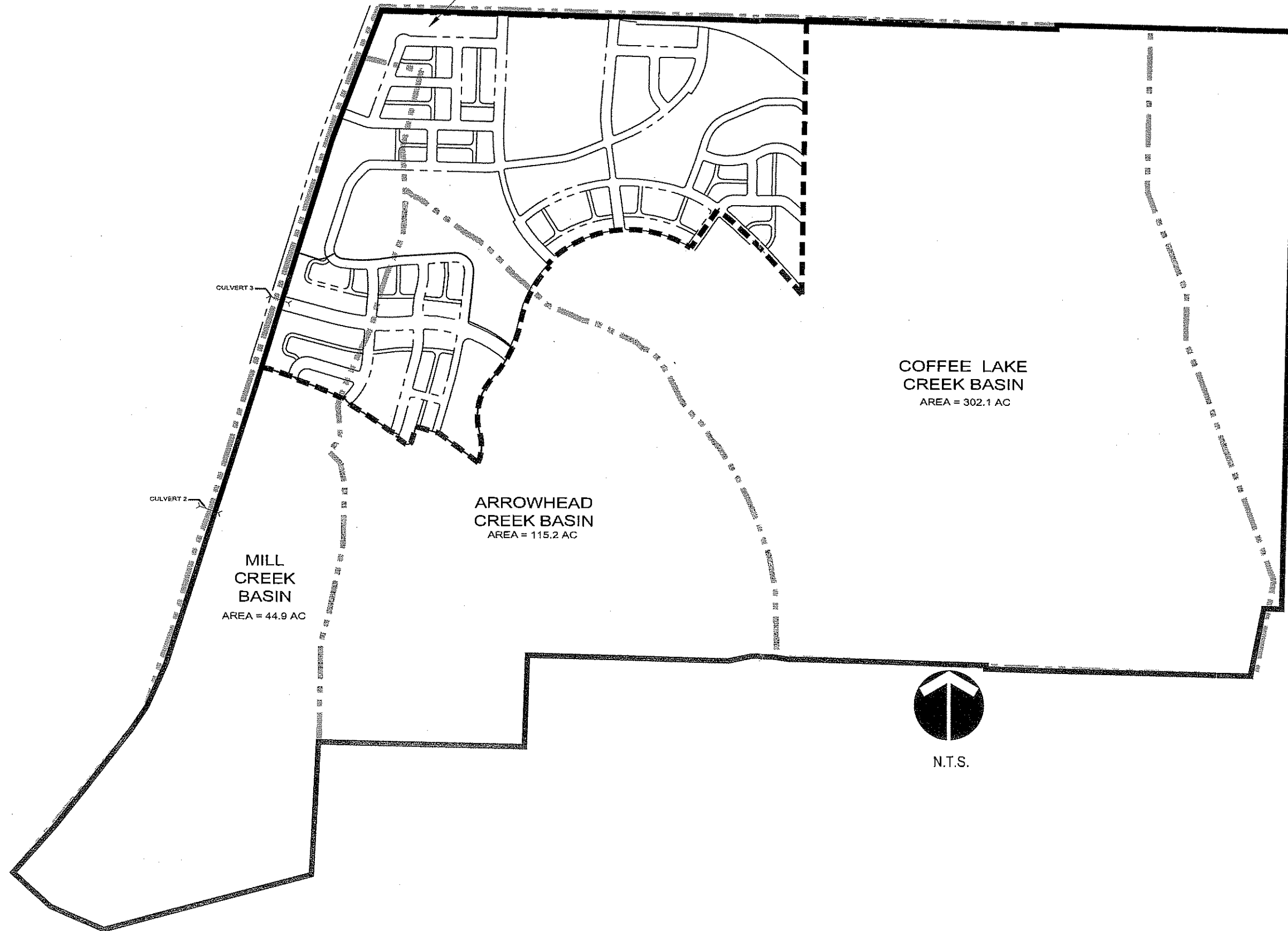
The proposed reduction in compliance from 100 percent results from the City's guidance on providing useable park spaces. The provision of useable park spaces within SAP-North has been balanced with the provisions of rainwater components within the parks to the greatest extent practicable. However, some rainwater components are placed in park spaces. Some vegetated swale rainwater management components serve as water quality treatment facilities in both Mill Creek and Coffee Lake Creek drainage basins. No credit for water quality treatment is assumed for rainwater management components for Arrowhead Creek Basin. See the Stormwater Drainage Reports for the drainage basin of interest for information on water quality treatment design.

Appendix A – Exhibits



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 P356X230
 P066X230
 P356X001

SAP NORTH



LEGEND:

- BASIN BOUNDARY
- SAP NORTH BOUNDARY
- VILLEBOIS VILLAGE

LKO: LINDSAY 07/06/2007 1:30pm --> L:\PROJECT\13100\13156\REPORTS\RAINWATER\APPENDIX A\FIGURE A1_DRAINAGE BASINS.DWG

NO.	DATE	BY	REVISION COMMENTS



ARBOR VILLEBOIS
 SAP NORTH EXISTING DRAINAGE BASIN BOUNDARIES

otak
 Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3618
 FAX: (503) 635-5395
 Internet: WWW.OTAK.COM

13356
 Project No. Drawing No.
FIG. A1
 Sheet No.
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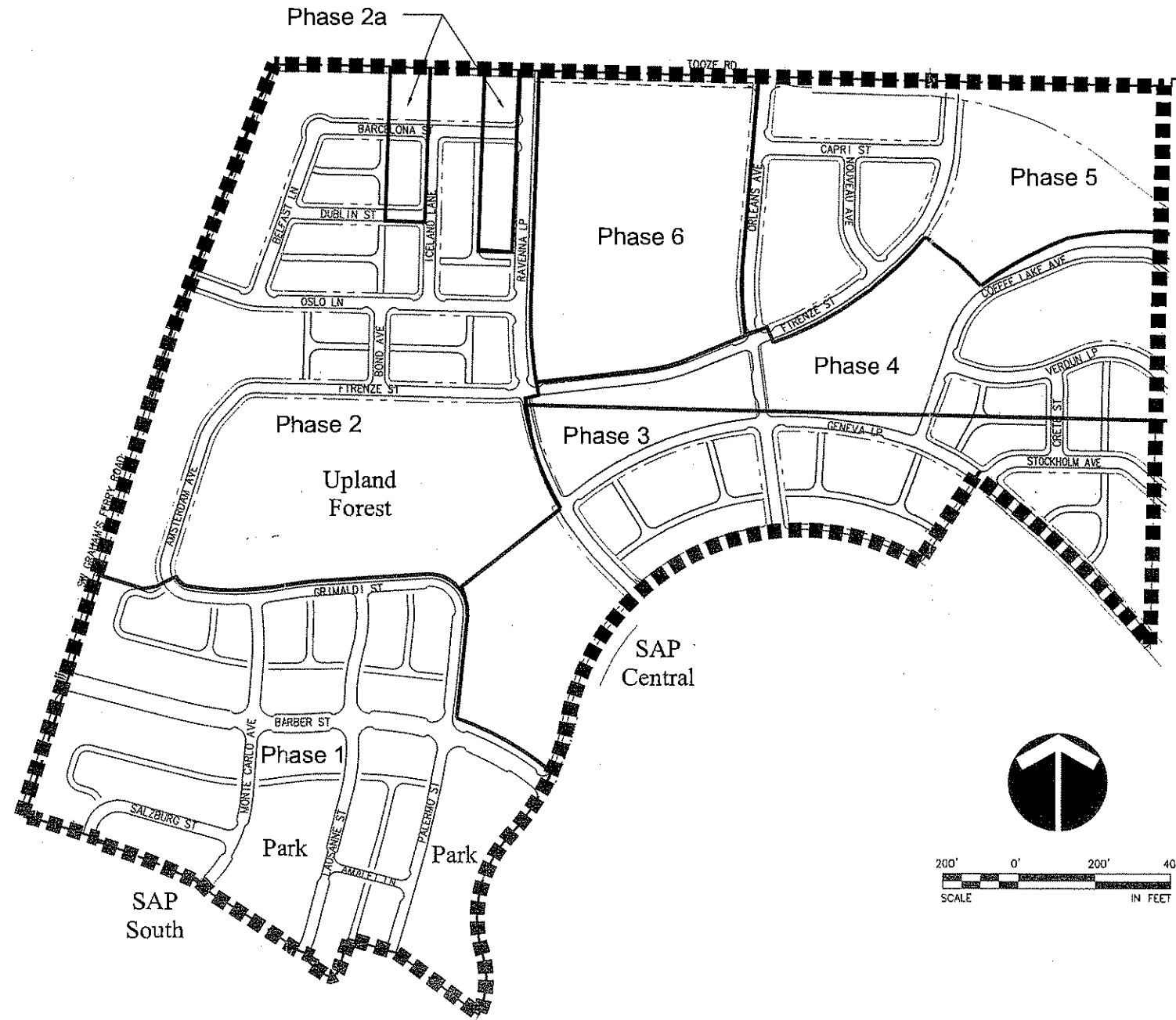
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 C
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 C30
 PH1S CD-LOTS
 PH1S CD-SURF
 PH1S CD-UTIL
 P356X230
 PH1C CD-LOTS
 AS-BUILT-PH2S
 AS-BUILT-PH2S
 P356X001

Table A.
 Proposed Range of Residential Units

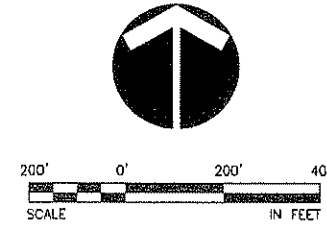
Product Type	Phase 1	Phase 2	Phase 2a	Phase 3	Phase 4	Phase 5	Phase 6 (School)	Total
Estate	0	0	0	0	2	15		17
Large	0	7	1	0	8	8		20
Standard	2	18	2	0	0	0		27
Medium	36	18	8	20	4	0		86
Small	54	30	4	36	9	0		133
Row House	52	31	0	31	0	0		114
Neighborhood Apartment	0	0	0	0	0	0		0
Total	144	104	15	87	23	23	0	397

Table B.
 Proposed Acreages by Phase

	Phase 1	Phase 2	Phase 2a	Phase 3	Phase 4	Phase 5	Phase 6 (School)	Total
Proposed SAP-North	23.48 acres	27.40 acres	1.98 acres	17.65 acres	11.20 acres	12.98 acres	10.07 acres	104.76 acres



SAP BOUNDARY
 PHASE LINE



Proposed SAP - North Phases

L:\PROJECTS\13356\REPORTS\RAINWATER\APPENDIX A\FIGURE A2_PHASES.DWG
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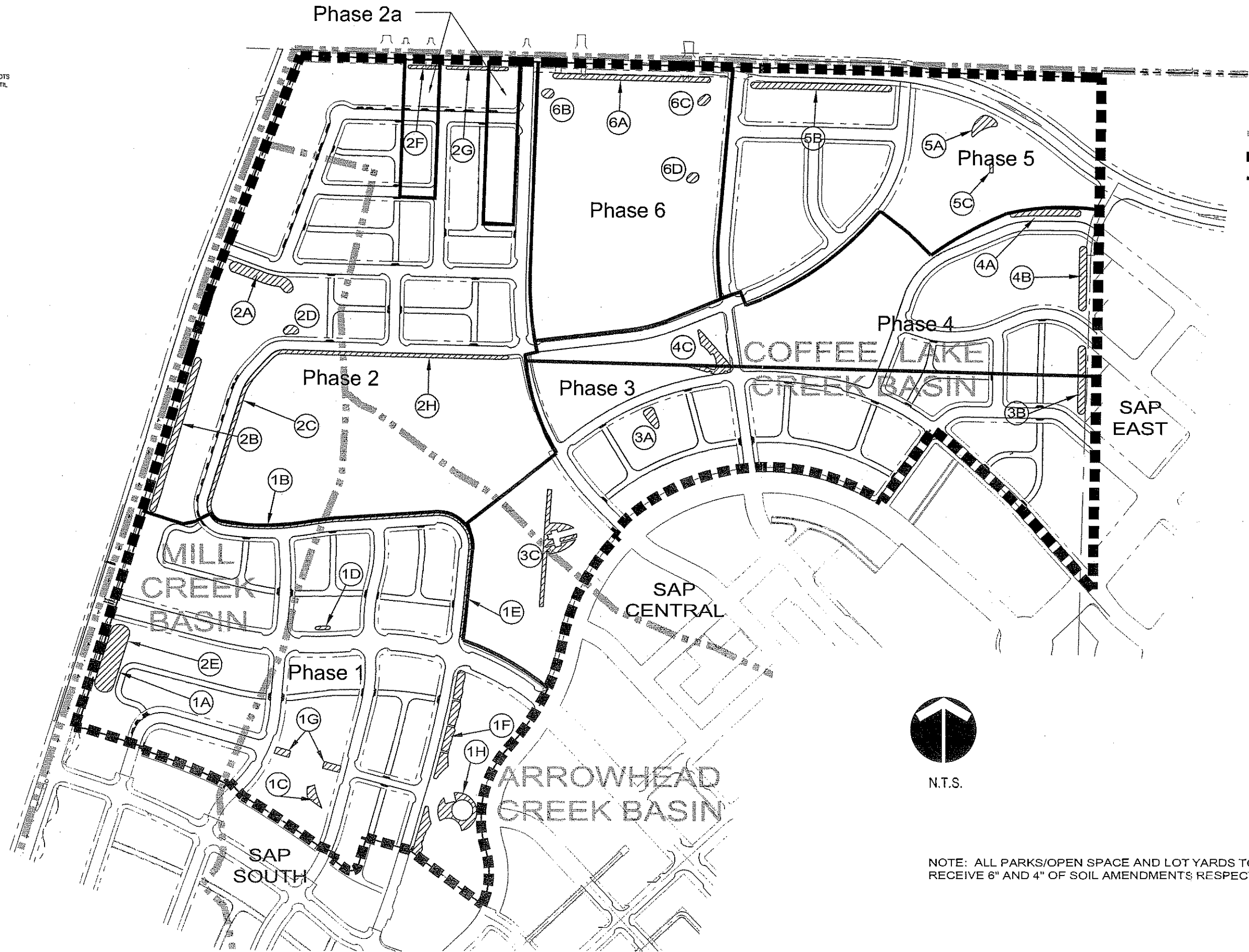
Design: _____
 Drawn: _____
 Checked: _____
 Date: _____
 Initial Issue Date: _____
 MDH: _____
 MAP: _____

ARBOR VILLEBOIS
 SAP NORTH COMPARATIVE PHASING PLAN

Incorporated
 17355 SW Boones Ferry Rd.
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3618
 FAX: (503) 635-5395
 Internet: WWW.OTAK.COM
 13356 P356P30
 Project No. Drawing No.
Fig A2
 Sheet No.
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 Resolved
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 O352X192
 O352X193
 Q7
 C7
 PL
 C355A.C30
 PH1S CD-LOTS
 PH1S CD-SURF
 PH1S CD-UTIL
 P356X230
 AS-BUILT-PH2S CD-LOTS
 AS-BUILT-PH2S CD-UTIL
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 P356X001
 SAP LINES
 O352XSAP EAST
 PH1E CD-LOTS
 PH1E CD-SURF
 PH1E CD-UTIL
 SAP EAST-SURF
 BOECKMAN-ALIGNMENT
 O352XSAP CENTRAL
 SAP-CENTRAL-SURF
 PH1C CD-LOTS
 PH1C CD-UTIL_REV

LXC: UNOSATH 07/06/2007 1:04pm --> I:\PROJECT\13300\13356\REPORTS\RAINWATER\APPENDIX A\FIGURE A3_RAINWATER COMPONENT LOCATIONS.DWG



LEGEND:

- BASIN BOUNDARY
- SAP NORTH BOUNDARY
- PHASE LINE
- RAINWATER COMPONENT
P=PHASE NUMBER, X=COMPONENT DESIGNATION
- RAINWATER COMPONENT



NOTE: ALL PARKS/OPEN SPACE AND LOT YARDS TO RECEIVE 6" AND 4" OF SOIL AMENDMENTS RESPECTIVELY

NO.	DATE	BY	REVISION COMMENTS

ARBOR VILLEBOIS
 SAP NORTH
 RAINWATER MANAGEMENT COMPONENT LOCATIONS

Incorporated
 17355 SW Boones Ferry Rd
 Lake Oswego, OR 97035-5217
 Phone: (503) 635-3818
 FAX: (503) 635-5395
 internet: WWW.otak.com
 13356
 Project No. Drawing No.
FIG. A3
 Sheet No.
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Appendix B –Impervious
Area Calculations



North-Phase 1

Total Basin Area (AC)	23.48
Total Impervious Area (AC)	12.67

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Projects\13300\13356\WaterRes\Rainwater\Impervious Areas\als.xls

Mill Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Percent Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	174,413	4.00	17.05	49	60%	2.40	1.60	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	120,611	2.77	11.79		80%	2.22	0.55	-	-	94.4	C
Open Space	71,725	1.65	7.01		0%	0.00	1.65	-	-	80	C
TOTAL		366,749	8.42			4.62	3.80				

Percent Impervious: 54.8%

North-Phase 2

Total Basin Area (AC)	27.40
Total Impervious Area (AC)	10.00

VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\Reports\Rainwater\Impervious Area Calcals.xls

Mill Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	17,187	0.39	1.44	9	85%	0.34	0.06	98	80	-	C
Single Family Detached	121,646	2.79	10.19	27	60%	1.68	1.12	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	62,977	1.45	5.28		80%	1.16	0.29	-	-	94.4	C
Open Space	287,760	6.61	24.11		0%	0.00	6.61	-	-	80	C
TOTAL	489,570	11.24	41.02			3.17	8.07				

Percent Impervious: 28.2%

Arrowhead Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	0.00	0.00	0.00	0	60%	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0.00	0.00	0.00		80%	0.00	0.00	-	-	94.4	C
Open Space	96,778	2.22	8.11		0%	0.00	2.22	-	-	80	C
TOTAL	96,778	2.22	8.11			0.00	2.22				

Percent Impervious: 0.0%

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	41,952	0.96	3.52	22	85%	0.82	0.14	98	80	-	C
Single Family Detached	178,033	4.09	14.92	47	60%	2.45	1.63	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	194,113	4.46	16.27		80%	3.56	0.89	-	-	94.4	C
Open Space	192,948	4.43	16.17		0%	0.00	4.43	-	-	80	C
TOTAL	607,046	13.94	50.87			6.84	7.10				

Percent Impervious: 49.1%

North-Phase 2a

Total Basin Area (AC)	1.98
Total Impervious Area (AC)	1.18

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\Water\Rainwater\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	--	C
Single Family Detached	63,245	1.45	73.38	15	60%	0.87	0.58	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	17,019	0.39	19.75		80%	0.31	0.08	-	-	94.4	C
Open Space	5,928	0.14	6.88		0%	0.00	0.14	-	-	80	C
TOTAL		86,192	100.00			1.18	0.79				

Percent Impervious: 59.8%

North-Phase 3

Total Basin Area (AC)	17.65
Total Impervious Area (AC)	7.65

PROJECT: VILLEBOIS SAP NORTH RAINWATER IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Projects\13300\13356\WaterRes\Rainwater\Impervious Area Calc.xls

Arrowhead Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	--	C
Single Family Detached	0.00	0.00	0.00	0	60%	0.00	0.00	98	80	--	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	0.00	0.00	0.00		80%	0.00	0.00	-	-	94.4	C
Open Space	121,312	2.78	15.78		0%	0.00	2.78	-	-	80	C
TOTAL		121,312	2.78			0.00	2.78				

Percent Impervious: 0.09%

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	51,158	1.17	6.65	31	85%	1.00	0.18	98	80	--	C
Single Family Detached	203,567	4.67	26.48	56	60%	2.80	1.87	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	209,453	4.81	27.24		80%	3.85	0.96	-	-	94.4	C
Open Space	183,340	4.21	23.85		0%	0.00	4.21	-	-	80	C
TOTAL		647,518	14.86			7.65	7.22				

Percent Impervious: 51.59%

North-Phase 4

Total Basin Area (AC)	11.20
Total Impervious Area (AC)	3.95

VILLEBOIS SAP NORTH RAINWATER IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Rainwater\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	143,046	3.28	29.32	23	60%	1.97	1.31	98	80	-	C
Other											
School	0	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets/Alleys/SW	107,820	2.48	22.10		80%	1.98	0.50	-	-	94.4	C
Open Space	237,054	5.44	48.58		0%	0.00	5.44	-	-	80	C
TOTAL	487,920	11.20	100.00			3.95	7.25				

Percent Impervious: 35.3%

North-Phase 5

Total Basin Area (AC)	12.98
Total Impervious Area (AC)	5.03

VILLEBOIS SAP NORTH RAINWATER IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13300\13356\WaterRes\Rainwater\Impervious Area Calc.sxlx

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot	Impervious Area (AC)	Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	202,192	4.64	35.75	23	60%	2.79	1.86	98	80	91	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
SF of Streets /Alleys /SW	122,075	2.80	21.58		80%	2.24	0.56	-	-	94.4	C
Open Space	241,337	5.54	42.67		0%	0.00	5.54	-	-	80	C
TOTAL	565,604	12.98	100.00			5.03	7.96				

Percent Impervious	38.79%
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North-Phase 6

Total Basin Area (AC)	10.07
Total Impervious Area (AC)	5.04

PROJECT: VILLEBOIS SAP NORTH RAINWATER - IMPERVIOUS AREA CALCULATIONS
 PROJECT NUMBER: 13356
 FILE: L:\Project\13356\Waterfiles\Rainwater\Impervious Area Calc.xls

Coffee Lake Creek Basin

ON-SITE	Area (SF)	Area (AC)	Percent of Total Area (%)	Number of Lots	Impervious Area per Lot		Pervious Area (AC)	Curve Number (Impervious)	Curve Number (Pervious)	Composite Curve Number	Hydrologic Soil Group
					Impervious	or Percent Impervious					
Residential											
Row House	0.00	0.00	0.00	0	85%	0.00	0.00	98	80	-	C
Single Family Detached	0	0.00	0.00	0	60%	0.00	0.00	98	80	-	C
Other											
Commercial/Condo Lots	0.00	0.00	0.00			0.00	0.00	-	-	98	C
School	438,851	10.07	100.00		50%	5.04	5.04	-	-	94.4	C
SF of Streets/Alleys/SW	0	0.00	0.00		80%	0.00	0.00	-	-	-	C
Open Space	0.00	0.00	0.00		0%	0.00	0.00	-	-	80	C
TOTAL	438,851	10.07	100.00			5.04	5.04				

Percent Impervious: 50.0%

Appendix C – Rainwater Management
Component Calculations



Table C-1
 Rainwater Compliance Percentage - By Phase for SAP North

SAP NORTH PHASE	DRAINAGE BASIN	AREA (SF)	IMPERVIOUS AREA (SF)	IMPERVIOUS (%)	RW COMP No.	RW COMP TYPE	RW COMP AREAS (SF)	RW COMP of TREES (8)	SIZING FACTOR	IMPERVIOUS AREA TREATED		IMPERVIOUS AREA TREATED (%)
										ARROWHEAD CREEK (G)	MILL CREEK (G)	
1	M. Creek	366,749	53%	53%	1A	Bior. Cell (Lower Pond)	4900	0.03	163,333	---	---	81%
					1B	Grassy Swale (Roadside)	1079	0.07	15,414	---	---	8%
					1C	Deciduous Trees	225	0.01	22,500	---	---	11%
					1D	Deciduous Trees	211	0.01	21,100	---	---	6%
2	A. Creek	656,132	53%	53%	1E	Bior. Cell (Pocket Park)	640	0.03	21,333	---	---	6%
					1F	Grassy Swale (Roadside)	380	0.03	12,667	---	---	5%
					1G	Vegetated Swale (20'X300')	2240	0.07	32,000	---	---	4%
					1H	Permeable Pavers	6000	0.06	109,000	---	---	29%
					1I	Permeable Pavers	1884	1	1,884	---	---	1%
					1J	Deciduous Trees	4872	1	4,872	---	---	1%
					2A	Deciduous Trees	12	0.01	12,200	---	---	5%
					2B	Grassy Swale (20'X20')	150	0.07	30,714	---	---	27%
					2C	Grassy Swale (Roadside)	1700	0.07	20,714	---	---	18%
					2D	Bior. Cell	160	0.03	24,286	---	---	18%
					2E	Bior. Cell (Phase 1)	1200	0.03	16,833	---	---	12%
2a	C. L. Creek	86,192	60%	60%	2F	Bior. Cell	1095	0.03	---	---	---	---
					2G	Grassy Swale (170'X10')	1700	0.07	35,167	---	---	12%
					2H	Grassy Swale (Roadside)	1098	0.07	15,314	---	---	8%
3	A. Creek	121,312	1%	1%	3A	Deciduous Trees	148	0.01	14,800	---	---	5%
					3B	Deciduous Trees	6	0.01	6,833	---	---	2%
					3C	Deciduous Trees	26	0.01	2,600	---	---	2%
3	C. L. Creek	647,518	52%	52%	3D	Permeable Pavers	2302	1	2,492	---	---	1%
					3E	Deciduous Trees	243	0.01	---	---	---	---
					3F	Bior. Cell	1031	0.03	24,300	---	---	7%
4	C. L. Creek	788,836	52%	52%	3G	Vegetated Swale (22'X300')	4400	0.06	35,337	---	---	14%
					3H	Permeable Pavers	5585	1	73,333	---	---	23%
					3I	Permeable Pavers	4606	1	5,585	---	---	3%
4	C. L. Creek	487,920	35%	35%	4A	Deciduous Trees	252	0.01	---	---	---	---
					4B	Evergreen Trees	26	0.005	25,200	---	---	15%
					4C	Grassy Swale	4000	0.07	5,200	---	---	3%
5	C. L. Creek	585,604	39%	39%	4D	Vegetated Swale (22'X195')	4200	0.06	57,143	---	---	33%
					4E	Permeable Pavers	4606	1	71,500	---	---	42%
					4F	Bior. Cell	720	0.03	4,606	---	---	3%
5	C. L. Creek	437,920	39%	39%	5A	Bior. Cell	720	0.03	153,834	---	---	69%
					5B	Grassy Swale (20'X400')	6000	0.07	24,000	---	---	11%
					5C	Deciduous Trees	220	0.01	114,266	---	---	14%
6	C. L. Creek	438,651	50%	50%	5D	Permeable Pavers	282	1	282	---	---	0%
					5E	Grassy Swale (15'X450')	8920	0.07	37,576	---	---	72%
					5F	Bior. Cell	810	0.03	128,000	---	---	57%
6	C. L. Creek	438,651	50%	50%	5G	Bior. Cell	810	0.03	27,000	---	---	12%
					5H	Bior. Cell	810	0.03	27,000	---	---	12%
					5I	Deciduous Trees	33	0.01	3,300	---	---	2%
TOTAL (ALL PHASES)		4,853,036	1,983,036	41%	4,853,036	---	---	1,983,036	---	---	41%	
TOTAL (ALL PHASES)		4,853,036	1,983,036	41%	4,853,036	---	---	1,983,036	---	---	41%	

IID Traffic Analysis



117 Commercial Street NE
 Suite 310
 Salem, OR 97301
 503.391.8773
 www.dksassociates.com



MEMORANDUM

DATE: March 14, 2014

TO: Steve Adams, P.E., City of Wilsonville

FROM: Brad Coy, P.E. *BC*
 Derek Moore, E.I.T

SUBJECT: Villebois SAP North PDP 3 Transportation Review

P14006-006

This memorandum documents trip generation for the Villebois Specific Area Plan (SAP) North with emphasis on Planned Development Phase (PDP) 3. Since the Master Plan approval of SAP North, the land use within this SAP has been modified, and residential units associated with PDP 1 and PDP 2 have already been approved. In addition, the site plan provided by the project sponsor¹ was reviewed to identify potential safety and mobility concerns.

The following sections of this memorandum document previous SAP North (general area) land use and trip generation assumptions, PDP 3 trip generation (current phase), and the site plan impacts for PDP 3.

SAP North Land Use/Trip Generation

The *Villebois Master Plan*² initially approved SAP North for 252 single family units, 71 condo/townhouse units, and 30 apartments for a total of 353 residential units, along with 5,000 square feet of commercial space and a 47,000 sq. ft. primary school. Table 1 shows the estimated trip generation for SAP North based on the *Master Plan* unit counts and assumptions regarding trip generation rates. As shown, the original SAP North land uses were approved for 447 (268 in, 179 out) p.m. peak hour trips.

¹ PDP 3N Villebois, Polygon Northwest Company, January 1, 2014.

² Villebois Urban Village Master Plan Amendment Transportation Study, DKS Associates, June 2005



Table 1: Master Plan Approved SAP North Trip Generation (based on assumed trip generation rates)

Land Use (ITE Code)	Size	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	252 units	1.01 trips/unit	161	94	255
Condo/Townhome (230)	71 units	0.52 trips/unit	25	12	37
Apartments (220)	30 units	0.62 trips/unit	12	7	19
Shopping Center (820)	5 KSF	3.75 trips/KSF	9	10	19
School	47 KSF	3 trips/KSF	73	68	141
Total Trips			280	191	471
<i>Internal Trips^a</i>			-9	-9	-18
<i>Pass-By Trips^b</i>			-3	-3	-6
Net New Trips			268	179	447

^a Internal trip rates from ITE's *Trip Generation Manual*, 9th Edition, 2012. 5% of school trips assumed to be internal.

^b 34% of external shopping center trips

In 2013, a phasing amendment proposed that SAP North would include 423 single family units, 31 condo/townhouse units, and 10 apartment units for a total of 464 residential units. As shown in Table 2, the proposed land uses would generate 449 (284 in, 165 out) p.m. peak hour trips, which would only result in 2 additional p.m. peak hour trips as compared with the prior *Master Plan* approval.

Table 2: Proposed SAP North Trip Generation

Land Use (ITE Code)	Size	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	423 units	1.01 trips/unit	269	158	427
Condo/Townhome (230)	31 units	0.52 trips/unit	11	5	16
Apartments (220)	10 units	0.62 trips/unit	4	2	6
Total Trips			284	165	449

SAP North PDP 3 Trip Generation

SAP North is broken into approximately seven PDPs, with the current phase being PDP 3 (i.e. the 3rd phase). Prior transportation studies determined that SAP North PDP 1 would generate 137 (87 in, 50 out) p.m. peak hour trips and that SAP North PDP2 would generate approximately 91 (57 in, 34 out) p.m. peak hour trips.

It is currently proposed that PDP 3 consist of 84 single-family residential units. This is 17 units less than the 101 units that were proposed for PDP 3 in the 2013 phasing amendment. Table 3 shows the estimated trip generation for PDP 3 based on the revised unit count. As shown, the 84 proposed single family detached residential units planned for PDP 3 would generate approximately 85 (54 in, 31 out) p.m. peak hour trips. The



decrease in the proposed number of units would result in 17 p.m. peak hour trips less than what was estimated for the 2013 phase amendment (15 less than the *Master Plan* approval).

Table 3: PDP 2 P.M. Peak Hour Trip Generation

Land Use (ITE Code)	Number of Units	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	84	1.01 trips/unit	54	31	85
TOTAL	84	-	54	31	85

Site Plan Evaluation

DKS reviewed the current site plan provided by the project sponsor, and the site plan comments are summarized below:

- **Roadway Alignment:** SW Rome Avenue should be aligned with the alley to the north, which is currently shown offset to the east by approximately 50 feet. This may be accomplished by shifting two of the lots from the east to the west side of SW Rome Avenue.

Summary

A summary of key findings relating to the SAP East PDP 3E review include the following:

- The proposed current phase for SAP North (PDP 3) consists of 84 single family detached units which are expected to generate 85 (54 in, 31 out) p.m. peak hour trips. This would result in 17 p.m. peak hour trips less than what was estimated for the 2013 phase amendment and 15 less than the *Master Plan* approval. Therefore, it is within approved levels.
- SW Rome Avenue should be aligned with the alley to the north, which is currently shown offset to the east by approximately 50 feet. This may be accomplished by shifting two of the lots from the east to the west side of SW Rome Avenue.

Please let us know if you have any questions or comments.



Appendix

Villebois (updated 1/28/14)

Land Use Table

LAND USE	SAP NORTH	SAP SOUTH	SAP EAST	SAP CENTRAL	TOTAL
Estate	22	0	0	0	22
Large	41	104	0	0	145
Standard	22	68	49	0	139
Medium	89	127	112	0	328
subtotal	174	299	161	0	634
Small Detached	214	158	226	8	606
Small Attached / Cottage	49	0	147	9	205
Rowhouse	0	103	42	138	283
Nbhd Apartments	10	21	0	0	31
Village Apartments	0	0	0	411	411
Condos	0	0	0	124	124
Urban Apartments	0	0	0	90	90
Mixed Use Condos	0	0	0	104	104
Specialty Condos	0	0	0	127	127
subtotal	273	282	415	1,011	1,981
TOTAL UNITS	447	581	576	1,011	2,615

SAP North (updated 1/28/14)

Existing (reflects proposed phasing amendment)

Product Type	PDP 1N**	PDP 2N***	3N	3A N	4N	5N	6N*	Total
Estate	0	0	0	0	2	15	5	22
Large	0	0	2	1	8	8	3	22
Standard	2	10	16	0	0	0	5	33
Medium	30	6	22	4	6	0	17	85
Small	98	37	30	4	7	0	36	212
Small Cottage	12	37	0	0	0	0	0	49
Row House	0	0	31	0	0	0	0	31
Nbhd Apartment	0	0	0	0	0	0	10	10
Total	142	90	101	9	23	23	76	464

* Includes PDP 6N units added back due to School relocation to SAP East.

**Includes PDP 1 North modifications approved in 2011 & 2013.

***Includes PDP 2 North approved in 2013.

Proposed

Product Type	PDP 1N**	PDP 2N***	3N	3A N	4N	5N	6N*	Total
Estate	0	0	0	0	2	15	5	22
Large	0	0	21	1	8	8	3	41
Standard	2	10	5	0	0	0	5	22
Medium	30	6	26	4	6	0	17	89
Small	98	37	32	4	7	0	36	214
Small Cottage	12	37	0	0	0	0	0	49
Row House	0	0	0	0	0	0	0	0
Nbhd Apartment	0	0	0	0	0	0	10	10
Total	142	90	84	9	23	23	76	447

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LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
LT	LANDSCAPE TRACT
PP	POCKET PARK

LOT COUNT:

32	SMALL LOTS
26	MEDIUM LOTS
5	STANDARD LOTS
21	LARGE LOTS
84	TOTAL

LAND AREA TABLE:

TOTAL AREA:	15.16 AC
PUBLIC STREETS:	4.49 AC
OPEN SPACE / PARK AREAS:	2.07 AC
LOTS & ALLEYS:	8.60 AC
AVG. DENSITY PER NET ACRE:	84 / 8.60 = 9.77 UNITS / AC

FOR TYPICAL LOT PLANS SEE SHEET 9.



POLYGON NW COMPANY



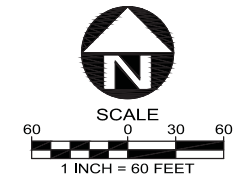
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PDP 3N
VILLEBOIS**

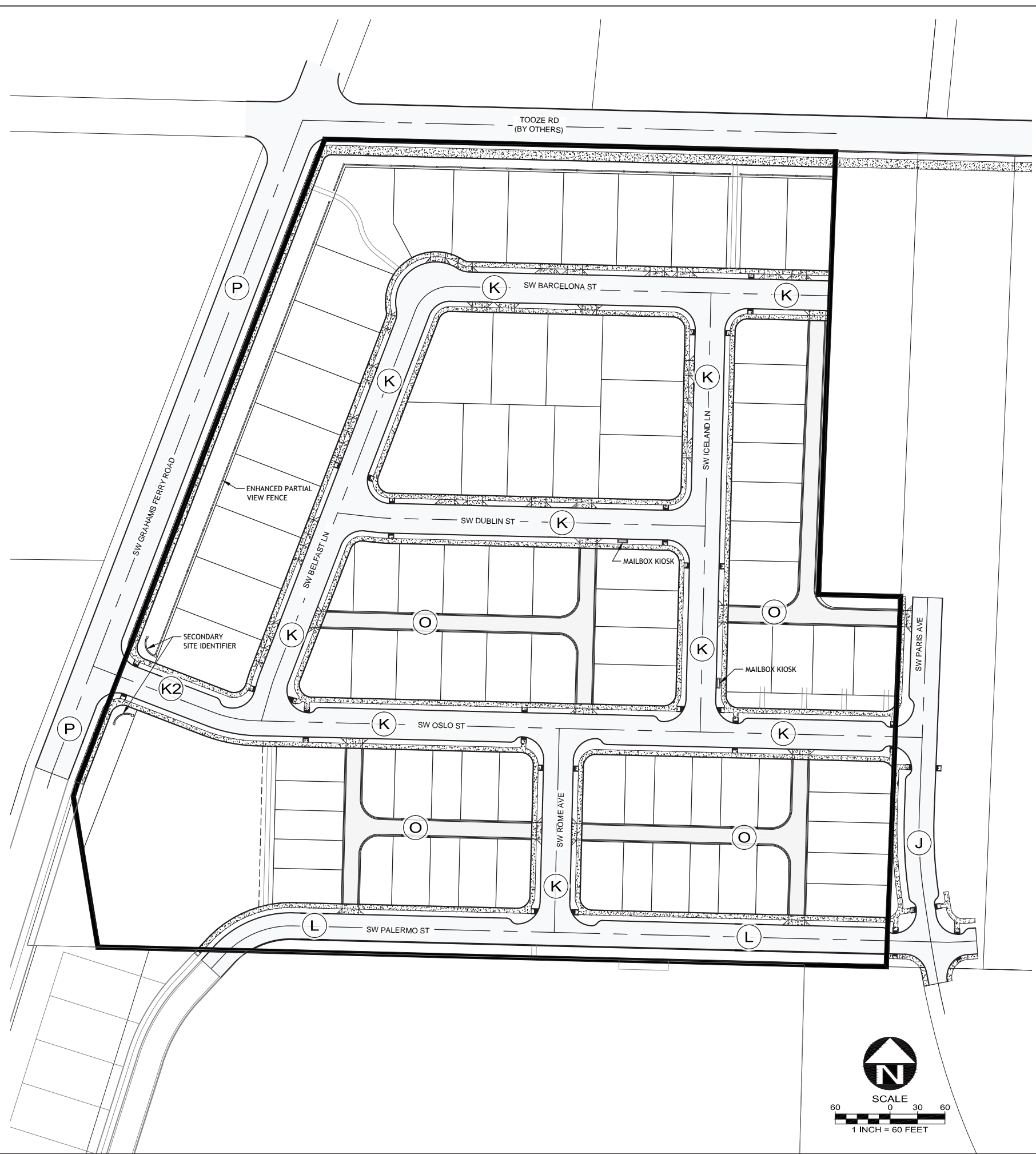
**Preliminary
Development Plan**

**Site/Land Use
Plan**

DATE 1/31/



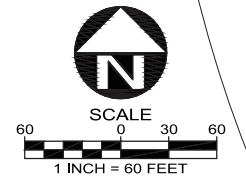
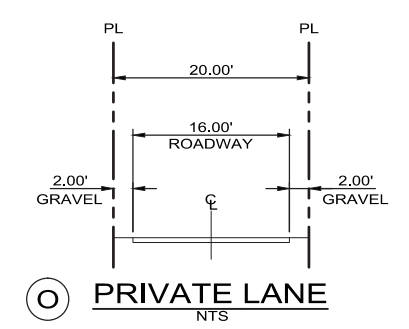
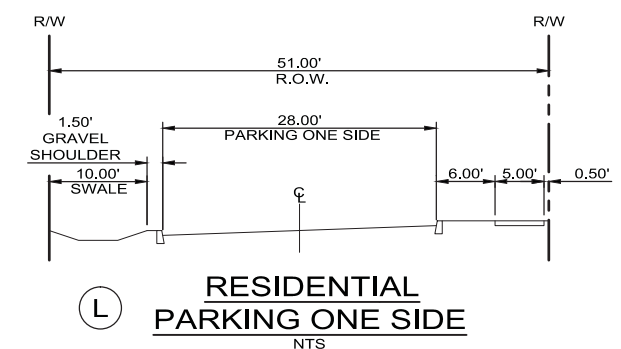
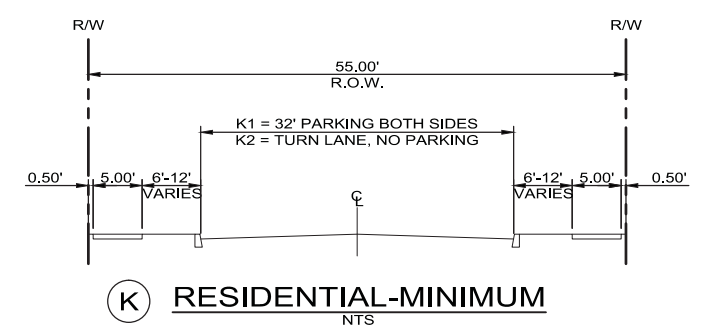
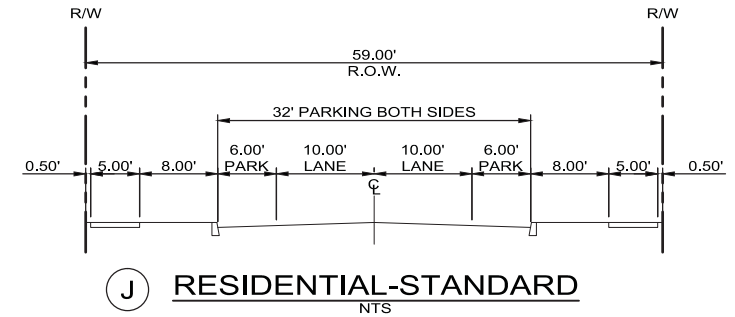
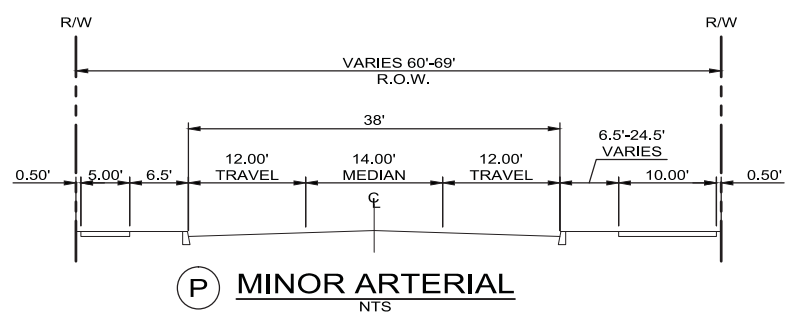
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LEGEND:

(P) ROAD SECTION TYPE
SEE THIS SHEET FOR DETAILS

— PROJECT BOUNDARY LINE



POLYGON NW COMPANY
Pacific Community Design
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

Preliminary
Development Plan

Circulation
Plan &
Street Sections

DATE 1/31/

IIE
Historical/Cultural
Resource Inventory



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Portland Office
1220 SW Morrison, Suite 700
Portland, Oregon 97205
Tel 503.224.0333 Fax 503.224.1851
www.swca.com

CULTURAL RESOURCES INVENTORY: SUMMARY OF WORK

Stacy Connery, AICP
Pacific Community Design
12564 SW Main Street
Tigard, Oregon 97223
Tel: 503-828-5052

March 26, 2014

PROJECT: Cultural Resources Inventory for the Villebois Phase 3 SAP North Residential Development Project, Wilsonville, Clackamas County, Oregon

SUMMARY OF CULTURAL RESOURCES WORK

SWCA Environmental Consultants (SWCA) conducted a cultural resources inventory for the Villebois Phase 3 SAP North Residential Development project in Wilsonville, Oregon (Figure 1). The proposed project area of potential effects (APE) encompasses tax lots 1200, 1202, and 1205, and is approximately 15 acres in size. The APE is bordered by SW Grahams Ferry Road to the west and Tooze Road to the north, and is primarily agricultural and grazing land. SWCA was contracted by Polygon Northwest Company to address the possible effects of the proposed project on cultural resources found eligible for listing in the National Register of Historic Places (NRHP). SWCA staff members who meet the professional qualifications standards of the Secretary of the Interior's Standards and Guidelines in Archaeology performed the work.

Prior to fieldwork, SWCA's review of records at the Oregon State Historic Preservation Office (SHPO) indicated that no previous cultural resources surveys had been conducted within the APE and that no cultural resources had been recorded or were known to be within the APE. The results of the SHPO records search and archival research indicated the APE was likely to contain cultural resources. The APE is located on a relatively flat terrace land form near a perennial stream, and an "Indian Trail" is depicted as running through the APE on the 1852 General Land Office (GLO) map.

Between February 26 and March 13, 2014, SWCA archaeologists conducted a pedestrian survey and subsurface testing throughout the APE. The pedestrian survey was conducted by two archaeologists walking parallel transects spaced no more than 15 meters (49 feet) apart across the APE. The location of a contemporary horse grave was reported by a local resident and was observed/recorded during the survey as a depressed surface area. Twenty-five shovel probes (SP1–SP25) were excavated across the APE to test for subsurface archaeological deposits. The probes were hand-excavated as 30-centimeter (cm)-diameter cylinders to a minimum depth of 50 cm below the surface and two consecutive sterile 10-cm levels. Excavated sediments were screened through ¼-inch mesh hardware cloth, and the probes were backfilled after excavation and mapped using a global positioning system (GPS) unit. One modern metal horse implement was found near the surface in SP6. No additional artifacts were identified during pedestrian survey and subsurface testing.

One historic archaeological site was identified and recorded during the pedestrian survey. Site KBS1 is a historic-period foundation and well/trough feature found in the northwest portion of the APE (Figure 2). The foundation is 20 feet × 8 feet and is made of a mixture of river cobbles and mortar. The four sides are exposed, and the foundation floor was covered with sediment post-1974 to prevent injury to horses on the property (personal communication with the property owner). The foundation wall thickness measures 6 inches, and it rises 12 inches above the surface at its maximum height. Near the northeast corner of the foundation wall, the thickness increases to 12 inches, which might indicate an entrance location. The well feature was identified approximately 84 meters (275 feet) north of the foundation. The well measures 74 × 80 × 48 inches on the outside and has a 12-inch-thick wall. It is made with similar materials as the foundation and is capped by a concrete slab. The east side of the well has a concrete trough attached. The trough measures 22 × 56 × 18 inches on the outside, with 3-inch-thick walls. There is a fill valve at the bottom of the trough that looks like it regulated the water level. The well contained water near its base, but was in disrepair at the time of the survey. The well and foundation, though separated by approximately 84 meters (275 feet), are of similar construction and appear on aerial photographs of the area together. The well and foundation were recorded as two features within one site.

Both the foundation and well recorded as site KBS1 appear on an aerial photograph taken in 1936, which indicates that they are at least 78 years old. Site KBS1 is not depicted on GLO, U.S. Geological Survey, Metsker, and Sanborn Insurance maps from before 1936. The ground surface was closely examined in the area of the foundation and well, and no artifacts were identified. Nine shovel probes (SP1, SP2, SP19, SP20, SP21, SP22, SP23, SP24, SP25) were excavated in the immediate vicinity of the foundation and well and between the two, and no artifacts were identified.

Given the ubiquitous nature of historic-period foundations and wells across the landscape in this area, the lack of association with a significant person or event in the region's history, and the absence of associated subsurface archaeological deposits, it is unlikely that site KBS1 has the potential to yield important information about the area's history. SWCA recommends that site KBS1 is not eligible for listing in the NRHP and, should SHPO concur with this recommendation, construction activities in the APE may proceed as planned.

A full and more detailed cultural resource inventory report will be prepared by SWCA that will include sections on the environmental and historic context of the APE as well as the results and recommendations.

Prepared by:



Zach Windler
Cultural Resources Specialist
zwindler@swca.com
503.224.0333 x6346

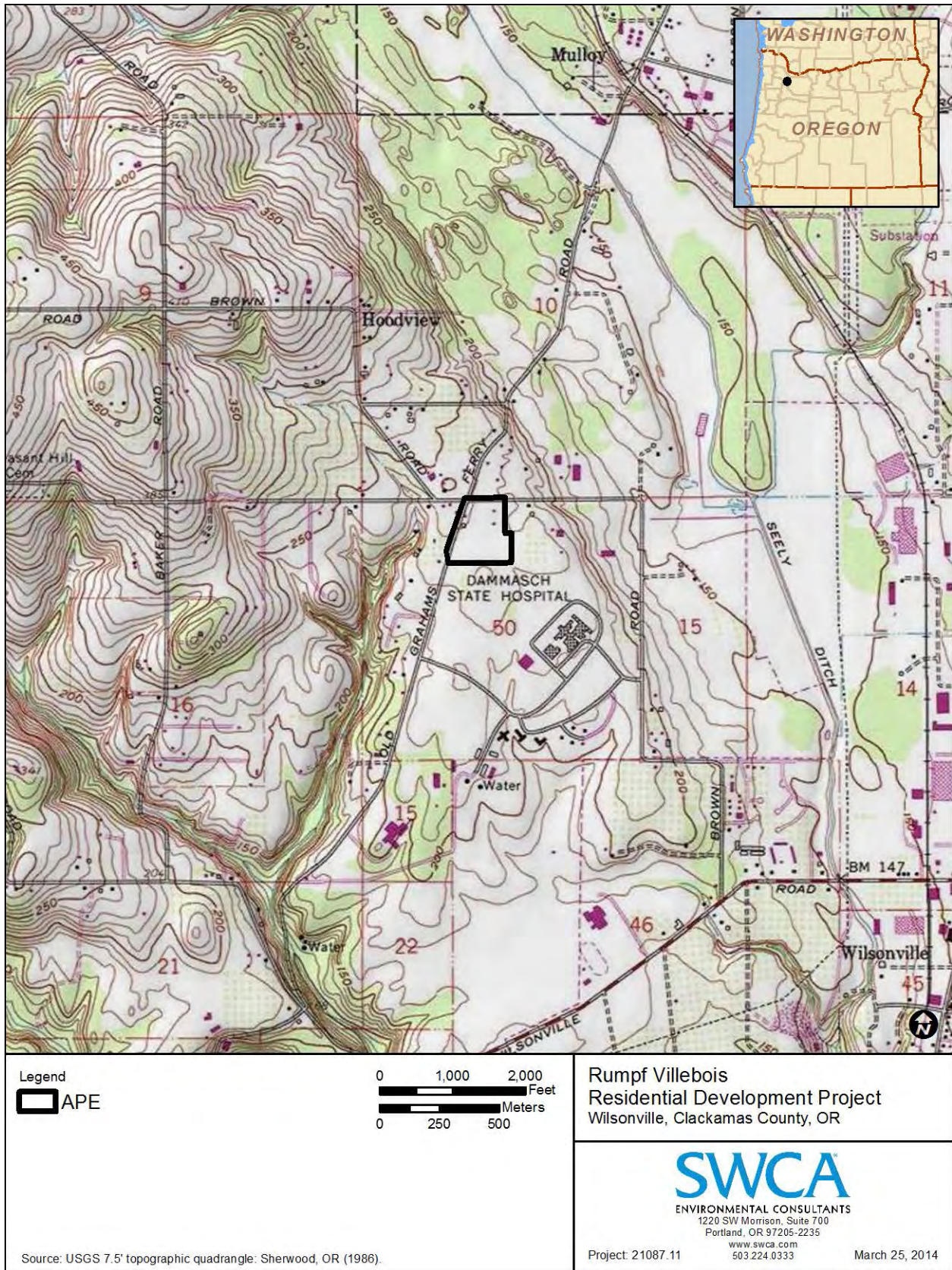


Figure 1. Topographic quadrangle map showing the Villebois Phase 3 SAP North project APE.

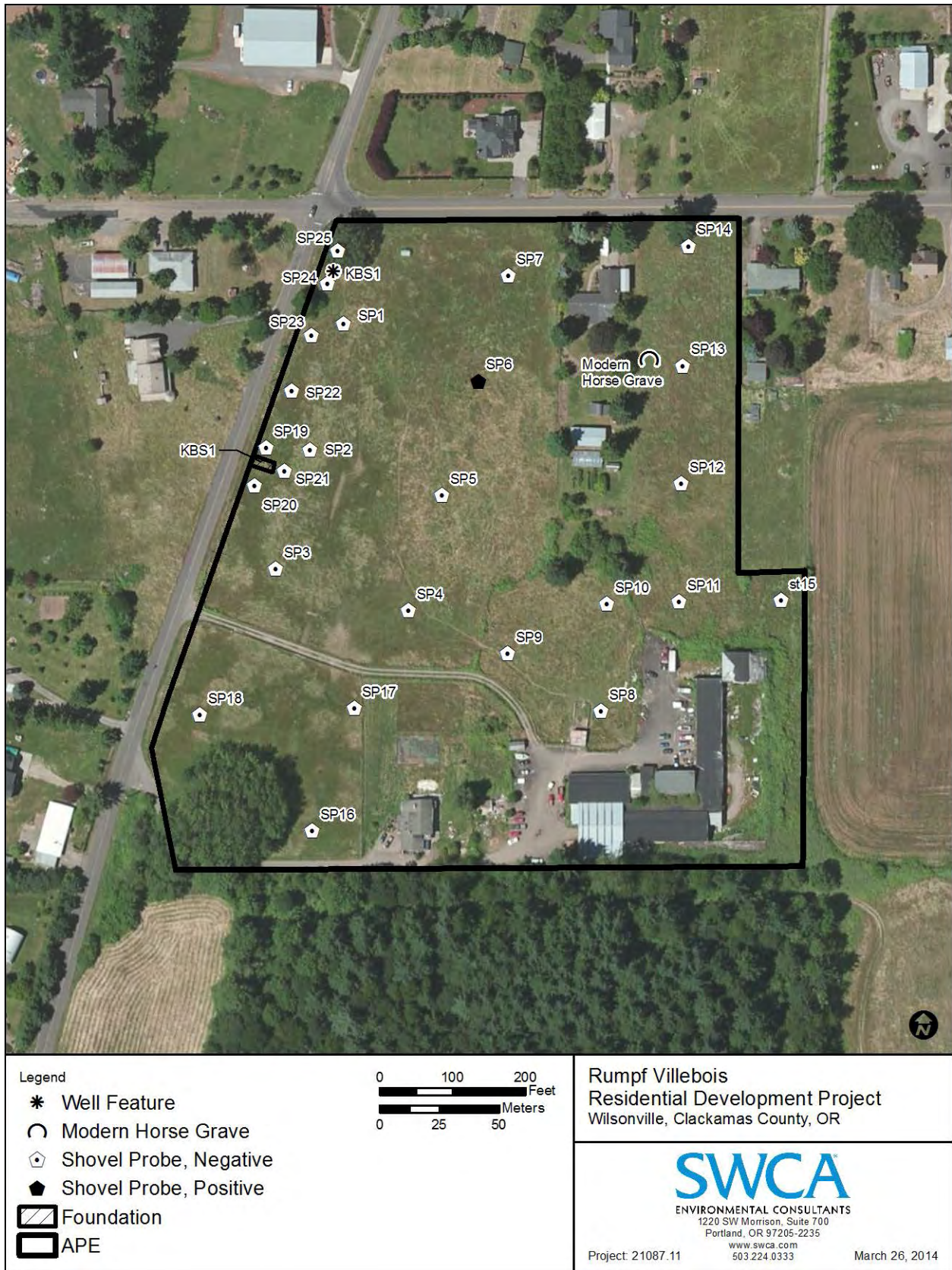


Figure 2. Aerial map showing the foundation and well at site KBS1 and shovel probe locations.

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**Cultural Resources Inventory for the
Villebois Village SAP North Phase 3
Development, Clackamas County, Oregon**

Submitted to
Polygon Northwest Company
109 East 13th Street
Vancouver, Washington 98660

Submitted by
SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 98205
(503) 224-0333

April 3, 2014

**CULTURAL RESOURCES INVENTORY FOR THE VILLEBOIS VILLAGE
SAP NORTH PHASE 3,
CLACKAMAS COUNTY, OREGON**

Prepared for

Polygon Northwest Company
109 East 13th Street
Vancouver, WA 98660

Prepared by

Karry L. Blake

Project Manager
Zach Windler

SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205-2235
(503) 224-0333
www.swca.com

Lead Federal Agency
U.S. Army Corps of Engineers

County: Clackamas, OR
Legal Location: T3S, R1W, Section 15
USGS 7.5-minute Quad: Sherwood, OR (1985)
Survey Acreage: 15.13
Type of Project: Cultural Resources Archaeological Pedestrian Survey
and Subsurface Testing
Results of Survey: Positive
Field Notes: On file at SWCA, Inc., Portland Office

SWCA Project Number 21087.11
SWCA Cultural Resources Report No. 14-141

April 3, 2014

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ABSTRACT

SWCA Environmental Consultants (SWCA) was contracted by Polygon Northwest Company to conduct a cultural resources assessment for Villebois Village SAP North Phase 3, which totals approximately 15.13 acres of land proposed for residential development in the City of Wilsonville, Clackamas County, Oregon. This cultural resources assessment includes background research and a field assessment for archaeological resources. No historic-period building survey was conducted within the current scope of work in the SAP North Phase 3 project area.

The archaeological field assessment involved a pedestrian survey and subsurface probing of the area proposed for development. During the archaeological survey, one archaeological resource—a historic-period site—was identified in the area of potential effects (APE).

SWCA recommends that no further archaeological work is needed and project construction should proceed as planned within the SAP North Phase 3 APE.

Report continues on the following page.

INTRODUCTION

Polygon Northwest Company is proposing construction of a 15.13-acre residential development southeast of the intersection of Grahams Ferry Road and Tooze Road toward the west end of the community of Wilsonville, Clackamas County, Oregon. The project requires that a permit under Section 404 of the Clean Water Act be obtained from the U.S. Army Corps of Engineers (USACE) prior to construction. As part of this permitting process, the USACE requires compliance with the requirements of Section 106 (36 Code of Federal Regulations [CFR] 800) of the National Historic Preservation Act (NHPA). SWCA Environmental Consultants (SWCA) was contracted by Polygon Northwest Company to conduct a cultural resources assessment for the Villebois Village SAP North Phase 3 (also known as “Calais at Villebois”) residential development. This report is designed to aid Polygon Northwest Company and the USACE in their Section 106 responsibilities by identifying archaeological sites in the project area, assessing potential adverse effects to these sites, and recommending any additional measures needed to avoid or mitigate adverse effects to cultural resources in the course of this undertaking.

Project Location and Description

The proposed residential development is located on tax lots 1200, 1202, and 1205 (encompassing approximately 15.13 acres) in the NE ¼ of the NW ¼ of Section 15, Township 3 South, Range 1 West, Willamette Meridian. The development area is in western Clackamas County and is approximately 1.3 miles west of Wilsonville’s city center (Figure 1). The area proposed for development is located east of SW Grahams Ferry Road and south of SW Tooze Road. The proposed project area is bound to the west by SW Grahams Ferry Road, to the north by Tooze Road, to the east by open fields, and to the south by a woodland area and field. Two inhabited areas are present within the APE. The first is a house and outbuildings perpendicular to Tooze Road in the east central portion of the project area (Figure 2). The second is in the southeastern corner of the project area and consists of a large house and an expansive multipurpose barn complex (see Figure 2). The area of potential effects (APE) for this project includes all of the approximately 15.13-acre Villebois Village SAP North Phase 3 residential development project area.

The proposed development includes the construction of 84 single-family residences, parks, open space, and infrastructure improvements. The project APE encompasses an irregular-shaped area measuring approximately 273.6 meters (m) by 271 m (897.8 feet by 889.5 feet) situated immediately east of the intersection of SW Grahams Ferry Road with Tooze Road. Horses have actively grazed this area in the past, though they were removed on February 28, 2014. Previous ground-disturbing activities in the APE have been minimal, though some minimal excavation has occurred in the northwestern corner by property tenants. A residence is present in the south-central portion of the APE, along with a large multipurpose building housing a stable and workshop space (Figure 2).

Two previously identified wetland areas were recorded within the proposed project APE (SWCA 2013). The proposed work will fill the northern wetland to enable the construction of infrastructure but will leave the southern wetland intact.

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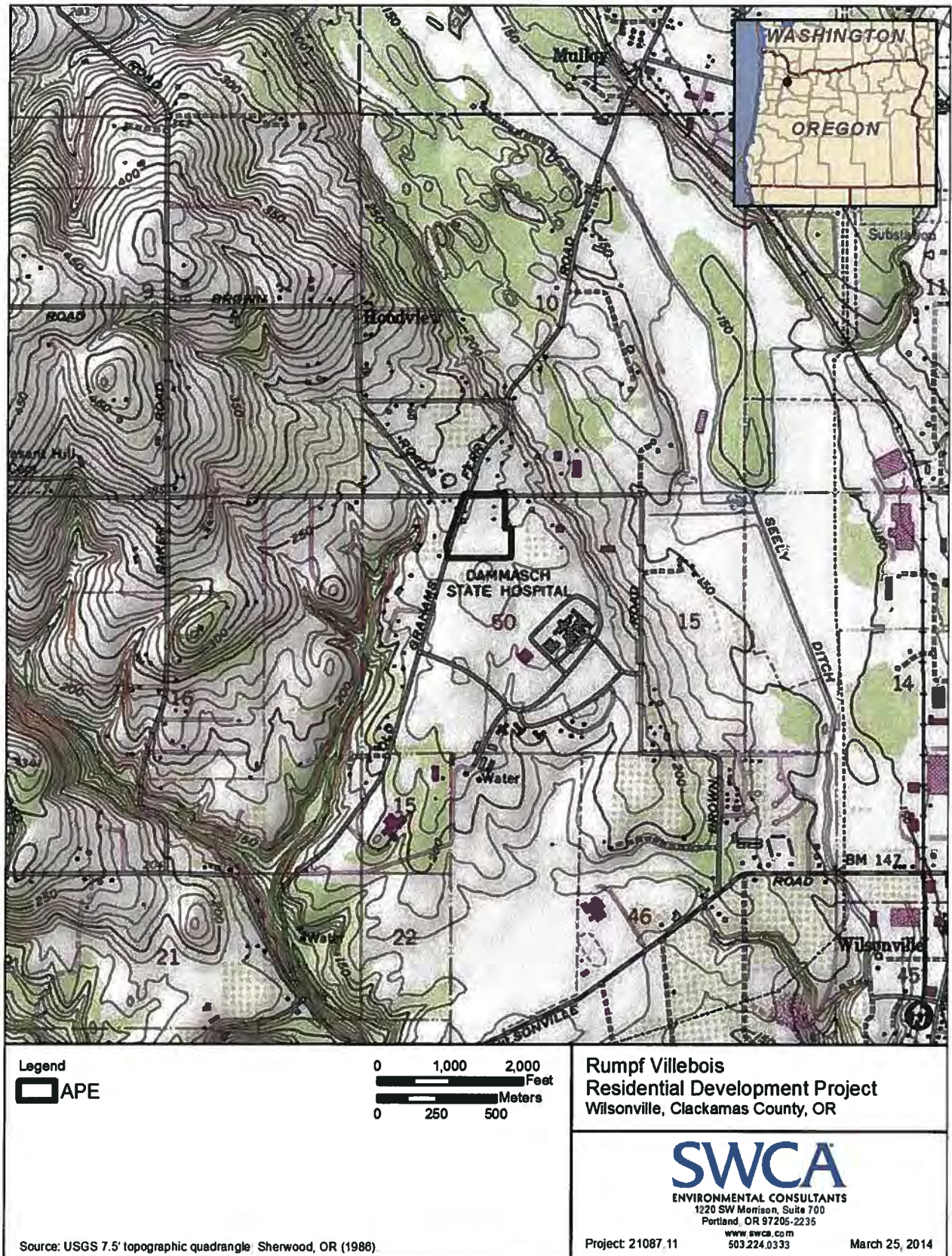


Figure 1. Proposed Villebois Village SAP North Phase 3 residential development project location.

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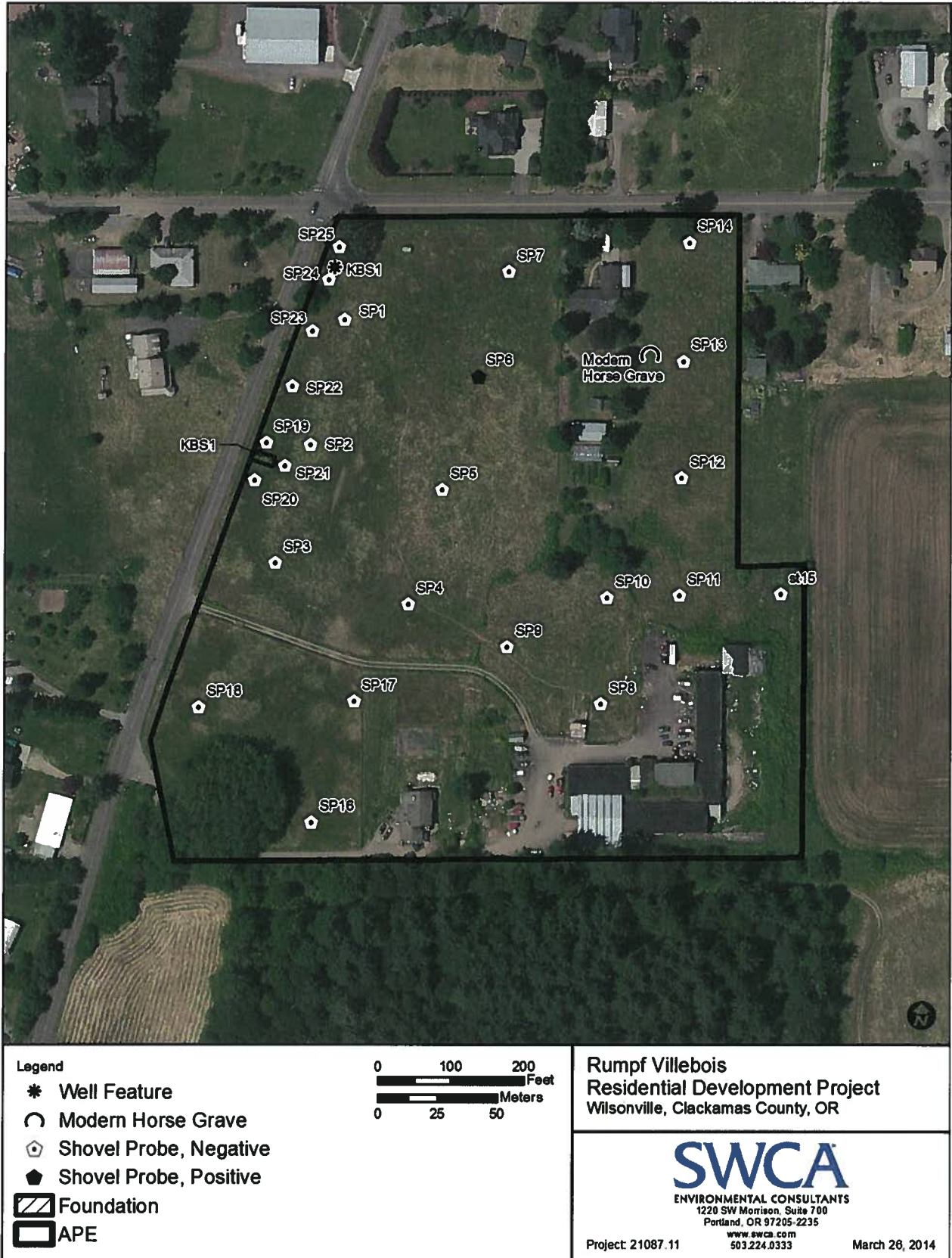


Figure 2. Aerial map of APE showing shovel probe locations and identified cultural resources.

Report continues on the following page.

ENVIRONMENTAL SETTING

The Villebois Village SAP North Phase 3 residential development APE is between the Tualatin Valley to the north and the Willamette River to the south. The Tualatin Valley is bounded by the Tualatin Mountains to the north and east, the Chehalem Mountains to the south, and the Coast Range Mountains to the west. The APE stretches across a slightly undulating portion of the valley floor, along the eastern edge of the Chehalem Mountains, and gradually slopes toward the Willamette River, approximately 2 kilometers (km; 1.25 miles) to the southeast. The APE is within the Upper Willamette Basin and the Middle Willamette Subbasin. Agricultural and horse pasture lands surround the APE.

Much of the land in the area was shaped by the Missoula floods that occurred between about 19,000 and 13,000 years ago. There appear to have been at least 89 of these sudden and destructive floods caused by repeated failures of ice dams on the Clark Fork River in northern Idaho, allowing the glacial Lake Missoula to suddenly release its waters and sweep across eastern Washington and down the Columbia River. In the Portland area, the floodwaters peaked at approximately 121 m (400 feet) and swept through the gap in the Tualatin Mountains at Lake Oswego northwesterly into the Tualatin Valley. Other flood channels were probably created by the subsequent ebb and flow of floodwaters into and out of the Tualatin Valley to the east through the “Rock Creek gap” between the Tualatin Valley and the Willamette River. Lacustrine sands and gravels have been mapped at Onion Flat at the northern end of the gap—approximately 7.2 km (4.5 miles) from the APE—and sand and gravel fans at Wilsonville, closer to the APE, are situated at the southern end of the gap. The lowermost course of the Tualatin River bottom, approximately 8.7 km (5.4 miles) from the APE, is in the Wapato Lake Valley, which is defined by these Missoula flood sediments (Benito and O’Conner 2003; O’Conner et al. 2001:21; Schlicker and Deacon 1967:9, 83; Schlicker and Finlayson 1979:25).

After the end of the Missoula floods, much of the present project area would have been an eroded landscape characterized by sand and gravel. Pollen data gathered from Onion Flat in the 1940s and later palynological data suggest that this barren landscape may have been soon colonized by alder (*Alnus* spp.), lodgepole pine (*Pinus contorta*), Sitka spruce (*Picea sitchensis*), and fir (*Abies* spp.). These species dominated the Tualatin Valley area until about 4,000 to 5,000 years ago. From about 12,000 to 5,000 years ago, the climate in the region was generally characterized as warmer and drier than today. At around 5,000 years ago, the climate shifted to cooler and wetter conditions. This climatic change appears to be reflected in the Tualatin Valley by a steady decline in lodgepole pine and substantial increases in Douglas-fir (*Pseudotsuga menziesii*) and oak (*Quercus garryana*). Although there is no palynological evidence of increases in grasses, the rather abrupt increase in oak suggests the development of the oak savanna that characterized the Willamette Valley at the time of Euro-American contact (Barnosky 1985; Heusser 1965; Whitlock 1992).

The oak savanna landscape present throughout the Willamette Valley when Euro-American settlement began in the mid-1800s was, in part, the result of centuries of annual grassland burning by Native peoples. Burning created large prairies interspersed with stands of fire-resistant white oaks and riparian woodlands along the floodplains of major drainages. Periodic incineration promoted the growth of important food plants, and the fresh growth of grasses and forbs following the fires would have attracted wild game. Native peoples in the area likely practiced annual burning for 3,000 years or more prior to the arrival of Euro-Americans (Bowen 1978; Boyd 1986; Franklin and Dyrness 1973).

The 1852 General Land Office (GLO) map of Township 3 South, Range 1 West, Willamette Meridian, depicts this pattern of prairie interspersed with wooded areas in the project area (GLO 1852). There are several cultivated plots of land shown on the 1852 GLO map on the banks of the Willamette River, but none within the general area around the APE. One structure is depicted just south of the APE. The area is

mostly shown to consist of gently rolling hills, timber, fir, and white oak. A feature shown as an “Indian Trail” runs northwest to southeast through the APE. The 1916 U.S. Geological Survey (USGS) map of the area indicates that development in the area consisted of Old Grahams Ferry Road, a road in the location of modern Tooze Road, and a handful of structures (USGS 1916).

Geology and Geomorphology

The Willamette Valley extends southward for about 193 km (120 miles), or about halfway across Oregon. The geologic foundation of the Willamette Valley ties in with the geology of the Coast Range. Prior to the accretion of the Coast Range to the North American plate, the Willamette Valley was part of the older continental shelf. Once the island archipelago of the Coast Range accreted to the North American plate, the east edge of the arc (the Willamette Valley) subsided as a fore arc basin between the newly formed Coast Range and the older Cascade Mountains. From the Eocene through the Pliocene (roughly 56–2 million years ago), the basin was the location for deposition of marine and terrestrial deposits eroded into the ocean (Alt and Hyndman 1978; Burbank and Anderson 2001; Conlon et al. 2005; Orr et al. 1992).

Soils within the Willamette Valley are generally characterized as part of the mesic (soils with a mean annual soil temperature between 46 and 59 degrees Fahrenheit [8–15 degrees Celsius]) temperature regime and xeric (climates with moist, cool winters and dry, warm summers) moisture regime. The oldest surface associated with the present drainage system is at least 5,250 years old and could be as old as 34,410 years (Parsons et al. 1970). On the floor of the Willamette Valley are soils formed in the Willamette silts, which were deposited by the great Pleistocene Missoula floods, and in alluvium from Coast Range and Cascade Mountain drainages. Soil development, texture, and drainage are specific to geomorphic surfaces expressed in the Willamette Valley (U.S. Department of Agriculture [USDA] 2009).

The Tualatin Mountains, located immediately northeast of the project area, are a northwest-southeast-trending anticline that extends between the Columbia River to the northeast and the Tualatin Valley to the southwest (Phillips 1987; Schlicker and Deacon 1967). These mountains were formed from highly weathered Grande Ronde basalt that extruded during the Miocene epoch from the volcanic vents of northeast Oregon. This basaltic lava underlies the Tualatin Valley as well (Baldwin 1981; Orr et al. 1992).

Soils

According to the Natural Resources Conservation Service (NRCS) mapped soils data, soils within the APE are primarily considered variations of silt loam (NRCS 2013). A majority of the soils within the the majority of the project area have been classified as 1A while a quarter of the project area long SW Grahams Ferry Road are classified as 1B—Aloha silt loam that exists on 0 to 6 percent hill slopes. The parent material of these soils is lacustrine silts and mixed alluvium. The silt loam is somewhat poorly to moderately well drained, and the water table from December through April varies between 30 and 60 centimeters (cm; 12 to 24 inches) below the surface, and is deeper the rest of the year. A layer of restrictive hardpan is generally encountered from 51 to 102 cm (20 to 40 inches) below the ground surface. The soils mapped by the NRCS correlate well with the soil data recorded during the subsurface testing phase of the survey.

No plow zone was observed in the soils within the APE. Generally, the soils observed at the time of shovel probe excavation consisted of a medium brown (10 YR 3/3) silt loam to a depth of approximately 30 cm (12 inches), which was underlain by a light reddish brown (10 YR 4/4) silt loam to silty clay loam. The soil was moderately compact to compact with depth, and contained few subrounded to subangular pebble-sized gravels. Ground surface visibility in the APE ranged from 0 percent to 30 percent.

Vegetation

Two wetland areas are present in the western half of the APE. The wetland areas have been identified as Wetlands A and B (SWCA 2013). Wetland A is a 0.37-acre isolated emergent wetland in the north-central portion of the western part of the APE (Figure 3). Vegetation is dominated by colonial bent grass (*Agrostis capillaris*, facultative [FAC]). Wetland B is the southern wetland in the western part of the project area (see Figure 3). Wetland B is a 0.45-acre isolated forested wetland, with vegetation dominated by Oregon ash (*Fraxinus latifolia*, facultative wetland [FACW]). Vegetation throughout the rest of the APE is consistent with that found in upland forested habitat and consists of Oregon white oak, Douglas-fir, Himalayan blackberry (*Rubus armeniacus*), and colonial bent grass.

Native vegetation in the project area would likely have varied from the western hemlock (*Tsuga heterophylla*) zone of the Tualatin Mountains to vegetation typical of the Willamette Valley zone (*Pinus-Quercus-Pseudotsuga*) (Franklin and Dyrness 1973:47, 110). The western hemlock zone is characterized by temperate coniferous forest of western hemlock, Douglas-fir (*Pseudotsuga menziesii*), and western arborvitae (*Thuja plicata*), with an understory of Oregon grape (*Mahonia aquifolium*), vine maple (*Acer circinatum*), red huckleberry (*Vaccinium parvifolium*), Pacific blackberry (*R. ursinus*), and Pacific rhododendron (*Rhododendron macrophyllum*). Riparian areas surrounding the wetlands would have been more like the Willamette Valley zone with black cottonwood (*Populus trichocarpa*), willow (*Salix spp.*), bigleaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and Oregon ash (Franklin and Dyrness 1973:77, 124–125).

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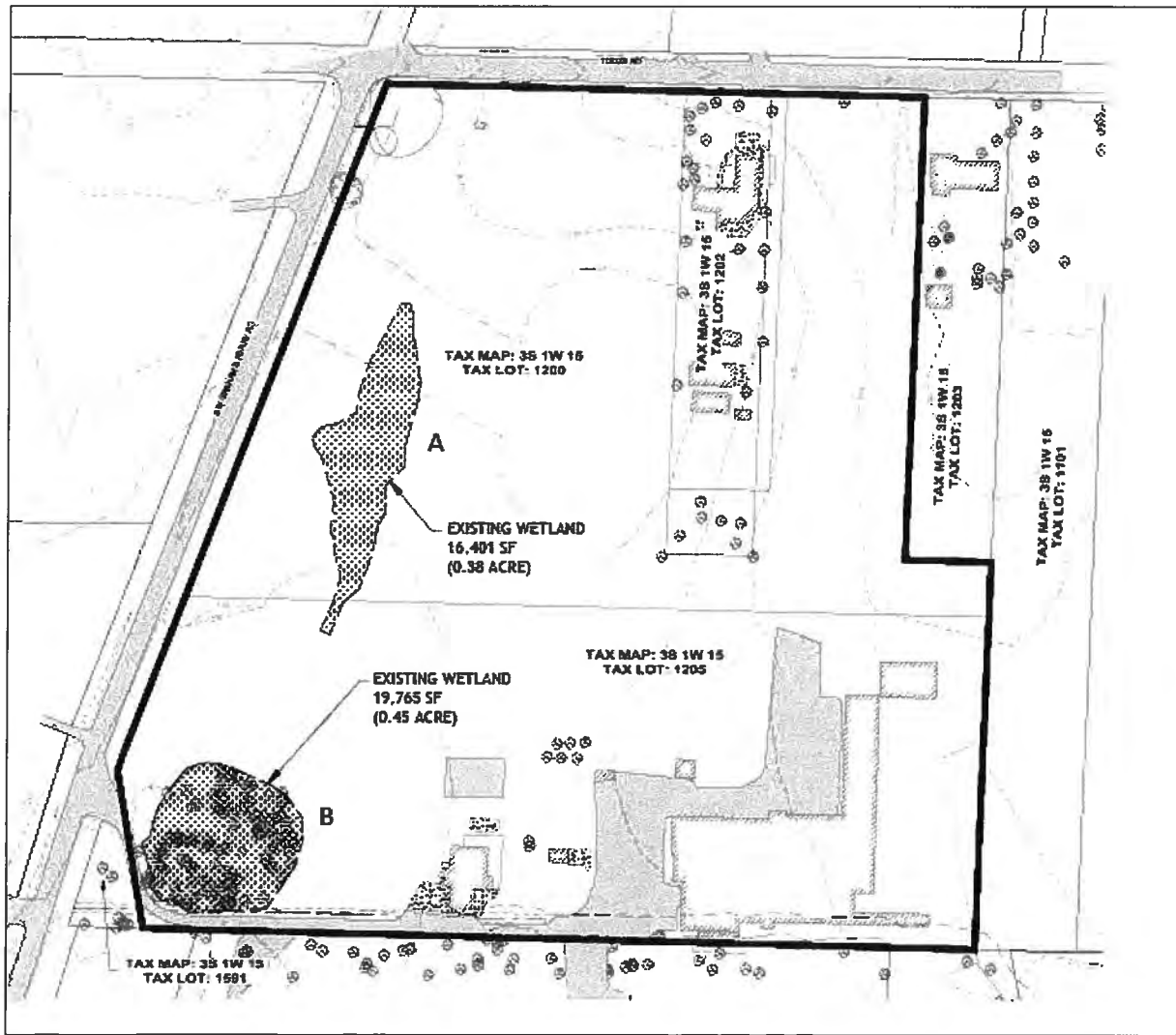


Figure 3. Wetlands within the Villebois Village SAP North Phase 3 APE.

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CULTURAL SETTING

Prehistory

Although archaeological evidence indicates that the Willamette Valley has been inhabited by Native peoples for over 10,000 years (Aikens 1993; White 1975), the earliest periods of human occupation in the Tualatin Basin remain largely unknown due to the relative scarcity of sites. Artifacts that date to more than 8,000 years before present (B.P.) are extremely rare, and none have been found in the vicinity of the project in this portion of the upper Willamette Valley. The first substantial evidence of occupation in the region dates to the Early Archaic (8,000 to 6,000 years B.P.), often represented by leaf-shaped Cascade points (Aikens 1993). Archaeological data indicate that people in this era followed broad-spectrum foraging economies, emphasizing terrestrial resources associated with oak woodlands and savannas (Ames and Maschner 1999). Dart points, which were hafted for use with the atlatl, appeared in the archaeological record during the Middle Archaic (6,000 to 2,000 B.P.); toward the end of this period, hunting and gathering shifted to more extensive use of riverine resources. In the Late Archaic (2,000 B.P. to about A.D. 1800), complex hunter-gatherers established semipermanent large villages—ground stone and bone artifacts increasingly appear in the archaeological record for this time. Native subsistence patterns became increasingly specialized during this period, focusing on seasonally available food resources. As the bow and arrow was introduced, smaller arrow points were manufactured to hunt game. Native groups also developed extensive trade networks, interacting and trading with other groups throughout the Pacific Northwest. Willamette Falls, located approximately 15.3 km (9.5 miles) northeast of the current project area, developed into a major trading center as various groups including the Tualatin Valley Kalapuyan-speaking peoples congregated for seasonal runs of anadromous fish.

Previous archaeological research in the Willamette Valley and Portland Basin has shown that archaeological resources are not randomly distributed across the region. Environmental variables played a large role in precontact peoples' decisions regarding settlement and subsistence strategies. For instance, archaeological resources are often found on terraces along rivers and streams, on high ground adjacent to marshes, and in specific resource areas that offered staple foods on which Native peoples traditionally relied (Beckham and Toepel 1983:4; Brauner and Robbins 1976:3; Jenkins and Soper 1989:5, 8–9; O'Brien et al. 2005; O'Rourke 2005; Pettigrew 1990). Although environmental attributes usually did not directly determine precontact settlement patterns, archaeological sites are more likely to be found in areas that are located within 121 m (400 feet) of a water source and/or below 48 m (160 feet) in elevation. Moreover, archaeological resources are commonly found near prairie/wetland interfaces as well as in association with Mollisols, or soils that form under grasslands (Birkeland 1984), which were utilized and manipulated as attractive habitation and resource collection areas by precontact people. The likelihood of significant precontact resources appears to increase in ecotones where these environmental variables overlap (O'Brien et al. 2005). In general, precontact archaeological sites in the Tualatin Valley tend to be situated on higher ground in close proximity to perennial streams, valley floor lakes, and wetlands (Hibbs and Ellis 1988:146–147). Wetlands that supported abundant aquatic plants, such as wapato, would have been especially attractive to Native peoples.

Ethnographic Period

Linguistic and ethnographic evidence suggests that the Willamette Valley can be divided into two regions: the Lower Willamette Valley between the Columbia River on the north and Willamette Falls in present-day Oregon City, and the Upper Willamette Valley above the falls and south to Eugene (White 1979). Below the falls, the Lower Willamette Valley was inhabited by various Chinookan-speaking groups, who were predominantly salmon fishers occupying large semipermanent villages with an

internally ranked society (Jacobs 1945). The Upper Willamette Valley was inhabited by the Kalapuyan-speaking groups, who gained more of their subsistence from hunting and gathering than fishing and whose groups, generally, were smaller, less rigorously ranked, and more mobile than those of Chinookan-speaking peoples (Jacobs 1945).

The Tualatin Valley is the traditional homeland of the Atfalati or Tualatin people, for whom the river and valley are named. The Tualatin people were the northernmost branch of the Kalapuyan-speaking people, who occupied the Willamette Valley at the time of Euro-American contact. The Tualatin were typical of Kalapuyan-speaking groups, with an economy that appears to have been based on gathered vegetable foods, particularly camas along with wapato, hazelnuts, acorns, and various types of berries and seeds. Animals hunted by the Kalapuya included birds, deer, elk, and black bear. Although their subsistence pattern differed from those of nearby groups, the Tualatin people maintained close ties with the Chinookan-speaking people along the Columbia River to the north and along the lower Willamette River to the northeast (Zenk 1990).

The Tualatin people occupied semipermanent winter villages from late fall to early spring, and the locations of the winter villages appear to have been stable over time. Some subsistence activity occurred during the winter months, although households relied primarily upon dried and stored foods during this season. During the remainder of the year, families and households moved among seasonal camps, although there may have been occasional returns to the winter villages during the summer to store goods and to collect gear. Simple brush shelters or windbreaks were used at these temporary summer camps (Zenk 1976, 1990).

Traditional lifeways of the Tualatin were severely disrupted by the European colonization of North America (Bunting 1995). Direct contacts were established in the 1780s as British and American traders began to appear regularly on the Pacific coast. Indirect contact had been made earlier, however. Horses may have been introduced to the Willamette Valley by the late 1700s. A more destructive introduction was Euro-American disease. Diseases such as smallpox and malaria had a devastating impact on Native groups. A smallpox epidemic in the 1770s decimated 30 percent of the Native population throughout the region. A malaria epidemic in the early 1830s had mortality rates of 90 percent or higher for groups in the lower Columbia River Valley and the Willamette Valley (Hajda 1994).

Euro-American settlement in the Willamette Valley began in the late 1820s and accelerated substantially in the early 1840s. As Euro-American settlement boomed, pressure grew to establish a legal foundation for land claims by negotiating Indian land cessions through treaties with surviving populations. A series of treaties with groups in the Willamette Valley in 1851 were never ratified by Congress. When a new treaty was negotiated with all of the Kalapuyan bands in 1855 (the 1851 treaties had been with individual bands), no separate reserve was established for the Tualatin people. Instead, all of the Kalapuyan bands were to be relocated to a reservation that was subsequently established in the Coast Range at Grand Ronde (Kappler 1904; Mackey 1974; Zenk 1990).

Historical Context

European and American interest in the Pacific Northwest began in the sixteenth century, when European discovery of the American continents presented an obstacle to sea passage to the ports of China and India. Exploration of Hudson's Bay and the northeastern Canadian coast was the result of efforts to discover a navigable route to the western ocean. Early explorations of the Pacific Northwest coast were conducted by the Spanish, English, and Russians, including the expeditions of James Cook and George Vancouver of the British Royal Navy.

Cook's expedition of 1776–1779 was the first to recognize the potential for trade in Northwest furs. In 1778, he traded with the Nootka people of what is now known as Vancouver Island. After this time, trading vessels appeared in ever-increasing numbers along the Northwest coast. Vancouver's expedition of 1791–1795 was the first meaningful penetration of the Columbia River. Despite the exploration of the Pacific Northwest coast for many decades, the existence of a large river in the vicinity had never been demonstrated by Europeans. In 1792, Vancouver sailed in search of the river; upon locating its mouth, he dispatched Lieutenant William Broughton to enter the Columbia River. Broughton was the first European to ascend the Columbia River as far as the mouth of the Sandy River, east of modern-day Portland (Carey 1971:97–99).

In the years between Broughton's ascent of the Columbia River and the passage of the Lewis and Clark Expedition in 1805–1806, the sheltered bay just inside the mouth of the Columbia became a frequent resting point for ships on the trading line between North America, Hawai'i, and Canton, and the value of pelts obtained on the Columbia River became widely known (Carey 1971:98–101). These early explorations opened the area for fur-trapping, with the Pacific Fur Company, North West Company, and, eventually, the Hudson's Bay Company (HBC) each establishing a presence along the Columbia River. After 1821, the HBC dominated trade in the Northwest, initially from their headquarters at Fort George (near present-day Astoria), and after 1824 from their headquarters at Fort Vancouver. Although settlement of the areas along the Columbia and Willamette Rivers began soon after Fort Vancouver was established, most Euro-American settlers (aside from the Methodist missionaries who settled at Champoege) were HBC retirees who had married Native women and had chosen to remain in the area. Although the vast majority of these French Canadian retirees were expected to return to Canada under the terms of their employment, Chief Factor John McLoughlin allowed them to remain, and many settled in the area now known as French Prairie, along the Willamette River in northern Marion County, Oregon (Carey 1971:251).

Throughout the first decades of the nineteenth century, political control over the Pacific Northwest remained unclear, as the United States, Great Britain, Spain, and Russia all claimed the area. The remoteness of the region, however, made actual enforcement of those claims extremely difficult for any of the claimants. As the nineteenth century progressed, however, it became clear that Spanish influence in the western hemisphere was in a sharp decline and that the area was too remote for Russia to exert any meaningful pressure there. Both countries formally gave up their claims by treaty (Spain in 1819 and Russia in 1824, although Russia's ability to enforce any claims was regarded as null well before this date) (Carey 1971:417, 430).

The remaining claimants, Great Britain and the United States, were engaged in a war between 1812 and 1815, which was brought to a close by the Treaty of Ghent. That treaty, however, failed to resolve outstanding border disputes in western North America. The subsequent Treaty of 1818 attempted to address some of these issues, including defining the boundaries of the Oregon Country (bounded on the west by the Pacific Ocean, on the east by the Rocky Mountains, on the south by the 42nd parallel, and on the north at 54 degrees, 40 minutes north latitude) as well as attempting to define control over the Oregon Territory. The treaty adopted a condition of "joint occupancy" for a period of 10 years, with neither nation claiming exclusive control. In this way, the issue remained unresolved for nearly 30 years, as the 10-year life span of the provision was extended twice, in 1828 and 1838, and finally superseded by the provisions of the Oregon Treaty (officially titled the "Treaty between Her Majesty and the United States of America, for the Settlement of the Oregon Boundary") in 1846, establishing the boundary at the 49th parallel, with Great Britain retaining control to the north of that line and the United States to the south (Corning 1956:129; Library of the Public Archives of Canada 1846). At that time, the Oregon Country included all of the future states of Oregon, Washington, and Idaho, and portions of the future states of Montana and Wyoming. North of the 49th parallel, as defined by the treaty, was British Canada.

During the 1840s, a dramatic increase in immigration took place, largely by Americans who came to the area with the intent to settle the land, unlike the HBC men, who were British subjects and initially came for trade. Beginning in 1841, a massive migration of Americans crossed the continent on the Oregon Trail, generally departing from Missouri and crossing to The Dalles, from where they then traveled down the Columbia River or traveled overland to the Willamette Valley (Bassett et al. 1998). The early settlers claimed the most desirable farming locations on the foothills of the Coast and Cascade Ranges, which had access to spring water, friable and easily plowed soils, and access to nearby forests, which would supply the wood used by the settlers to construct their homes (Bowen 1978:62).

The pattern of Euro-American settlement in the Willamette Valley generally progressed from north to south. Most settlements were made under the Provisional and Donation Land Claim (DLC) Acts. The DLC Act of 1850 entitled many settlers within Oregon Territory (which at the time included present-day Washington state) to claim up to 640 acres of land (Bergquist 1957:28). The number of acres granted depended upon the marital status of the claimants and their date of settlement. By the time the act expired in 1855, over 7,000 DLC patent applications covering approximately 2.5 million acres had been filed and grants were issued for the next 15 years within Oregon and Washington Territories (Johansen and Gates 1957:290–292).

The Tualatin Plains area was among the first areas to be settled and converted for use as farmland, beginning in the early 1840s. This open plain, crisscrossed by creeks and already cleared by native annual burns, was an attractive area to early settlers because of the ready state of the land for farming and the relatively easy access to the markets at Oregon City and, by the late 1840s, the fast-growing community at Portland. The earliest claims were to the south of the current project area, along the larger rivers and tributaries of the Willamette River (such as the Tualatin River) and close to the established roads leading to Oregon City and Portland. At the time Portland was only reachable by water or (after 1849) along the difficult Portland–Tualatin Valley Plank Road, which descended a canyon into the lowlands south of Portland (now Canyon Road) (Corning 1956:250). As these lands filled up, the next to be claimed were those somewhat farther to the north and west, made more attractive by the increasing reach and improving conditions of the road network. By 1854, it was reported by a contemporary witness that nearly all of the Willamette Valley had been claimed, though the extent to which his definition of the Willamette Valley reached the far margins and foothills of the surrounding mountain ranges is unclear. Certainly by that time the lands in the Tualatin Plains had been taken up, and farms and small farming communities had been firmly established (Bourke and DeBats 1995:62–65).

The current APE was not immediately settled. On the 1852 GLO map of the area, a structure labeled “Samuel Frankleton” is depicted just south of the APE. This likely refers to the same Samuel B. Franklin who claimed an approximately 320-acre plot (DLC No. 50) adjacent to the south and possibly overlapping with the APE; his patent was issued in November 1865 (Bureau of Land Management [BLM] 2014). Franklin’s land claim is clearly delineated on the 1855 GLO map of the area (GLO 1852, 1855).

Robert V. and Mary Short settled southeast of the APE in the southeastern portion of Section 15 and portions of Sections 14, 22, and 23 of Township 3 South, Range 1 West, Willamette Meridian. The south end of the Short claim (DLC No. 46) stretched to the banks of the Willamette River and is depicted as being located directly across the river from Jesse V. Boone’s claim (GLO 1855).

The area that became the City of Wilsonville was settled in 1846 by Alphonso Boone, grandson of Daniel Boone, who started a ferry service across the Willamette River and blazed a trail from Portland to Salem, now called Boones Ferry Road, among other things. Shortly after settling in the area, Alphonso relocated to California during the gold rush and left the control of the ferry service to his son Jesse V. Boone. The community of Boones Landing that sprung up around the Boones’ ferry service was renamed Wilsonville in 1880 after the town’s first postmaster, Charles Wilson. The ferry service continued for 107 years and

was vital to the development of the area, but was discontinued in 1954 after the completion of the Interstate 5 freeway and bridge, just east of Wilsonville (Wilsonville Chamber of Commerce 2013).

During the early twentieth century, the region was rapidly developing, and communities such as Wilsonville developed into substantial towns with smaller satellite communities around them. The area surrounding Wilsonville began to develop more quickly after the establishment of the Oregon Electric Railway Company's interurban line between Portland and Eugene between 1906 and 1908. Construction of that line began in 1906. A railroad trestle bridge was completed in 1907 bringing service to Wilsonville, and the first trains operated on January 20, 1908 (Robertson 1995:108–109). The early-twentieth-century development of the electric interurban railway between the valley communities and Portland led to an early expansion of the Portland suburban sphere, followed by sustained growth through the mid-twentieth century, as the role of the interurban lines was taken over by the rise of automobile traffic. The area's real boom occurred after World War II, by the completion of freeways such as the Sunset Highway, which was completed in 1949, and the Interstate 5 corridor, completed early in the 1950s (Buan 1999).

During the mid-1970s the APE was owned by an individual who raised and trained Tennessee Walking Horses (personal communication, Howard Short, tax lot 1202 owner 2014). According to the owner of tax lot 1202, these activities required the construction of a track in the southeastern quarter of the northwestern pasture using fill material excavated from the southeastern portion of the APE. This fill material was also used to obscure a foundation in the northwestern pasture to prevent the injury of the horses. Within the eastern portion of the APE a depression was identified as the grave of a prize stallion from this period of occupation (see Figure 2).

LITERATURE REVIEW AND ARCHIVAL RESEARCH RESULTS

Prior to field investigations, an SWCA archaeologist searched online databases and archives and reviewed historical maps, aerial imagery, and other references on file at the SWCA offices to establish a historical framework for the APE and identify potential resource types likely to be present. A records search was conducted by SWCA at the Oregon State Historic Preservation Office (SHPO) on February 11, 2014, to determine if known precontact or historic-period cultural resources have been recorded within 1 mile of the APE. These searches allow for predictions to be made regarding the occurrence and frequency of archaeological sites in areas that have not been previously examined.

A search of the SHPO geographic information system (GIS) database indicated that no cultural resource inventories have been previously conducted within the APE and that no cultural resources have been identified in the APE. Sixteen cultural resource inventories have been previously conducted within a 1-mile radius of the project area (Table 1), resulting in the identification of one archaeological site and five archaeological isolates (Table 2). The archaeological site is a historic farmstead site (35CL317) identified on the ground surface during a survey of the central area of the Villebois Village SAP North Phase 3 development project area (Darby 2005). Artifacts identified at the site include a flow blue ceramic fragment, a salt glazed earthenware fragment, a ceramic insulator fragment, beer bottle fragments, tile brick fragments, and a bathroom fixture fragment. The Jaeger family historic farmstead was recommended eligible for listing on the National Register of Historic Places (NRHP) under Criteria D.

The five isolates previously identified are precontact lithic artifacts/artifact scatters discovered on the ground surface or during subsurface investigations. In Oregon, recorded precontact isolates typically consist of nine or fewer lithic tools and lithic debris related to tool manufacture. Materials vary and

consist of chert, quartzite, basalt, and obsidian. The land forms where each of the five isolates were located are considered to be relatively flat terraces near drainages or other bodies of water.

The Oregon Historic Sites (properties) Database, historical maps, and other references on file at the SWCA offices were viewed to assess whether historic-period properties may be located within the project APE or immediate vicinity. According to the database, no historic properties have been previously inventoried within the APE or within a 0.5-mile radius of the APE.

Table 1. Previous Cultural Resource Investigations within 1 mile of the APE

SHPO No.	Survey Project Principal Investigator, Year, Affiliation	Location	Methods	Results	Distance to APE
13764	Wilsonville Road Project Cultural Resources Survey: Shovel Testing <i>Wilson, Douglas C., 1993, Archaeological Investigations Northwest, Inc.</i>	T3S, R1W, Section 22	Subsurface testing	Positive (1 precontact isolate)	0.6 mile southeast
13765	Wilsonville Road Project Cultural Resources Survey <i>Wilson, Douglas C., 1993, Archaeological Investigations Northwest, Inc.</i>	T3S, R1W, Section 22	Pedestrian survey	Positive (2 precontact isolates)	<1 mile
17033	Cultural Resources Survey of the Proposed Wilsonville Water Treatment Plant Location, Wilsonville, Oregon <i>Ellis, David V., 2000, Archaeological Investigations Northwest, Inc.</i>	T3S, R1W, Section 23	Pedestrian survey, subsurface testing	Negative	<1 mile
18588	Cultural Resources Survey and Assessment of a Portion of the Former Holdings of the Dammasch State Hospital Tax Lot 31W502990 in Clackamas County, Oregon <i>Darby, Melissa C., 2003, Lower Columbia Research & Archaeology</i>	T3S, R1W, Section 15	Pedestrian survey, subsurface testing	Negative	0.5 mile
19029	The Boeckman Road-Tooze Road Connector Project: Environmental Assessment, Clackamas County, Oregon <i>HDR Engineering, 2004</i>	T3S, R1W, Section 15	Environmental assessment	Negative	0.2 mile
19234	Cultural Resource Assessment of the Proposed Villebois Rainwater Management Program, Clackamas County <i>Darby, Melissa C., 2004, Lower Columbia Research & Archaeology</i>	T3S, R1W, Section 15	Pedestrian survey	Negative	0.1 mile
19816	Cultural Resource Assessment of the Central SAP Area of the Proposed Villebois Development <i>Darby, Melissa C., 2005, Lower Columbia Research & Archaeology</i>	T3S, R1W, Section 15	Pedestrian survey	Positive (35CL317, 1 precontact isolate)	0.3 mile
19850	Letter Report: Archaeological Survey of the Boeckman Road-Tooze Road Connector Project, Clackamas County, Oregon <i>McCormack, Kevin C. and Kathryn Anne Toepel, 2005, Heritage Research Associates, Inc.</i>	T3S, R1W	Pedestrian survey	Negative	<0.1 mile
19995	Letter Report: Supplementary Archaeological Survey of the Boeckman Road-Tooze Road Connector Project, Clackamas County, Oregon <i>McCormack, Kevin, and Kathryn Toepel, 2005, Heritage Research Associates, Inc.</i>	T3S, R1W	Pedestrian survey	Negative	1 mile

Table 1. Previous Cultural Resource Investigations within 1 mile of the APE

SHPO No.	Survey Project Principal Investigator, Year, Affiliation	Location	Methods	Results	Distance to APE
20548	Cultural Resource Survey and Assessment of a Portion of the Villebois Proposed Development <i>Darby, Melissa C., 2004, Lower Columbia Research & Archaeology</i>	T3S, R1W, Section 14	Pedestrian survey	Positive (3 aboveground)	0.3 mile
20569	Archaeological Survey of Select Portions of the Washington County Wilsonville to Beaverton Commuter Rail Project Alignment <i>McDaniel, Sarah, 2006, URS Corporation</i>	T3S, R1W, Section 14	Pedestrian survey	Negative	1 mile
21165	A Cultural Resources Survey for the BPA/Tri-Met Pole Relocation, Wilsonville, OR <i>Brannan, Nicole F., and Sunshine R. Clark, 2007, Bonneville Power Administration</i>	T3S, R1W, Section 14	Pedestrian survey	Positive (1 aboveground)	1 mile
22372	A Cultural Resources Reconnaissance Survey of the Proposed Tualatin Basin Water Supply Project (Willamette Pipeline), Clackamas and Washington Counties, Oregon <i>Smits, Nicholas, Elizabeth O'Brien, Jason Allen, and David V. Ellis, 2006, Archaeological Investigations Northwest, Inc.</i>	T1S, R1W; T2S, R1W; T3S, R1W	Reconnaissance survey	Negative	1 mile
22373	Cultural Resource Survey and Selected Subsurface Testing for the Proposed Tualatin River Basin Water Supply Project, Clackamas and Washington Counties, Oregon <i>Punke Michele, Todd Ogle, David Ellis, and Elizabeth O'Brien, 2007, Archaeological Investigations Northwest, Inc.</i>	T1S, R1W; T2S, R1W; T3S, R1W	Pedestrian survey, subsurface testing	Positive	0.1 mile
23709	Archaeological Survey of the Barber Street Extension/Kinsman Road Extension Project, Clackamas County, Oregon <i>Lloyd-Jones, Jeff, and John L. Fagan, 2010, Archaeological Investigations Northwest, Inc.</i>	T3S, R1W, Section 14	Pedestrian survey, subsurface testing	Negative	1 mile
24835	A Cultural Resources Survey for the Pearl Substation Expansion Project, Clackamas County, Oregon <i>Brannan, Nicole F., 2011, Bonneville Power Administration</i>	T3S, R1W, Section 11	Pedestrian survey	Negative	1 mile

Table 2. Previously Recorded Sites and Isolates within 1 Mile of the APE

Site Number	Type	Name	NRHP Eligibility	Inside/Outside of Project APE
35CL317	Historic farmstead	Jaeger Family Farm	Unevaluated	Outside
35CL398	Historic refuse scatter	N/A	Not eligible	Outside
	Precontact isolate	OBS Cascade-style projectile point	Not eligible	Outside
	Precontact isolate	CCS flake	Not eligible	Outside
	Precontact isolate	1 CCS flake, 2 FCR	Not eligible	Outside
	Precontact isolate	1 CCS flake	Not eligible	Outside
	Precontact isolate	2 CCS flakes, 1 broken quartzite cobble, 1 CCS scraper	Not eligible	Outside
	Precontact isolate	3 CCS flakes, 2 petrified wood, and 2 quartzite flakes; 1 CCS core fragment	Not eligible	Outside

CCS = cryptocrystalline silicate; FCR = fire-cracked rock; OBS = obsidian

Expected Resource Types

The geographic and cultural setting, along with previously identified resources in the vicinity of the APE, suggest that the APE has a moderate potential for containing small and/or sparse precontact lithic scatters that may have functioned as lithic reduction and hunting sites. A majority of the APE, however, has been heavily disturbed by agricultural and residential use; thus, the likelihood of encountering intact precontact cultural resources is considered low. The documented mid-nineteenth-century homesteading activities and the continual occupation of the project area by Euro-Americans since that time suggest that there is a high probability of encountering historic-period structural remains, refuse scatters, and other agriculture-related material.

FIELD METHODS AND INVESTIGATIONS

All fieldwork was performed by SWCA archaeological staff and supervised by archaeologists who meet the professional qualifications and standards of the Secretary of the Interior's guidelines for archaeology. Field investigations were conducted by SWCA archaeologists Karry L. Blake and Juan Albaitero from February 27 through February 29, 2014, and on March 13, 2014. All field notes and photographs are on file at the SWCA Portland office, under internal project number 21087.11.

The field crew was provided with USGS topographic quadrangle maps and high-resolution aerial photographs depicting the APE. In addition, GIS shapefiles depicting the APE were uploaded as background files to handheld global positioning system (GPS) devices used to record the locations of survey transects, shovel probes, and other features encountered in the course of the field investigations. The APE was surveyed by walking parallel transects spaced at 15-m (49-foot) intervals. All exposed soils were examined. The majority of the APE is relatively undisturbed by past development and consists of grassy pasture areas on relatively flat land forms. During pedestrian survey archaeologists identified a foundation and well with attached trough in the northwestern pasture, which was recorded as an archaeological site (KBS1) (see Figure 2).

Following the pedestrian survey, SWCA archaeologists excavated 25 shovel probes (SP1–SP25) within the APE to determine if subsurface archaeological deposits were present and to delineate identified surface resources (see Figure 2 and Table 3). All shovel probes measured at least 30 cm (12 inches) in diameter and were excavated to a minimum depth of 50 cm (20 inches) below the ground surface and two sterile levels. Shovel probe data were recorded on SWCA shovel probe record forms and the holes backfilled after completion of excavation. Artifacts found during the shovel probe excavations were photographed, bagged, and returned to the probe below the sod cap. All excavated soils were screened through ¼-inch galvanized mesh screen. The soil matrix descriptions for each shovel probe are summarized in Appendix A.

Shovel probe placement was based on the probability of encountering cultural resources established during the literature review and archival research, as well as the land form, the level of previous ground disturbance, and vegetation coverage observed in the field. Within the inhabited portions of the APE pedestrian survey but no subsurface testing occurred (see Figures 2 and 4).

Table 3. Results of Shovel Probe Excavations

No.	Type	Depth (cmbs [†])	Findings
SP1	Exploratory	50	No cultural material
SP2	Exploratory	55	No cultural material
SP3	Sampling	53	No cultural material
SP4	Sampling	51	No cultural material
SP5	Sampling	57	No cultural material
SP6	Sampling	63	Modern metal latch piece
SP7	Sampling	55	No cultural material
SP8	Sampling	55	No cultural material
SP9	Sampling	51	No cultural material
SP10	Sampling	58	No cultural material
SP11	Sampling	57	No cultural material
SP12	Sampling	68	No cultural material
SP13	Sampling	65	No cultural material
SP14	Sampling	62	No cultural material
SP15	Sampling	52	No cultural material
SP16	Sampling	50	No cultural material
SP17	Sampling	52	No cultural material
SP18	Sampling	50	No cultural material
SP19	Exploratory	53	No cultural material
SP20	Exploratory	52	No cultural material
SP21	Exploratory	53	No cultural material
SP22	Exploratory	54	No cultural material
SP23	Exploratory	56	No cultural material
SP24	Exploratory	35	No cultural material, terminated at 2 pipes
SP25	Exploratory	56	No cultural material

Table 3. Results of Shovel Probe Excavations

No.	Type	Depth (cmbs [†])	Findings
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* Types of shovel probes: Sampling = shovel probe excavated to sample an area in which subsurface deposits might exist; Exploratory = shovel probe excavated near location of surface features to explore the possibility of associated subsurface deposits.

† cmbs = centimeters below surface.



Figure 4. Overview of the multipurpose area in the southeastern portion of the APE, view to the south.

Fourteen shovel probes (SP1–SP7 and SP19–SP25) were excavated in the northwestern portion of the APE, a horse pasture (see Figures 2 and 5). These 14 shovel probes included one positive shovel probe (SP6), but radials were not excavated as the item in question was determined to be modern, related to the use of the training track (Figure 6). The artifact was bagged, tagged with its provenience, project number, and date, and placed back into the probe beneath the sod cap. Mineral soil visibility was between 0 and 20 percent.

Three shovel probes (SP8–SP10) were placed in the south-central portion of the APE (see Figures 2 and 7). The entirety of this portion of the APE was relatively flat and vegetated with grasses and Himalayan blackberry, exhibiting 0 to 10 percent mineral soil visibility. No artifacts were found during shovel probing in this area.

Five shovel probes (SP11–SP15) were excavated in the eastern portion of the APE, an area vegetated primarily with grasses and Himalayan blackberry in the southern portion (Figures 8 and 9). Mineral soil visibility was between 0 and 10 percent. No artifacts were found during shovel probing in this area.

Three shovel probes (SP16–SP18) were excavated in the southwestern portion of the APE around Wetland B (Figure 10). This area was covered primarily in grass, with Oregon ash growing in the wetlands. Mineral soil visibility was between 0 and 10 percent. No artifacts were found during shovel probing in this area.

Field observations indicated that soils within the APE were intact and consistent with NRCS mapped soil descriptions for the area. In most excavated areas, a greyish brown silt loam A-horizon was identified from 0 to 40 cm below the surface (cmbs). This layer contained roots and rootlets through, and less than 1 percent subrounded to subangular gravels. Below this, from approximately 40 to 65 cmbs, a more compact reddish brown silt loam AB-horizon was found, with between 0 and 2 percent subrounded to subangular gravels (less than 2 cm in diameter), iron-oxide and magnesium inclusions, fewer roots and higher clay content with depth, and hard, less friable peds. The water table was encountered at an average depth of 40 cmbs.



Figure 5. Overview of northwestern project area, view to the northwest.



Figure 6. Overview of track area in the eastern portion of the northwestern pasture, view to the southeast.



Figure 7. Overview of south-central portion of the APE, view to the south.



Figure 8. Overview of eastern portion of the APE, view to the north.



Figure 9. Overview of SP15, view to the south.



Figure 10. Overview of the southwestern pasture and Wetland B, view to the southwest.

RESULTS

The cultural resources survey resulted in the identification of one newly identified historic-period site. As a result of this inventory, one archaeological site was recorded and evaluated for NRHP eligibility and for its effects on the Villebois Village SAP North Phase 3 project. The site, KBS1, was identified during pedestrian survey as two features, a foundation and trough with attached well in the northwestern pasture (see Figure 2).

Archaeological Site KBS1 (Temporary Site ID)

Site Type:	Historic-period foundation
Temporal Component(s):	A.D. 1900–1950
Recommendation:	Not Eligible

KBS1 was identified during pedestrian survey as a partially buried ruinous foundation and an improved well with attached trough. The well and foundation, though separated by approximately 84 m (275 feet), are of similar construction and appear on aerial photographs of the area together. The well and foundation were recorded as two features within one site.

The ground surface was closely examined in the area of the foundation and well, and no artifacts were identified. Nine shovel probes (SP1, SP2, SP19, SP20, SP21, SP22, SP23, SP24, and SP25) were excavated in the immediate vicinity of the foundation and well and between the two, and no artifacts were identified (Figure 11). Shovel probes SP1, SP2, SP22, and SP23 explored the area between the two features to determine if any buried materials were present. No cultural material was recovered from the probes.

KBF1 is the rectangular foundation, measuring 20 feet long by 8 feet wide, and is made of a mixture of river cobbles and mortar (Figure 12 and 13). The four sides are partially exposed but the interior was filled with sediment after 1974 to prevent injury to horses using the northwest pasture (personal communication, Howard Short, tax lot 1202 owner 2014) (see Figure 12). The wall thickness measures 6 inches, and the height is 12 inches above the surface at its maximum. Near the northeast corner of the foundation wall, the thickness increases to 12 inches; this may be indicative of an entrance. The base of the foundation is visible at the southeastern corner. A squared-off piece of broken concrete is lying adjacent to this corner—it may be part of the upper portions of the wall (see Figure 12). Shovel probes (SP19, SP20, and SP21) were excavated within 8 m (26 feet) of the north, south, and east walls of the foundation, and no buried cultural materials were recovered. A chaining pin (14 inches long) inserted into the sediments inside of the eastern wall did not encounter a floor surface, suggesting an absence of a prepared floor surface. During the March 13, 2014, visit to the project area, it was noted that the mound of dirt atop KBF1 had been leveled mechanically.

Report continues on the following page.

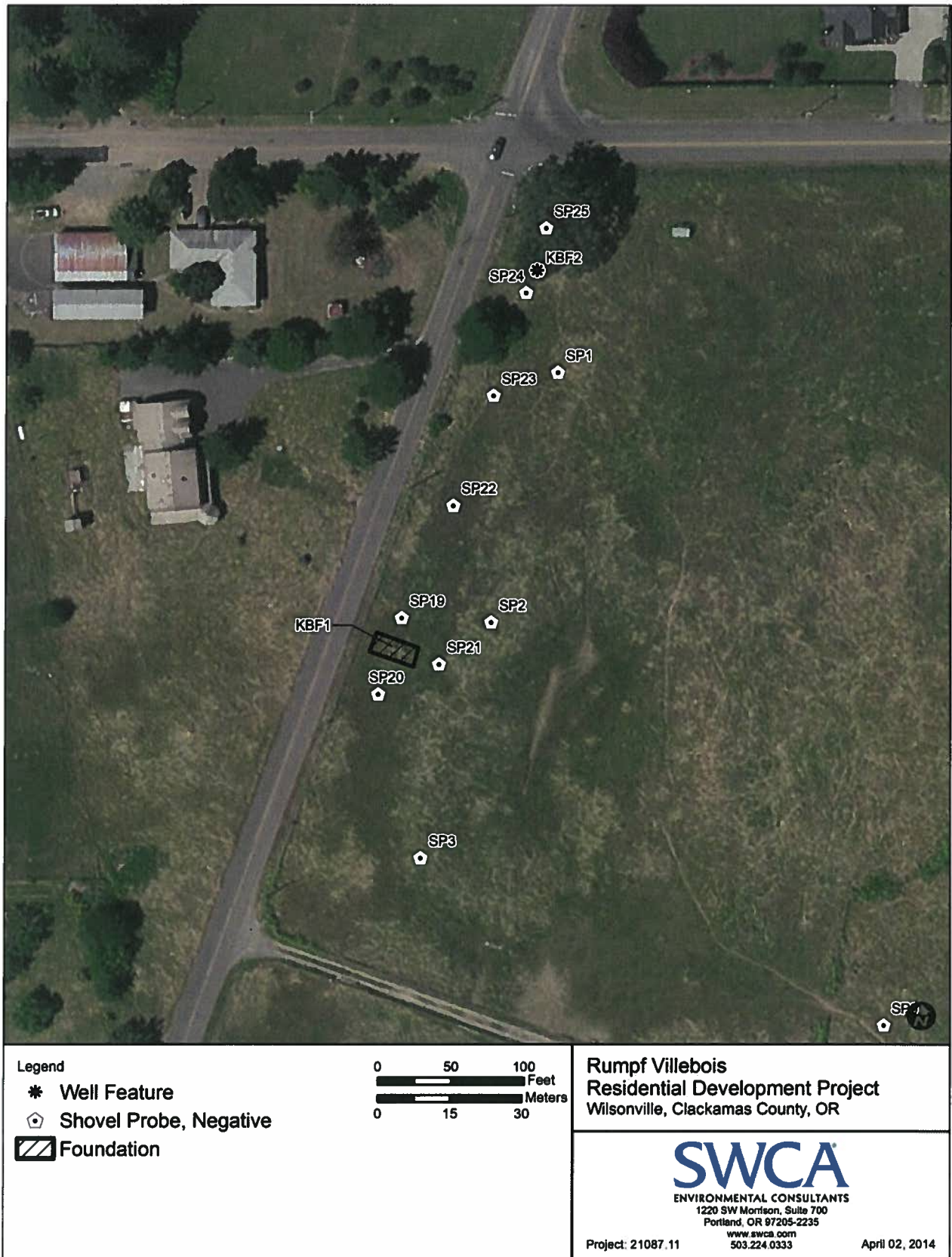


Figure 11. Aerial map showing the foundation and well at site KBF1 and shovel probe locations.

Report continues on the following page.



Figure 12. Overview of foundation, view to the west.



Figure 13. Close-up of concrete matrix of the foundation.

The well feature (KBF2) was identified approximately 84 m (275 feet) north of the foundation (see Figures 11 and 14). The feature is currently obscured by half of the large oak that is to the north of the feature as it split in half during the past winter (Figure 15). The well is a concrete pad that measures 74-by-80-by-48 inches on the outside and is 12 inches thick with a central door or hatch to gain access to the water. This is obscured by a pile of concrete poured atop the access. A seam is still open, and an inserted tape measure indicated water was still present at the time of the site visit. The well was sealed with concrete in the mid-1970s, at the same time KBF1 was filled with sediment, to prevent any children from

falling in (personal communication, Howard Short, tax lot 1202 owner 2014). The well is made with similar materials as the foundation and is capped by a concrete slab. The east side of the well has a concrete trough attached. The trough measures 22-by-56-by-18 inches on the outside, with 3-inch-thick walls. There is a fill valve at the bottom of the trough that looks like it regulated the water level (Figure 16). The well contained water near its base, but was in disrepair at the time of the survey. Shovel probes SP24 and SP25 were excavated to the north and south of this feature as close as possible. No cultural material was recovered.



Figure 14. Overview of KBF2, well and trough, view to the southwest.



Figure 15. Overview of the location of KBF2 with the split tree in northwest corner of the APE, view to the northwest.



Figure 16. Valve at the base of the trough.

DISCUSSION

Both the foundation and well recorded as site KBS1 appear on an aerial photograph taken in 1936, which indicates that they are at least 78 years old. Site KBS1 is not depicted on GLO, USGS, Metsker, and Sanborn insurance maps from before 1936. A comparison of the foundation location and the 1852 GLO map indicates the foundation is too far west and north to be the structure depicted on this map. The

subsurface investigations reported here indicate that no buried cultural deposits are associated with these two features.

Sites such as KBS1 are commonplace in rural farmstead settings such as the current project area. The site is not associated with a significant historical event, and consequently KBS1 is recommended not eligible for nomination to the NRHP under Criterion A (36 CFR 60.4 [a–d]). The site is not associated with a prominent figure from the history of Wilsonville and is therefore not eligible for the NRHP under Criterion B. Exposure of the foundation in the mid-1970s indicates that the foundation had been exposed subsequent to its abandonment and is unlikely to retain integrity. The well with its attached trough was capped with concrete at the same time as the foundation was capped with sediment because it was still functional and a danger to local children. The lack of buried cultural material around this feature indicates a lack of associated intact cultural material. According to the NRHP criteria for evaluation, retaining historic integrity is necessary to convey a site's significance (36 CFR 60.3). The features themselves do not represent a property that would exhibit any distinctive characteristic of a type, period, or method of construction, or represent the work of a master or possess high artistic values, and consequently the site is recommended as not eligible under Criterion C (36 CFR 60.4 [a–d]). Within the APE, the site is unlikely to yield significant additional information important to history beyond that recorded and analyzed during the present project. Consequently, this site is recommended as not eligible to the NRHP under Criterion D. As such, KBS1 has been tested and evaluated and is recommended as not eligible for listing on the NRHP under any criteria.

CONCLUSIONS AND RECOMMENDATIONS

Field investigations for the cultural resource inventory of the Villebois Village SAP North Phase 3 residential development APE resulted in the identification of one historic-period archaeological resource (KBS1). As discussed above, the site is recommend as ineligible for NRHP listing; therefore, no further work or avoidance measures are recommended for the archaeological resource. SWCA recommends that no further archaeological work is needed and project construction should proceed as planned within the proposed APE.

It is important to note that the surface and subsurface survey work described in this report address only those proposed work areas defined at the time of our fieldwork. Further research and field studies would be necessary to address any changes to the proposed project that would affect areas outside of the investigated 15.13-acre APE. Should unanticipated archaeological or historic resources be encountered during construction, all ground-disturbing activities in the vicinity of the find(s) should be halted and the SHPO promptly notified to ensure compliance with relevant state and federal laws and regulations. Should evidence of Native American burials be encountered, all ground-disturbing activity in the vicinity should be halted immediately and the Oregon State Police, SHPO, the appropriate tribes, and the Commission on Indian Services promptly notified pursuant to Oregon Revised Statute (ORS) 97.745(4).

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Report continues on the following page.

APPENDIX A
Shovel Probe Stratigraphy

Shovel Probe Stratigraphy

Shovel Probe No.	Max. Depth ¹	Stratigraphy	Cultural Material Recovered
SP1	50	<u>0–37 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>37–42 cmbs</u> : Slightly reddish silt loam increasing clay with depth <u>42–50 cmbs</u> : Light brown silt loam increasing clay with depth	None
SP2	55	<u>0–30 cmbs</u> : Gray brown silt loam; sticky, slightly plastic, weak structure, soft, decreasing rootlets with depth <u>30–55 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments	None
SP3	53	<u>0–40 cmbs</u> : Gray brown silt loam; sticky, slightly plastic, weak structure, soft, decreasing rootlets with depth <u>40–53 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments	None
SP4	51	<u>0–24 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>24–51 cmbs</u> : Light brown silt loam increasing clay with depth, magnesium inclusions and filaments	None
SP5	57	<u>0–51 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP6	63	<u>0–50 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	Modern metal horse implement
SP7	55	<u>0–53 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP8	55	<u>0–32 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>32–55 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP9	51	<u>0–51 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP10	58	<u>0–58 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP11	57	<u>0–57 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP12	68	<u>0–40 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>40–68 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP13	65	<u>0–50 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>50–65 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None

Cultural Resources Inventory for the Villebois Village SAP North Phase 3, Clackamas County, Oregon

Shovel Probe No.	Max. Depth ¹	Stratigraphy	Cultural Material Recovered
SP14	62	<u>0-22 cmbs</u> : Gray brown silt loam; sticky, very moist, <1% gravels with depth, decreasing rootlets with depth <u>22-62 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP15	52	<u>0-28 cmbs</u> : Reddish brown clay silt loam, decreasing rootlets with depth <u>28-52 cmbs</u> : Light brown clay silt loam; with red mottling and iron-oxide and magnesium inclusions and filaments	None
SP16	50	<u>0-50 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP17	52	<u>0-52 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP18	50	<u>0-50 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP19	53	<u>0-53 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP20	52	<u>0-52 cmbs</u> : Reddish brown silt clay loam; with red mottling and iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP21	53	<u>0-53 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP22	54	<u>0-54 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP23	56	<u>0-56 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None
SP24	35	<u>0-35 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth Terminated at two pipes.	None
SP25	56	<u>0-56 cmbs</u> : Gray brown clay silt loam; sticky, very moist, <1% gravels with depth, iron-oxide and magnesium inclusions and filaments, decreasing rootlets with depth	None

¹ cmbs = centimeters below surface

APPENDIX B

Oregon SHPO Archaeological Site Form

State of Oregon Archaeological Site Record

Administrative Data

Smithsonian Number:		Alt Site Numbers:	KBS1
Site Name:		Form Type:	New
Managing Office*:	Private	County:	Clackamas
National Register Status :	Status	Role	Date
	Not Eligible	Fieldworker	04/02/2014 K. Blake

Administrative Data

Site Type	• Homestead	Owners(s):	Private
Features*:	• Foundation • Trough	Cultural Periods(s)*:	• Early 20th Century (1900-1930)
Ownership/Management Notes			

Size/Type/Age

Dimensions:	Length	84	Width	10	Units	Meters	Area	840 Sq m
Depth of Cultural Deposits	0 cm							
General Age	Historic							

Location Data

Legal Description:	Township Range Section $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ DLC Meridian 3 S 1 W 15 NE NW Willamette
UTM Coordinates	Type East North Method Zone Datum Feature 515837 5018158 GPS < 1m 11 27
Map References	Map Name/Year Revision Year SHERWOOD 7' 1986
Access Description	Turn south on SW Grahams Ferry Road from Tooze Rd. 100 m south of the intersection enter field on east side of SW Grahams Ferry Road.

Environmental Data

Province	Willamette Valley
Basin	Willamette
Subbasin	M FK WILLAMETTE R
Drainage Name	
Elevation	From 205 To 200 ft
Aspect	Aspect: E

State of Oregon Archaeological Site Record

Depositional Environment	• Alluvial
Soil Description	<p>According to the Natural Resources Conservation Service (NRCS) mapped soils data, soils within the APE are primarily considered variations of silt loam (NRCS 2013). A majority of the soils within the northern half, south, and southeastern portions of the APE are classified as 1A and 1B—Aloha silt loam that exists on 0 to 6 percent hill slopes—and 91A and 91B—Woodburn silt loam that exists on 0 to 8 percent hill slopes. The parent material of these soils is lacustrine silts and mixed alluvium. The silt loam is somewhat poorly to moderately well drained, and the water table from December through April varies between 30 and 60 centimeters (cm; 12 to 24 inches) below the surface, and is deeper the rest of the year. A layer of restrictive hardpan is generally encountered from 51 to 102 cm (20 to 40 inches) below the ground surface. Soils in the very southeast corner of the APE are classified as 3—Amity silt loam. These soils are also found on 0 to 3 percent slopes and are formed in stratified glacio-lacustrine silts. Amity silt loam is very deep and somewhat poorly drained. The silt loam increases in clay content with depth to a silty clay loam at approximately 56 to 71 cm (22 to 28 inches) below surface. The soils mapped by the NRCS correlate well with the soil data recorded during the subsurface testing phase of the survey. No plow zone was observed in the soils within the APE. Generally, the soils observed at the time of shovel probe excavation consisted of a medium brown (10 YR 3/3) silt loam to a depth of approximately 30 cm (12 inches), which was underlain by a light reddish brown (10 YR 4/4) silt loam to silty clay loam. The soil was moderately compact to compact with depth, and contained few subrounded to subangular pebble-sized gravels. Ground surface visibility within the APE ranged from 0 percent to 30 percent.</p>
Culturally Significant Vegetation	
Culturally Significant Vegetation Description	
Water Sources	
Site Setting	<p>The site is between the Tualatin Valley to the north and the Willamette River to the south. The Tualatin Valley is bounded by the Tualatin Mountains to the north and east, the Chehalem Mountains to the south, and the Coast Range Mountains to the west. It is within the Upper Willamette Basin and the Middle Willamette Subbasin surrounded by agricultural and horse pasture lands.</p>
Site Description	
Site Description	Attached as separate document
Dates of Use	<p>From To BP/AD/BC Method 1900 1950 AD Historic Record</p>
Site Observations	<p>Present Quantity N/A 0</p>
Estimated Counts	

State of Oregon Archaeological Site Record

Rock Art

No Rock Art Specified

Site Condition

Visit Date	03/13/2014
Site Condition	• Fair- Site Damage = or >40% and
Recorder	K. Blake and J. Albaitero, SWCA Environmental
Artifacts Collected?	No
Activities/Work Performed	Pedestrian survey and shovel probe excavation
Protective Measures Recommended	Currently used as a pasture and expected to be developed as part of the Villebois Village development.
Impacts/Impact Agents	<ul style="list-style-type: none"> • Vandalism - Altered • Decay

Bibliographic References

Files Uploads

- [KBS1_Site_Description.docx](#)
- [REFERENCES_CITED.docx](#)
- [KBS1_topo.png](#)
- [KBS1_closeup_aerial.jpg](#)
- [KBS1_PhotoPage.doc](#)

Recorder data:

Recorder

Recorded Date

K. Blake and J. Albaitero, SWCA Environmental 03/13/2014

The cultural resources survey resulted in the identification of one newly identified historical-period site. As a result of this inventory, one archaeological site was recorded and evaluated for National Register of Historic Places (NRHP) and for its effects on the Villebois Village SAP North Phase 3 project. The site, KBS1, was identified during pedestrian survey as two features, a foundation and trough with attached well in the northwestern pasture.

KBS1 was identified during pedestrian survey as a partially buried ruinous foundation and an improved well with attached trough. The well and foundation, though separated by approximately 84 meters (275 feet), are of similar construction and appear on aerial photographs of the area together. The well and foundation were recorded as two features within one site.

The ground surface was closely examined in the area of the foundation and well, and no artifacts were identified. Nine shovel probes (SP1, SP2, SP19, SP20, SP21, SP22, SP23, SP24, and SP25) were excavated in the immediate vicinity of the foundation and well and between the two, and no artifacts were identified. Shovel probes 1, 2, 22, and 23 explored the area between the two features to determine if any buried materials were present. No cultural material was recovered from the probes.

KBF1 is a rectangular foundation measuring 20 feet long by 8 feet wide and is made of a mixture of river cobbles and mortar. The four sides are partially exposed but the interior was filled with sediment after 1974 to prevent injury to horses utilizing the northwest pasture (personal communication Tax Lot 1202 owner). The extent wall thickness measures 6-inches and height is 12-inches above the surface at its maximum height. Near the northeast corner of the foundation wall, the thickness increases to 12 inches, this may be indicative of an entrance. The base of the foundation is visible at the southeastern corner. A squared off piece of broken concrete is lying adjacent to this corner that may be part of the upper portions of the wall. Shovel probes (SP19, SP20, and SP21) were excavated within 8-m of the north, south and east walls of the foundation and no buried cultural materials were recovered. A chaining pin (14 inches long) inserted into the sediments inside of the eastern wall did not encounter a floor surface suggesting an absence of a prepared floor surface. During the March 13, 2014 visit to the project area it was noted that the mound of dirt atop KBF1 had been leveled mechanically.

The well feature (KBF2) was identified approximately 84 meters (275 feet) north of the foundation. The feature is currently obscured by half of the large oak that is to the north of the feature as it split in half during the past winter. The well is a concrete pad that measures 74-by-80-by-48-inches on the outside and is 12-inches thick with a central door or hatch to gain access to the water. This is obscured by a pile of concrete poured atop this access. A seam is still open and an inserted tape measure indicates water is still present. The well was sealed with concrete in the mid-1970s, at the same time as KBF1, to prevent any local children from falling in (personal communication Tax Lot 1202 owner). It is made with similar materials as the foundation and is capped by a concrete slab. The east side of the well has a concrete trough attached. The trough measures 22-by-56-by-18-inches on the outside, with 3-inch-thick walls. There is a fill valve at the bottom of the trough that looks like it regulated the water level. The well contained water

near its base, but was in disrepair at the time of the survey. Shovel probes 24 and 25 were excavated to the north and south of this feature as close as possible. No cultural material was recovered.

Both the foundation and well recorded as site KBS1 appear on an aerial photograph taken in 1936, which indicates that they are at least 78 years old. Site KBS1 is not depicted on GLO, U.S. Geological Survey, Metsker, and Sanborn Insurance maps from before 1936. A comparison of the foundation location and the 1852 GLO map indicates the foundation is too far west and north to be the structure depicted on this map. The subsurface investigations reported here indicate that no buried cultural deposits are associated with these two features.

Sites such as KBS1 are commonplace in rural farmstead settings such as the current project area. The site is not associated with a significant historical event, and consequently KBS1 is recommended not eligible for nomination to the NRHP under Criterion A (36 CFR 60.4 [a-d]). The site is not associated with a prominent figure from the history of the City of Wilsonville and therefore not eligible for the NRHP under Criterion B. Exposure of the foundation in the mid-1970s indicates that the foundation had been exposed subsequent to its abandonment and is unlikely to retain integrity. The well with its attached trough were capped with concrete at the same time as the foundation was capped with sediment because it was still functional and a danger to local children. The lack of buried cultural material around this feature indicates a lack of associated intact cultural material. According to the NRHP criteria for evaluation, retaining historic integrity is necessary to convey a site's significance (36 CFR 60.3). The features themselves do not represent a property that would exhibit any distinctive characteristic of a type, period, or method of construction, or represent the work of a master or possess high artistic values, and consequently the site is recommended as not eligible under Criterion C (36 CFR 60.4 [a-d]). Within the APE, the site is unlikely to yield significant additional information important to history beyond that recorded and analyzed during the present project. Consequently, this site is recommended as not eligible to the NRHP under Criterion D. As such, KBS1 has been tested and evaluated and is recommended as not eligible for listing on the NRHP under any criteria.

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State of Oregon Archaeological Site Record

Site Form

Photos

Smithsonian Number:

Alt Site Numbers: KBS1



Overview of foundation, view to the west.



Close up of concrete matrix of the foundation.

State of Oregon Archaeological Site Record Site Form

Photos, continued



Overview of the KBF2, well and trough, view to the southwest.



Overview of the location of KBF2 with the split tree in northwest corner of the APE, view to the northwest.

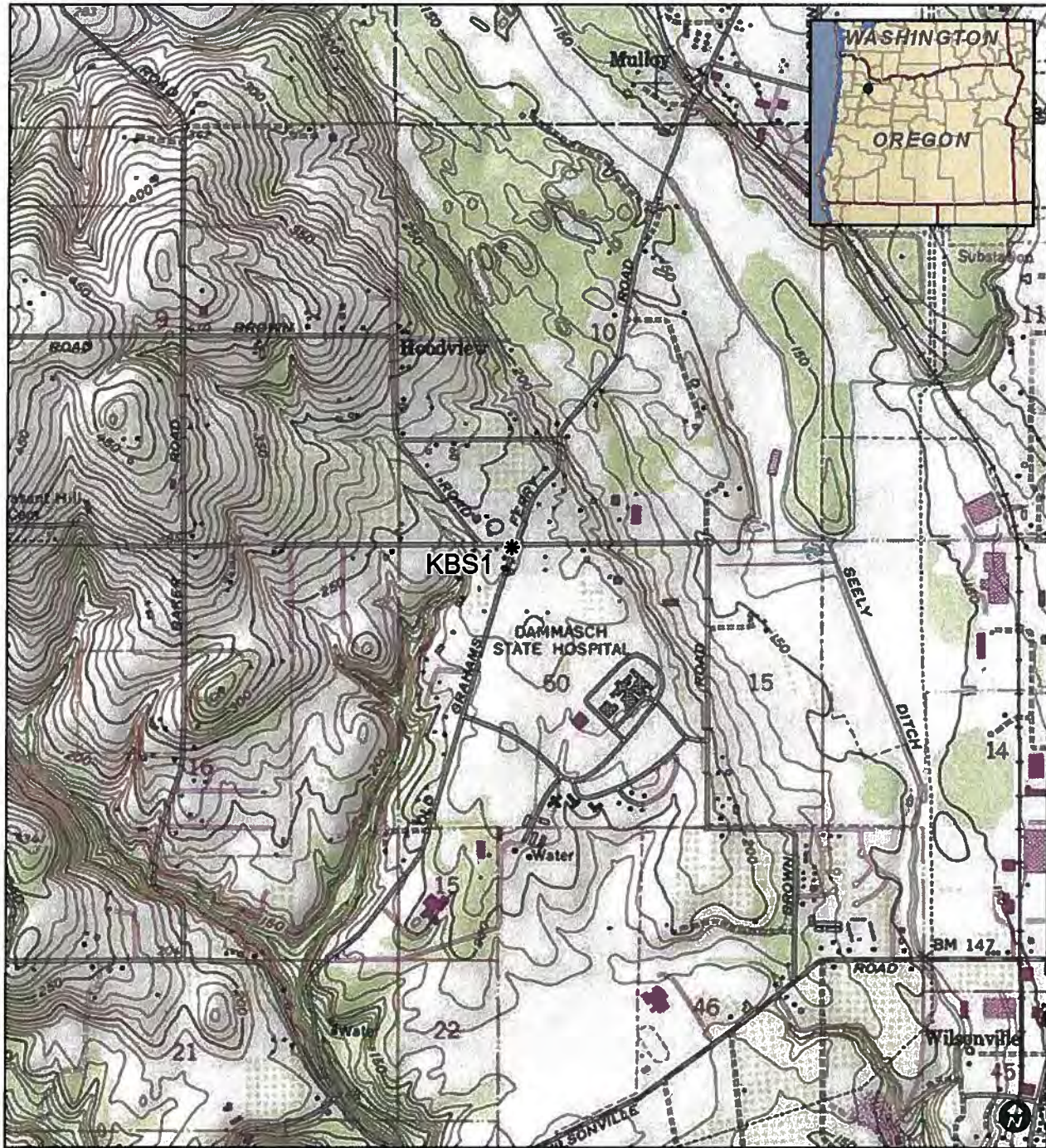
State of Oregon Archaeological Site Record

Site Form

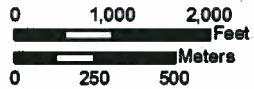
Photos, continued



Valve at the base of the trough.



- Legend
- * Well Feature
 - ▨ Foundation



Rumpf Villebois
Residential Development Project
Wilsonville, Clackamas County, OR

SWCA

ENVIRONMENTAL CONSULTANTS
1220 SW Morrison, Suite 700
Portland, OR 97205-2235
www.swca.com
503.224.0333

Source: USGS 7.5' topographic quadrangle: Sherwood, OR (1988).

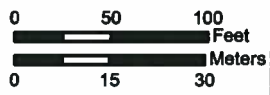
Project 21087.11

April 01, 2014



Legend

- * Well Feature
- ⬠ Shovel Probe, Negative
- ▨ Foundation



**Rumpf Villebois
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SWCA
ENVIRONMENTAL CONSULTANTS
1220 SW Morrison, Suite 700
Portland, OR 97205-2235
www.swca.com
503.224.0333

Project: 21087.11 April 02, 2014

IIF
SRIR Addendum

**PHASE 3 SAP NORTH
SIGNIFICANT RESOURCE IMPACT REPORT ADDENDUM
WILSONVILLE, OREGON
T3S, R1W, SECTION 15, TAX LOTS 1200, 1202 and 1205
CLACKAMAS COUNTY, W.M.**

Prepared for

Polygon Northwest Company
109 East 13th Street
Vancouver, Washington 98660

Prepared by



SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205-2235
503.224.0333
www.swca.com

March 2014

SWCA Project No. 21087.11

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INTRODUCTION

A Significant Resource Impact Report (SRIR) was submitted to the City of Wilsonville in March 2013 for SAP South Plan Area 2. The SRIR included an accounting of the proposed encroachments into the SROZ and the proposed SROZ mitigation for multiple phases of the Villebois development including SROZ encroachment and mitigation for the Phase 3 North development. The preliminary site development plan for Phase 3 North has been developed (Attachment A), and this addendum includes slight revisions to the proposed SROZ encroachment.

EXISTING CONDITIONS

SROZ and Impact Area Boundary

The location of the existing mapped Significant Resource Overlay Zone (SROZ) boundary and the 25-foot Impact Area boundary is shown on the preliminary site development plan. The SROZ upland forest unit as a whole consists of a closed canopy Douglas-fir (*Pseudotsuga menziesii*) forest with Oregon white oak (*Quercus garryana*) present in the southern and eastern edges of the forest. The shrub layer in the Douglas-fir community consists of beaked hazelnut (*Corylus cornuta*), ornamental hawthorn (*Crataegus monogyna*), oso berry (*Oemleria cerasiformis*), thimbleberry (*Rubus parviflorus*), snowberry (*Symphoricarpos albus*), and scattered big leaf maple (*Acer macrophyllum*) seedlings. Groundcover is nearly 100% English ivy (*Hedera helix*), which is also growing on many tree trunks. Occasional areas of sword fern (*Polystichum munitum*) and California dewberry (*Rubus ursinus*) are present. Himalayan blackberry (*Rubus armeniacus*) is dominant in the forest edges and in the southern Oregon white oak community. The southern finger of the forest consists of an Oregon white oak canopy with a few Oregon ash (*Fraxinus latifolia*) and black cottonwood (*Populus balsamifera*) trees at the southernmost edge.

The SROZ encroachment area along the north forest edge on the PDP 3N site consists of the shrubby forest edge and is comprised of beaked hazelnut, red elderberry, serviceberry, cherry, and English holly shrubs with English ivy in the understory. Site photographs are included in Attachment B.

Wetlands

Wetlands on the PDP 3N site were delineated by Pacific Habitat Services in 2007 under Oregon Department of State Lands (DSL) file number WD #2007-0706. The concurrence letter is dated May 5, 2008. SWCA's wetland investigation was conducted using the new DSL process of requesting a reissuance of a jurisdictional determination, which is allowed by DSL for projects seeking development permits within 1 year of the 5-year expiration date of May 5, 2013.

The northern wetland "wetland A" is a very subtle depression and is difficult to see on the landscape. The wetland is dominated by colonial bent grass (*Agrostis capillaris*). We found no change in the previously delineated boundary of wetland A (0.37 acre), and we requested concurrence with the previously delineated boundary.

The southern wetland "wetland B" is a circular depressional feature dominated by an Oregon ash canopy with bare soils. It was determined to be smaller, approximately 0.45 acre instead of the 0.52 acre previously delineated. The wetland boundary follows the forested Oregon ash (*Fraxinus*

latifolia) perimeter and the edge of pugged soils. The wetland boundary was revised slightly to exclude small higher elevation areas along the edges and to conform with the geomorphic land form depression that is characteristic of Oregon ash forested wetlands.

The wetland delineation report was submitted to DSL and the Corps in November 2013 and is currently undergoing review and concurrence. The wetland delineation report is included in Attachment C. The 2007 concurrence letter is included in Appendix B of the wetland delineation report.

The two wetlands delineated on the site were not included in the study area for the City's Natural Resource Inventory (Fishman Environmental Services 2000). The two wetlands are each less than 0.5 acre in size and were not determined to be locally significant. According to the City's SROZ requirements, a 50-foot vegetated corridor is required adjacent to significant wetlands that are mapped in the City's inventory or meet the definition of a Metro Title 3 wetland, for areas where the slope adjacent to the wetland is less than 25%.

Title 3 wetlands are defined in Chapter 3.07 of Metro's Urban Grown Management Functional Plan as "wetlands of metropolitan concern as shown on the Metro Water Quality and Flood Management Area Map and other wetlands added to city or county adopted Water Quality and Flood Management Area maps consistent with the criteria in Title 3, section 3.07.340 (E) (3)" (Metro 2012).

The criteria in Metro Title 3, section 3.07.340 (E) (3) are contained in the City's development code section 4.139.10 (.02) as follows:

- A. The wetland is fed by surface flows, sheet flows or precipitation, and has evidence of flooding during the growing season, and has 60 percent or greater vegetated cover, and is over one-half acre in size; or the wetland qualifies as having intact water quality function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
- B. The wetland is in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps, and has evidence of flooding during the growing season, and is five acres or more in size, and has a restricted outlet or no outlet; or the wetland qualifies as having intact hydrologic control function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
- C. The wetland or a portion of the wetland is within a horizontal distance of less than one-fourth mile from a water body which meets the Department of Environmental Quality definition of water quality limited water body in OAR Chapter 340, Division 41 (1996).
- D. Created or restored wetlands that meet the requirements of Section 4.139.10(.02) shall be added to the Significant Resource Overlay Zone. [Added by Ord. # 674 11/16/09]

Wetland A does not meet the City's criteria for adding wetlands to the SROZ per the City's development code section 4.139.10 (.02) based on the following site conditions of Wetland A:

- A) The wetland is fed by precipitation, does not display evidence of flooding during the growing season, and it is less than 0.5 acre in size.
- B) The wetland is not in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps, it does not display evidence of flooding during the growing season, and it is less than 0.5 acre in size.

- C) The wetland is not within a horizontal distance of less than 0.25 mile from a DEQ water quality limited water body.
- D) The wetland is not a created or restored wetland meeting the requirements of section 4.139.10 (.02).

Wetland B does not meet the City’s criteria for adding wetlands to the SROZ per the City’s development code section 4.139.10 (.02) based on the following site conditions of Wetland B:

- A) The wetland is fed by precipitation and it is less than 0.5 acre in size.
- B) The wetland is not in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps and it is less than 0.5 acre in size.
- C) The wetland is not within a horizontal distance of less than 0.25 mile from a DEQ water quality limited water body.
- D) The wetland is not a created or restored wetland meeting the requirements of section 4.139.10 (.02).

On-site wetlands are not included on the City’s Natural Resource inventory and do not meet the City’s criteria for adding wetlands to the SROZ, and a vegetated corridor is not required adjacent to these wetlands.

PROPOSED IMPACTS

The Area of Limited Conflicting Use (ALCU) on the project site totals 430,988 square feet (SF), or 9.89 acres. Impacts will occur to small portions of the wildlife habitat area along the west, north, and east edges of the upland forest. The area to be impacted within the Area of Limited Conflicting Use is 18,356 SF (0.42 acre), or 4.3% of the total ALCU. The proposed mitigation area is located along the southern edge of the upland forest. The proposed wildlife habitat impact and mitigation areas are shown on the preliminary development plan in Attachment A. Table 1 summarizes the proposed function and ratios for enhancement to mitigate for impacts to upland wildlife habitat.

Table 1. Summary of proposed impacts and mitigation

Impact Type	Impact Area	Phase	Mitigation
Wildlife habitat	663 SF	PDP 1	
Wildlife habitat	3,535 SF	PDP 2N	
Wildlife habitat	325 SF	PDP 3N	
Wildlife habitat	4,610 SF	PDP 3N	46,212 SF of enhancement in southern portion of SROZ
Wildlife habitat	1,988 SF	PDP 3N	
Wildlife habitat	113 SF	PDP 3N	
Wildlife habitat	7,122 SF	PDP 2N	
TOTAL	18,356 SF		

A series of nature trails and a nature trail activity area are proposed in the SROZ as shown on the preliminary site development plan. The construction of these trails is exempt from the SROZ regulations and will be constructed in accordance with section 4.139.04 (.08) of the City’s development code. According to the City’s code, the construction of new pedestrian paths into the SROZ in order to provide access to the sensitive area or across the sensitive area is an exempt use,

provided the location of the crossing is consistent with the intent of the Wilsonville Comprehensive Plan and that paths are constructed so as to minimize and repair disturbance to existing vegetation and slope stability. The nature trail activity area is also an exempt use because it will correspond with the trail system and will be providing educational nature play opportunities. Impacts to the SROZ due construction of trails and the nature trail activity area will be minimized by careful field-siting of these features to minimize impacts to the SROZ. Trail locations shown on the preliminary development plan are general locations, and exact locations will be field located to ensure they are located to best minimize impacts to vegetation. Additional information regarding the design of the nature trail activity area will be included in the Final Development Plan. An Impact Area of 4,610 SF has been accounted for in relation to the nature play activity area to allow for a potential climbing structure or a more structured type of equipment should this be identified through the FDP review.

In summary, the nature trails and the nature trail activity area are exempt per Section 4.139.04(.08), and the following measures will be implemented to ensure minimal impact to the adjacent SROZ.

- Trails and the nature trail activity area will be field located to ensure no tree removal and no grading will occur, and they will be constructed in a way that will not impact the natural environment.
- The nature trail activity area will be sited next to trails to contain activities within close proximity to trails.
- Trails will be soft surface, and natural materials will be utilized for nature trail activity areas that will blend with the surrounding natural environment.
- For safety purposes, any nature trail activity area that children may climb on will not exceed 30 inches in height and will have wood chips placed within the fall zone.
- Coordination with the City's Natural Resources Program Manager will occur during field location and placement of nature trails and the nature trail activity area.

Impacts to the SROZ would be mitigated through natural resource enhancement at a ratio of 2 ½: 1 (mitigation:impact) in accordance with the mitigation standards in section 4.139.07 of the City's development code. An SROZ mitigation planting plan was previously submitted to the City in December 2013 which contained planting specifications for the Douglas-fir community and the Oregon white oak savanna community. Tree and shrub quantities were calculated based on the size of the disturbance in the SROZ according to the method described in Section 4.139.07(.02)(E)(1)(b) of the SROZ Ordinance. The mitigation planting plan also included information regarding performance standards, plant installation, invasive species control, maintenance, and annual monitoring and reporting. There is no change to the information contained in the previously submitted mitigation planting plan.

MITIGATION PLAN

Functional Assessment

Natural resource function ratings for the upland forest (URA#41U1) on the project site were assessed in 2000 for the City of Wilsonville's Natural Resource Inventory and are summarized in Table 2. Existing conditions of the upland forest are similar to conditions in 2000, although English ivy and Himalayan blackberry cover has increased in the outer edges of the forest. The current wildlife habitat assessment ratings are also summarized Table 2.

Table 2. Wildlife habitat assessment summary for years 2000 and 2013

Upland Habitat Function	City's Inventory Rating (2000)	Comments	Current Rating (2013)	Comments
Wildlife habitat	High	Intact, diverse structure, large size	Medium	Limited native understory due to large areas of English ivy on ground and on trees
Water quality protection	Low	No adjacent water	Low	No adjacent water
Ecological integrity	Medium	Some ivy present	Medium	Increased invasive species in forest edges
Connectivity	Low	Surrounded by agricultural lands	Low	Surrounded by agricultural lands and residential development
Uniqueness	Low	--	Low	--

Minimal adverse impacts to significant wildlife habitat resources and ecological integrity may result from minor encroachment by access roads along the forest edge and by inclusion of a trail system in the eastern edge of the forest interior. These impacts are summarized in Table 3.

Table 3. Summary of adverse ecological impacts

Upland Habitat Function	Anticipated Adverse Impact?	Comments
Wildlife habitat	No	Minor impacts to the interior forest habitat will occur due to construction of a trail connection. The wildlife habitat function of forest interior habitat has been reduced since the 2000 inventory due to ongoing encroachment of invasive species. Invasive species will be removed and native shrubs will be planted to improve the quality of this function.
Water quality protection	No	This function is currently low, and development is not anticipated to result in a change to this function.
Ecological integrity	No	Minor impacts to the ecological integrity of interior forest habitat may occur due to the potential for introduction of invasive species along the edges of the trail. The ecological integrity of the forest has been affected due to encroachment of invasive species. Invasive species will be removed and native shrubs will be planted to improve the quality of this function.
Connectivity	No	This function is currently low due to surrounding agricultural fields, roads, and residential development, and no change will occur due to site development..
Uniqueness	No	This function is currently low, and no change will occur due to site development.

Upland Wildlife Habitat Mitigation

As previously stated, an SROZ mitigation planting plan was submitted to the City in December 2013 which contained planting specifications and mitigation performance standards. There is no change to the information contained in the previously submitted mitigation planting plan.

The current assessment of habitat functions on the site determined that the existing wildlife habitat and ecological integrity functions are medium due to invasive plants in the understory along the forest edges. The upland wildlife habitat mitigation goal is to improve these functions to a “high” rating. According to the ratios established in Table NR-4 in Section 4.139.07 of the City’s Significant Resource Overlay Zone (SROZ) Ordinance, to improve a function from a medium rating to a high rating, it will require mitigation at a ratio of 2.5:1. Therefore, to compensate for impacts to 18,356 SF of wildlife habitat, a minimum of 45,890 SF would need to be enhanced. The applicant is proposing to conduct 46,212 square feet of enhancement.

LIST OF PREPARERS

Stacy Benjamin

Stacy Benjamin
Senior Wetland Ecologist
Fieldwork and Report Preparation

C. Mirth Walker



C. Mirth Walker, PWS, CWD
Senior Wetland Scientist
Report Quality Assurance/Quality Control

ATTACHMENT A

PDP 3N Preliminary Development Plan

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Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

Preliminary
Development Plan

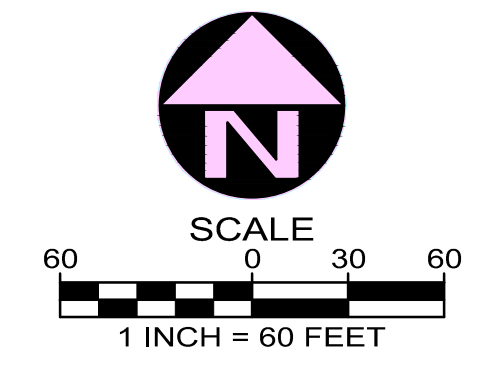
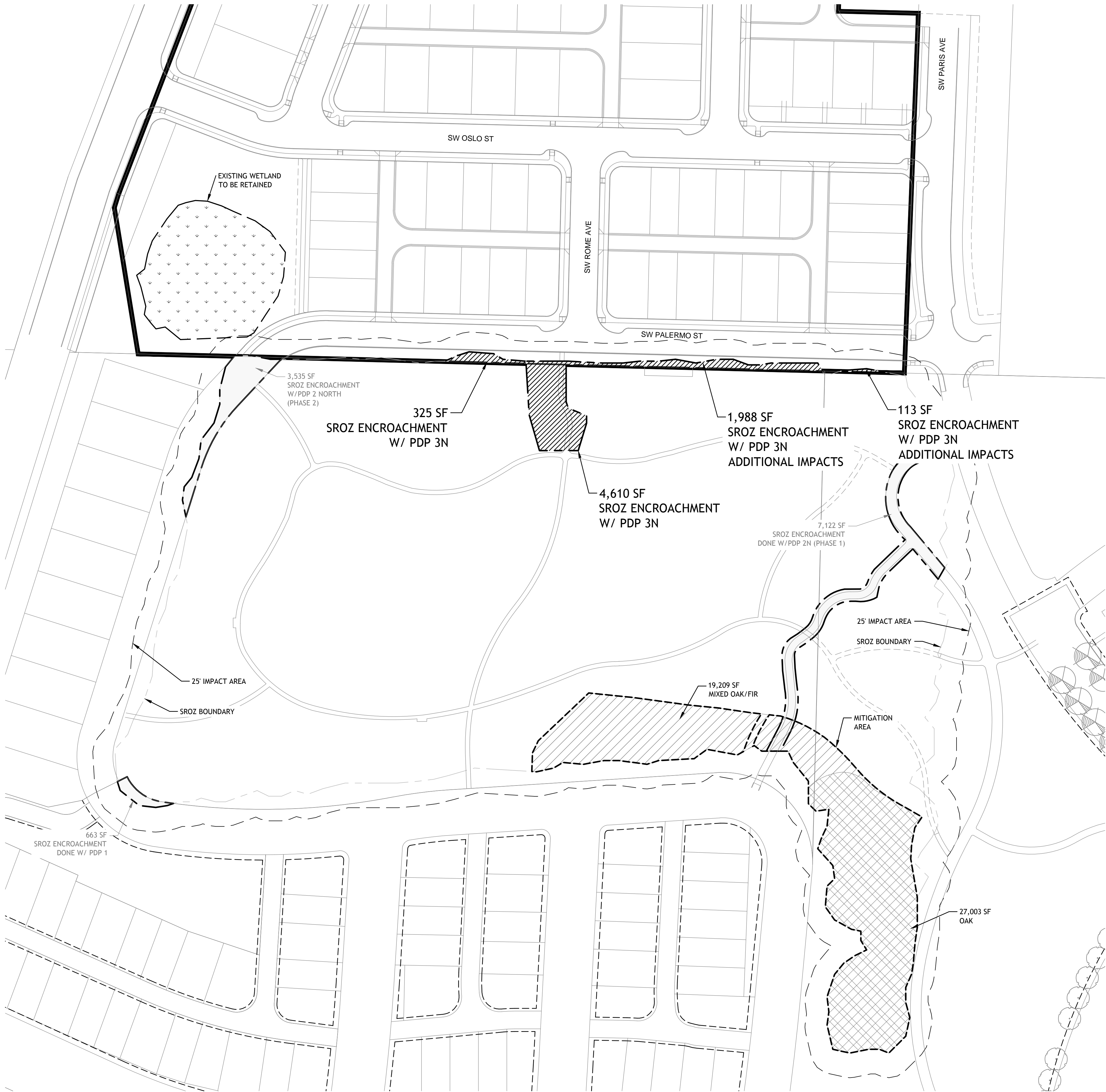
SROZ
Plan

DATE 1/31/14

12

SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



N:\pro\395-027\09 Drawings\03 Planning\Sheets-PDP\395027_12\SROZ.dwg - SHEET: Layout1 Mcr. 11. 14. 10:47 AM jlk

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ATTACHMENT B

Site Photographs

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Photo 1. View east of the northern forest edge.



Photo 2. View south into northern forest edge, dominated by invasive English ivy.

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ATTACHMENT C

Wetland Delineation Report & 2007 Concurrence Letter

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**RUMPF PROPERTY
WETLAND DELINEATION REPORT
28100 SW GRAHAMS FERRY ROAD
WILSONVILLE, OREGON
T3S, R1W, SECTION 15, TAX LOTS 1200, 1205, AND 1591,
CLACKAMAS COUNTY, W.M.**

Prepared for

Polygon Northwest Company
109 East 13th Street
Vancouver, Washington 98660

Prepared by



SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205
503-224-0333
www.swca.com

November 2013

SWCA Project No. 21087.11

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INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted by Polygon Northwest Company to conduct a wetland delineation update on the subject site located near the Villebois development, immediately east of Grahams Ferry Road and south of Tooze Road at 28100 SW Grahams Ferry Road, in Wilsonville, Oregon (Figure 1, Appendix A). The study area consists of tax lots 1200, 1205, and 1591 on tax map 3 1W 15, Clackamas County, Willamette Meridian (Figure 2, Appendix A), and is approximately 14.87 acres in size.

The site was delineated by Pacific Habitat Services (PHS) in 2007 under Oregon Department of State Lands (DSL) file number WD #2007-0706 (PHS 2007). The concurrence letter is dated May 5, 2008, and is attached (Appendix B). SWCA's reconnaissance was conducted with the new process of requesting a reissuance of a jurisdictional determination (JD) in mind, since we are within 1 year of the 5-year expiration date of May 5, 2013. While we found no change to the north wetland "A" (0.37 acre), we found the south wetland "B" to be smaller, approximately 0.45 acre instead of 0.52 acre. The north Wetland A is emergent and is proposed to be filled for residential development. The south Wetland B is forested and will be protected under the proposed residential subdivision site development plan.

Our study area did not include the tax lot to the south, which we delineated this past summer under WD #2013-0131 (SWCA 2013). Although it was stated in that report that wetlands extend off-site to the north, this is not true. The south wetland on the subject site is not connected to the wetland located to the south of the property line, and no wetlands are present south of the paved driveway entrance to the subject property, which is located near the southern property line.

A. LANDSCAPE SETTING AND LAND USE

OAR141-090-0035 (7)(a)

The subject site has at least one residence and a large mixed-use building with barn and office space and several smaller barns and outbuildings. The wetlands are located in horse-grazed pasture, and much of the site contains unmowed fields. A small pump house is located in the north portion of the horse pasture, east of a large Oregon white oak (*Quercus garryana*) tree in the northwest corner of the site. The surrounding land use is rural residential and agriculture, with the rapidly developing Villebois area to the south. Two long, rectangular tax lots extending south from Tooze Road contain single-family residences and are also not included within our study area boundary.

B. SITE ALTERATIONS

OAR141-090-0035 (7)(c)

Two entrance roads to the site are present: the southern road is paved and actively used, and the central road is not used. Fencing is present. A blocked small-diameter culvert is present under the south entrance road. Site residents report that the road floods in the winter. Aerial photographs reviewed on Google Earth do not reveal any patterns of seasonal saturation or ponding (Google Earth 2013).

C. PRECIPITATION DATA AND ANALYSIS

OAR141-090-0035 (7)(i)

The closest WETS (short for wetlands climate analysis) station to the project site is the North Willamette Experiment station. Average annual rainfall according to the WETS table for this station is 42.58 inches. Precipitation data were obtained from the Aurora weather station via the National Weather Service (NWS). Precipitation data are shown in Table 1, and raw data are included in Appendix C. Table 1 shows the average monthly precipitation averages according to the WETS station for the 3 months prior to SWCA’s October 1 and 8, 2013, site visits.

Table 1. Precipitation Data (inches)

Month	Average	30% Chance Will Have Less Than	More Than	Observed Precipitation	Within Normal Range?
July	0.73	0.22	0.88	0.01	Below normal
August	0.83	0.21	0.98	0.61	Yes
September	1.79	0.85	2.25	7.39	Record above normal

According to the NWS Aurora weather station, record rainfall fell in the last few days of September, and rainfall received during the month was 5.66 inches above normal in Aurora (NWS 2013). Rainfall received on the October 1, 2013, site visit was 0.38 inch, and rainfall received 2 weeks prior to the site visit was 5.18 inches. Rainfall received on the October 8, 2013, site visit was 0.02 inch, with 0.65 inch received the prior week and 3.24 inches received the week prior to that. The Aurora station does not report water year-to-date precipitation; the water year starts October 1 and runs through September 30.

The NWS Portland station reported that the precipitation for the water year-to-date, as of September 30, was 6.80 inches above the normal value of 36.03 inches (climate normal period 1981 to 2010), and 4.15 inches above the normal value of 1.47 inches for the month of September. Record rainfall event reports for the major NWS stations are included in Appendix C.

The extreme amount of rainfall that fell prior to our October 1 site reconnaissance allowed observation of primary hydrology indicators in the lowest and wettest portion of Wetland B, at Plot 1. The remaining wetlands’ hydrology did not appear to be fully recharged during our site visits, as only secondary indicators of hydrology were observed. This observation is consistent with PHS’s findings that the extent and duration of wetter conditions is not known, due to the dry season timing of fieldwork.

According to the WETS table, the growing season for the area does not end until November 21. Our site visits occurred during the growing season.

D. METHODS

OAR141-090-0035 (7)(d-e), (g-h), (16)(a-b), (f), (d) or (g), (17), and (19-20)

The methodology used for determining the presence of wetlands followed the U.S. Army Corps of Engineers’ (Corps’) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010), used by both the Corps and the Oregon DSL. Fieldwork for documenting site conditions and delineating the wetland and water boundaries was

conducted on October 1 and 8, 2013, by Mirth Walker, Stacey Reed, and Stacy Benjamin. Soils, vegetation, and indicators of hydrology were recorded at 17 sample plot locations to document site conditions (Appendix D). The previously delineated wetland boundaries were superimposed on a Google Earth aerial photograph for comparison.

Changes to the *Wetlands Delineation Manual* have occurred since the 2008 wetland delineation. These changes include hydric soil indicators and the wetland indicator status of plants. Many plants on the site that were considered facultative minus (FAC-) and did not meet the hydrophytic vegetation criterion in 2008 are now considered FAC and do meet the hydrophytic vegetation criterion.

According to the Natural Resources Conservation Service (NRCS) Clackamas County Area soil survey map and the Clackamas County hydric soil list, the following soil units are mapped in the study area (Figure 3, Appendix A):

- Aloha silt loam, 0% to 3% and 3% to 6% slopes (Units 1A and 1B) on terraces; non-hydric, with hydric Huberly and Dayton inclusions in depressions (NRCS 2013a,b,c).

Representative ground-level site photographs are included in Appendix E. Literature cited and references used are included in Appendix F.

E. DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

OAR141-090-0035 (2), (7)(b), and (17)

Wetlands

Wetland A (north wetland)

The boundary of Wetland A was documented at Plots 9 through 15. This wetland was difficult to see on the landscape: it is a very subtle depression. There was no distinct vegetation change between wetland and upland; it lacked primary indicators of hydrology; it did not display drainage patterns; and only one plot (Plot 11) displayed two secondary indicators of hydrology; therefore, we relied on the prior PHS-delineated wetland boundary.

The wetland is dominated by colonial bent grass (*Agrostis capillaris*, FAC). Soils displayed Depleted Matrix (F3) and/or Redox Dark Surface (F6) hydric soil indicators. Hydrology appears to be driven by direct precipitation. It is possible that this wetland does not display strong enough hydrology to be considered wetland during periods of normal precipitation in the spring.

Wetland B (south wetland)

Wetland B was evaluated at Plots 1 through 8 and 16. Similar to PHS findings, both upland and wetland soils commonly included redoximorphic concentrations, and upland plots had oxidized rhizospheres in the surface few inches, which were determined to likely be the result of compaction from active grazing. The wetland boundary hugged the forested Oregon ash (*Fraxinus latifolia*, FACW) perimeter and the edge of pugged soils, and we reduced the size of the wetland slightly along the western edge (Plot 2), in two small areas along the eastern edge that were obviously on higher land forms (Plot 8), and in the north, where soils were disturbed and dominated by creeping buttercup (*Ranunculus repens*, FAC; Plots 3 and 5).

Soils displayed Redox Dark Surface (F6) or Depleted below Dark Surface (A11) hydric soil indicators. This wetland exhibits strong indicators of hydrology near its southern boundary, with water marks on trees and fence posts extending up to 18 inches in height.

Soils have been disturbed in the vicinity of SWCA Plots 3 and 5 since the PHS delineation, based on the comparison of soil profiles of the closely placed SWCA Plot 5 and PHS Plot 3, and SWCA Plot 3 and PHS Plot 4. We pulled the boundary in at this point to conform with the geomorphic land form depression that was characteristic of the Oregon ash forested wetland.

Non-Wetland Waters

There are no non-wetland waters on the site.

F. DEVIATION FROM LWI OR NWI

OAR141-090-0035 (16)(e)

The site was not included in the City of Wilsonville's Local Wetland Inventory (LWI). The Sherwood, Oregon, National Wetlands Inventory (NWI) shows no mapped wetlands on the site (Figure 4, Appendix A).

G. MAPPING METHOD

OAR141-090-0035 (7)(f), (11), (12), (13), (18), and (22)

Sample plots and the wetland boundary of the south wetland were flagged in the field by SWCA and professionally land surveyed by Pacific Community Design. The surveyed delineation map is included as Figure 5 in Appendix A. Both the PHS wetland boundaries and the SWCA-revised south wetland boundary are shown for comparison purposes. Figure 6 shows just the SWCA delineation.

H. ADDITIONAL INFORMATION

OAR141-090-0035 (6)(c), (16)(c), and (21)

The wetlands have no direct surface water connection to each other or to off-site wetlands or waters.

I. RESULTS AND CONCLUSIONS

OAR141-090-0035 (7)(j)

Wetland A was not changed from the previous delineation. Wetland B was found to be smaller (0.45 acre) than the 0.52-acre wetland delineated by PHS in 2008. Table 2 below provides a summary of the size of each feature, the Cowardin and hydrogeomorphic (HGM) classifications, any hydrologic connection to other nearby waters, and our prediction of whether the feature would likely be determined jurisdictional by DSL and the Corps. Wetlands do not extend off-site.

Table 2. Summary of Potentially Jurisdictional Features in the Study Area

Feature	Acres	Cowardin Class ¹	HGM Classification	Connection to Other Waters	Predicted Jurisdiction
Wetland A	0.37	PEM	Slope/Flats	None	DSL; Corps unknown
Wetland B	0.45	PFO	Slope/Flats	None	DSL; Corps unknown
Total wetlands	0.82				

¹PEM = palustrine emergent; PFO = palustrine forested.

The approximate centroid latitude and longitude of each feature are listed in Table 3. The approximate centroid latitude and longitude of the study area are 45.315883°N and -122.798791°W.

Table 3. Latitude and Longitude of Potentially Jurisdictional Features in the Study Area

Feature	Latitude (°N)	Longitude (°W)
Wetland A	45.316211	-122.799604
Wetland B	45.315106	-122.800255

J. REQUIRED DISCLAIMER

OAR141-0090-0035 (7)(k)

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon DSL in accordance with Oregon Administrative Rules 141-090-0005 through 141-090-0055.

K. LIST OF PREPARERS

C. Mirth Walker



C. Mirth Walker, PWS, CWD
 Senior Wetland Scientist

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APPENDIX A

Figures

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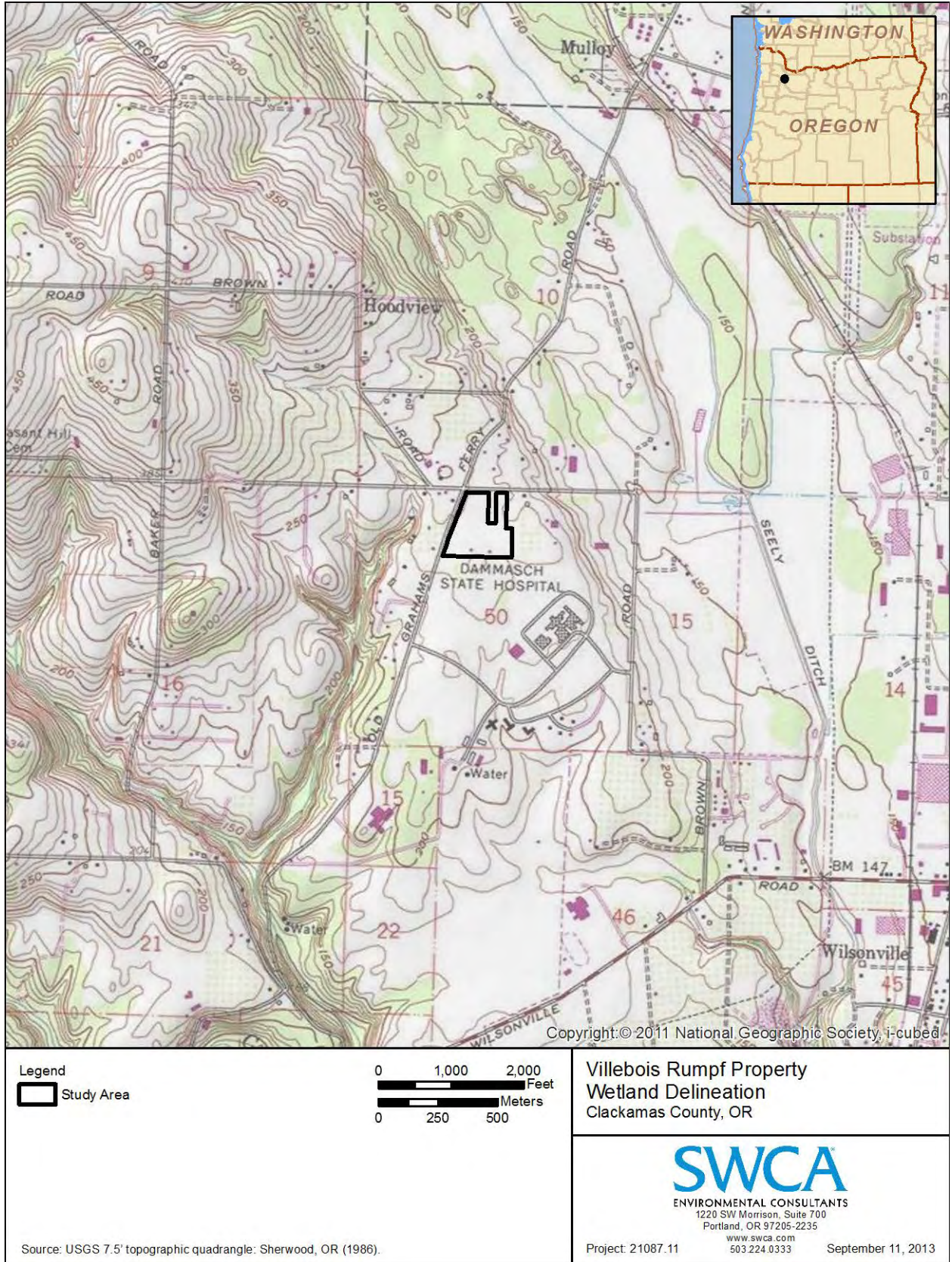


Figure 1. Site location map.

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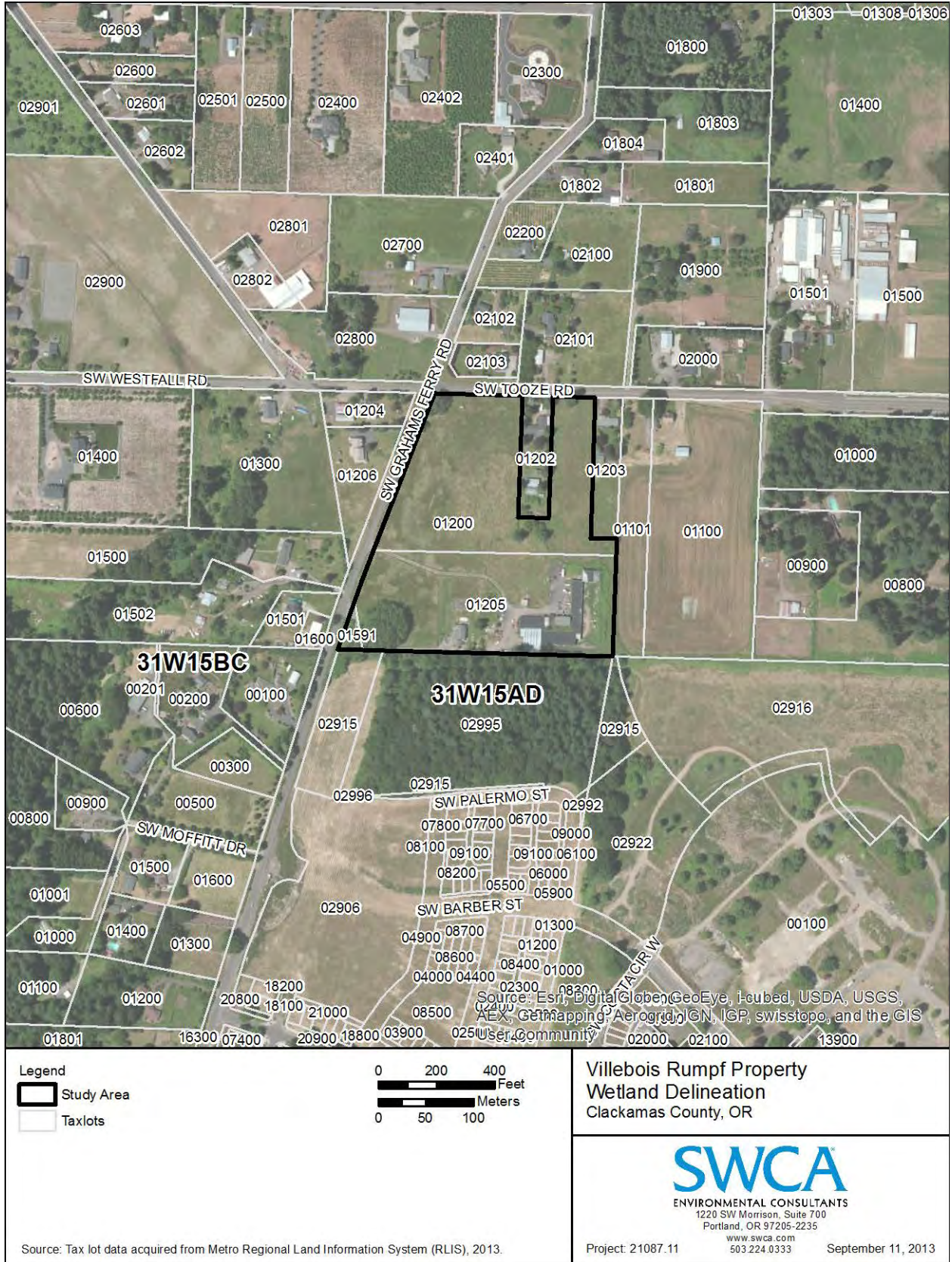


Figure 2. Tax lot map 31W 15.

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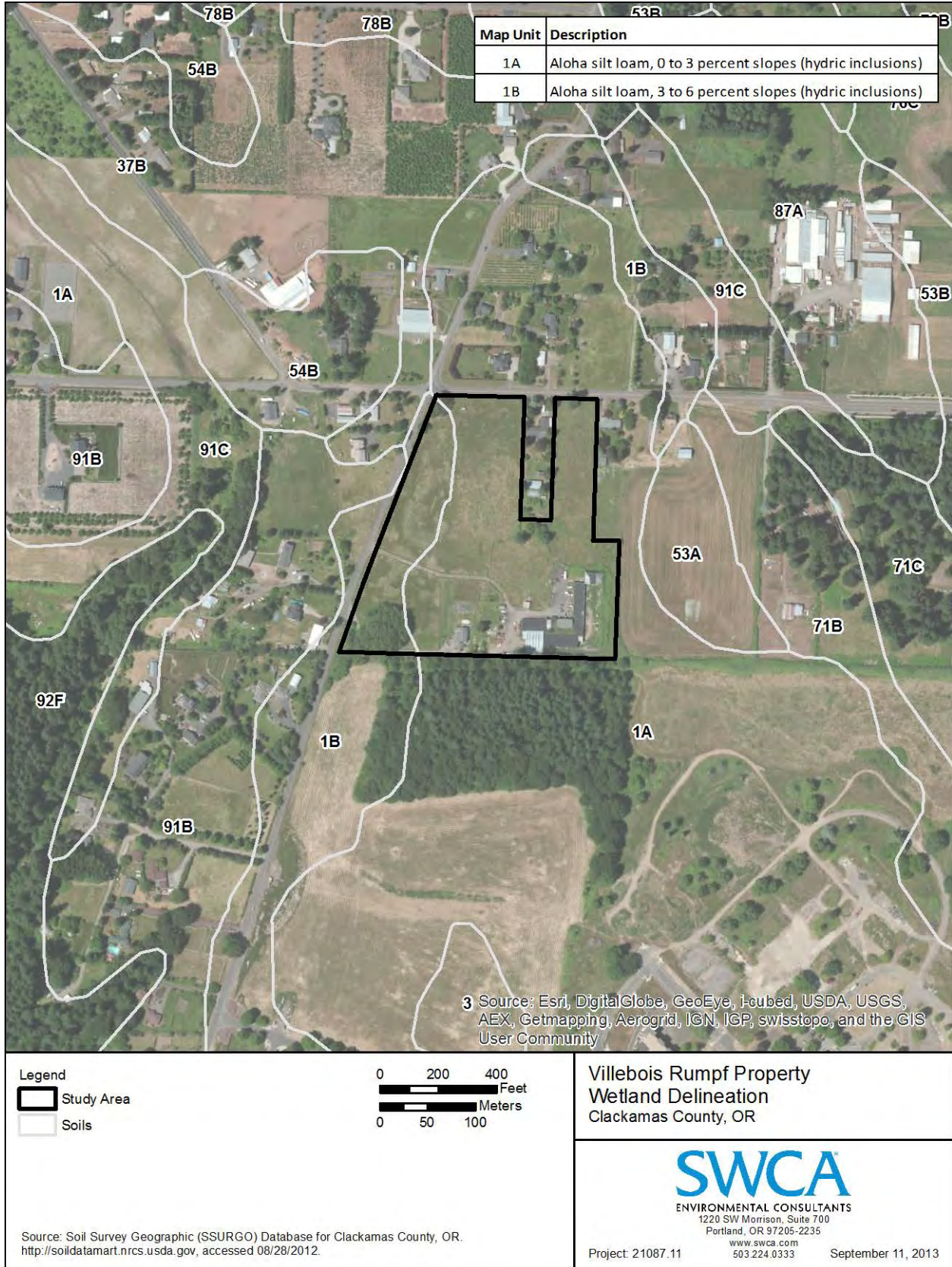
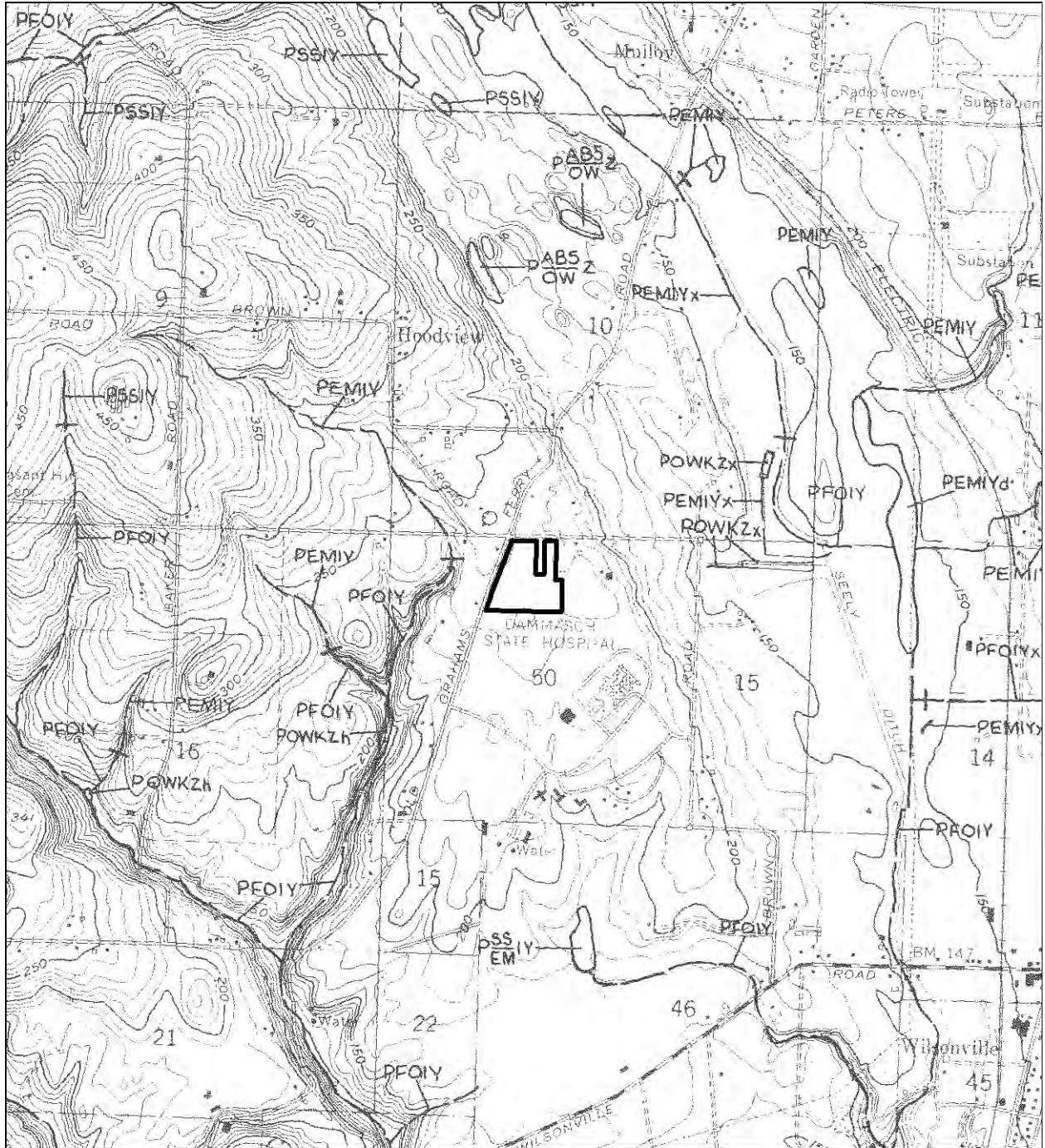
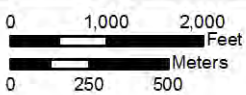


Figure 3. Soils map.

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Legend
 Study Area



Villebois Rumpf Property
Wetland Delineation
Clackamas County, OR

SWCA
ENVIRONMENTAL CONSULTANTS
1220 SW Morrison, Suite 700
Portland, OR 97205-2235
www.swca.com
503.224.0333

Project 21087.11 September 11, 2013

Source: National Wetlands Inventory Map, Sherwood, OR (1:58,000 CIR, 8/81).

Figure 4. National Wetlands Inventory map.

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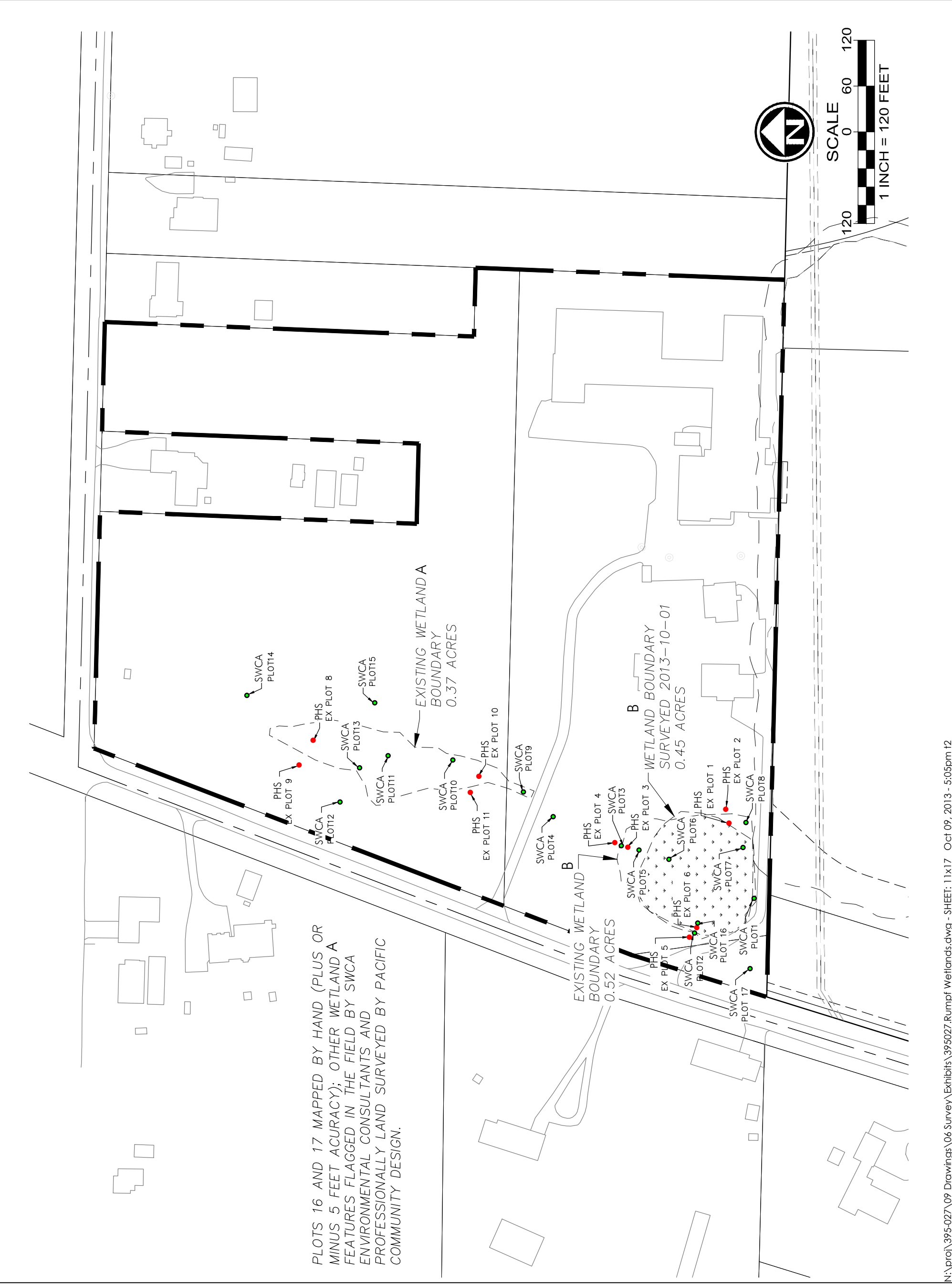
REVISIONS	
NO.	DATE DESCRIPTION

**RUMPH
WETLAND
DELINEATION**

**STUDY
AREA
EXHIBIT**

PROJECT NO.:	395-027
TYPE:	SURVEY
REVIEWED BY:	

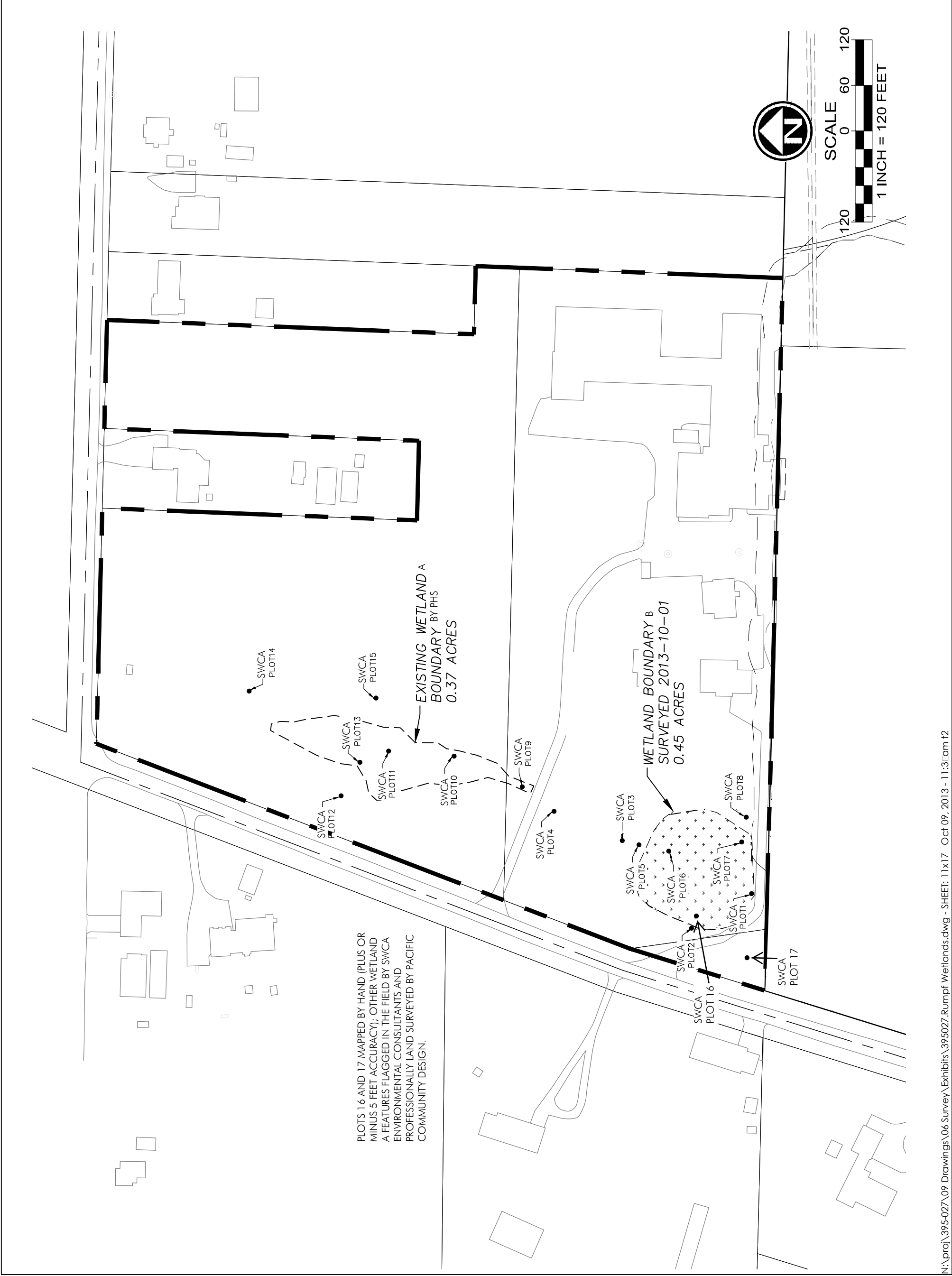
FIGURE 5



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**RUMPH
WETLAND
DELINEATION**

**STUDY
AREA
EXHIBIT**



PLOTS 16 AND 17 MAPPED BY HAND (PLUS OR MINUS 5 FEET ACCURACY); OTHER WETLAND FEATURES FLAGGED IN THE FIELD BY SWCA ENVIRONMENTAL CONSULTANTS AND PROFESSIONALLY LAND SURVEYED BY PACIFIC COMMUNITY DESIGN.

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APPENDIX B

WD #2007-0706

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Oregon

Theodore R. Kulongoski, Governor

Department of State Lands

775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

May 5, 2008

State Land Board

Terry Kinney
West Hills Development
735 SW 158th Ave
Beaverton, OR 97006

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

Re: Wetland Delineation Report for Villebois SAP North, SE of Intersection SW Grahams Ferry Road and SW Tooze Road, Wilsonville, Clackamas County, T3S R1W Sec.15, Tax Lots 1200, 1202, 1203, 1205, 1591, and portion of 2990; WD #07-0706

Dear Mr. Kinney:

The Department of State Lands has reviewed the wetland delineation report prepared by Pacific Habitat Services, Inc. for the site referenced above. Based upon our review, we concur with their delineation and conclusions. Within the study area, 3 wetlands (totaling approximately 0.96 acres) were identified. The wetlands are subject to the permit requirements of the state Removal-Fill Law. A state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetlands.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

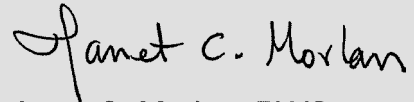
Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within 60 calendar days of the date of this letter.



Thank you for having the site evaluated. Please phone me at 503-986-5236 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Janet C. Morlan". The signature is written in a cursive style with a large initial 'J'.

Janet C. Morlan, PWS
Wetlands Program Manager

Enclosures

cc: Fred Small, Pacific Habitat Services
City of Wilsonville, Planning Department
James Holm, Corps of Engineers
Mike McCabe, DSL

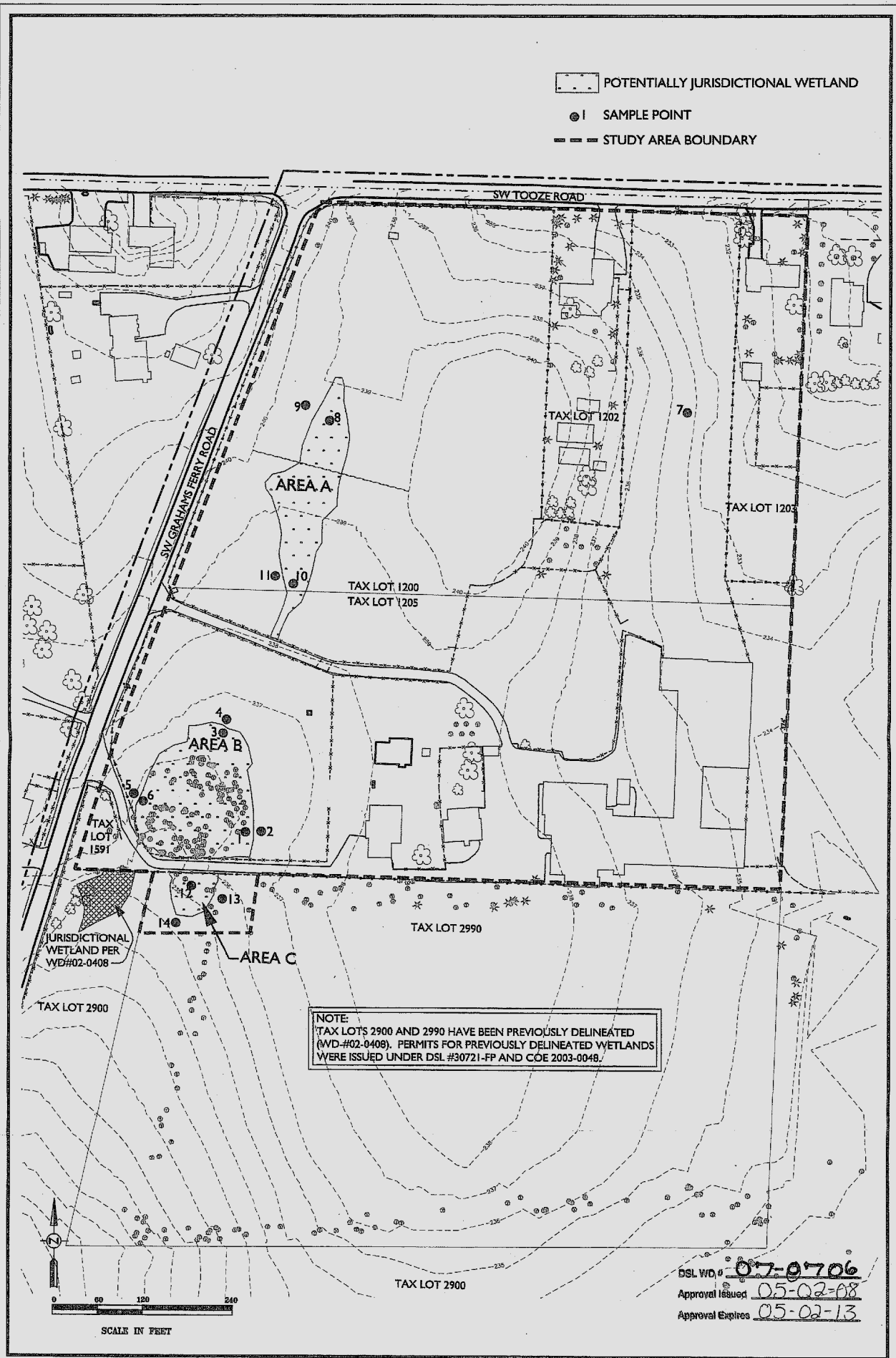


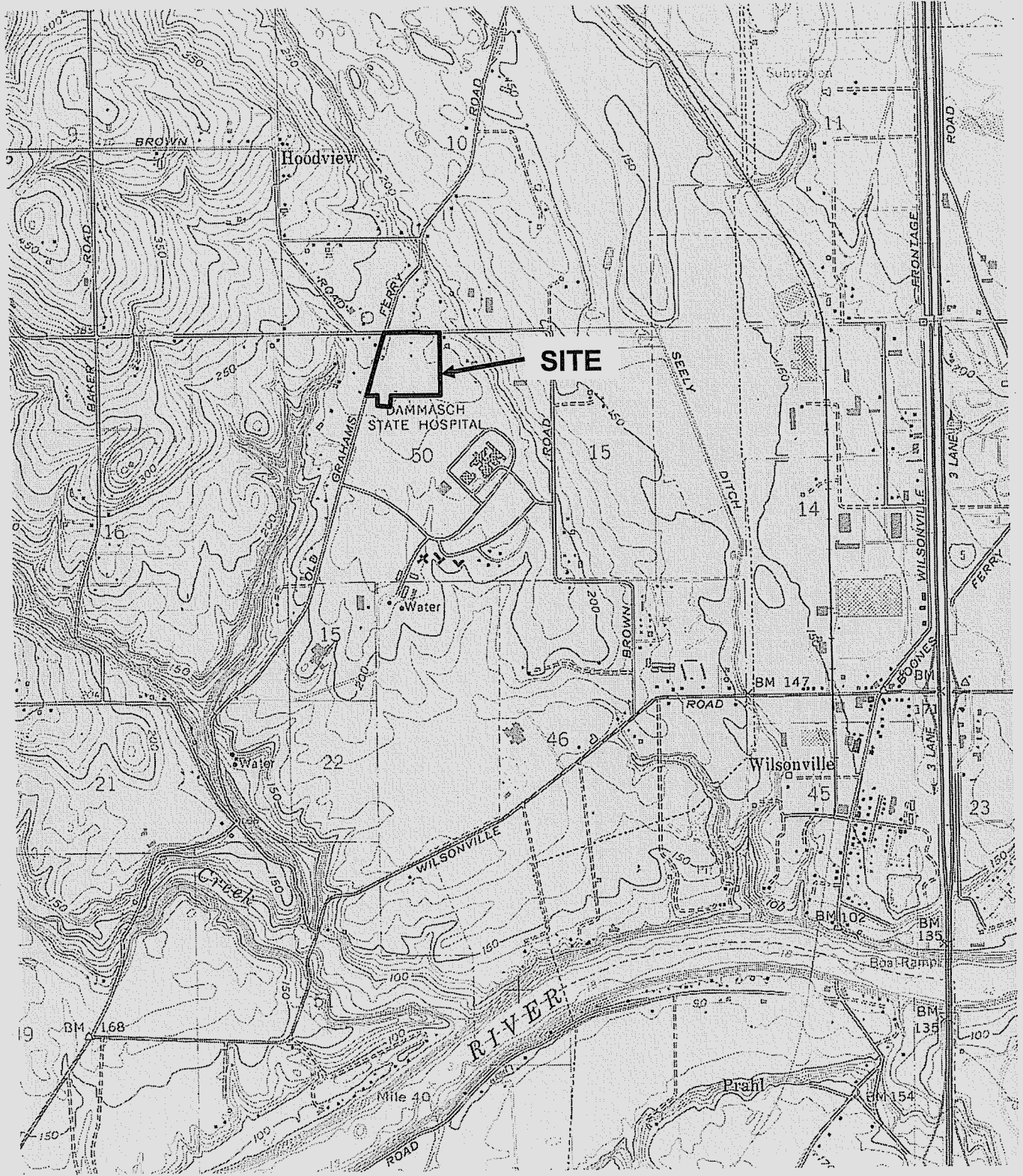
FIGURE
4

Potentially jurisdictional wetlands on a proposed residential subdivision on SW Grahams Ferry Road in Wilsonville, Oregon. Areas A and B professionally land surveyed by Alpha Engineering, Inc., 2003. Boundary of Area C is based on compass bearing and distance from surveyed points. Estimated accuracy of Area C is +/- 2 feet.

Pacific Habitat Services, Inc.

3888
10/23/06





10/30/06

3868

Location and general topography in the vicinity of SW Grahams Ferry Road in Wilsonville, Oregon (USGS, Sherwood, Oregon quadrangle, 1961, photorevised 1984).

FIGURE
1



— Pacific Habitat Services, Inc. —

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

DEPT OF STATE LANDS
RECEIVED
2007 DEC 26 P 2:07

This form constitutes a request for a jurisdictional determination by the Department of State Lands. It must be fully completed and signed, and attached to the front of reports submitted to the Department for review and approval.

**Wetlands Program Manager/Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279**

<input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: West hills Development (Attn: Terry Kinney) 735 SW 158th Avenue Beaverton, OR 97006	Business phone # 503-726-7031 Home phone # (optional) FAX # E-mail: tkinney@arborhomes.com
<input type="checkbox"/> Authorized Legal Agent, Name and Address:	Business phone # FAX # E-mail:
I either own the property described below or I have legal authority to allow access to the property, I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Terry P. Kinney</u>	Signature: _____
Date: _____	Special instructions regarding site access: _____

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: Villebois SAP North	Latitude: 45°18'59"N	Longitude: 122°47'55"W
Proposed Use: Residential development	Tax Map # 3 1W 15	
Project Street Address (or other descriptive location): Located SE of intersection of SW Grahams Ferry Road and SW Tooze Road	Township 3S Range 1W Section 15 QQ	Tax Lot (s) 1200, 1202, 1203, 1205, 1591, part of 2990
City: Wilsonville County: Clackamas	Waterway: NWI Quad(s): Sherwood	River Mile:

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: Pacific Habitat Services, Inc. (Attn: Fred Small) 9450 SW Commerce Circle, Suite 180 Wilsonville, OR 97070	Phone # (503) 570-0800 FAX # (503) 570-0855 E-mail address: fes@pacifichabitat.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge. Consultant Signature: _____	Date: <u>12/18/07</u>
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Total Wetland Acreage: 0.96 ac	

Delineation Purpose:

<input type="checkbox"/> R-F permit application submitted with delineation	<input type="checkbox"/> Sale, purchase, lease etc.
<input type="checkbox"/> Mitigation bank site	<input type="checkbox"/> Partition, re-plat, lot line adjustment
<input type="checkbox"/> Industrial Land Certification Program site	<input type="checkbox"/> Habitat restoration project
<input type="checkbox"/> Road GA will be submitted within approx. 90 days	<input checked="" type="checkbox"/> Other: Site development

Other Information:

Has previous delineation/application been made on parcel?	Y N	<input type="checkbox"/> <input checked="" type="checkbox"/> If known, previous DSL #
Does LWI, if any, show wetland on parcel?	<input type="checkbox"/> <input checked="" type="checkbox"/> LWI wetland code:	

For Office Use Only

DSL Reviewer: <u>PR</u>	Report Tier: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	DSL WD # <u>2007-0706</u>
Date Delineation Received: ___/___/___	DSL Project # _____	DSL Site # _____
Scanned: <input type="checkbox"/> Final Scan: <input type="checkbox"/>	DSL WN # _____	DSL App. # _____

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APPENDIX C
Precipitation Data

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These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Record Report

000
SXUS76 KPQR 032342 CCA
RERPQR

RECORD EVENT REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
1215 PM PDT THU OCT 4 2013

...HISTORIC SEPTEMBER RAINFALL ACROSS THE REGION (CORRECTED)...

WITH THE RECENT HEAVY RAINFALL MANY OBSERVATIONS STATIONS HAVE REPORTED RECORD AMOUNTS OF RAINFALL FOR THE MONTH OF SEPTEMBER.

FOLLOWING ARE STATIONS WITH THE TOP 4 WETTEST SEPTEMBERS FOR EACH STATIONS (AND PERIOD OF RECORD).

ASTORIA (1890-2013)...

1. SEP 2013.....	10.70 INCHES	*** RECORD ***
2. SEP 1906.....	8.66 INCHES	
3. SEP 1920.....	8.55 INCHES	
4. SEP 1905.....	7.38 INCHES	
CLIMATOLOGICAL NORMAL: 2.14 INCHES		

PORTLAND AIRPORT (1940-2013)

1. SEP 2013.....	5.62 INCHES	*** RECORD ***
2. SEP 1986.....	4.30 INCHES	
3. SEP 1982.....	3.98 INCHES	
4. SEP 1945.....	3.96 INCHES	
CLIMATOLOGICAL NORMAL: 1.47 INCHES		

PORTLAND DOWNTOWN (1874-2013)...

1. SEP 2013.....	6.85 INCHES	*** RECORD *** CORRECTED
2. SEP 1927.....	5.52 INCHES	
3. SEP 1911.....	5.19 INCHES	
4. SEP 1969.....	4.87 INCHES	
CLIMATOLOGICAL NORMAL: 1.54 INCHES		

HILLSBORO (1929-2013)...

1. SEP 2013.....	6.27 INCHES	*** RECORD ***
2. SEP 1945.....	3.68 INCHES	

3. SEP 1982..... 3.46 INCHES
4. SEP 1977..... 3.43 INCHES
CLIMATOLOGICAL NORMAL: 1.26 INCHES

EUGENE (1892-2013)

1. SEP 2013..... 7.08 INCHES *** RECORD ***
2. SEP 1927..... 5.21 INCHES
3. SEP 1911..... 4.91 INCHES
4. SEP 1986..... 4.65 INCHES
CLIMATOLOGICAL NORMAL: 1.29 INCHES

SALEM (1892-2013)...

1. SEP 2013..... 7.05 INCHES *** RECORD ***
2. SEP 1927..... 5.52 INCHES
3. SEP 1911..... 5.19 INCHES
4. SEP 1969..... 4.87 INCHES
CLIMATOLOGICAL NORMAL: 1.28 INCHES

VANCOUVER, WA (1890-2013)...

1. SEP 2013..... 5.24 INCHES *** RECORD ***
2. SEP 1911..... 4.88 INCHES
3. SEP 1969..... 4.82 INCHES
3. SEP 1925..... 4.46 INCHES
4. SEP 1986..... 4.44 INCHES
CLIMATOLOGICAL NORMAL: 1.56 INCHES

MCMINNVILLE (1894-2013)

1. SEP 1996..... 7.58 INCHES
2. SEP 2013..... 6.19 INCHES
3. SEP 1901..... 4.83 INCHES
4. SEP 1914..... 4.28 INCHES
CLIMATOLOGICAL NORMAL: 1.31 INCHES

CULLEN/ROCKEY

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Daily)

000
CDUS46 KPQR 011142
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
441 AM PDT TUE OCT 1 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR SEPTEMBER 30 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....

TEMPERATURE (F)

YESTERDAY

MAXIMUM	59	1242 PM	MM	MM
MINIMUM	50	1159 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.38	0.00
MONTH TO DATE	7.39	0.12
SINCE OCT 1	43.72	41.31
SINCE JAN 1	20.97	29.97

DEGREE DAYS

HEATING

YESTERDAY	10	5
MONTH TO DATE	109	77
SINCE SEP 1	109	77
SINCE JUL 1	119	117

COOLING

YESTERDAY	0	0
-----------	---	---

MONTH TO DATE	64	43
SINCE SEP 1	64	43
SINCE JAN 1	426	294

.....

WIND (MPH)

HIGHEST WIND SPEED	26	HIGHEST WIND DIRECTION	S (180)
HIGHEST GUST SPEED	32	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	11.5		

SKY COVER

AVERAGE SKY COVER 0.9

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

RAIN
 LIGHT RAIN
 FOG

RELATIVE HUMIDITY (PERCENT)

HIGHEST	96	600 AM
LOWEST	80	100 PM
AVERAGE	88	

.....

SUNRISE AND SUNSET

OCTOBER 1 2013.....	SUNRISE	710 AM PDT	SUNSET	651 PM PDT
OCTOBER 2 2013.....	SUNRISE	711 AM PDT	SUNSET	649 PM PDT

- INDICATES NEGATIVE NUMBERS.
 R INDICATES RECORD WAS SET OR TIED.
 MM INDICATES DATA IS MISSING.
 T INDICATES TRACE AMOUNT.

The U.S. Naval Observatory (USNO) computes astronomical data. Therefore, the NWS does not record, certify, or authenticate astronomical data. Computed times of sunrise, sunset, moonrise, moonset; and twilight, moon phases and other astronomical data are available from USNO's Astronomical Applications Department (<http://www.usno.navy.mil>). See <http://www.usno.navy.mil/USNO/astronomical-applications/astronomical-information-center/litigation> for information on using these data for legal purposes.

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Daily)

000
CDUS46 KPQR 021141
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
440 AM PDT WED OCT 2 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR OCTOBER 1 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....

TEMPERATURE (F)

YESTERDAY

MAXIMUM	58	146 PM	MM	MM
MINIMUM	42	1159 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.38	0.00
MONTH TO DATE	0.38	0.00
SINCE OCT 1	0.38	0.00
SINCE JAN 1	21.35	29.97

DEGREE DAYS

HEATING

YESTERDAY	15	0
MONTH TO DATE	15	0
SINCE SEP 1	124	77
SINCE JUL 1	134	117

COOLING

YESTERDAY	0	1
-----------	---	---

MONTH TO DATE	0	1
SINCE SEP 1	64	44
SINCE JAN 1	426	295

.....

WIND (MPH)

HIGHEST WIND SPEED	14	HIGHEST WIND DIRECTION	S (180)
HIGHEST GUST SPEED	18	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	4.0		

SKY COVER

AVERAGE SKY COVER 0.6

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

- RAIN
- LIGHT RAIN
- FOG

RELATIVE HUMIDITY (PERCENT)

HIGHEST	93	400 AM
LOWEST	62	200 PM
AVERAGE	78	

.....

SUNRISE AND SUNSET

OCTOBER 2 2013.....	SUNRISE	711 AM PDT	SUNSET	649 PM PDT
OCTOBER 3 2013.....	SUNRISE	712 AM PDT	SUNSET	647 PM PDT

- INDICATES NEGATIVE NUMBERS.
- R INDICATES RECORD WAS SET OR TIED.
- MM INDICATES DATA IS MISSING.
- T INDICATES TRACE AMOUNT.

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Climatological Report (Daily)

000
CDUS46 KPQR 091147
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
446 AM PDT WED OCT 9 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR OCTOBER 8 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....

TEMPERATURE (F)

YESTERDAY

MAXIMUM	57	412 PM	MM	MM
MINIMUM	41	1143 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.02	0.00
MONTH TO DATE	0.65	0.00
SINCE OCT 1	0.65	0.00
SINCE JAN 1	21.62	29.97

DEGREE DAYS

HEATING

YESTERDAY	16	12
MONTH TO DATE	101	42
SINCE SEP 1	210	119
SINCE JUL 1	220	159

COOLING

YESTERDAY	0	0
-----------	---	---

MONTH TO DATE	0	1
SINCE SEP 1	64	44
SINCE JAN 1	426	295

.....

WIND (MPH)

HIGHEST WIND SPEED	13	HIGHEST WIND DIRECTION	N (350)
HIGHEST GUST SPEED	18	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	5.3		

SKY COVER

AVERAGE SKY COVER 0.8

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

LIGHT RAIN
 FOG
 HAZE

RELATIVE HUMIDITY (PERCENT)

HIGHEST	100	1100 PM
LOWEST	67	400 PM
AVERAGE	84	

.....

SUNRISE AND SUNSET

OCTOBER 9 2013.....	SUNRISE	720 AM PDT	SUNSET	636 PM PDT
OCTOBER 10 2013.....	SUNRISE	721 AM PDT	SUNSET	634 PM PDT

- INDICATES NEGATIVE NUMBERS.
 R INDICATES RECORD WAS SET OR TIED.
 MM INDICATES DATA IS MISSING.
 T INDICATES TRACE AMOUNT.

[Explanation of the Preliminary Monthly Climate Data \(F6\) Product](#)

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WFO Monthly/Daily Climate Data

000

CXUS55 KPQR 091230

CF6UAO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: AURORA STATE OR

MONTH: OCTOBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

TEMPERATURE IN F:					:PCPN:			SNOW:	WIND			:SUNSHINE:			SKY	:PK WND		
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
										12Z	AVG	MX	2MIN					
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	58	42	50	-9	15	0	0.38	M	0	4.0	14	180	M	M	6	1	18	180
2	53	41	47	-11	18	0	0.11	M	0	1.9	9	180	M	M	6	12	13	170
3	59	42	51	-7	14	0	0.00	0.0	0	0.6	8	80	M	M	7	12	9	60
4	65	39	52	-6	13	0	0.00	0.0	0	1.7	8	20	M	M	3	12	9	10
5	72	39	56	-1	9	0	0.00	M	0	0.7	7	20	M	M	0	1	9	20
6	73	40	57	0	8	0	0.00	0.0	0	2.8	12	180	M	M	4	12	15	180
7	62	51	57	1	8	0	0.14	0.0	0	5.4	15	260	M	M	9	1	22	250
8	57	41	49	-7	16	0	0.02	M	0	5.3	13	350	M	M	8	18	18	180
SM	499	335			101	0	0.65		0.0	22.4			M		43			
AV	62.4	41.9								2.8	FASTST		M	M	5	MAX (MPH)		
								MISC	---->	#	15	260				#	22	250

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: AURORA STATE OR

MONTH: OCTOBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 52.1

TOTAL FOR MONTH: 0.65

1 = FOG OR MIST

DPTR FM NORMAL: -5.2	DPTR FM NORMAL: -0.02	2 = FOG REDUCING VISIBILITY
HIGHEST: 73 ON 6	GRTST 24HR 0.47 ON 30- 1	TO 1/4 MILE OR LESS
LOWEST: 39 ON 5, 4		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 0.0 INCH	5 = HAIL
	GRTST 24HR 0.0	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 0	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS

[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 4
MAX 90 OR ABOVE: 0	0.10 INCH OR MORE: 3
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 0
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 0

[HDD (BASE 65)]	
TOTAL THIS MO. 101	CLEAR (SCALE 0-3) 1
DPTR FM NORMAL 38	PTCLDY (SCALE 4-7) 6
TOTAL FM JUL 1 220	CLOUDY (SCALE 8-10) 1
DPTR FM NORMAL 11	

[CDD (BASE 65)]	
TOTAL THIS MO. 0	
DPTR FM NORMAL 0	[PRESSURE DATA]
TOTAL FM JAN 1 426	HIGHEST SLP M ON M
DPTR FM NORMAL 92	LOWEST SLP 29.96 ON 6

[REMARKS]

[Explanation of the Preliminary Monthly Climate Data \(F6\) Product](#)

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WFO Monthly/Daily Climate Data

000

CXUS55 KPQR 011230

CF6UAO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: AURORA STATE OR

MONTH: SEPTEMBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

TEMPERATURE IN F:					:PCPN:			SNOW:		WIND			:SUNSHINE:			SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
								12Z											
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
1	83	57	70	4	0	5	0.00	0.0	0	2.8	10	180	M	M	1		15	190	
2	79	61	70	4	0	5	0.02	0.0	0	2.7	12	230	M	M	7	3	17	240	
3	79	59	69	3	0	4	0.08	0.0	0	1.2	10	350	M	M	3	13	14	340	
4	76	59	68	2	0	3	0.10	0.0	0	2.3	8	340	M	M	7	13	10	350	
5	66	58	62	-4	3	0	1.21	0.0	0	3.9	22	170	M	M	9	13	29	170	
6	71	58	65	-1	0	0	0.78	0.0	0	7.3	15	190	M	M	10	1	22	200	
7	81	55	68	3	0	3	0.00	0.0	0	4.1	10	360	M	M	4	12	14	360	
8	86	57	72	7	0	7	0.00	0.0	0	5.0	15	20	M	M	0		18	10	
9	85	58	72	7	0	7	0.00	0.0	0	3.8	10	30	M	M	2		14	30	
10	92	60	76	11	0	11	0.00	0.0	0	6.0	14	360	M	M	0		18	360	
11	93	59	76	11	0	11	0.00	0.0	0	2.9	9	250	M	M	0		12	230	
12	80	56	68	4	0	3	0.00	0.0	0	2.3	7	160	M	M	1		9	150	
13	76	57	67	3	0	2	0.00	0.0	0	1.6	9	20	M	M	4	1	12	20	
14	78	58	68	4	0	3	0.00	0.0	0	2.9	7	330	M	M	5	1	10	360	
15	69	59	64	0	1	0	0.02	0.0	0	5.3	12	190	M	M	9	13	15	190	
16	71	59	65	2	0	0	0.00	0.0	0	6.1	14	190	M	M	10	8	20	220	
17	68	54	61	-2	4	0	0.29	0.0	0	2.3	12	20	M	M	7	1	14	20	
18	72	51	62	-1	3	0	0.01	0.0	0	2.6	9	30	M	M	4		12	20	
19	78	45	62	0	3	0	0.00	0.0	0	0.7	7	230	M	M	0	8	10	240	
20	75	48	62	0	3	0	0.02	M	0	4.1	18	190	M	M	4		24	180	
21	66	54	60	-2	5	0	0.08	0.0	0	3.1	12	250	M	M	8	1	18	260	
22	61	54	58	-4	7	0	0.57	0.0	0	10.6	28	180	M	M	9	1	39	170	
23	62	53	58	-3	7	0	0.71	M	M	5.3	15	170	M	M	9	1	21	170	
24	60	50	55	-6	10	0	0.26	M	M	3.5	13	170	M	M	10	1	16	190	
25	60	47	54	-7	11	0	0.04	M	0	1.8	8	50	M	M	8	1	9	50	
26	64	46	55	-5	10	0	0.03	M	0	0.6	10	300	M	M	7	12	14	310	
27	57	43	50	-10	15	0	0.22	M	0	10.1	22	190	M	M	9	12	31	220	
28	65	52	59	-1	6	0	1.05	0.0	0	16.7	31	190	M	M	10	1	39	210	
29	57	51	54	-5	11	0	1.52	0.0	0	14.9	30	180	M	M	9	1	38	200	
30	59	50	55	-4	10	0	0.38	0.0	0	11.5	26	180	M	M	9	1	32	180	

```

=====
SM 2169 1628          109  64  7.39      0.0 148.0          M      175
=====
AV 72.3 54.3                4.9 FASTST  M      M      6      MAX (MPH)
                               MISC ----> # 31 190                # 39 170
=====

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NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

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STATION:  AURORA STATE OR
MONTH:    SEPTEMBER
YEAR:     2013
LATITUDE: 45 15 N
LONGITUDE: 122 46 W

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[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 63.3	TOTAL FOR MONTH: 7.39	1 = FOG OR MIST
DPTR FM NORMAL: 0.1	DPTR FM NORMAL: 5.66	2 = FOG REDUCING VISIBILITY
HIGHEST: 93 ON 11	GRTST 24HR 1.97 ON 5- 6	TO 1/4 MILE OR LESS
LOWEST: 43 ON 27		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 0.0 INCH	5 = HAIL
	GRTST 24HR 0.0	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 0	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
		9 = BLOWING SNOW
		X = TORNADO
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 19	
MAX 90 OR ABOVE: 2	0.10 INCH OR MORE: 11	
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 6	
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 3	
[HDD (BASE 65)]		
TOTAL THIS MO. 109	CLEAR (SCALE 0-3) 7	
DPTR FM NORMAL 10	PTCLDY (SCALE 4-7) 10	
TOTAL FM JUL 1 119	CLOUDY (SCALE 8-10) 13	
DPTR FM NORMAL -27		
[CDD (BASE 65)]		
TOTAL THIS MO. 64		
DPTR FM NORMAL 20	[PRESSURE DATA]	
TOTAL FM JAN 1 426	HIGHEST SLP 30.19 ON 27	
DPTR FM NORMAL 92	LOWEST SLP 29.39 ON 29	

[REMARKS]

#FINAL-09-13#

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Monthly)

000
CXUS56 KPQR 011525
CLMUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
825 AM PDT SUN SEP 1 2013

.....
...THE AURORA STATE OR CLIMATE SUMMARY FOR THE MONTH OF AUGUST 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER	OBSERVED VALUE	DATE (S)	NORMAL VALUE	DEPART FROM NORMAL	LAST YEAR`S VALUE	DATE (S)
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.....
TEMPERATURE (F)

HIGHEST	93				101	08/04
LOWEST	52				44	08/24
AVG. MAXIMUM	81.7		81.8	-0.1	83.3	
AVG. MINIMUM	57.4		54.7	2.7	54.6	
MEAN	69.6		68.3	1.3	68.9	
DAYS MAX >= 90	4		5.1	-1.1	9	
DAYS MAX <= 32	0		0.0	0.0	0	
DAYS MIN <= 32	0		0.0	0.0	0	
DAYS MIN <= 0	0		0.0	0.0	0	

PRECIPITATION (INCHES)
RECORD

MAXIMUM	MM	MM				
MINIMUM	MM	MM				
TOTALS	0.61		0.66	-0.05		T
DAYS >= .01	7		MM	MM		0
DAYS >= .10	2		MM	MM		0
DAYS >= .50	0		MM	MM		0
DAYS >= 1.00	0		MM	MM		0
GREATEST						
24 HR. TOTAL	0.28	08/28 TO 08/29				

DEGREE_DAYS				
HEATING TOTAL	5	22	-17	15
SINCE 7/1	10	47	-37	40
COOLING TOTAL	154	123	31	147
SINCE 1/1	362	290	72	251

.....

WIND (MPH)

AVERAGE WIND SPEED	3.4		
RESULTANT WIND SPEED/DIRECTION	1/044		
HIGHEST WIND SPEED/DIRECTION	21/170	DATE	08/26
HIGHEST GUST SPEED/DIRECTION	26/190	DATE	08/26

SKY COVER

POSSIBLE SUNSHINE (PERCENT)	MM
AVERAGE SKY COVER	0.30

AVERAGE RH (PERCENT) 66

WEATHER CONDITIONS. NUMBER OF DAYS WITH

THUNDERSTORM	0	MIXED PRECIP	0
HEAVY RAIN	0	RAIN	2
LIGHT RAIN	7	FREEZING RAIN	0
LT FREEZING RAIN	0	HAIL	0
HEAVY SNOW	0	SNOW	0
LIGHT SNOW	0	SLEET	0
FOG	4	FOG W/VIS <= 1/4 MILE	0
HAZE	0		

- INDICATES NEGATIVE NUMBERS.
R INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T INDICATES TRACE AMOUNT.

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Monthly)

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CXUS56 KPQR 011510
CLMUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
810 AM PDT THU AUG 1 2013

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...THE AURORA STATE OR CLIMATE SUMMARY FOR THE MONTH OF JULY 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER	OBSERVED VALUE	DATE (S)	NORMAL VALUE	DEPART FROM NORMAL	LAST YEAR`S VALUE	DATE (S)
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TEMPERATURE (F)

HIGHEST	92				90	07/08
LOWEST	48				45	07/04
AVG. MAXIMUM	83.7		80.9	2.8	78.9	
AVG. MINIMUM	54.4		55.1	-0.7	54.5	
MEAN	69.1		68.0	1.1	66.7	
DAYS MAX >= 90	7		5.1	1.9	1	
DAYS MAX <= 32	0		0.0	0.0	0	
DAYS MIN <= 32	0		0.0	0.0	0	
DAYS MIN <= 0	0		0.0	0.0	0	

PRECIPITATION (INCHES)

RECORD

MAXIMUM	MM	MM				
MINIMUM	MM	MM				
TOTALS	0.01		0.68	-0.67	0.54	
DAYS >= .01	1		MM	MM	7	
DAYS >= .10	0		MM	MM	1	
DAYS >= .50	0		MM	MM	0	
DAYS >= 1.00	0		MM	MM	0	
GREATEST						

24 HR. TOTAL 0.01 07/16 TO 07/16
 07/15 TO 07/16
 07/16 TO 07/16

DEGREE DAYS

HEATING TOTAL	5	25	-20	25
SINCE 7/1	5	25	-20	25
COOLING TOTAL	139	118	21	84
SINCE 1/1	208	167	41	104

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WIND (MPH)

AVERAGE WIND SPEED	5.1		
RESULTANT WIND SPEED/DIRECTION	4/025		
HIGHEST WIND SPEED/DIRECTION	17/360	DATE	07/26
HIGHEST GUST SPEED/DIRECTION	31/020	DATE	07/12

SKY COVER

POSSIBLE SUNSHINE (PERCENT)	MM
AVERAGE SKY COVER	0.10

AVERAGE RH (PERCENT) 60

WEATHER CONDITIONS. NUMBER OF DAYS WITH

THUNDERSTORM	0	MIXED PRECIP	0
HEAVY RAIN	0	RAIN	1
LIGHT RAIN	0	FREEZING RAIN	0
LT FREEZING RAIN	0	HAIL	0
HEAVY SNOW	0	SNOW	0
LIGHT SNOW	0	SLEET	0
FOG	0	FOG W/VIS <= 1/4 MILE	0
HAZE	2		

- INDICATES NEGATIVE NUMBERS.
R INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T INDICATES TRACE AMOUNT.

WETS Station : N WILLAMETTE EXP STN, OR6151 Creation Date: 09/09/2002
Latitude: 4517 Longitude: 12245 Elevation: 00150
State FIPS/County(FIPS): 41005 County Name: Clackamas
Start yr. - 1971 End yr. - 2000

-----|
 | Temperature | Precipitation |

Month	(Degrees F.)			(Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have		avg # of days w/.1 or more	avg total snow fall
					less than	more than		
January	47.0	33.5	40.2	6.04	4.05	7.23	13	0.5
February	51.1	34.9	43.0	5.24	3.90	6.13	12	0.3
March	56.1	37.3	46.7	4.28	3.30	4.96	12	0.0
April	60.6	40.2	50.4	3.14	2.15	3.74	9	0.0
May	67.0	45.1	56.0	2.50	1.64	3.00	7	0.0
June	73.3	49.9	61.6	1.76	1.03	2.14	4	0.0
July	80.3	53.3	66.8	0.73	0.22	0.88	1	0.0
August	80.8	53.0	66.9	0.83	0.21	0.98	2	0.0
September	75.8	48.9	62.3	1.79	0.85	2.25	4	0.0
October	64.4	41.9	53.2	3.36	1.77	4.10	7	0.0
November	52.5	37.7	45.1	6.48	4.50	7.71	13	0.1
December	45.8	32.8	39.3	6.44	4.09	7.76	12	0.6
Annual	-----	-----	-----	-----	37.11	46.19	--	----
Average	62.9	42.4	52.6	-----	-----	-----	--	----
Total	-----	-----	-----	42.58	-----	-----	96	1.4

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	1/27 to ---- 340 days	3/ 2 to 11/21 264 days	4/14 to 10/28 197 days
70 percent *	> 365 days > 365 days	2/22 to 11/30 282 days	4/ 7 to 11/ 4 212 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1963-2002 prcp

Station : OR6151, N WILLAMETTE EXP STN
----- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
63M	1.14	4.02	6.48		4.34	1.62	0.81	0.36	1.11	3.09	5.86	4.45	33.28
64I	1.36	0.83	2.93	1.21	0.94	1.67	0.74	0.58	1.49	1.52	7.21	13.84	44.32

65	8.51	M2.07	1.09	3.23	1.30	0.66	0.23	0.99	0.05	2.79	6.63	6.78	34.33
66	7.84	1.92	5.96	1.22	0.93	1.18	1.16	0.31	1.41	2.97	5.62	6.57	37.09
67	6.77	1.53	4.79	2.58	2.12	0.72	0.00	0.00	0.26	5.58	2.04	5.65	32.04
68	4.68	8.20	3.06	2.04	2.99	2.34	0.98	4.17	M2.75	M6.88	7.02M	12.46	57.57
69	7.51	M3.03	M1.45	2.99	1.76	M3.20	0.11	0.08	3.42	M4.69	2.94	M8.53	39.71
70	11.72	M5.12	M2.30	2.36	1.30	M0.31	0.07	0.00	1.38	3.49	6.94	8.92	43.91
71	7.59	3.49	5.59	3.71	1.77	2.92	0.08	0.43	3.51	3.69	6.49	M8.02	47.29
72	6.59	4.78	5.77	3.61	2.65	0.60	0.47	0.65	3.50	0.87	5.07	8.81	43.37
73	4.50	1.96	M2.67	1.28	1.56	1.47	0.01	0.82	2.58	2.94	13.04	10.02	42.85
74	8.24	5.48	6.28	2.23	1.98	0.96	2.31	0.02	0.26	1.62	6.56	6.53	42.47
75	6.84	4.24	2.22	2.46	1.86	1.27	0.65	2.53	0.00	5.61	4.37	6.66	38.71
76	6.32	6.68	2.82	3.00	1.48	0.57	0.95	2.41	1.18	0.85	M1.67	1.48	29.41
77	1.37	M2.80	4.26	0.64	3.82	1.54	0.83	2.69	3.23	2.45	6.61	10.52	40.76
78	5.35	3.59	1.69	3.50	4.52	1.69	0.90	2.08	2.74	0.37	4.92	M3.54	34.89
79	3.45	7.36	3.22	3.35	2.36	0.47	0.82	0.82	3.25	5.35	3.77	6.75	40.97
80	9.99	4.68	3.59	4.07	1.23	2.52	0.14	0.49	1.69	1.67	6.87	11.90	48.84
81	2.01	4.11	3.48	2.29	2.23	4.27	0.19	0.03	2.68	4.14	M5.39	10.27	41.09
82	6.24	6.94	3.12	4.78	0.89	0.86	0.34	0.99	3.61	3.74	5.04	8.92	45.47
83	7.57	9.54	7.18	2.77	2.13	2.60	2.68	2.52	0.86	2.25	9.04	6.33	55.47
84	3.05	4.69	4.46	4.09	4.59	5.35	0.00	0.03	1.99	5.78	12.90	3.68	50.61
85	0.45	3.49	4.54	1.42	0.97	2.48	0.45	0.79	1.93	3.17	5.00	2.46	27.15
86	5.83	7.65	2.95	2.09	2.74	0.38	1.28	0.04	2.93	2.81	6.71	4.13	39.54
87	6.75	4.94	5.55	2.19	1.66	0.30	2.00	0.10	0.53	0.23	2.40	10.55	37.20
88	7.88	1.71	3.73	4.63	2.56	2.55	0.21	0.03	1.25	0.20	9.88	3.28	37.91
89	4.24	3.16	7.02	1.24	2.27	0.91	0.52	1.37	1.34	2.15	3.72	4.15	32.09
90	8.98	4.97	3.42	2.22	1.71	2.94	0.54	1.09	0.50	M6.18	5.00	3.39	40.94
91	2.83	3.69	4.39	4.62	4.58		0.16	0.75	0.30	3.70	7.31	5.53	37.86
92	5.34	5.23	1.46	4.28	0.19	0.63	1.31	0.48	1.88	4.83	5.15	6.71	37.49
93	M2.96	M0.26	5.32	6.30	4.25	M2.20	2.44	0.30	0.00	1.35	1.39	6.90	33.67
94	4.78	6.93	3.58	1.88	1.63	1.57	0.06	0.02	1.12	6.94	8.32	7.70	44.53
95	7.65	M4.45	4.42	5.14	1.84	2.07	M0.60	1.55	1.52	5.63	10.18	7.66	52.71
96	9.09M	12.04	3.91	6.76	4.63	1.05	0.80	0.14	3.06	5.51	11.39	15.72	74.10
97	9.55	3.34	8.59	4.59	2.47	2.97	0.80	1.11	M3.38	M6.25	4.65	3.41	51.11
98	M8.98	5.73	4.91	1.42	5.57	1.27	0.22	0.25	0.90	4.69	10.96	0.54	45.44
99	7.58	9.08	4.68	1.35	2.53	1.23	0.18	0.47	0.05	2.47	7.68	4.35	41.65
0	6.21	5.15	3.46	2.15	2.39	1.40	0.01	0.00		3.21	3.04	3.16	30.18
1	1.55	1.28	3.51	M0.69	1.05	1.67	0.73	1.19	0.69	3.80			16.16

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APPENDIX D

Wetland Determination Data Sheets

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P1
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Wetter than usual. (0.38 inch rain day of site visit in Aurora.) Lowest, wettest portion of Wetland B (south forested wetland).</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
90% = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Fraxinus latifolia</u>	<u>5%</u>	<u>Yes</u>	<u>FACW</u>	FACW species <u>95</u> x 2 = <u>190</u>	
2. _____	_____	_____	_____	FAC species <u>5</u> x 3 = <u>15</u>	
3. _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>100</u> (A) <u>205</u> (B)	
5% = Total Cover				Prevalence Index = B/A = <u>2.05</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Poa palustris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	<u>1</u> - Rapid Test for Hydrophytic Vegetation	
2. <u>Vicia species</u>	<u>1%</u>	<u>No</u>	<u>FAC to UPL</u>	<u>X</u> <u>2</u> - Dominance Test is >50%	
3. _____	_____	_____	_____	<u>3</u> - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	<u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	<u>5</u> - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	<u>Problematic Hydrophytic Vegetation¹ (Explain)</u>	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
6% = Total Cover				Hydrophytic Vegetation Present?	
Woody Vine Stratum (Plot size: <u>10' r</u>)				Yes <u>X</u> No _____	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>94%</u>					

Remarks: Vegetation is grazed by horses. Oregon ash trees range from 7-24" dbh. Entered by: CMW QC by: SAR

SOIL

Sampling Point: **P1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 3/2	90	7.5YR 3/4	10	C	M & PL	SiL	ORC 0-11
11-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	no ORC

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>8</u>	
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>6</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: CMW QC by: SAR
Dry above. Also have geomorphic position and FAC-Neutral test, and more than superficial ORC. Water marks at 14" on trees. Soils pugged from horses.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P2
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): sl. convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>71</u> x 3 = <u>213</u> FACU species <u>32</u> x 4 = <u>128</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>103</u> (A) <u>341</u> (B) Prevalence Index = B/A = <u>3.31</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Festuca arundinacea</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Agrostis capillaris</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Poa compressa</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
6. <u>Plantago lanceolata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Prunella vulgaris</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Vicia species</u>	<u>2%</u>	<u>No</u>	<u>FAC to UPL</u>	
9. <u>Ranunculus repens</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
105% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 3/2	98	7.5YR 3/4	2	C	M	SiL	few ORC 4-5"
11-15	10YR 4/2	90	10YR 3/3	5	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Redox too few in surface to meet F6; redox too faint in subsurface to meet A11. Shovel refusal at 15" due to very dry compacted soils.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >15 _____	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >15 _____	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P3
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>310</u> (B) Prevalence Index = B/A = <u>3.10</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Festuca arundinacea</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>Holcus lanatus</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>		
4. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>		
5. <u>Ranunculus repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
6. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
100% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: **P3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	95	7.5YR 3/4	5	C	PL	SiL	few ORC 0-3"
6-13	10YR 4/1	90	5YR 3/4	10	C	M	SiL	
13-24	10YR 5/1	85	7.5YR 4/6	15	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Many fine roots throughout profile, not oxidized. Surface ORC likely from compaction due to horses.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry, no seeps. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P4
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>93</u> x 3 = <u>279</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>98</u> (A) <u>299</u> (B) Prevalence Index = B/A = <u>3.05</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u><i>Alopecurus pratensis</i></u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u><i>Festuca arundinacea</i></u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u><i>Hypochaeris radicata</i></u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
4. <u><i>Trifolium repens</i></u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
98% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>2%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: P4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 3/2	95	7.5YR 3/3	5	C	M & PL	SiL	0-5 ORC
15-22	10YR 4/2	80	7.5YR 4/6	20	C	M & PL	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No <u>X</u>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Redox is faint (hue 1 value 0 chroma 1) in surface layer.

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:				Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____		
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>22</u>		
Saturation Present? (includes capillary fringe)	Yes _____ No <u>X</u>	Depth (inches): <u>>22</u>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry. No secondary indicators. ORC in compacted surface layer. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P5
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Ranunculus repens</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Festuca arundinacea</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/2	95	7.5YR 3/4	5	C	M	SiL	0-5 ORC
13-23	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u>	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Slightly moist 17-23" in probe. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P6
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
Wetland B.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>90%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. <u>Fraxinus latifolia</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>130</u> x 2 = <u>260</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>210</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>2.38</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Agrostis capillaris</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Festuca arundinacea</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Carex leptopoda</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>80%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>20%</u>				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>

SOIL

Sampling Point: **P6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 3/2	95	7.5YR 3/4	5	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soils or roots

Depth (inches): 15

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>15</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>15</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: CMW QC by: SAR
Water marks 2-4" on trees. No ORC in surface probably due to lack of grasses in soil pit area.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P7
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
Wetland B.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>90%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>11</u> x 3 = <u>33</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>111</u> (A) <u>233</u> (B) Prevalence Index = B/A = <u>2.10</u>
1. <u>Fraxinus latifolia</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Crataegus douglasii</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Carex leptopoda</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>6%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>94%</u>				

Remarks: _____ Entered by: CMW QC by: SAR

SOIL

Sampling Point: **P7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	few ORC 0-6
6-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted soils

Depth (inches): 16

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>16</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>16</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P8
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). 6-12" higher than P7.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>4</u> x 4 = <u>16</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>104</u> (A) <u>316</u> (B) Prevalence Index = B/A = <u>3.04</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus armeniacus</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
3% = Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Festuca arundinacea</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Alopecurus pratensis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Holcus lanatus</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Agrostis capillaris</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Cirsium vulgare</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
101% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	98	7.5YR 4/6	2	C	PL	SiL	
6-13	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	
13-23	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P9
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). ~15 feet north of fence in 5-foot wide very subtle linear depression (PHS Wetland A).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
_____	_____	_____	_____		
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Agrostis capillaris</u>	<u>98%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Parentucellia viscosa</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
3. <u>Rumex crispus</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
100% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: **P9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	80	7.5YR 3/4	15	C	M	SiL	
			10YR 3/3	5	C	M		
8-20	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> ? <input type="checkbox"/> No _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >20	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >20	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Slightly moist 8-20" bgs. Only one secondary indicator. PHS reports drainage patterns in their Plot 10. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P10
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: P10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	ORC 0-5

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>20</u> Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>20</u>	Wetland Hydrology Present? Yes <input type="checkbox"/> ? <input type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: CMW QC by: SAR
ORC not reliable indicator due to disturbed pasture and compaction from horses. Moist below 14". No secondary indicators. PHS wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P11
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>69</u> x 3 = <u>207</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>70</u> (A) <u>208</u> (B) Prevalence Index = B/A = <u>2.97</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>68%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Rorippa curvisiliqua</u>	<u>1%</u>	<u>No</u>	<u>OBL</u>	
3. <u>Alopecurus pratensis</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
70% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>30%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	
10-17	10YR 4/1	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5) with subdominants	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>17</u>	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>17</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Small area of surface saturation from recent rain. PHS wetland. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P12
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Agrostis capillaris</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Festuca arundinacea</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. <u>Holcus lanatus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Hypochaeris radicata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Plantago lanceolata</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
6. <u>Rumex crispus</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
7. <u>Vicia species</u>	<u>1%</u>	<u>No</u>	<u>FAC to UPL</u>	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
103% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P12**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	95	7.5YR 3/3	5	C	PL	SiL	
6-15	10YR 3/2	98	7.5YR 3/4	2	C	M	SiL	
15-24	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Redox too faint in 0-6 and too few in 6-15.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>24</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>24</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry throughout. Does not meet FAC-Neutral test with subdominants. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P13
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>95</u> x 3 = <u>285</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>295</u> (B) Prevalence Index = B/A = <u>2.95</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Phalaris arundinacea</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P13**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	ORC 0-5
9-24	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5) with subdominants
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> ? <input type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist starting at 19" bgs. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P14
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>16</u> x 4 = <u>64</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>102</u> (A) <u>324</u> (B) Prevalence Index = B/A = <u>3.18</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. <u>Agrostis capillaris</u>	<u>65%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
3. <u>Alopecurus pratensis</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Festuca arundinacea</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Plantago lanceolata</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Convolvulus arvensis</u>	<u>1%</u>	<u>No</u>	<u>NOL</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
102% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P14**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					SiL	
12-20	10YR 4/2	80	7.5YR 4/6	15	C	M	SiL	
			7.5YR 3/4	5	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Pieces of charcoal 12-20" bgs.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>20</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>20</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry throughout. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P15
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1A Aloha silt loam, 0-3% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>2</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____	Prevalence Index worksheet:	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
3. _____	_____	_____	_____	OBL species	<u>0</u> x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species	<u>0</u> x 2 = <u>0</u>
5. _____	_____	_____	_____	FAC species	<u>85</u> x 3 = <u>255</u>
0% = Total Cover				FACU species	<u>15</u> x 4 = <u>60</u>
Herb Stratum (Plot size: <u>5' r</u>)				UPL species	<u>0</u> x 5 = <u>0</u>
1. <u>Agrostis capillaris</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	Column Totals:	<u>100</u> (A) <u>315</u> (B)
2. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.15</u>	
3. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
4. <u>Plantago lanceolata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	1 - Rapid Test for Hydrophytic Vegetation	
5. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	<u>X</u> 2 - Dominance Test is >50%	
6. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹	
7. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
9. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
10. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____		
100% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: **P15**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SiL	
16-22	10YR 4/2	80	7.5YR 4/6	20	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>22</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>22</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry throughout. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/8/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P16
 Investigator(s): C. Mirth Walker and Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>Portland 0.84" prior week (3.61" previous week); Aurora 0.65" prior week (3.24" previous week) 0.15 / 0.02 day of</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Paired plot to P2 (rechecked P1 and plot was dry to 23 inches bgs).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>90%</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>110</u> x 2 = <u>220</u> FAC species <u>16</u> x 3 = <u>48</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>126</u> (A) <u>268</u> (B) Prevalence Index = B/A = <u>2.13</u>
1. <u>Fraxinus latifolia</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>		
2. <u>Crataegus monogyna</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
<u>21%</u> = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1. <u>Poa palustris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Agrostis capillaris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>Festuca rubra</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>15%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>85%</u>					
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>sar</u>					
Grass grazed, trampled.					

SOIL

Sampling Point: **P16**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	80	7.5YR 3/4	20	C	M	SiL	no ORC
12-17	10YR 4/2	80	7.5YR 3/4	10	C	M	SiL+	
			7.5YR 4/6	10	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Water marks at 4" on fencepost.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>17</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>17</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: sar

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/8/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P17
 Investigator(s): C. Mirth Walker and Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>Portland 0.84" prior week (3.61" previous week); Aurora 0.65" prior week (3.24" previous week) 0.15 / 0.02 day of</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Triangle tax lot south of entrance driveway.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>60%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Salix scouleriana</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>80%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>65</u> x 4 = <u>260</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>175</u> (A) <u>570</u> (B) Prevalence Index = B/A = <u>3.26</u>
1. <u>Rubus armeniacus</u>	<u>60%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Rosa pisocarpa</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>70%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Hedera helix</u>	<u>20%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Rubus ursinus</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>25%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>75%</u>				
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>sar</u>				

SOIL

Sampling Point: **P17**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2	100					SiL	
5-21	10YR 3/2	80	7.5YR 3/4	20	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.			

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	
Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:				Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches):	_____	
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches):	>21	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches):	>21	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry throughout, no secondary indicators. Wetland to south does not extend north onto subject parcels. Entered by: cmw QC by: sar

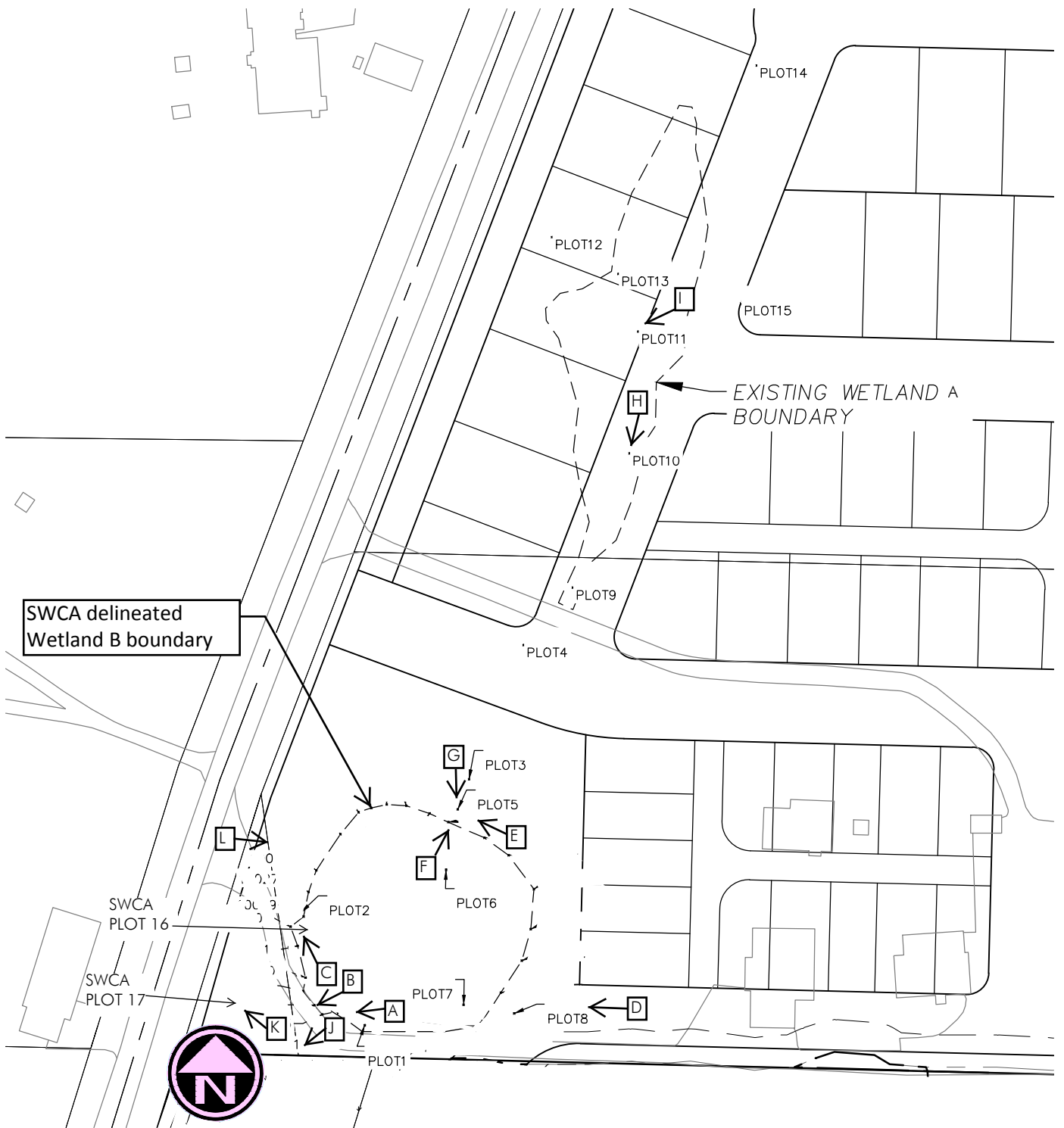
APPENDIX E

Ground-Level Site Photographs

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RUMPF Wetland Delineation

N:\proj\395-027\09 Drawings\06 Survey\Exhibits\395027.Rumpf Wetlands.dwg - SHEET: Letter Oct. 7, 13 - 9:26 AM f2

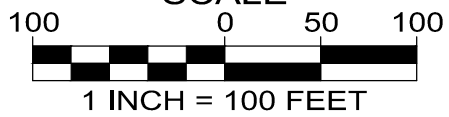



SWCA delineated
Wetland B boundary

EXISTING WETLAND A
BOUNDARY



SCALE



SWCA Environmental Consultants Photo Location Map
 Photo location and direction of view.
 October 1 and 8, 2013.

PACIFIC COMMUNITY DESIGN
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 (503) 941-9484



Photo A. View southwest in vicinity of wetland Plot 1 in the south Wetland B, with high water marks on trees and fence posts.



Photo B. View south of buried culvert under entrance driveway.

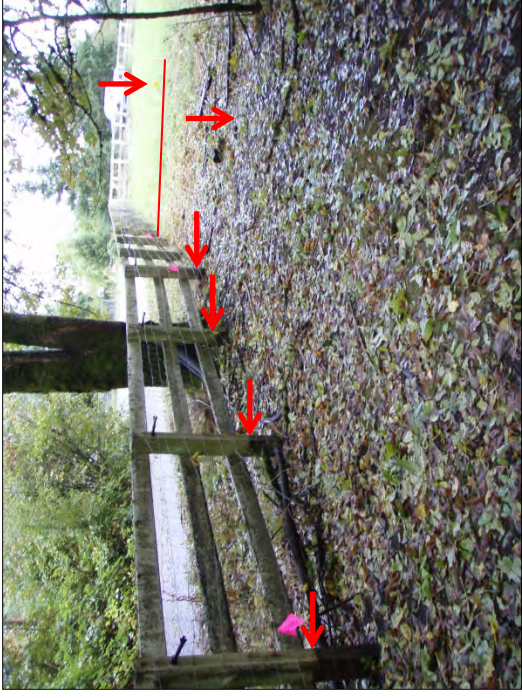


Photo C. View west of water marks on fence posts gradually decreasing; vertical arrows point to wetland Plot 16 in foreground and upland Plot 2 in background.

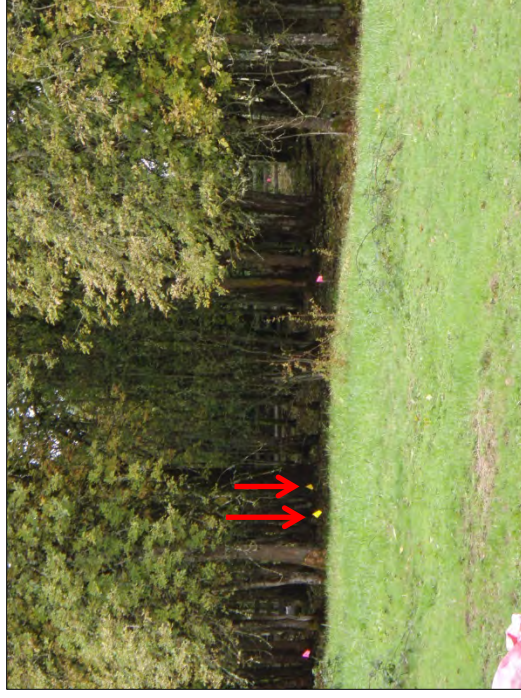


Photo D. View west of upland Plot 8 in foreground (higher elevation w/ blackberry) and wetland Plot 7 in background.

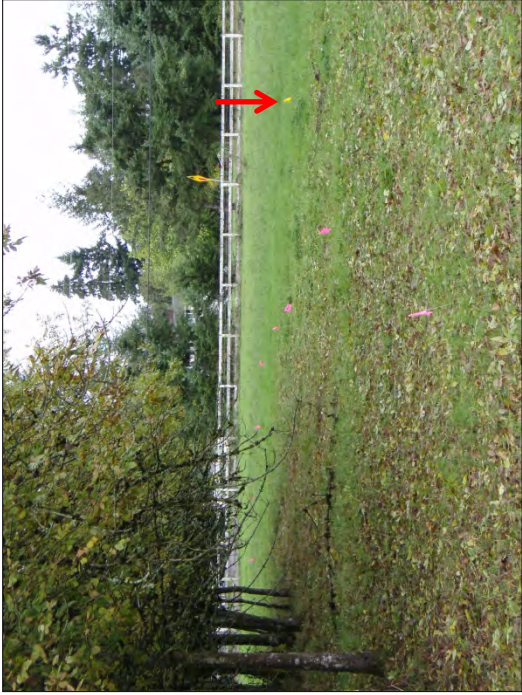


Photo E. View west of upland Plot 5 and wetland boundary.



Photo G. View south into Wetland B near Plot 6.



Photo F. View north of upland Plot 5, Plot 3, and Plot 4, respectively.



Photo H. View south in Wetland A towards wetland Plot 10 in foreground and Plot 9 in background.



Photo I. View of Wetland Plot 11 in Wetland A.



Photo K. View west of upland Plot 17, south of driveway.



Photo J. View south of large Oregon ash tree in upland, south of driveway.



Photo L. View east into horse pasture from entrance driveway.

APPENDIX F

Literature Cited and References Used

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- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. Washington, D.C.: U.S. Fish and Wildlife Service. Available at: <http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm>.
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IIG
Tree Report

**Villebois PDP 3 North – Wilsonville, Oregon
Tree Maintenance and Protection Plan
January 30, 2014**

MHA1405

Purpose

This Tree Maintenance and Protection Plan for the Villebois Preliminary Development Plan (PDP) 3 North project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code, Section 4.610.40. This arborist report describes the existing trees located on the project site, as well as recommendations for tree removal, retention, mitigation, and protection. This report is based on observations made by International Society of Arboriculture (ISA) Certified Arborist and Qualified Tree Risk Assessor Morgan Holen (PN-6145A) during a site visit conducted on January 28, 2014.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Polygon Northwest Company to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with development, and to develop a tree maintenance and protection plan for the project. The site is planned for residential development. A site plan was provided by Pacific Community Design illustrating the location of trees and tree survey point numbers, and potential construction impacts.

Visual Tree Assessment (VTA¹) was performed on individual trees located across the site, except for a group of approximately 113 Oregon ash (*Fraxinus latifolia*) trees located with the wetland boundaries that are planned for preservation during construction. Trees were evaluated in terms species, size, general condition, and potential construction impacts, and treatment recommendations include retain, remove for construction or because of poor or hazardous condition, or likely to be removed due to construction impacts. Following the inventory fieldwork, we coordinated with Pacific Community Design to discuss and finalize treatment recommendations based on the proposed site plan.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The Villebois PDP 3 North project site includes the Rumpf and Taber properties located east of Graham's Ferry Road and south of Tooze Road. Both properties have existing homes and open pastures. The existing trees are scattered across the site, but numerous trees are found around the Taber's home and in the wetland on the Rumpf property.

In all, 41 trees measuring 6-inches and larger in diameter were inventoried including 18 tree species. Table 1 provides a summary of the count of trees by species. A complete description of individual trees is provided in the enclosed tree data.

¹ Visual Tree Assessment (VTA): The standard process of visual tree inspection whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality.

Table 1. Count of Trees by Species – Villebois PDP 3 North, Wilsonville, OR.

Common Name	Species Name	Total	%
Atlas cedar	<i>Cedrus atlantica</i>	1	2.44%
black locust	<i>Robinia Pseudoacacia</i>	1	2.44%
blue spruce	<i>Populus trichocarpa</i>	1	2.44%
dogwood	<i>Cornus spp.</i>	1	2.44%
Douglas-fir	<i>Pseudotsuga menziesii</i>	9	21.95%
English hawthorn	<i>Crataegus monogyna</i>	1	2.44%
European white birch	<i>Betula pendula</i>	2	4.88%
fruit	unknown	11	26.83%
giant sequoia	<i>Sequoiadendron giganteum</i>	1	2.44%
ginkgo	<i>Ginkgo biloba</i>	1	2.44%
lodgepole pine	<i>Pinus contorta</i>	3	7.32%
mimosa	<i>Albizia julibrissin</i>	1	2.44%
Norway maple	<i>Acer platanoides</i>	1	2.44%
Oregon white oak	<i>Quercus garryana</i>	1	2.44%
ponderosa pine	<i>Pinus ponderosa</i>	3	7.32%
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	1	2.44%
red maple	<i>Acer rubrum</i>	1	2.44%
western redcedar	<i>Thuja plicata</i>	1	2.44%
Total		41	100%

The tree inventory includes one (2.44%) Oregon white oak, but no native yews (*Taxus spp.*) or any species listed by either the state or federal government as rare or endangered were found on the site. The Oregon white oak, tree # 17236, is located in the northwest corner of the project site. This tree has codominant stems that are actively separating from one another; there is an obvious seam running from the open cavity to the ground and advanced stem and basal decay (photo 1).



Photo 1. Tree #17239, an Oregon white oak, has codominant stems actively separating from one another and a hollow with advanced decay.

Using the International Society of Arboriculture Best Management Practices for Tree Risk Assessment (2011), this tree has an *imminent* likelihood of failure and *high* likelihood of impacting a target, which means that the likelihood of failure and impact is *very likely*; considering that the consequences would be *significant*, this tree has *high* risk potential. Removal of this Oregon white oak is recommended because of hazardous condition and no reasonable risk abatement options are feasible. However, it is the property owner’s responsibility to determine the threshold level of risk they are willing to accept and Polygon is planning to retain this tree.

Tree Plan Recommendations

As described in the enclosed tree inventory data, individual trees were assigned a general condition rating as defined by the Villebois Specific Area Plan North Community Elements Book:

P: Poor Condition

M: Moderate Condition

G: Good Condition

I: Important Condition

Note that none of the trees were classified as “Important”, however trees #10478, a 61-inch diameter giant sequoia (*Sequoiadendron giganteum*), and #10499, a 27-inch diameter Douglas-fir, both classified in “Good” condition, were noted as being in excellent condition with long live crowns and no major defects.

In addition to the 113 non-inventoried Oregon ash trees located within the wetland boundaries that are planned for preservation, seven (17.1%) of the 41 inventoried trees are planned for preservation, 26 (63.4%) are planned for removal, and eight (19.5%) trees in good condition are likely to be removed. Table 2 provides a summary of the count of trees by general condition rating and treatment recommendation.

Table 2. Count of Trees by Treatment Recommendation and General Condition Rating.

Treatment Recommendation	General Condition Rating			Total
	P	M	G	
Retain		2	5	7 (17.1%)
Remove	8	13	5	26 (63.4%)
Likely to be Removed			8	8 (19.5%)
Total	8 (19.5%)	15 (36.6%)	18 (43.9%)	41 (100%)

Of the 26 trees planned for removal, 17 (65%) are recommended for removal because of condition and nine (35%) are recommended for removal for the purposes of construction, including five trees in good condition.

The eight trees classified as likely to be removed shall be accounted for as removed for the purposes of mitigation, but re-evaluated during construction in terms of long-term sustainability, and retained or removed at that time. These trees will be protected during construction, but if the arborist determines that a tree is not sustainable with construction impacts, the arborist shall submit a brief memorandum to the City documenting the change in treatment recommendation to seek written authorization to

proceed with removal and mitigation. If a tree likely to be removed is successfully protected throughout construction, no mitigation will be required for the tree.

Mitigation Requirements

All 41 inventoried trees are 6-inches or larger in diameter, including seven trees planned for retention with protection throughout construction and 34 trees planned for removal because of condition and/or construction or are likely to be removed because of construction. Removal of these 34 trees requires mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, 34 trees measuring at least 2-inch in diameter shall be planted as mitigation for tree removal.

Tree Protection Standards

Trees designated for retention will need special consideration to assure their protection during construction. We highly recommend a preconstruction meeting with the owner, contractors, and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

- **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines. Fences shall be 6-foot high steel on concrete blocks or orange plastic construction fencing on metal stakes. The project arborist shall determine the exact location and type of tree protection fencing. Trees located more than 30-feet from construction activity shall not require fencing.
- **Tree Protection Zone.** Without authorization from the Project Arborist, none of the following shall occur beneath the dripline of any protected tree:
 1. Grade change or cut and fill;
 2. New impervious surfaces;
 3. Utility or drainage field placement;
 4. Staging or storage of materials and equipment; or
 5. Vehicle maneuvering.

Root protection zones may be entered for tasks like surveying, measuring, and, sampling. Fences must be closed upon completion of these tasks.

- **Pruning.** Pruning may be needed to provide for overhead clearance and to remove dead and defective branches for safety. The project arborist can help identify where pruning is necessary once trees recommended for removal have been removed and the site is staked and prepared for construction. Tree removal and pruning shall be performed by a Qualified Tree Service.
- **Excavation.** Excavation beneath the dripline of protected trees shall be avoided if alternatives are feasible. Otherwise, the project arborist shall provide on-site consultation during all excavation activities beneath the dripline of protected trees. Excavation immediately adjacent to roots larger than 2-inches in diameter within the root protection zone of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, major roots shall be protected by tunneling or other means to avoid destruction or damage. Exceptions can be made if, in the opinion of the project arborist, unacceptable damage will not occur to the tree. Where soil grade changes affect the root protection area, the grade

line should be meandered wherever practicable. This will require on-site coordination to ensure a reasonable balance between engineering, construction, and the need for tree protection.

- **Surfacing.** If surfacing is proposed beneath the dripline of protected trees, coordinate with the project arborist to provide recommendations for adjustments to protection fencing and to monitor construction in the tree protection zone. Avoid excavation and use a modified profile to build up from existing grade (Figure 1). The profile includes a layer of permeable geotextile fabric on the ground surface and crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials. If excavation is necessary, work shall be performed under arborist supervision.

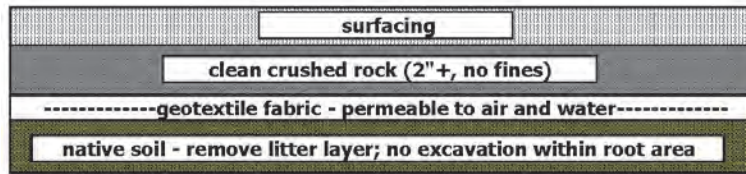


Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

- **Landscaping.** Following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the dripline of protected trees, but not directly against tree trunks. Shrubs and ground covers may be planted within tree protection areas. If irrigation is used, use drip irrigation only beneath the driplines of protected trees.
- **Quality Assurance.** The project arborist should supervise proper execution of this plan during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City on a regular basis throughout construction.

Summary

In summary, seven trees are planned for retention with construction (in addition to the approximately 113 Oregon ash trees located within the wetland boundaries), an additional eight trees will be protected but are likely to be removed during construction, and 26 trees are recommended for removal either because of condition or for the purposes of construction. The 26 trees planned for removal will require mitigation on a one-for-one basis and the eight trees likely to be removed will require mitigation if removed.

Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Villebois PDP 3 North project. Please contact us if you have questions or need any additional information.

Thank you,
Morgan Holen & Associates, LLC

Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: Villebois PDP 3 North – Tree Data 1-28-14

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10442	17236	Oregon white oak	<i>Quercus garryana</i>	60		M	codominant stems at 6' coming apart; advanced decay; high risk; remove for hazardous condition	retain
10443	17237	English hawthorn	<i>Crataegus monogyna</i>	16		M	invasive species, poor structure	remove - construction
10444	17238	black locust	<i>Robinia pseudoacacia</i>	18		G	invasive species, dead branches	remove - construction
10463		Douglas-fir	<i>Pseudotsuga menziesii</i>	45		M	poor crown structure, dead and broken branches	remove - construction
10464		Douglas-fir	<i>Pseudotsuga menziesii</i>	26	24	G	codom branches, some included bark, appears stable	retain
10465		ponderosa pine	<i>Pinus ponderosa</i>	19	12	M	poor crown structure; retain with adjacent trees only	retain
10466		Atlas cedar	<i>Cedrus atlantica</i>	27	20	G	numerous leaders	retain
10467		lodgepole pine	<i>Pinus contorta</i>	10		M	small crown, sequoia pitch moth	remove - condition
10468		lodgepole pine	<i>Pinus contorta</i>	9		P	poor crown structure, sequoia pitch moth	remove - condition
10469		lodgepole pine	<i>Pinus contorta</i>	9		P	dead branches, poor crown structure, sequoia pitch moth	remove - condition
10470		ginkgo	<i>Ginkgo biloba</i>	8	8	G	no major defects	retain
10471		Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	G	few broken branches	likely to be removed
10472		blue spruce	<i>Picea pungens</i>	15		M	twig dieback, suspect adelgid	remove - condition
10473		Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	11	G	no major defects	remove - construction
10473.1		dogwood	<i>Cornus spp.</i>	6	14	G	prune dominant trees for crown clearance if retained	likely to be removed
10474		ponderosa pine	<i>Pinus ponderosa</i>	21	12	G	multiple leaders, sequoia pitch moth	likely to be removed
10475		western redcedar	<i>Thuja plicata</i>	28	16	G	no major defects	likely to be removed
10476		ponderosa pine	<i>Pinus ponderosa</i>	21	10	M	multiple leaders, sequoia pitch moth, prune if retained	remove - construction
10477		Norway maple	<i>Acer platanoides</i>	20	22	G	invasive species	remove - construction

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10478		giant sequoia	<i>Sequoiadendron giganteum</i>	61	16	G	excellent condition, long live crown, no major defects	remove - construction
10479		mimosa	<i>Albizia julibrissin</i>	20		P	codom stems at 1' coming apart, advanced basal and stem decay	remove - hazardous
10480		red maple	<i>Acer rubrum</i>	15	18	G	scaffold branch with included bark	likely to be removed
10481		Douglas-fir	<i>Pseudotsuga menziesii</i>	25	22	G	broken top	likely to be removed
10482		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	18	G	few dead twigs	likely to be removed
10483		Douglas-fir	<i>Pseudotsuga menziesii</i>	22	16	G	no major defects	likely to be removed
10484		fruit	unknown	20		M	poor crown structure	remove - condition
10485		fruit	unknown	10		M	poor crown structure	remove - condition
10486		fruit	unknown	5,6,8,9		M	poor crown structure	remove - condition
10487		fruit	unknown	10,14		M	poor crown structure	remove - condition
10488		fruit	unknown	13		G	no major defects	remove - construction
10489		Douglas-fir	<i>Pseudotsuga menziesii</i>	33		M	codom stems, included bark, seam	remove - hazardous
10490		Douglas-fir	<i>Pseudotsuga menziesii</i>	2*32	24	G	codom at 4', some included bark, appears stable	retain
10491		European white birch	<i>Betula pendula</i>	2*12		P	invasive species, poor structure	remove - condition
10492		European white birch	<i>Betula pendula</i>	8,2*12		P	invasive species, poor structure	remove - condition
10493		fruit	unknown	8		P	branch and stem decay	remove - condition
10494		fruit	unknown	10		P	branch and stem decay	remove - condition
10495		fruit	unknown	8		P	stem decay, small live crown	remove - condition
10496		fruit	unknown	12		M	no major defects	remove - construction
10497		fruit	unknown	8		M	poor crown structure	remove - condition
10498		fruit	unknown	7		M	no major defects	remove - condition
10499		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	20	G	excellent condition, long live crown, no major defects	retain

*DBH: Diameter at Breast Height (measured 4.5-feet above ground level in inches); trees with multiple trunks splitting below DBH are measured separately and individual trunk measurements are separated

^C-Rad: Crown Radius, the distance from the center of the tree to the edge of the dripline (measured in feet)

#Condition Codes: I-Important; G-Good; M-Moderate; P-Poor

III
Architectural Pattern Book
(No Amendments)



V I L L E B O I S

ARCHITECTURAL PATTERN BOOK



SAP NORTH - VOLUME III

AMENDED JANUARY 28, 2013, CITY CASE FILE DB12-0067

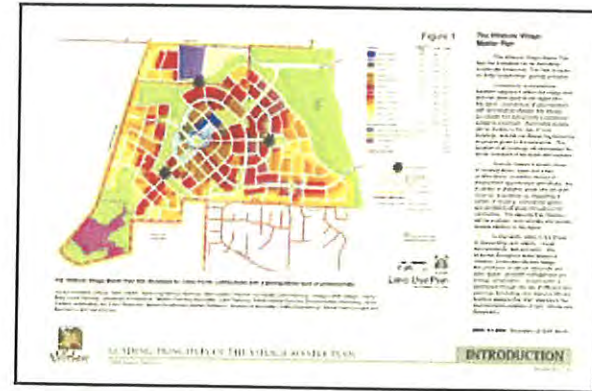
ORIGINAL APPROVED 2007

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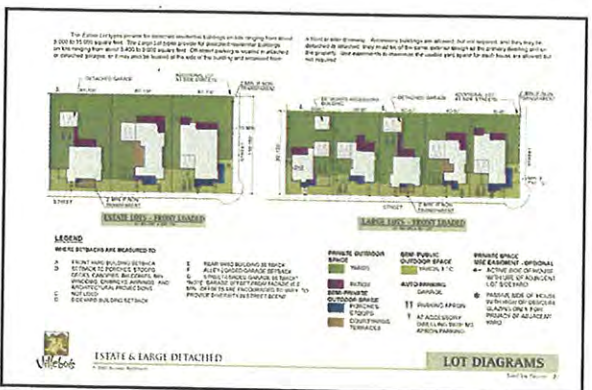
How to Use This Architectural Pattern Book



2



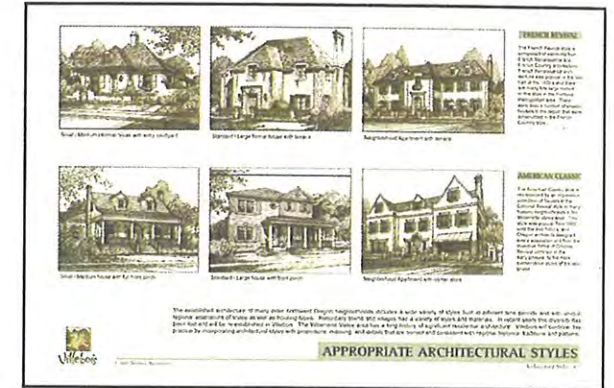
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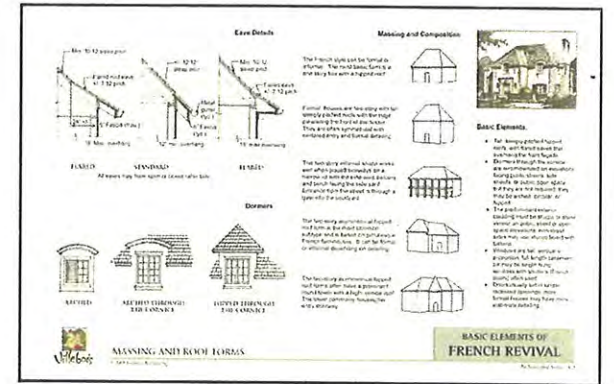
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1. Review the Prologue on Page A3 which introduces the Villebois Village Master Plan, describes the purpose and various sections of the Architectural Pattern Book, and reiterates the Design Principles and Standards applying to the Village Zone.
2. Review the Introduction on Page A4 Guiding Principles of the Villebois Village Master Plan and Location of Specific Area Plan North. This is a synopsis of the three guiding principles of connectivity, diversity, and sustainability as they relate to buildings.
3. See Lot Types & Sustainability in the Specific Area Plan North on Page A5 to review the building sustainability issues and the Portland General Electric program Earth Advantage™ program. Verify the location and relationship of lot types on the Specific Area Plan North map.
4. Review Land Use Patterns & Lot Diagrams on Pages B1-B6 for descriptions of specific Land Use Types. The Lot Diagrams show ranges of the lot sizes for the specific Land Use Types in Villebois. They also establish the guidelines for placing the building on the lot and defining the neighborhood character. The Lot Diagrams show the relationship of indoor space to outdoor space, and private outdoor space to semi-private and public outdoor space. Review where setbacks are measured to and how garages may be accessed. Review elevation delineating placement of buildings on lots with significant slopes.
5. Review Pages C1-C2 with the Appropriate Architectural Styles for the architectural precedent and / or historic relevance of each style, and their responses to the regional and climatic conditions affecting the Willamette Valley.

6. Review Pages C3-C20 for the Basic Elements of Architectural Styles for each style: French Revival, American Classic, English Revival, and American Modern. The Basic Elements include the elements, massing, and façade composition for each style. Review the massing, composition, and roof forms; the doors, windows, entrances and outdoor spaces, porches, chimneys, materials, colors, light fixtures, downspouts and gutters, and accents for each Architectural Style.
7. Review Page D1 Scale and Proportions - Diversity and Rules of Adjacencies for Specific Land Use Types and the number of Architectural Styles that should be used to achieve the desired diversity. Review Pages D2-D5 for the examples of elevations for each of the four Architectural Styles for the Land Use Type(s) that you are building. The window and door spacing in each style is essential to the composition of the elevations. This is related to the shape and the width of the building. The Architectural Pattern Book addresses the appearance of the house and the yard from the street or from open space. It is important to compose the side walls so the buildings look well proportioned when the sides or rear are exposed to view from any public street, side street, or public open space. Select the Architectural Styles based on the Diversity and Rules of Adjacencies on Page D1.
8. Review the Compliance Checklist on Page F2 to verify adherence to the requirements of the Architectural Pattern Book.
9. Note: Architectural perspective renderings in Section C only illustrate examples of basic styles.



5



6



7



Architectural Pattern Book The Architectural Pattern Book was developed to direct the development of neighborhoods and houses consistent with the original vision described in the Villebois Village Master Plan. The Architectural Pattern Book includes the regulations to help builders achieve the objectives of the Master Plan, and to adhere to the Design Principles and Design Standards in the V Zone. This Architectural Pattern Book applies to all buildings within the Specific Area Plan North (SAP North). The Architectural Pattern Book delineates the area and the land use types included in SAP North and their location on the Master Plan. (See Pages A4 and A5).

The Land Use Patterns section describes the various land use types and includes lot diagrams for each with lot sizes, definitions of setback requirements, placement of buildings on the lots, and all other applicable requirements.

The Architectural Styles section illustrates examples of a range of appropriate architectural styles and how they would be applied to specific land use types including the definition of the elements, massing, and facade composition for each style. The Architectural Pattern Book contains images of specific buildings, which were chosen as good examples of the various housing types suitable to achieve the required diversity for Villebois; these buildings were not all designed by the author, and the images may have been revised from the original examples to adhere to the Village Zone Design Standards.

By following the design regulations in the Architectural Pattern Book, builders are directed toward compliance with the Design Principles and Design Standards applying to the Village Zone. A Compliance Checklist has been included on page F2 to assist builders and city officials in the determination of a project's adherence to the requirements of the Architectural Pattern Book.

Conformance To verify compliance with the Design Standards of the Village Zone in addition to the Pattern Book, all single family and duplex dwellings and row houses within the Village Zone shall be reviewed by the Planning Director through an administrative review process; all multi-family dwellings shall be reviewed for compliance by the Development Review Board.

Compliance In the application of these Standards, all construction shall comply with the Oregon State Building Code and all other applicable governmental regulations. In the case of all materials and methods mentioned here, governmental regulations shall take precedence.

Design Principles Applying to the Village Zone

- A. The following Design Principles reflect the fundamental concepts, and support the objectives of the Villebois Village Master Plan, and guide the fundamental qualities of the built environment within the Village Zone.



Villebois

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1. The design of landscape, streets, public places and buildings shall create a place of distinct character.
2. The landscape, streets, public places and buildings within individual development projects shall be considered related and connected components of the Villebois Village Master Plan.
3. The design of buildings shall functionally relate to adjacent open space, gateways, street orientation, and other features as shown in the Villebois Village Master Plan.
4. The design of buildings and landscape shall functionally relate to sunlight, climate, and topography in a way that acknowledges these conditions as particular to the Willamette Valley.
5. The design of buildings shall incorporate regional architectural character and regional building practices.
6. The design of buildings shall include architectural diversity and variety in its built form.
7. The design of buildings shall contribute to the vitality of the street environment through incorporation of storefronts, windows, and entrances facing the sidewalk.
8. The design of streets and public spaces shall provide for and promote pedestrian safety, connectivity and activity.
9. The design of buildings and landscape shall minimize the visual impact of, and screen views of off-street parking from streets.
10. The design of exterior lighting shall minimize off-site impacts, yet enable functionality.

Design Standards Applying to the Village Zone

A. The following Design Standards implement the Design Principles found in the section above, and enumerate the architectural details and design requirements applicable to buildings and other features within the Village Zone. The Design Standards are based primarily on the features, types, and details of the residential traditions in the Northwest, but are not intended to mandate a particular style or fashion. All development within the Village Zone shall incorporate the following:

1. General Provisions:
 - a. Flag lots are not permitted.
 - b. The minimum lot depth for a single-family dwelling with an accessory dwelling unit shall be 70 feet.
 - c. Village Center lots may have multiple front lot lines.
 - d. For Village Center lots facing two or more streets, two of the facades shall be subject to the minimum frontage width requirement. Where multiple buildings are located on one lot, the facades of all buildings shall be used to calculate the Minimum Building Frontage Width.
 - e. Neighborhood Centers shall only be located within a Neighborhood Commons.
 - f. Commercial Recreation facilities shall be compatible with surrounding residential uses.

- g. Convenience Stores within the Village Zone shall not exceed 4,999 square feet, and shall provide pedestrian access.
- h. Grocery Stores within the Village Zone shall not be less than 5,000 sq. ft., nor more than 19,999 sq. ft. in size.
- i. A Specialty Grocery Store shall not be less than 20,000 sq. ft. nor more than 40,000 sq. ft., and may stand alone or as a use within a mixed-use building. square feet in size.
2. Building and site design shall include:
 - a. Proportions and massing of architectural elements consistent with those established in an approved Architectural Pattern Book or Village Center Design.
 - b. Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Architectural Pattern Book, Community Elements Book, or approved Village Center Design
 - c. Protective overhangs or recesses at windows and doors.
 - d. Raised stoops, terraces or porches at single-family dwellings.
 - e. Exposed gutters, scuppers, and downspouts or approved equivalent.
 - f. The protection of existing significant trees as identified in an approved Community Elements Book.
 - g. A landscape plan in compliance with Sections 4.125(.07) and (.11) of the Village Zone.
 - h. Building elevations of block complexes shall not repeat an elevation found on an adjacent block.
 - i. Building elevations of detached buildings shall not repeat an elevation found on buildings of adjacent lots.
 - j. A porch shall have no more than three walls.
 - k. A garage shall provide enclosure for the storage of no more than three motor vehicles, as described in the definition of parking space. (In the Village Zone Ordinance)
3. Lighting and site furnishings shall be in compliance with the approved Architectural Pattern Book, Community Elements Book, or approved Village Center Design.
4. Building systems, as noted in Tables V-3 and V-4 "Permitted Materials and Configurations", shall comply with the materials, applications and configurations required therein. Design creativity is encouraged. The Portland General Electric Earth Advantage™ or the LEED Building Certification Program of the U.S. Green Building Council may be used as guides in this regard.

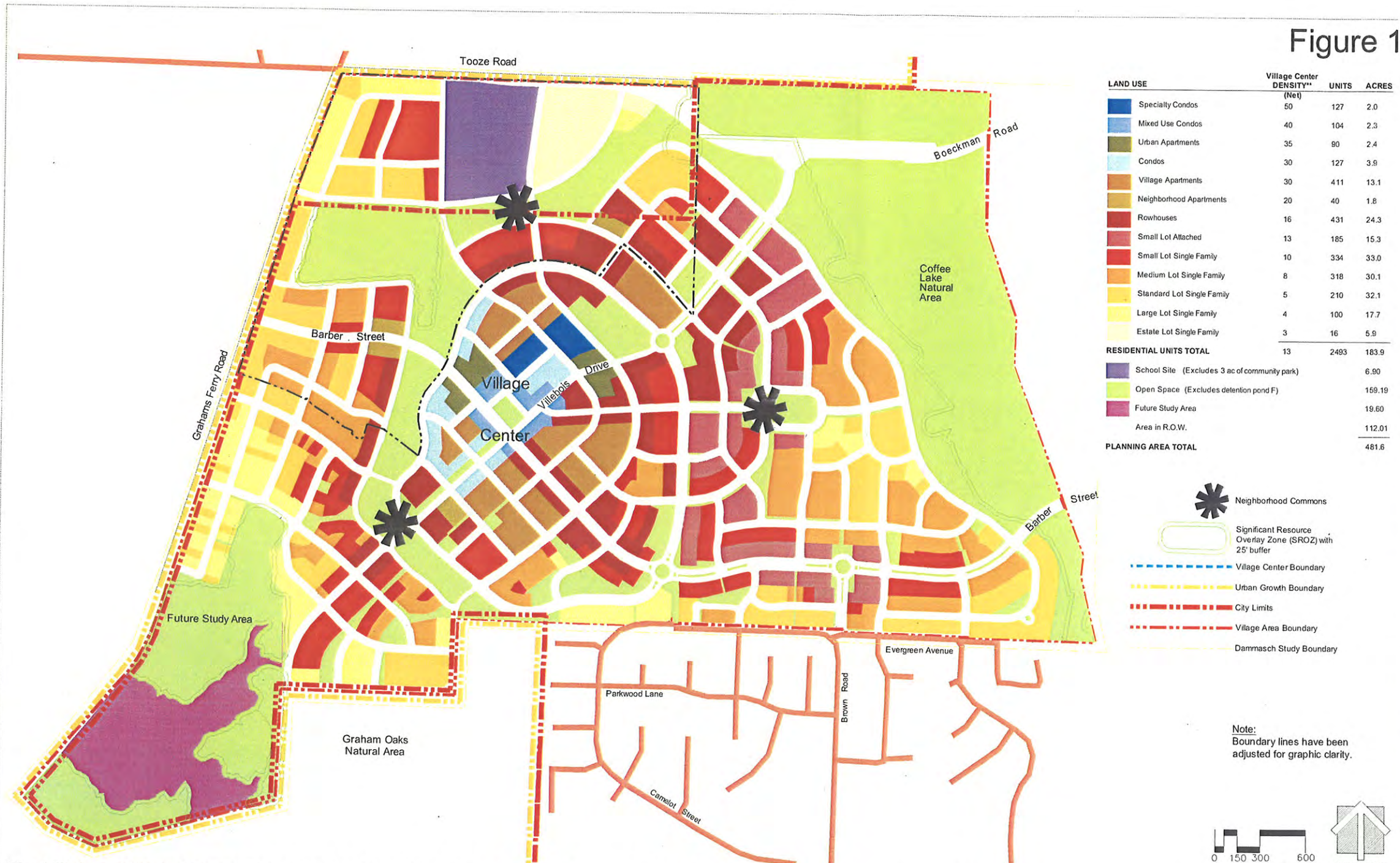
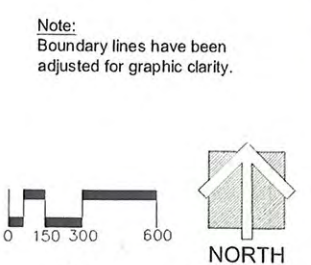


Figure 1

LAND USE	Village Center DENSITY** (Net)	UNITS	ACRES
Specialty Condos	50	127	2.0
Mixed Use Condos	40	104	2.3
Urban Apartments	35	90	2.4
Condos	30	127	3.9
Village Apartments	30	411	13.1
Neighborhood Apartments	20	40	1.8
Rowhouses	16	431	24.3
Small Lot Attached	13	185	15.3
Small Lot Single Family	10	334	33.0
Medium Lot Single Family	8	318	30.1
Standard Lot Single Family	5	210	32.1
Large Lot Single Family	4	100	17.7
Estate Lot Single Family	3	16	5.9
RESIDENTIAL UNITS TOTAL	13	2493	183.9
School Site (Excludes 3 ac of community park)			6.90
Open Space (Excludes detention pond F)			159.19
Future Study Area			19.60
Area in R.O.W.			112.01
PLANNING AREA TOTAL			481.6



Land Use Plan
DECEMBER 19, 2005

The Villebois Village Master Plan was developed by Costa Pacific Communities with a distinguished team of professionals:

Iverson Architects (Design Team Leader), Alpha Engineering (Technical Team Leader), Fletcher Farr Ayotte (Land Planning / Village Center Design), Walker Macy (Land Planning / Landscape Architecture), Western Planning Associates, (Land Planning), Pacific Habitat Services (Environmental Consulting), SGW Creative (Advertising and Public Relations), Market Perspectives (Market Research), Kittelson & Associates (Traffic Engineering), Ramis Crew Corrigan and Bachrach (Land Use Attorney)

The Villebois Village Master Plan

The Villebois Village Master Plan lays the foundation for an innovative mixed-use community. The Plan is based on three fundamental, guiding principles:

- **Connectivity** is connections between neighbors, within the village itself, and into other parts of the region and the world. **Connectivity** is accomplished with architectural designs that always put people first and provide a pedestrian scaled environment. Automobile access will be located to the rear of most buildings, and will not disrupt the hierarchal emphasis given to the pedestrian. The facades of all buildings will emphasize the social character of the street and sidewalk.
- **Diversity** means a vibrant choice of housing styles, types and levels of affordability, a healthy mixture of employment opportunities and offices, and a variety of available goods and services. **Diversity** is achieved by integrating a variety of housing, commercial options and architectural styles throughout the community. This assures that Villebois will be a vibrant, economically and socially diverse addition to the region.
- **Sustainability** refers to the thread of stewardship and viability - social, environmental, and economic - that is woven throughout every aspect of Villebois. It includes efficient design, the protection of natural resources and open space, rainwater management and energy conservation. **Sustainability** is addressed through the use of efficient land planning and energy and resource efficient building designs that shall respond to the environmental qualities of light, climate and topography.

--- Boundary of SAP North



GUIDING PRINCIPLES OF THE VILLAGE MASTER PLAN

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INTRODUCTION

Lot Types and Sustainability in The Specific Area Plan North

In order to comply with the sustainability goals of the Villebois Village Master Plan, buildings within the Specific Area Plan North must meet or exceed the design standards required for third-party certification by Earth Advantage™, a sustainable building program created and administered by Portland General Electric. Earth Advantage™ is a comprehensive program that offers education, guidance, and project certification to homebuilders. To be certified under the program, homes must satisfy requirements in each of four categories: energy efficiency, healthier indoor air, environmental responsibility, and resource efficiency. Earth Advantage™ homes are designed to protect the environment, use less energy, and improve indoor air quality through the use of more earth-friendly materials, mechanical systems, and construction techniques.

By the use of environmentally sound building practices the environmental impact can be minimized, and consumer demand for healthy homes can be met. For further information on the Portland General Electric Earth Advantage™ program, see References, page E1.

The Specific Area Plan North plans include advanced engineering and planning documents that will coordinate the development of grading, drainage, streets, utilities, and related infrastructure throughout the Village Master Plan area. Each Specific Area Plan provides the detailed design criteria for the development of the Villebois Village Master Plan.

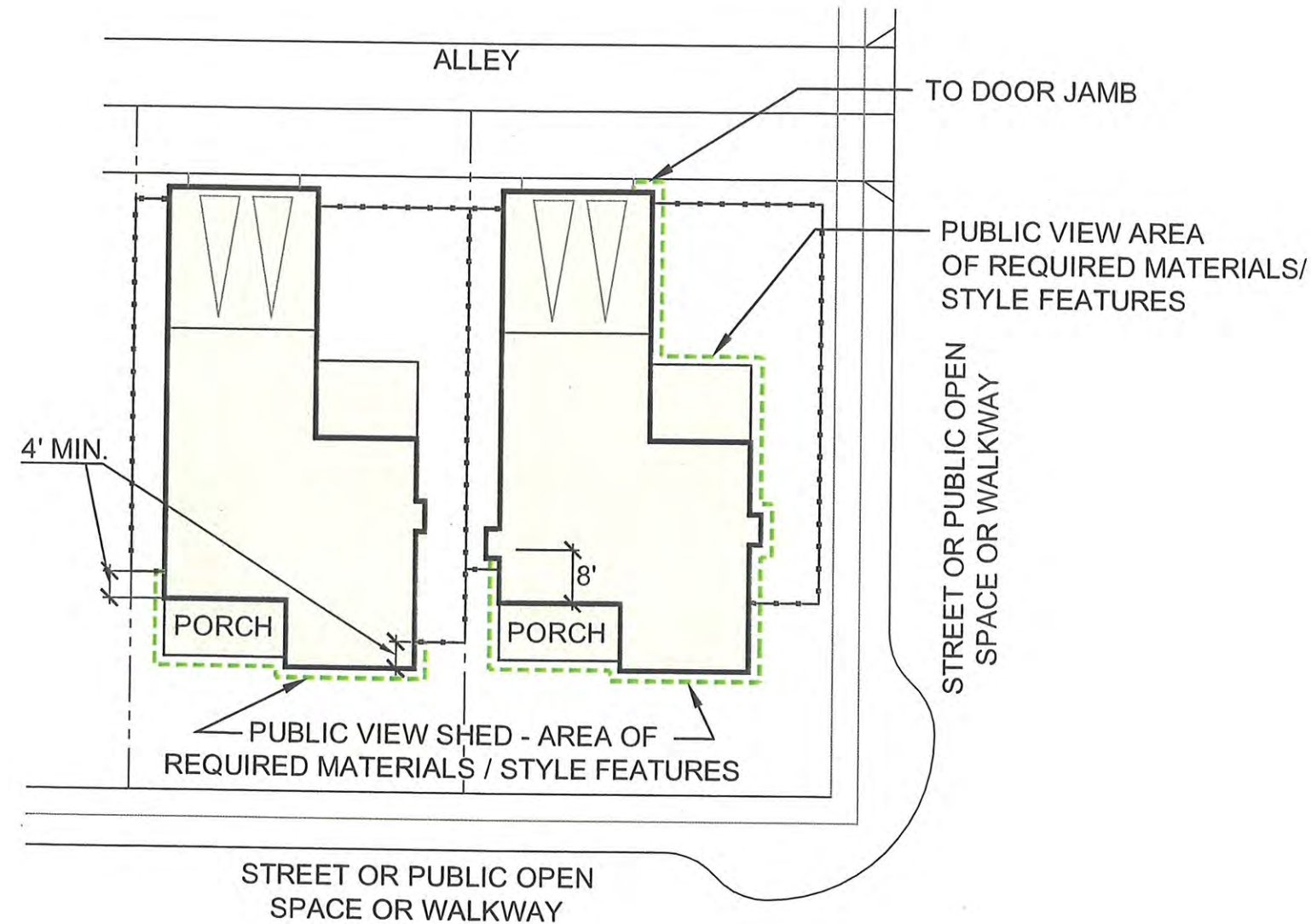


LOT TYPES & SUSTAINABILITY IN THE SPECIFIC AREA PLAN NORTH

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INTRODUCTION

VIEW SHED APPLICATION FOR PUBLIC VS. PRIVATE SPACE



NOTE: PUBLIC VIEW SHED TO INCLUDE ALL FRONT FACADES, ALL FACADES FACING SIDE STREETS AND THE CONTINUATION OF THIS SIDE FACADE AT THE REAR TO THE GARAGE DOOR JAMB AT AN ALLEY, ALL FACADES FACING PUBLIC OPEN SPACE AND PUBLIC WALKWAYS; AND THE DISTANCE ALONG AN INTERIOR YARD FACADE TO A SIGNIFICANT ARCHITECTURAL FEATURE OR A MINIMUM OF 4' IF THERE IS NO SIGNIFICANT ARCHITECTURAL FEATURE WITHIN THE FIRST 8' OF THE FACADE. WITHIN THE PUBLIC VIEWSHED, THE FACADE WILL INCLUDE STYLE AND MATERIALS FOR THE ARCHITECTURAL STYLE OF THE HOUSE.

LOT DIAGRAM NOTES

1. FOR BUILDING SETBACK AND FENCE REQUIREMENTS REFER TO WILSONVILLE VILLAGE ZONE AND THE VILLEBOIS MASTER FENCING PROGRAM.
2. LOTS WILL GENERALLY FOLLOW THESE DIAGRAMS, BUT DUE TO TOPOGRAPHY AND ROAD ALIGNMENTS, LOTS MAY VARY TO RESPOND TO BLOCK SHAPES. THE MINIMUM LOT SIZE MUST FIT WITHIN IRREGULAR SHAPED LOTS BUT THE OVERALL DIMENSIONS MAY BE LESS OR MORE THAN THAT SPECIFIED.
3. PIE-SHAPED LOTS OR LOTS WITH SIGNIFICANT TREES OR GRADE BANKS AT FRONTAGE HAVE NO MAXIMUM FRONT SETBACK.
4. THE LOT DIAGRAMS DO NOT REFLECT ANY REQUIRED MIX OF FLOORPLAN SHAPES OR ADJACENCIES, NOR ANY QUANTITY OF ATTACHED OR DETACHED GARAGES.
5. WHERE A LARGE, STANDARD, OR MEDIUM LOT OCCURS AS A DOUBLE-FRONTAGE LOT, GARAGE ACCESS SHALL BE TAKEN FROM A LOCAL RESIDENTIAL STREET. THE LOT DEPTH MAY EXCEED THAT INDICATED WITHIN THE SUBJECT DIAGRAM.
6. COMMUNITY HOUSING LOTS MAY BE EXEMPTED BY THE PLANNING DIRECTOR FROM ADHERENCE TO THE LOT SIZES AND DIMENSIONS SHOWN HEREIN, IN ORDER TO MEET APPLICABLE STATE AND SERVICE PROVIDER SPECIFICATIONS.
7. ON ALLEY-LOADED PRODUCT, ADJACENT HOUSES/ GARAGES MAY NOT HAVE PARKING APRONS
8. MINIMUM FUNCTIONAL PORCH DEPTH IS 6' WITH A MINIMUM OF 36 SQUARE FEET, WITH A MINIMUM OF 4' COVERED DEPTH
9. BUILDING AND FENCE SETBACKS MAY BE MODIFIED BY THE REQUIRED VISION CLEARANCE AT INTERSECTIONS AND DRIVEWAYS. REFER TO V ZONE.
10. ENTRANCES, ARCHITECTURAL FEATURES, AND OUTDOOR SPACES THAT HELP ESTABLISH A RELATIONSHIP WITH THE STREET AND PEDESTRIAN MAY EXTEND INTO THE FRONT SETBACK AND ARE ENCOURAGED.
11. ALLEY-LOADED ACCESSORY USES OVER GARAGES MAY ENCROACH 18" INTO THE MINIMUM 3' GARAGE REAR SETBACK.



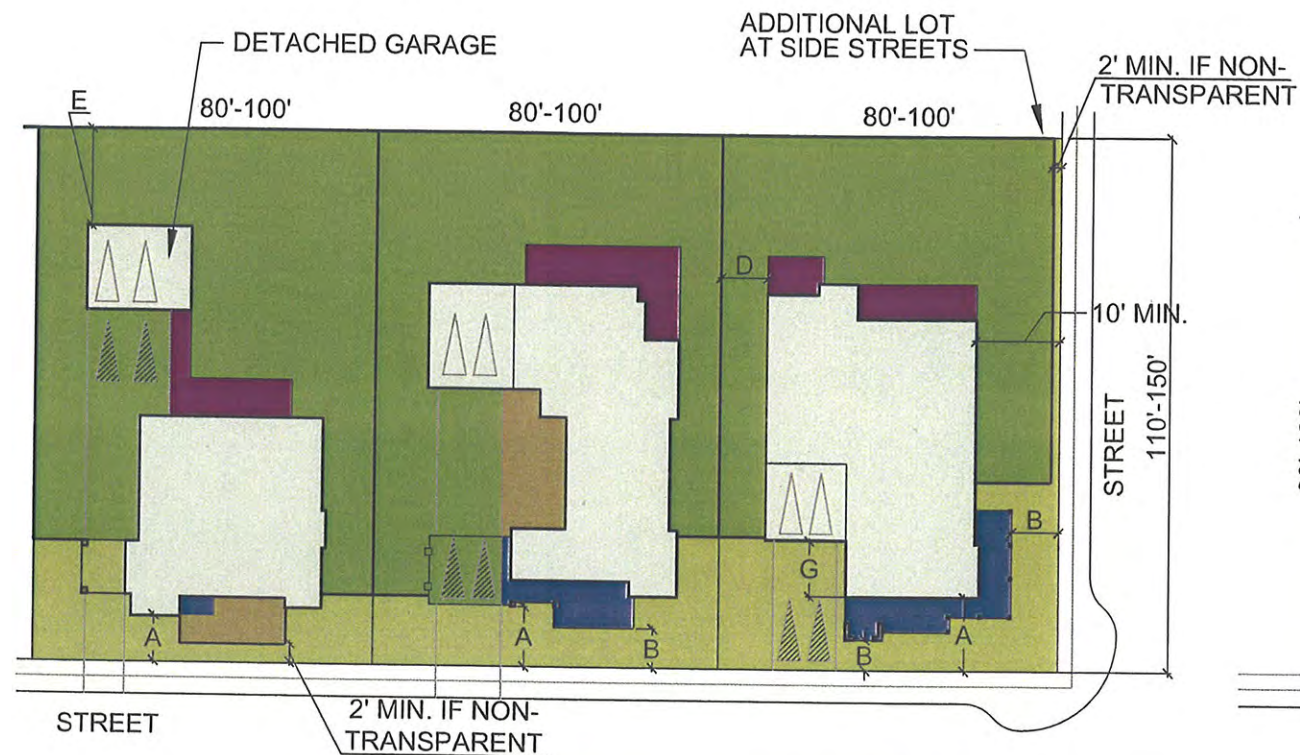
LOT DIAGRAM NOTES

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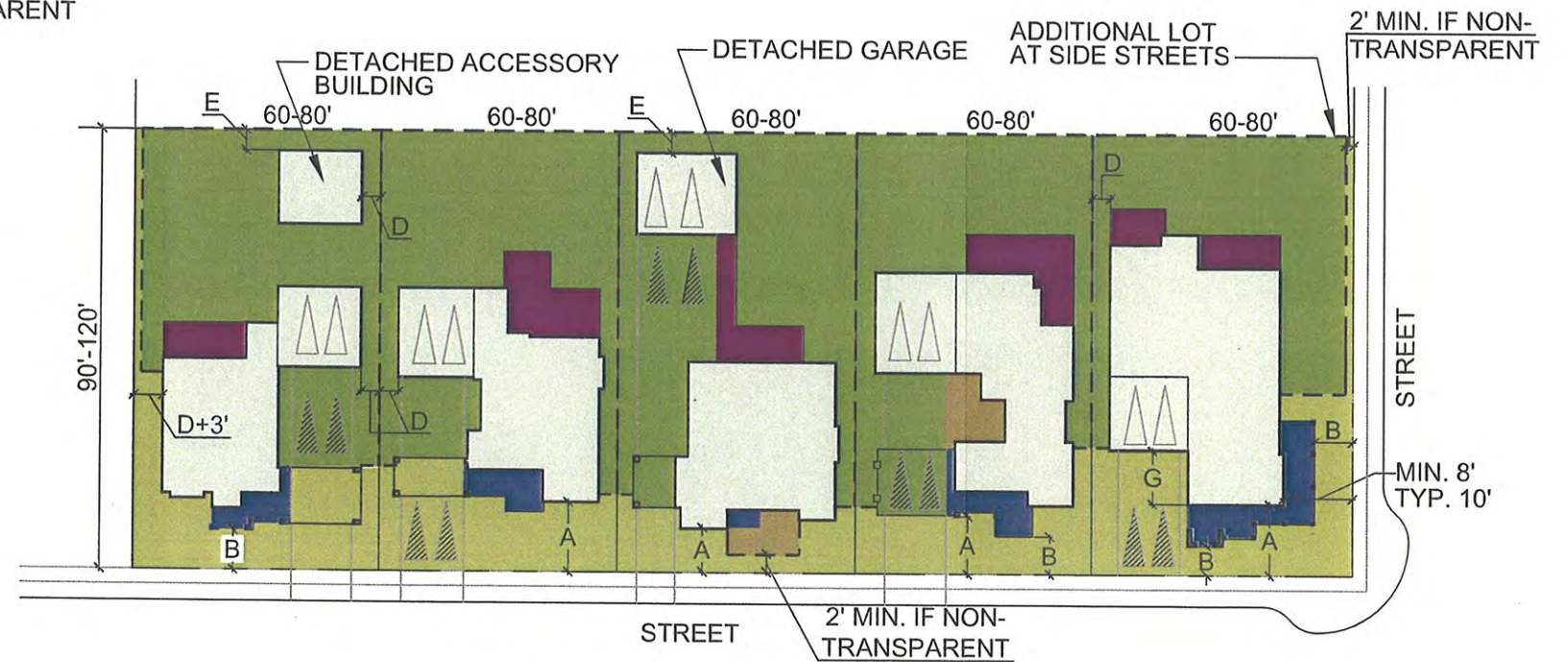
LOT DIAGRAMS

The *Estate Lot* types provide for detached residential buildings on lots ranging from about 8,000 to 15,000 square feet. The *Large Lot* types provide for detached residential buildings on lots ranging from about 5,400 to 9,600 square feet. Off-street parking is located in attached or detached garages, or it may also be located at the side of the building and accessed from

a front or side driveway. Accessory buildings are allowed, but not required, and they may be detached or attached; they must be of the same exterior design as the primary dwelling unit on the property. Use easements to maximize the usable yard space for each house are allowed but not required.



ESTATE LOTS - FRONT LOADED
+/- 80'-100' x 100'-150'



LARGE LOTS - FRONT LOADED
+/- 60'-80' x 90'-120'

LEGEND

WHERE SETBACKS ARE MEASURED TO:

- | | |
|--|---|
| <p>A FRONT YARD BUILDING SETBACK</p> <p>B SETBACK TO PORCHES, STOOPS, DECKS, CANOPIES, BALCONIES, BAY WINDOWS, CHIMNEYS, AWNINGS, AND ARCHITECTURAL PROJECTIONS</p> <p>C NOT USED</p> <p>D SIDEYARD BUILDING SETBACK</p> | <p>E REAR YARD BUILDING SETBACK</p> <p>F ALLEY-LOADED GARAGE SETBACK</p> <p>G STREET-LOADED GARAGE SETBACK*</p> <p>*NOTE: GARAGE OFFSET FROM FACADE IS 5' MIN., OFFSETS ARE ENCOURAGED TO VARY TO PROVIDE DIVERSITY IN STREET SCENE</p> |
|--|---|

PRIVATE OUTDOOR SPACE

- YARDS
- PATIOS
- SEMI-PRIVATE OUTDOOR SPACE**
- PORCHES, STOOPS
- COURTYARDS, TERRACES

SEMI-PUBLIC OUTDOOR SPACE

- YARDS, ETC.

AUTO PARKING

- GARAGE
- PARKING APRON
- AT ACCESSORY DWELLING WITH NO APRON PARKING

PRIVATE SPACE USE EASEMENT - OPTIONAL

- ACTIVE SIDE OF HOUSE WITH USE OF ADJACENT LOT SIDEYARD
- PASSIVE SIDE OF HOUSE WITH HIGH OR OBSCURE GLAZING ONLY, FOR PRIVACY OF ADJACENT YARD



ESTATE & LARGE DETACHED

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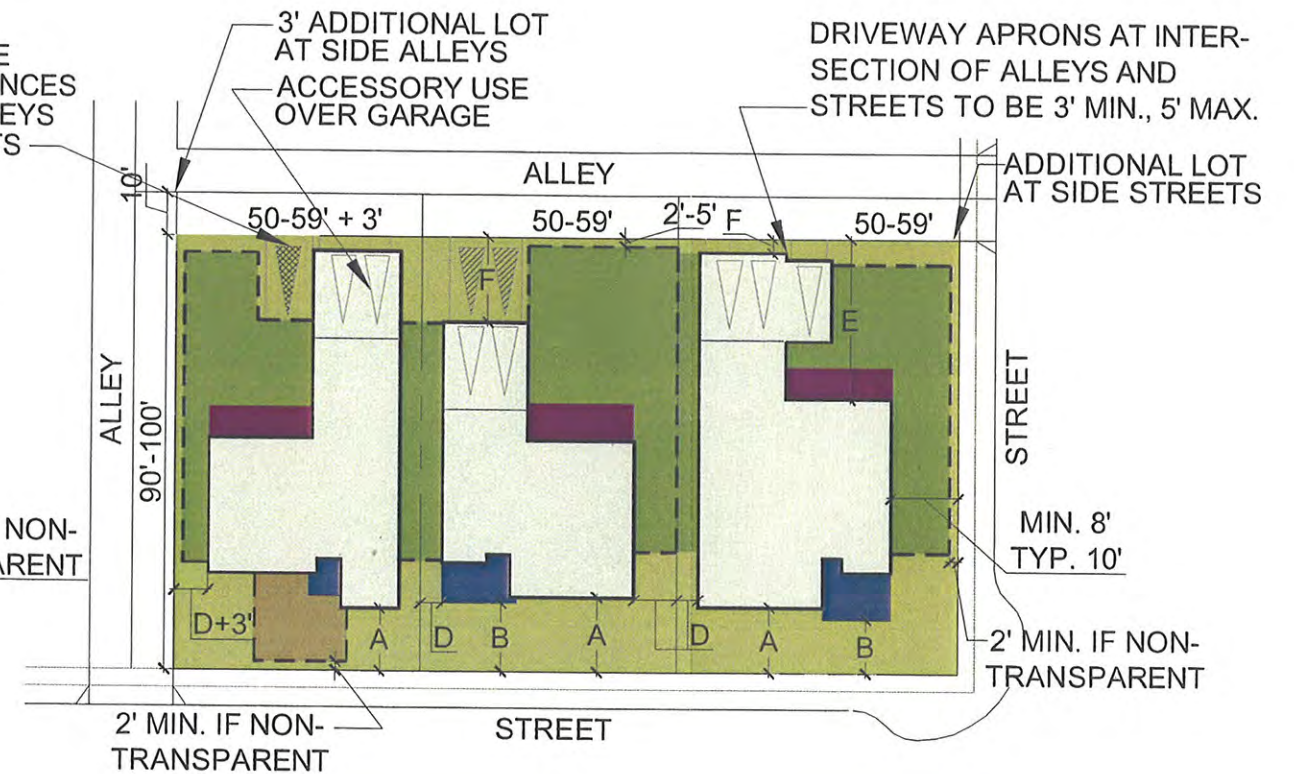
LOT DIAGRAMS

The *Standard Lot* types provide for detached residential buildings on lots ranging from about 4,500 to 6,500 square feet. Off-street parking may be located at the rear of the lot, off of an alley, in attached or detached garages, or it may also be located at the side of the building and accessed from a front or side driveway. The alley-loaded houses typically face the street

but they may also face onto a greenbelt or park with public access. Accessory buildings are allowed, but not required, and they may be detached or attached; they must be of the same exterior design as the primary dwelling unit on the property. Use easements to maximize the usable yard space for each house are allowed but not required.



STANDARD LOTS - FRONT LOADED
+/- 50'-59' x 90'-110'



STANDARD LOTS - ALLEY LOADED
+/- 50'-59' x 90'-100' + 10'

LEGEND

WHERE SETBACKS ARE MEASURED TO:

- | | | |
|---|--|--|
| A FRONT YARD BUILDING SETBACK | E REAR YARD BUILDING SETBACK | |
| B SETBACK TO PORCHES, STOOPS, DECKS, CANOPIES, BALCONIES, BAY WINDOWS, CHIMNEYS, AWNINGS, AND ARCHITECTURAL PROJECTIONS | F ALLEY-LOADED GARAGE SETBACK | |
| C NOT USED | G STREET-LOADED GARAGE SETBACK* | |
| D SIDEYARD BUILDING SETBACK | *NOTE: GARAGE OFFSET FROM FACADE IS 5' MIN., OFFSETS ARE ENCOURAGED TO VARY TO PROVIDE DIVERSITY IN STREET SCENE | |

PRIVATE OUTDOOR SPACE

- YARDS
- PATIOS
- SEMI-PRIVATE OUTDOOR SPACE**
- PORCHES, STOOPS
- COURTYARDS, TERRACES

SEMI-PUBLIC OUTDOOR SPACE

- YARDS, ETC.

AUTO PARKING

- GARAGE
- PARKING APRON
- AT ACCESSORY DWELLING WITH NO APRON PARKING

PRIVATE SPACE USE EASEMENT - OPTIONAL

- ACTIVE SIDE OF HOUSE WITH USE OF ADJACENT LOT SIDEYARD
- PASSIVE SIDE OF HOUSE WITH HIGH OR OBSCURE GLAZING ONLY, FOR PRIVACY OF ADJACENT YARD



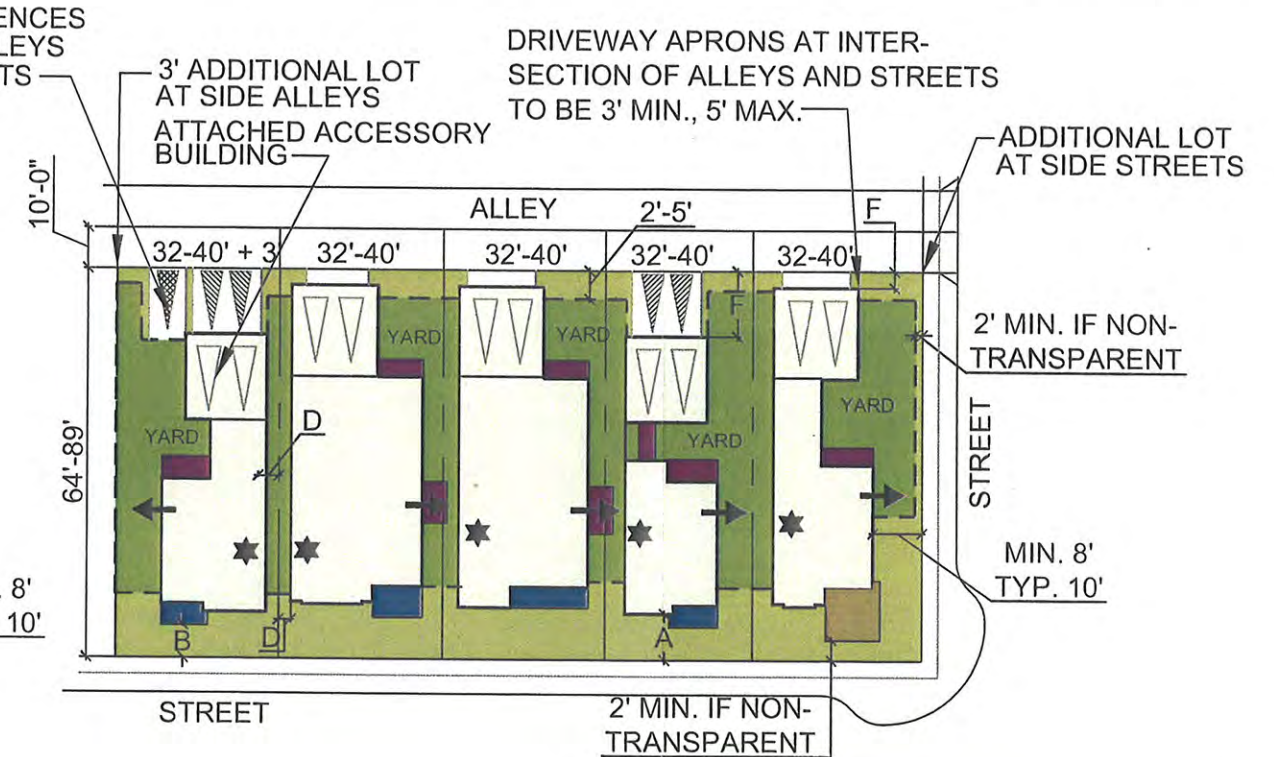
STANDARD DETACHED

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LOT DIAGRAMS

The *Medium Lot* types are designed for mid-block or corner locations. The residential buildings are detached, on lots ranging from 2,900 to 4,500 square feet. The houses typically face the street but may also face onto a greenbelt or park with public access. Off-street parking is located at the rear of the lot, off of an alley, in attached or detached garages. Accessory dwelling units are allowed but not required, and they may be attached or detached; they must be of the same exterior design as the primary dwelling unit on the property.

The *Small Lot* is the smallest of the single family detached Villebois neighborhood lot types. The residential buildings are on lots of approximately 2,000 to 3,600 square feet. The houses typically face the street but may also face onto a greenbelt or park with public access. Off-street parking is located at the rear of the lot, off of an alley, in attached or detached garages. Accessory dwelling units are allowed but not required, and they may be attached or detached; they must be of the same exterior design as the primary dwelling unit on the property. For both Medium and Small Lots, Use Easements to maximize the usable yard space for each house are allowed but not required.



MEDIUM LOTS
+/-41'-49' x 71'-90' + 10'

SMALL LOTS
+/-32'-40' x 64'-89' + 10'

LEGEND

WHERE SETBACKS ARE MEASURED TO:

- | | | | |
|---|---|---|-----------------------------|
| A | FRONT YARD BUILDING SETBACK | C | NOT USED |
| B | SETBACK TO PORCHES, STOOPS, DECKS, CANOPIES, BALCONIES, BAY WINDOWS, CHIMNEYS, AWNINGS, AND ARCHITECTURAL PROJECTIONS | D | SIDEYARD BUILDING SETBACK |
| | | E | REAR YARD BUILDING SETBACK |
| | | F | ALLEY-LOADED GARAGE SETBACK |

- | | | |
|-----------------------------------|---|---|
| PRIVATE OUTDOOR SPACE | SEMI-PUBLIC OUTDOOR SPACE | PRIVATE SPACE USE EASEMENT - OPTIONAL |
| YARDS | YARDS, ETC. | ← ACTIVE SIDE OF HOUSE WITH USE OF ADJACENT LOT SIDEYARD |
| PATIOS | | ★ PASSIVE SIDE OF HOUSE WITH HIGH OR OBSCURE GLAZING ONLY, FOR PRIVACY OF ADJACENT YARD |
| SEMI-PRIVATE OUTDOOR SPACE | AUTO PARKING | |
| PORCHES, STOOPS | ▽ GARAGE | |
| COURTYARDS, TERRACES | ▽ PARKING APRON | |
| | ▽ AT ACCESSORY DWELLING WITH NO APRON PARKING | |



MEDIUM & SMALL DETACHED

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LOT DIAGRAMS

The *Small Cottage Detached* is the smallest of the single family deattached Villebois neighborhood lot types. The residential buildings are on lots ranging from 1,850 to about 3,000 square feet. The houses may be attached in pairs just at the garages or along the entire side of the dwellings. (See note below) Off-street parking is located at the rear of the house, off of an alley, in attached or detached garages. The houses typically face the street but may also front onto a public park or greenbelt or be arranged in clusters. When located on a greenbelt, the sidewalk is placed in a public access easement. Use easements to maximize the usable yard space for each house are allowed but not required. Accessory buildings are allowed, and they may be detached or attached; they must be of the same exterior design as the primary dwelling unit on the property.



SMALL COTTAGE - DETACHED
25'-36' x 64'-89' +/- 10'

LEGEND

WHERE SETBACKS ARE MEASURED TO:

- | | | | |
|---|---|---|-----------------------------|
| A | FRONT YARD BUILDING SETBACK | C | NOT USED |
| B | SETBACK TO PORCHES, STOOPS, DECKS, CANOPIES, BALCONIES, BAY WINDOWS, CHIMNEYS, AWNINGS, AND ARCHITECTURAL PROJECTIONS | D | SIDEYARD BUILDING SETBACK |
| | | E | REAR YARD BUILDING SETBACK |
| | | F | ALLEY-LOADED GARAGE SETBACK |

PRIVATE OUTDOOR SPACE

- YARDS
- PATIOS
- SEMI-PRIVATE OUTDOOR SPACE**
- PORCHES, STOOPS
- COURTYARDS, TERRACES

SEMI-PUBLIC OUTDOOR SPACE

- YARDS, ETC.

AUTO PARKING

- GARAGE
- PARKING APRON
- AT ACCESSORY DWELLING WITH NO APRON PARKING

ACTIVE SIDE OF HOUSE WITH USE OF ADJACENT LOT SIDEYARD

PASSIVE SIDE OF HOUSE WITH HIGH OR OBSCURE GLAZING ONLY, FOR PRIVACY OF ADJACENT YARD (USE MINIMUM SETBACK WHEN PASSIVE IS ADJACENT TO PASSIVE)



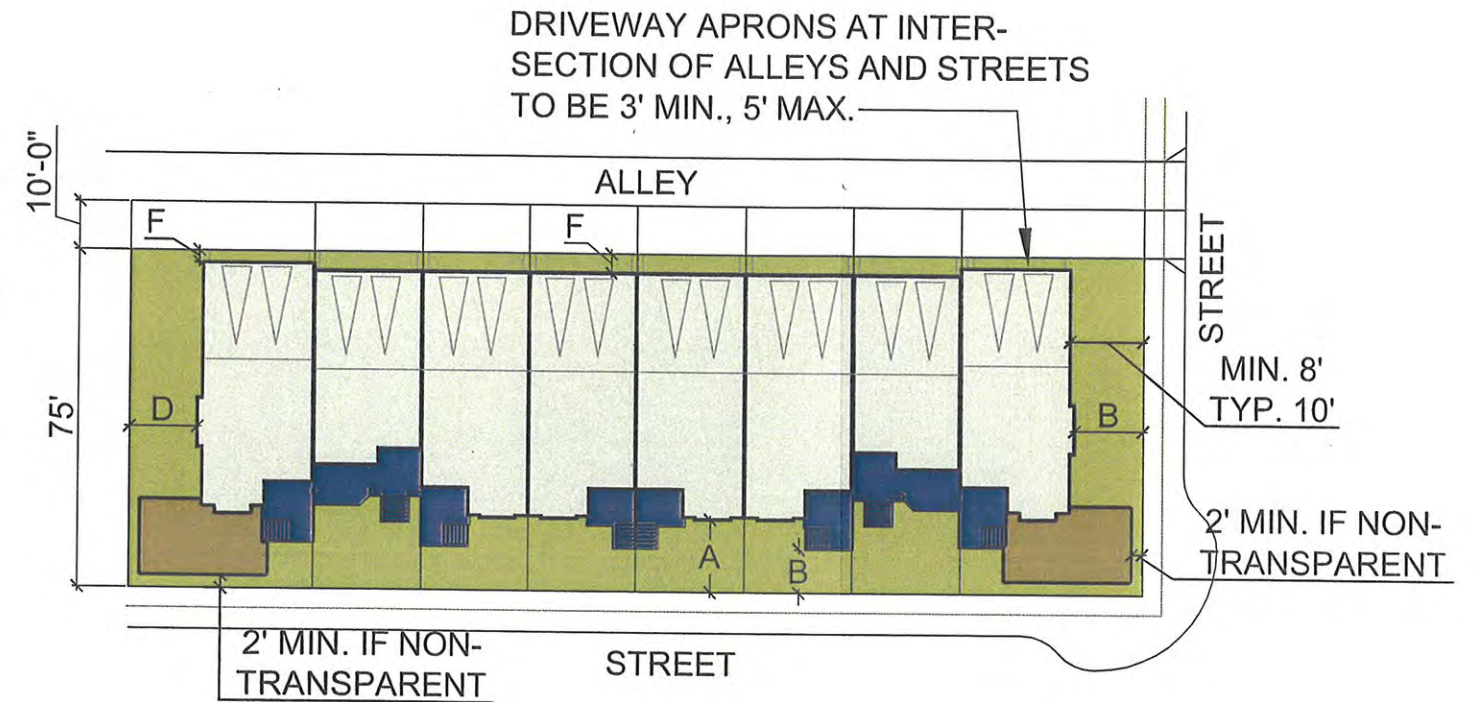
SMALL COTTAGE DETACHED

© 2005 Iverson Architects

LOT DIAGRAMS

The *Row house Lot* land use types are designed for attached residential buildings located as delineated on the Specific Area Plan North. No fewer than two, and no more than ten row houses shall be attached in one composite building. Off-street parking is located at the rear of the lot, off of an alley, in attached or detached garages. The houses typically face the street but they may also face onto a greenbelt or park with public access.

NOTE: ROW HOUSES ARE ALLOWED TO HAVE PARKING APRONS



LEGEND

WHERE SETBACKS ARE MEASURED TO:

- | | | | |
|---|---|---|-----------------------------|
| A | FRONT YARD BUILDING SETBACK | C | NOT USED |
| B | SETBACK TO PORCHES, STOOPS, DECKS, CANOPIES, BALCONIES, BAY WINDOWS, CHIMNEYS, AWNINGS, AND ARCHITECTURAL PROJECTIONS | D | SIDEYARD BUILDING SETBACK |
| | | E | REAR YARD BUILDING SETBACK |
| | | F | ALLEY-LOADED GARAGE SETBACK |

ROW HOUSES

+/- 18'-24' x 67'-100' + 10'

PRIVATE OUTDOOR SPACE

- YARDS
- PATIOS
- SEMI-PRIVATE OUTDOOR SPACE**
- PORCHES, STOOPS
- COURTYARDS, TERRACES

SEMI-PUBLIC OUTDOOR SPACE

- YARDS, ETC.

AUTO PARKING

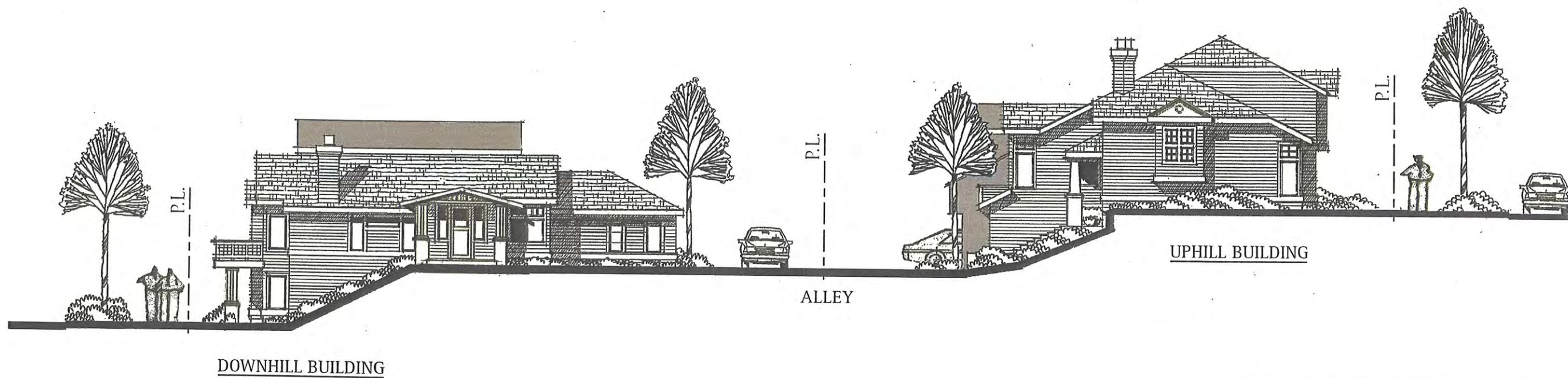
- GARAGE
- PARKING APRON
- AT ACCESSORY DWELLING WITH NO APRON PARKING



ROW HOUSES

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LOT DIAGRAMS



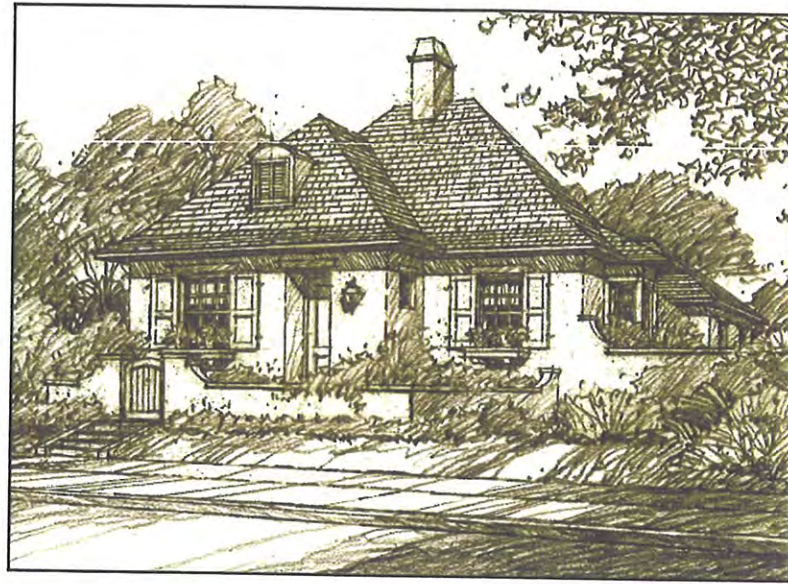
NOTE: BUILDINGS ON SLOPES MUST BE CONFIGURED TO CONFORM TO THE SLOPE. DESIGN CRITERIA FOR BUILDING PLACEMENT AT TYPICAL SLOPE CONDITIONS IS REQUIRED TO BE REFINED AND DETAILED FOR THE PDP SUBMITTAL.



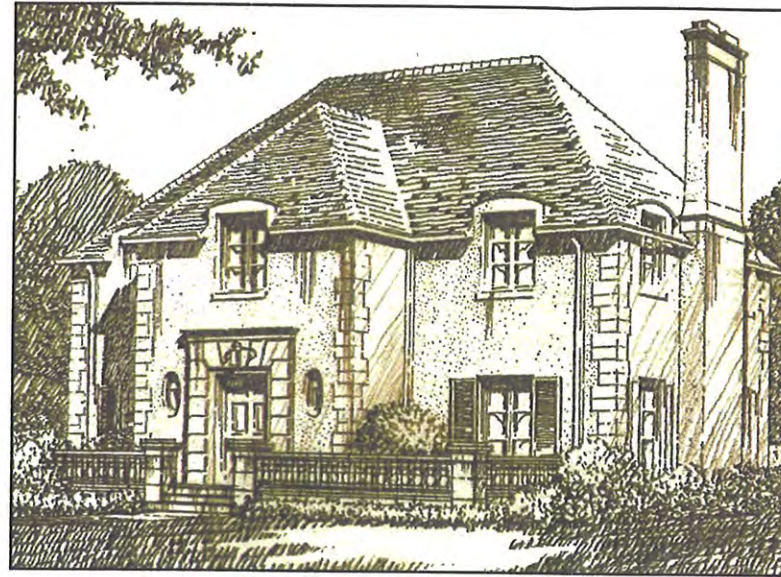
BUILDING PLACEMENT AT TYPICAL SLOPE CONDITION

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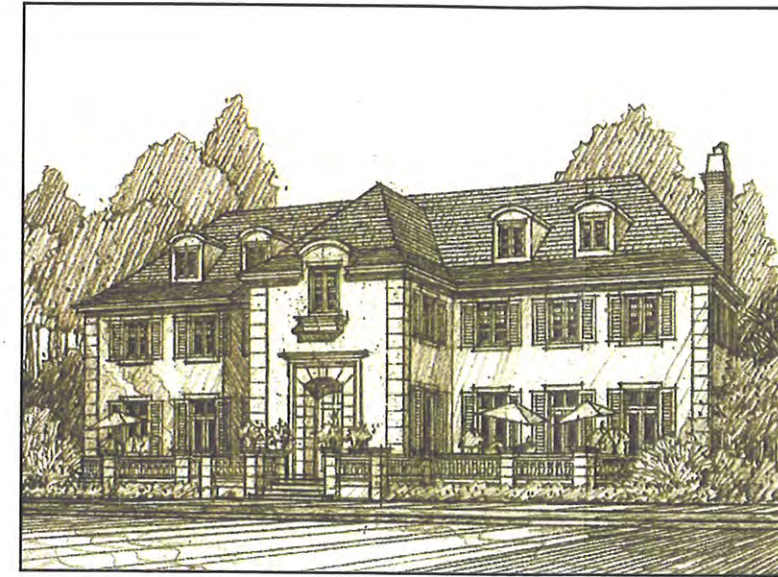
LOT DIAGRAMS



Small / Medium informal house with entry courtyard



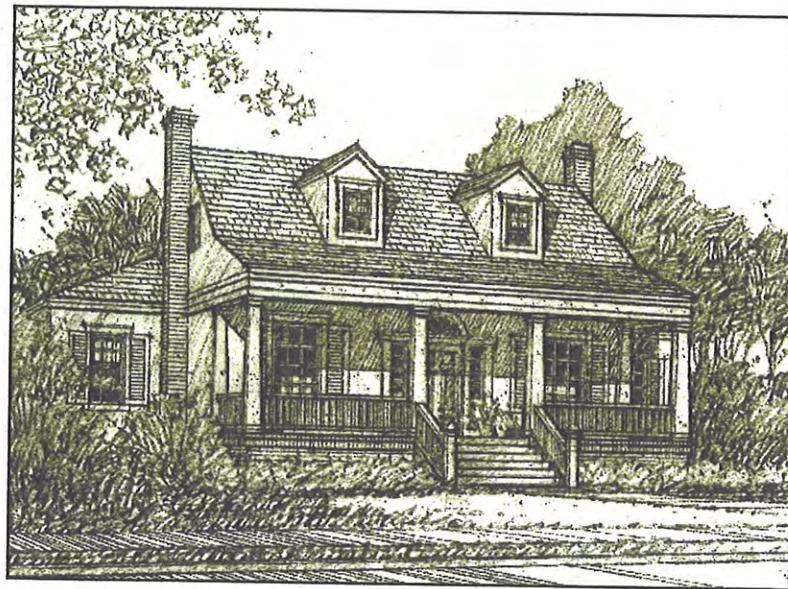
Standard / Large formal house with terrace



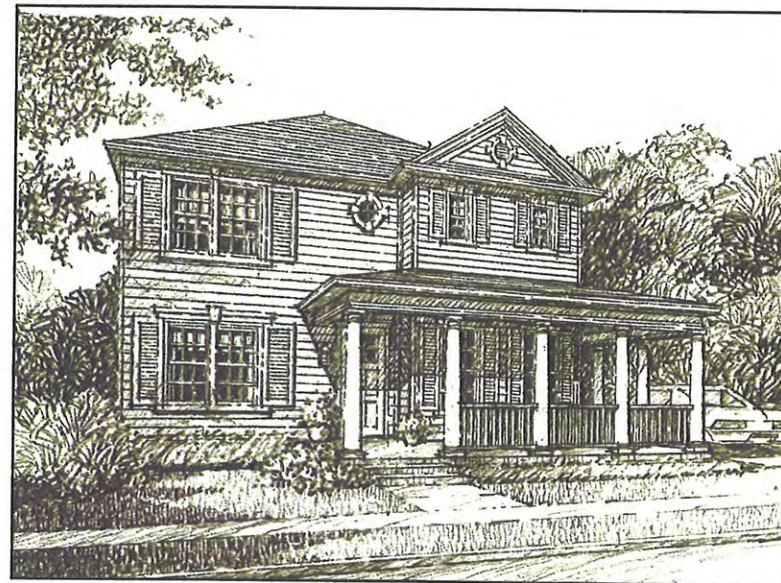
Neighborhood Apartment with terrace

FRENCH REVIVAL

The French Revival style is composed of elements from French Renaissance and French Country architecture. French Renaissance architecture was popular in the last half of the 1800's and there are many fine large homes in this style in the Portland metropolitan area. There were also a number of smaller houses in the region that were constructed in the French Country style.



Small / Medium house with full front porch



Standard / Large house with front porch



Neighborhood Apartment with corner store

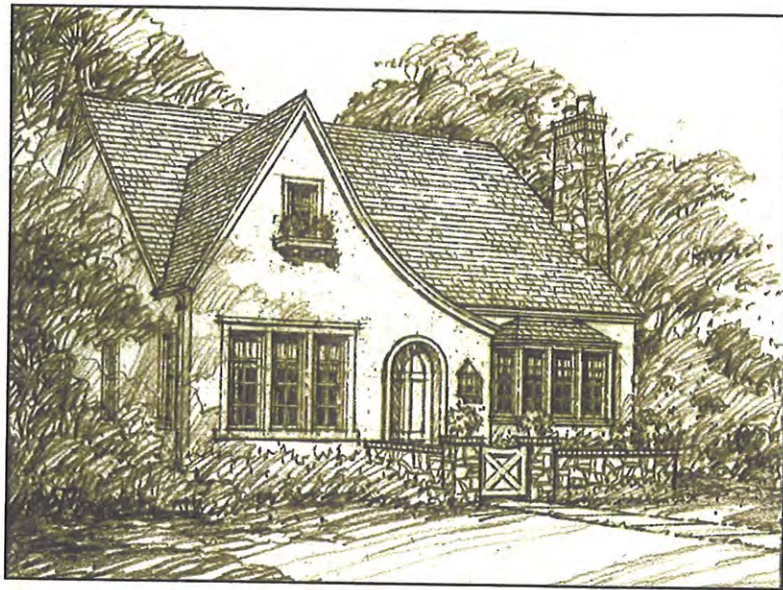
AMERICAN CLASSIC

The American Classic style is represented by an impressive collection of houses in the Colonial Revival style in many historic neighborhoods in the Willamette Valley area. This style was popular from 1888 until the mid-1950's, and Oregon architects designed every adaptation of it from the inventive forms of Colonial Revival common in the early phases, to the more conservative styles of the later phase.

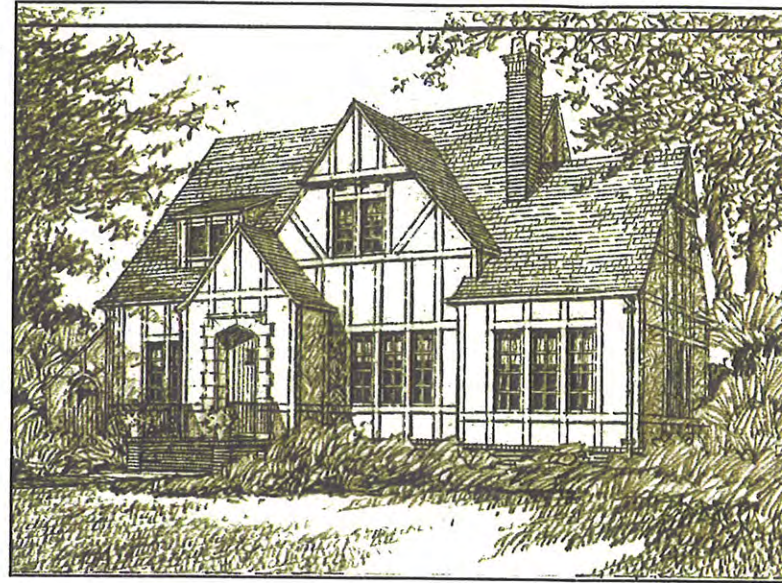
The established architecture of many older northwest Oregon neighborhoods includes a wide variety of styles built in different time periods and with unique regional adaptations of styles as well as housing types. Historically towns and villages had a variety of styles and materials. In recent years this diversity has been lost and will be re-established in Villebois. The Willamette Valley area has a long history of significant residential architecture. Villebois will continue this practice by incorporating architectural styles with proportions, massing, and details that are correct and consistent with regional historical traditions and patterns.

APPROPRIATE ARCHITECTURAL STYLES

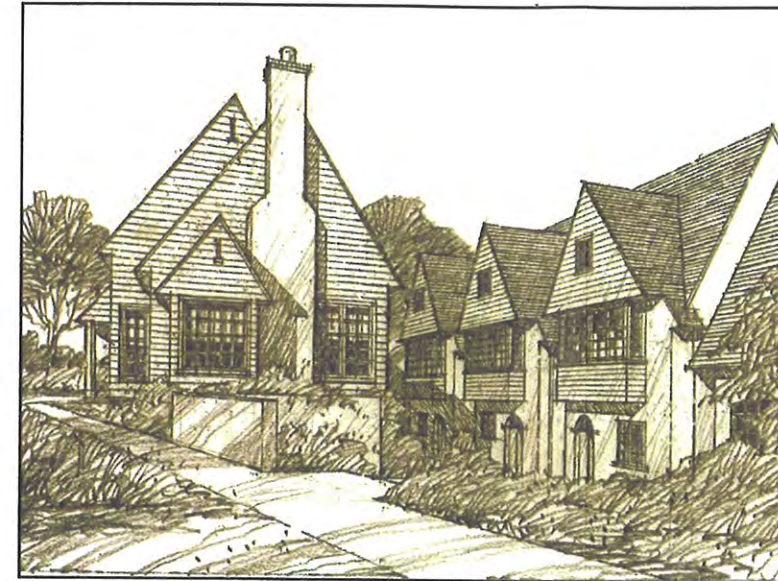




Small / Medium house with entry courtyard



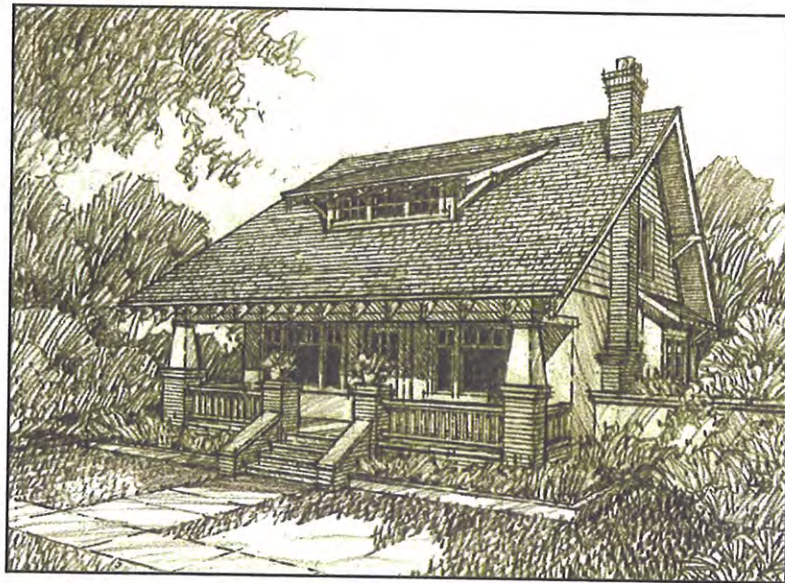
Standard / Large house with stoop & recessed entry



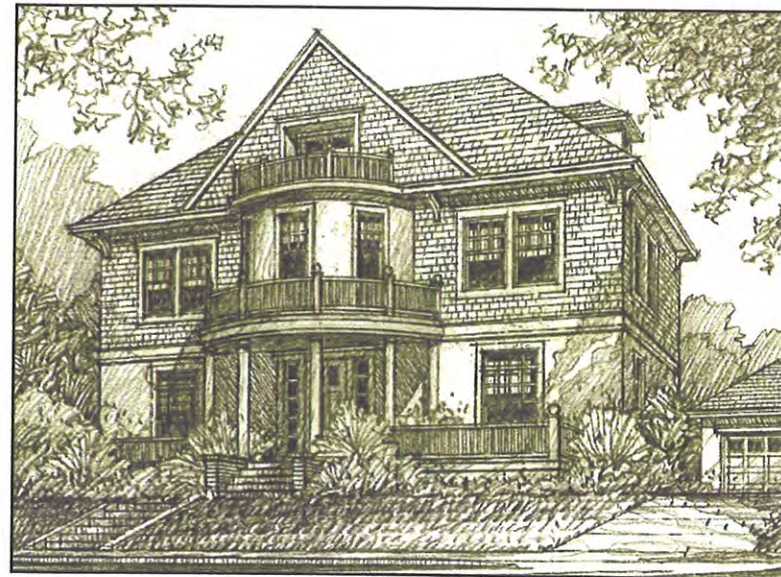
Row houses with stoops and recessed entries

ENGLISH REVIVAL

The English Revival style is loosely based on a variety of English prototypes, ranging from cottages to large manor houses. There was a wide interest in English architecture in the United States, and from 1900-1935 a distinctive group of houses were constructed in northwest Oregon in the many variations of this style. It enjoyed a resurgence of popularity during the Neoelectic movement of the 1970's and 80's.



Small / Medium Arts & Crafts house with full front porch



Standard / Large Arts & Crafts house with porch and balconies



Modernistic Row houses with entry courtyards and porches

AMERICAN MODERN

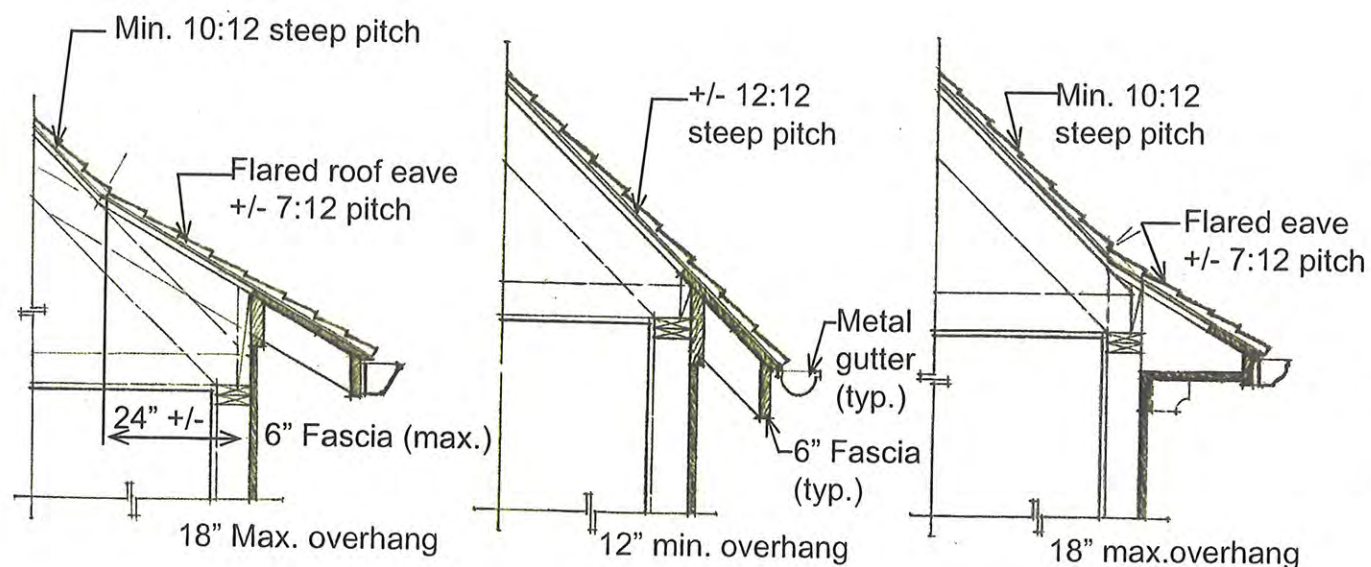
American Modern encompasses a category of architectural styles that were built in Oregon in the last century. It includes Arts and Crafts as well as Modernistic. These styles were not based on historical precedents of decoration and design, instead they often emphasized exposed structural members or expressive detailing. Many fine examples of houses in these styles can be found in older Northwest neighborhoods.

The housing styles for Villebois will be varied but with an emphasis towards those historical examples to be found in older downtown neighborhoods in Oregon. Four appropriate styles have been identified. These include: French Revival, English Revival, American Classic, and American Modern. These architectural styles have a regional historic presence and are appropriate for Villebois because they can be adapted to respond to the environmental qualities of light, climate, and topography.

APPROPRIATE ARCHITECTURAL STYLES



Eave Details



FLARED

STANDARD

FLARED

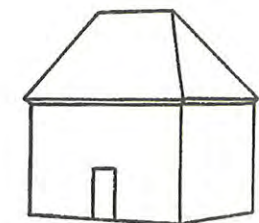
All eaves may have open or boxed rafter tails

Massing and Composition

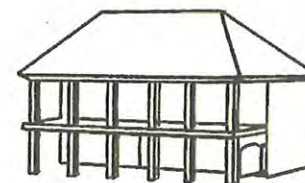
The French style can be formal or informal. The most basic form is a one story box with a hipped-roof.



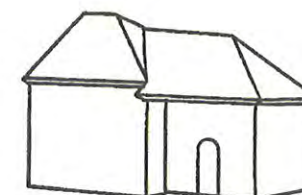
Formal houses are two-story with tall, steeply pitched roofs with the ridge paralleling the front of the house. They are often symmetrical with centered entry and formal detailing.



This two-story informal shape works well when placed sideways on a narrow lot with the extensive balcony and porch facing the side yard. Entrance from the street is through a gate into the courtyard.



The two-story asymmetrical hipped-roof form is the most common subtype and is based on picturesque French farmhouses. It can be formal or informal depending on detailing.

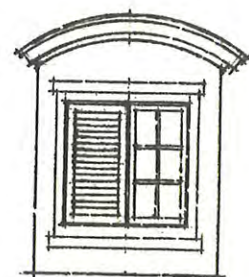
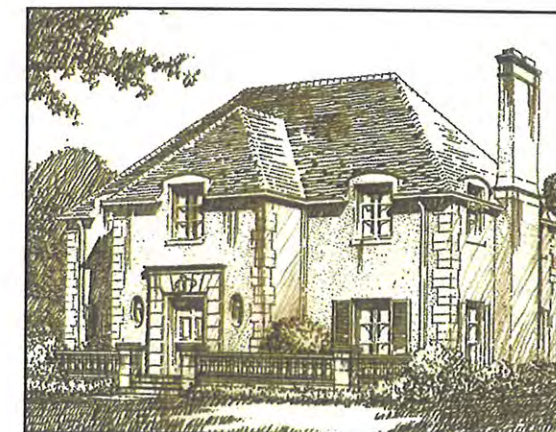


The two-story asymmetrical hipped roof forms often have a prominent round tower with a high, conical roof. The tower commonly houses the entry doorway.

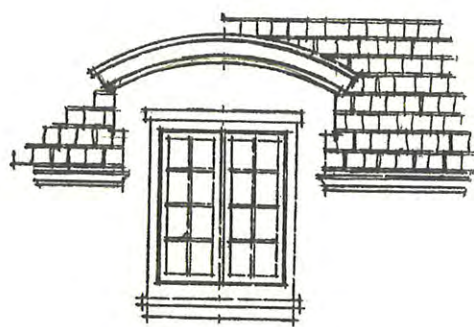


Basic Elements:

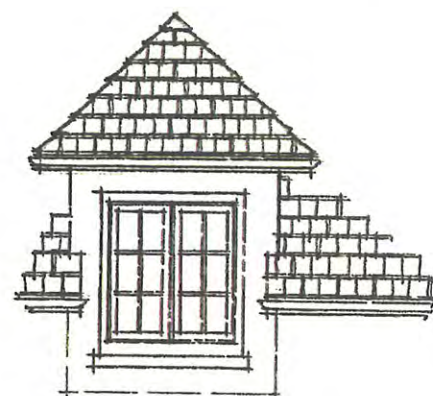
- Tall, steeply pitched hipped roofs, with flared eaves that overhang the front façade
- Dormers through the cornice are recommended on elevations facing public streets, side streets, or public open space, but they are not required; they may be arched, circular, or hipped
- The predominant exterior cladding must be stucco or stone veneer on public street or open space elevations, non-street sides may use stucco board with battens
- Windows are tall, vertical in proportion; full-length casement (or may be single-hung) windows with shutters (French doors) often used
- Doors usually set in simple recessed openings; more formal houses may have more elaborate detailing



ARCHED



ARCHED THROUGH THE CORNICE



HIPPED THROUGH THE CORNICE

Dormers



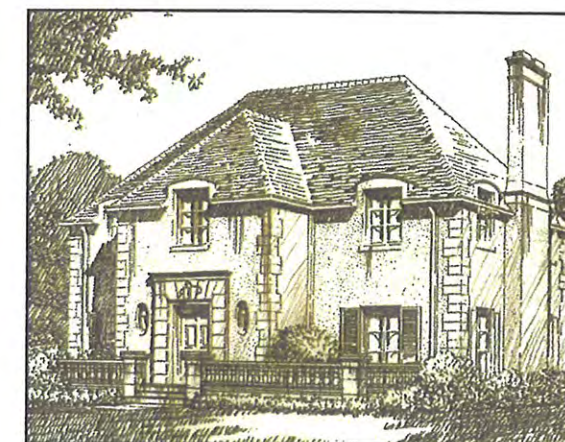
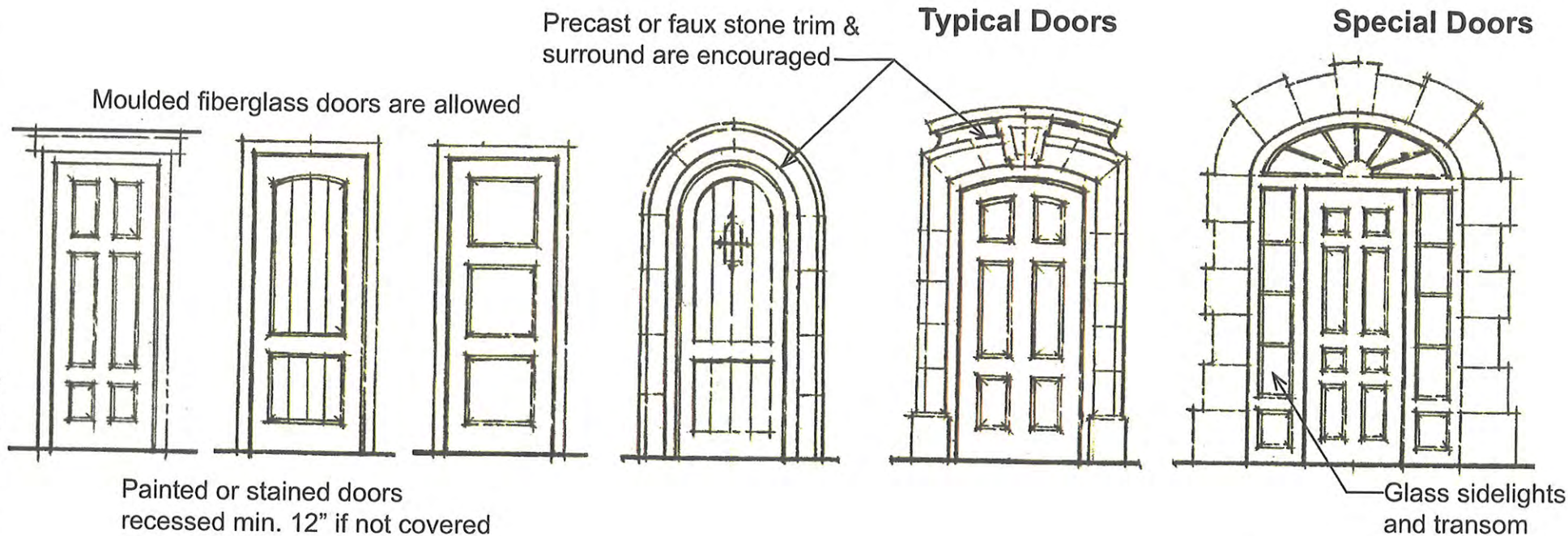
MASSING AND ROOF FORMS

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BASIC ELEMENTS OF FRENCH REVIVAL

Garage Doors

Garage door style must match the facade design. Garage doors proportions should be 9' wide by 8' high. If necessary, a 7' high opening may be designed to look like an 8' high opening. As an alternative, a custom 16' wide door delineated to look like two individual 8' wide by 7' high doors may be used. If the garage is set back from the facade, such as behind a portico or at the rear of the lot, then a 16' wide by 7' high door is acceptable. Windows are not allowed on French Revival. See examples, pg. D2.



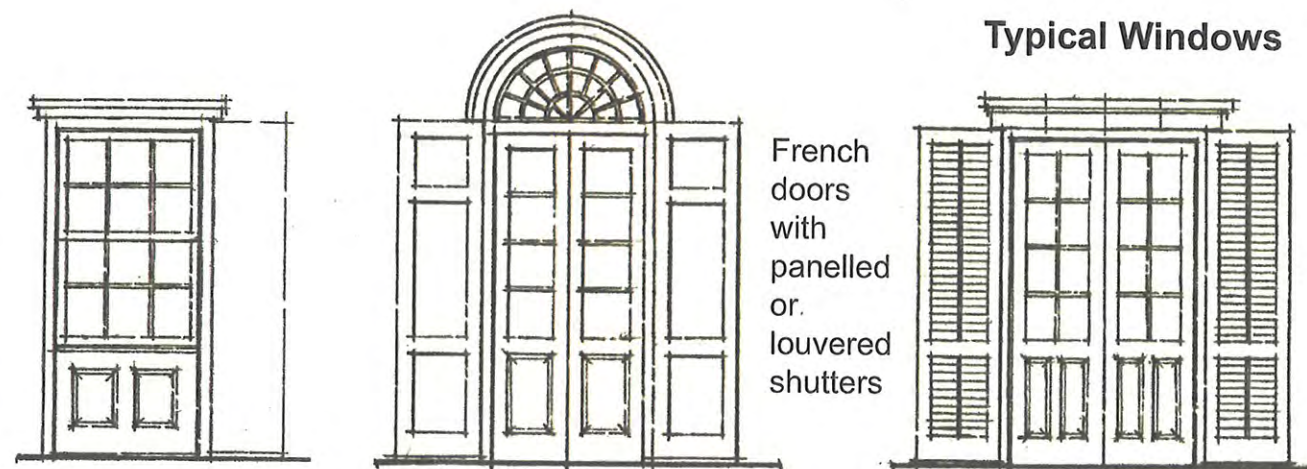
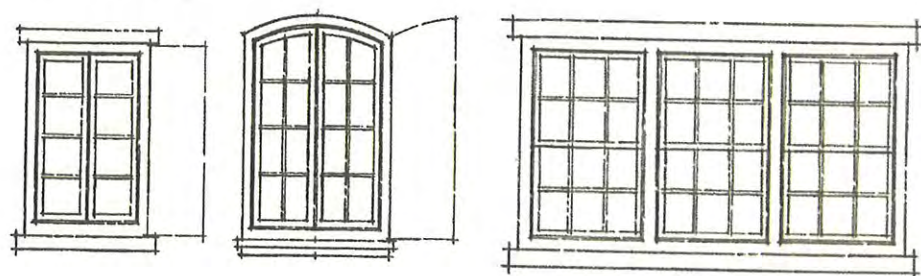
Windows to be vertical in proportion. On public facades, recess at least 2" from finish surface to window frame. Preferably stucco-wrap or stone finish with no trim.

On smaller French Revival houses, recess can be created by a 2" or more depth of stucco-wrapped trim for affordability. Make opening look like a punch window opening, not an applied opening. It is not required to maintain vertical alignment but must be proportional to the building elevation. All windows on public facades must have a divided-light appearance.

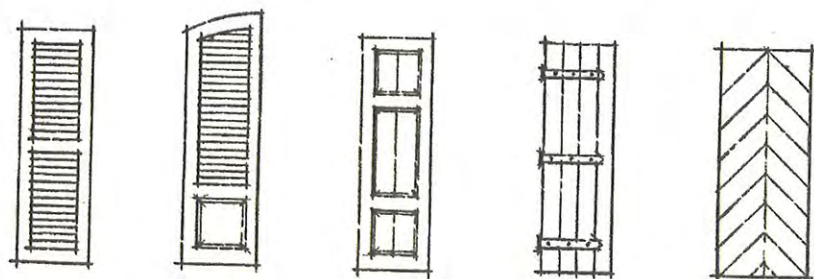
On non-public sides of the facade, it is not required for windows to maintain vertical alignment between stories or have a divided-light appearance; may use windows with width no more than 1-1/2 times height. If windows exceed 4' in width, they must use a vertical divider.

Window trim is required if window is not recessed. Shutter styles can either be paneled or louvered and must be sized to cover the opening.

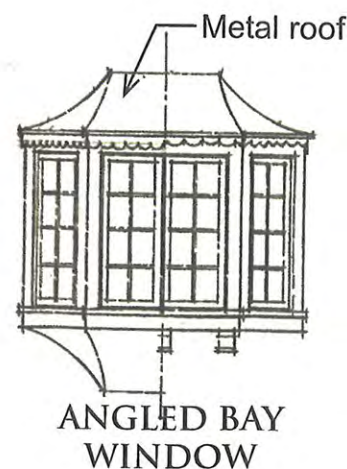
Special windows include bays, transom over French doors, arched or eyebrows, and skylights. Skylights may be used on the rear-facing roof slope; skylight color must coordinate with the roof color.



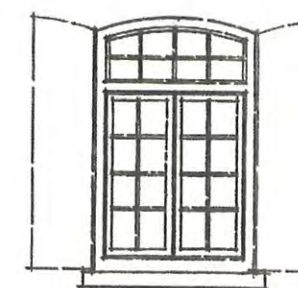
Window Enhancements



TYPICAL SHUTTERS



Special Windows

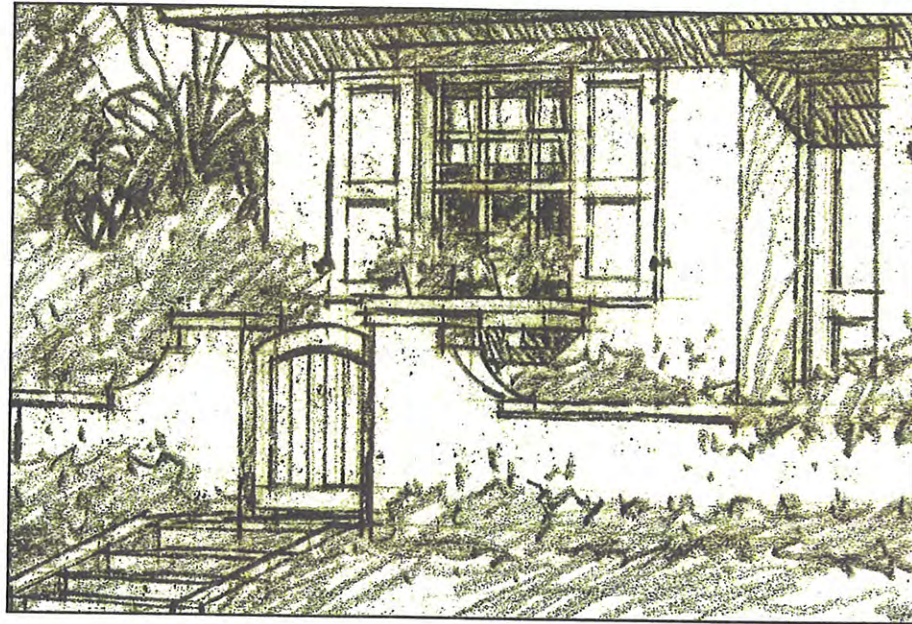


DOORS AND WINDOWS

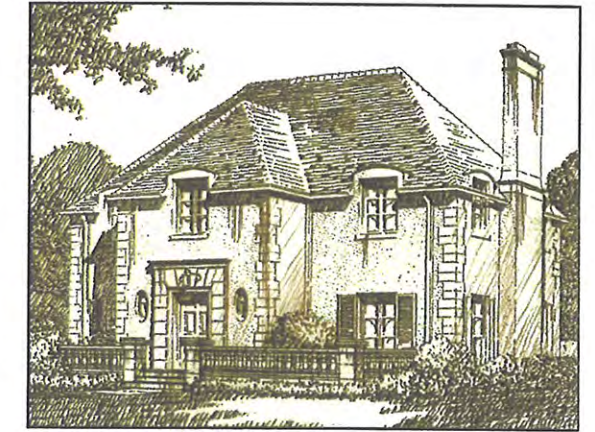
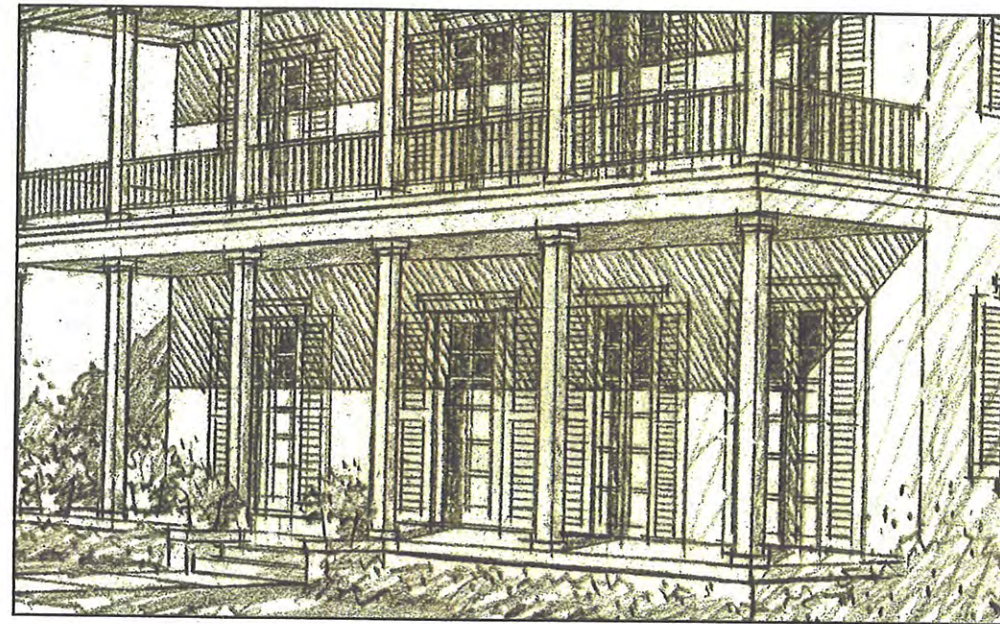
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BASIC ELEMENTS OF FRENCH REVIVAL

Courtyard



Porch

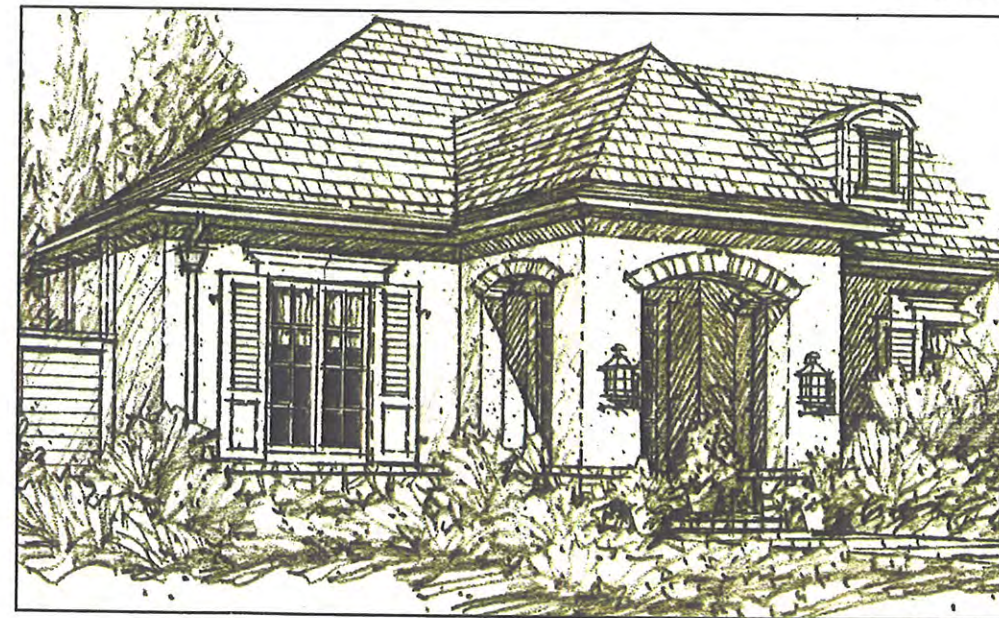


In the informal examples of French Revival, entrance doors are often set in simple arched openings. Informal styles may have low-walled courtyards with decorative entry gates. The informal sideyard houses usually have extensive porches, often two-story.

Stoop & Terrace



Portico



Stoops and balustraded terraces are common elements that connect the house to the street and pedestrian. Porches, stoops, and terraces must be elevated a minimum of 10". Entrances are often in towers on asymmetrical houses.

Houses without a stoop, portico, or porch must have a terrace or courtyard.

For courtyard and fence details, refer to Section E - Master Fencing Program.



ENTRANCES AND OUTDOOR SPACES

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BASIC ELEMENTS OF FRENCH REVIVAL



Example of transition from stucco on public street or open space elevation to lap siding stucco board at non-public street or open space elevation

Cladding: Stucco, stone, or brick must be predominant on elevations facing a public street, side street, or public open space; stucco board with battens also may be used on private side elevations

Roofing: Slate or concrete tile, composition shingles or cedar shingles. If not architectural grade shingles, must boost shingles at overhangs, hips, and ridges

Windows: Energy efficient wood, metal, or vinyl-clad wood, vinyl or steel frames and sashes

Trim: Stucco, pre-cast concrete, or synthetic stone

Columns: Fiberglass, pre-cast concrete, synthetic stone, or wood

Railings: Curved iron decorative railings

Materials

Eaves, soffits and porch ceiling: Stucco, stucco board, fiber-cement board, t & g wood or plywood

Gutters: Metal with an ogee or half-round edge

Downspouts: Round metal

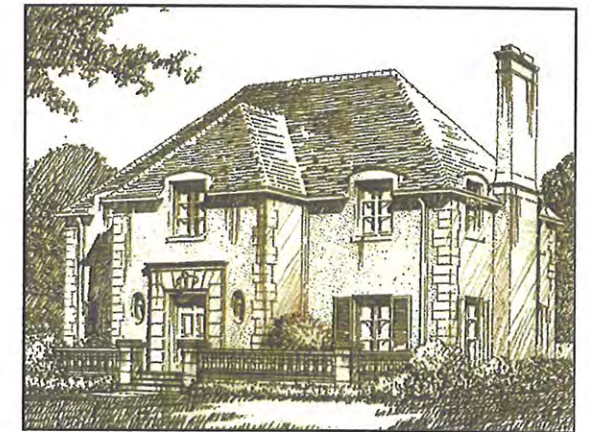
Shutters: Historic wood, polymer, or fiberglass reproductions sized to cover the opening (Required at public street or open space elevations only)

Chimneys: When included, they may be stucco, stone or brick in simple rectangular designs, with modest ornamental corbelling at top

Fences: Refer to Section E - Master Fencing Program

Lighting: Shielded or cut-off luminaires to direct light down

NOTE: REFER TO V ZONE ARCHITECTURAL DESIGN STANDARDS, TABLE V-3 FOR PERMITTED MATERIALS AND CONFIGURATIONS



Colors

Cladding: Whites, tans, taupe, light grey, slate greys, grey greens, khaki greens, brown greens, light yellow, muted mustard, caramel, tobacco, muted terra cotta/rust

Roof: Black, dark grey, and weathered wood blends

Note: all projections through the roof must be painted to match the roof

Windows: White, tan, with an option to add other neutral colors

Garage doors: Match predominant cladding color; trim may be another color but should not increase prominence of the doors

Trim: White or grey earthtones

Shutters: Grey-green, grey-blue, dark green, blue-green, burgundy, off-white

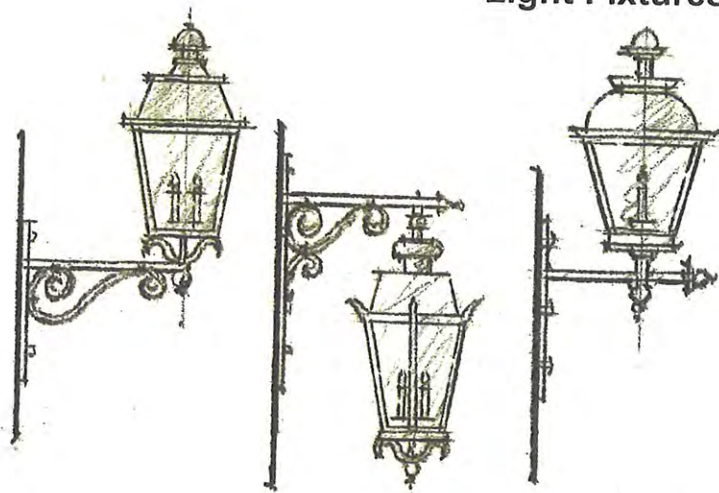
Gutters: Earth tones recommended, or match trim, or natural copper

Downspouts: Earth tones recommended, or match cladding, or natural copper

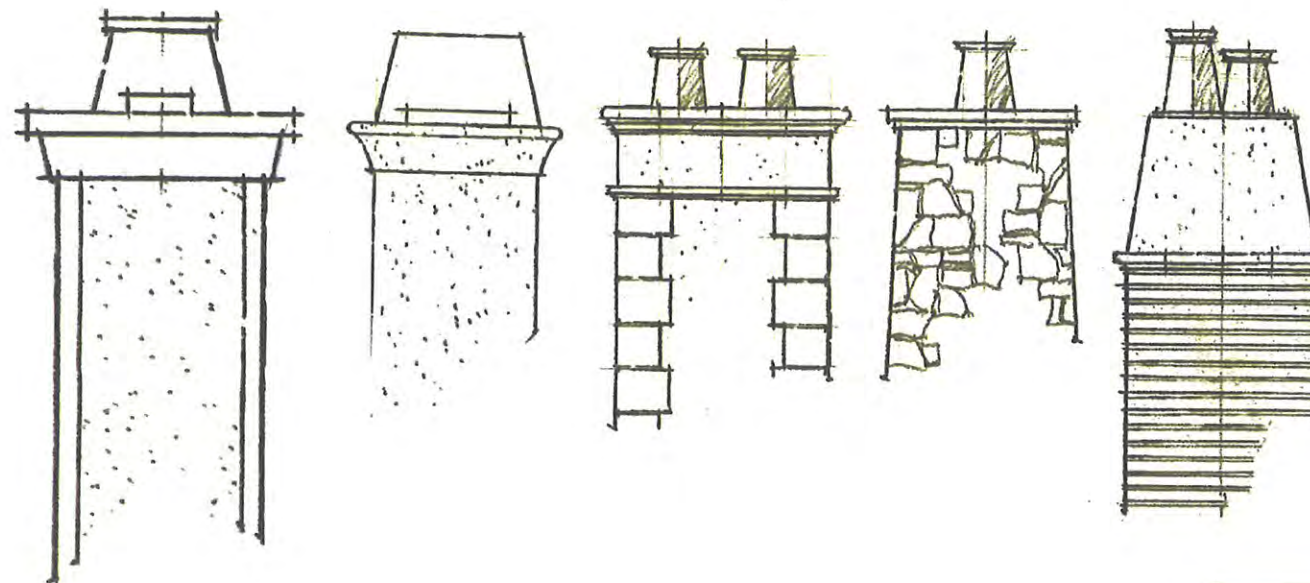
Railings: Dark bronze, copper verde green, or black

Fencing: Refer to Section E - Master Fencing Program

Light Fixtures

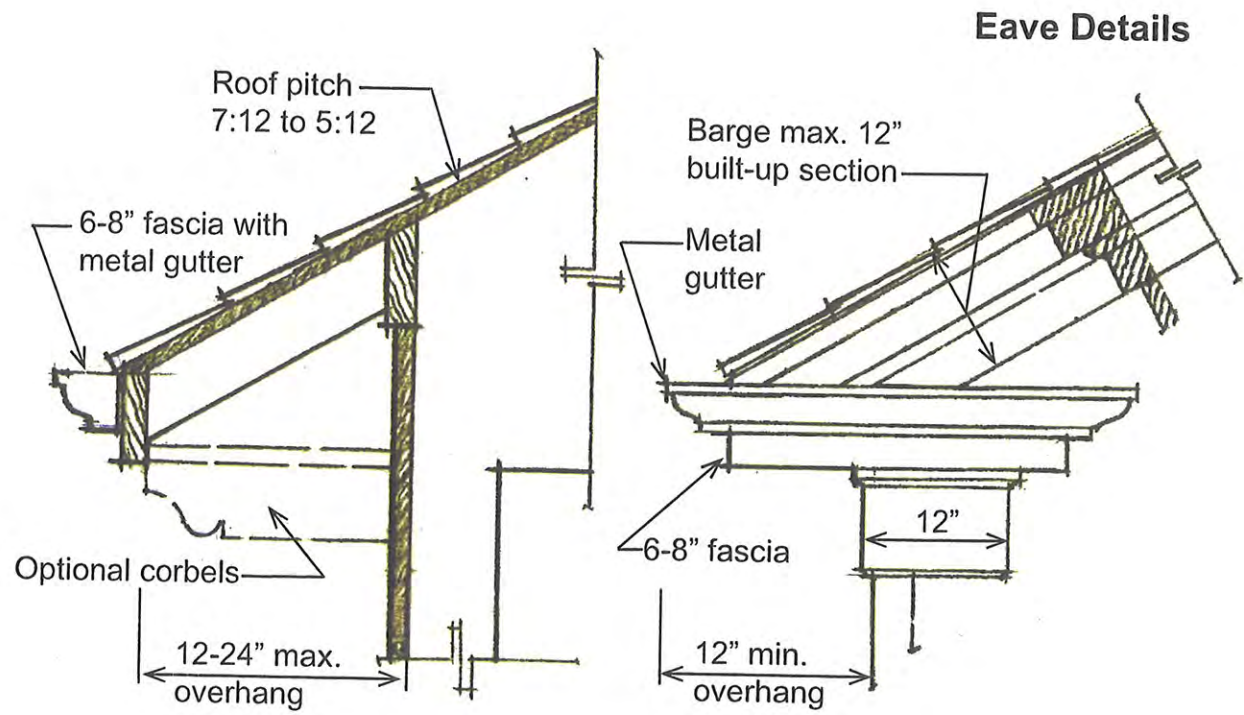


These are examples of light fixtures shown for character style; fixtures at porches and projections may also be a simplistic version or may be recessed



Chimneys

BASIC ELEMENTS OF FRENCH REVIVAL

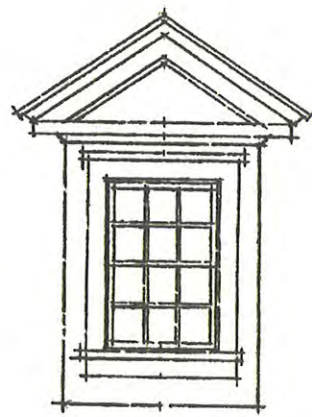


BOXED EAVE DETAIL

CORNER RAKE DESIGN DETAIL

May have open rafter tails without corbels

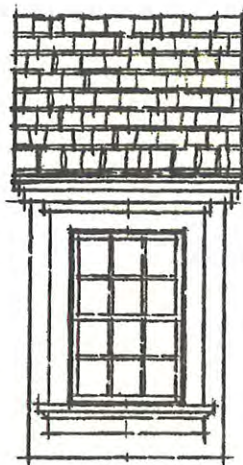
Dormers



PEDIMENT



GABLE



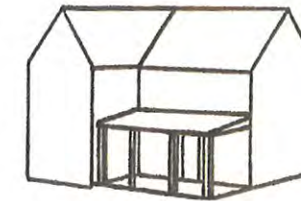
SHED

Massing and Composition

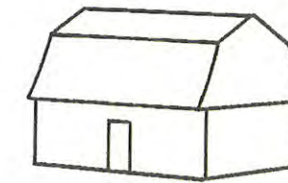
American Classic houses typically have simple, straightforward volumes such as the one or one-and-a-half story basic side-gabled box with gabled or pedimented dormers.



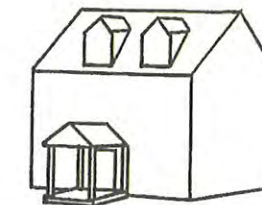
The two-story gable L shape massing typically accommodates a continuous porch with shed roof located between the legs of the L.



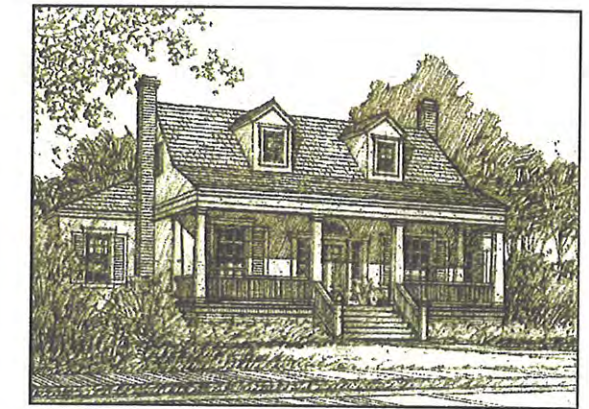
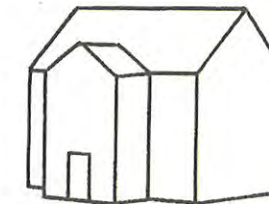
American Classic houses often have gambrel roofs in an interpretation of Dutch Colonial style. The gambrel roof is parallel to the street, and it may have dormers.



A typical American Classic two-story side-gabled box with pedimented entrance portico and gabled dormers.



Many American Classic houses have a centered front gable added to a side-gabled roof, and may have two story entrance porticos.



Basic Elements:

- Side-gabled roofs with little or no overhang, often with dormers
- May use boxed-in eaves; cornice returns at gable ends are encouraged
- Exterior walls clad with stucco, beveled lap siding, brick, or shingles
- Symmetrically located double-hung windows with multiple panes; and may use massive chimneys, usually at gable ends
- Simple massing of one, one-and-a-half, or two stories
- Prominent pedimented entrance porticos or porches



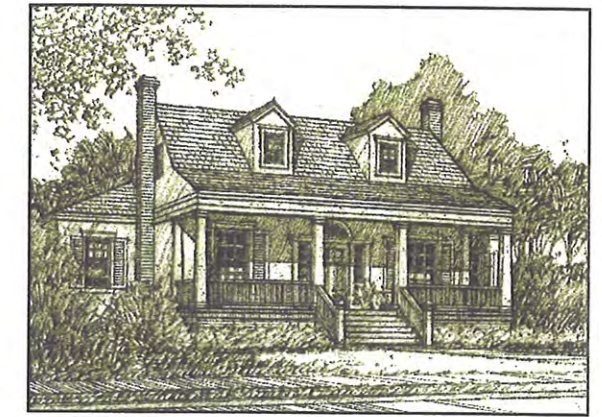
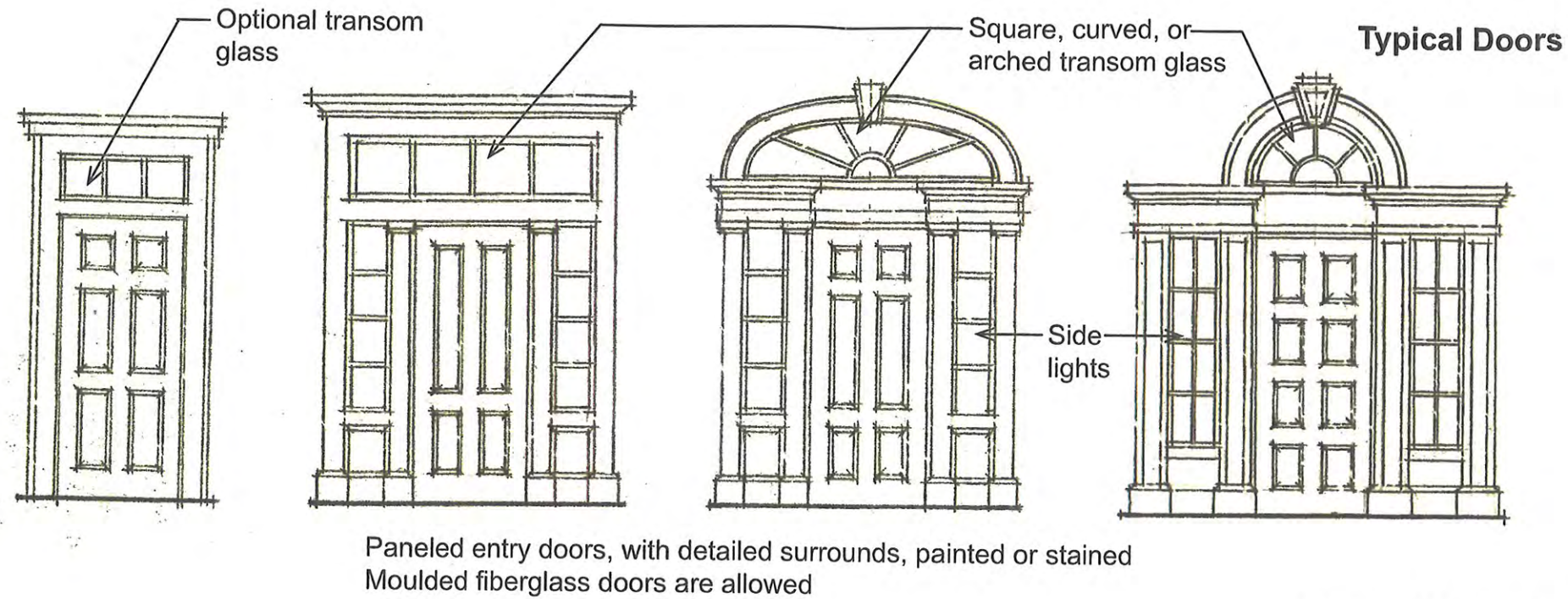
MASSING AND ROOF FORMS

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BASIC ELEMENTS OF AMERICAN CLASSIC

Garage Doors

Garage door style must match the facade design. Garage door proportions should be 9' wide by 8' high. If necessary, a 7' high opening may be designed to look like an 8' high opening. As an alternative, a custom 16' wide door delineated to look like two individual 8' wide by 7' high doors may be used. If the garage is set back from the facade, such as behind a portico or at the rear of the lot, then a 16' wide by 7' high door is acceptable. Non-rectilinear window shapes are not allowed. See examples, pg. D2.

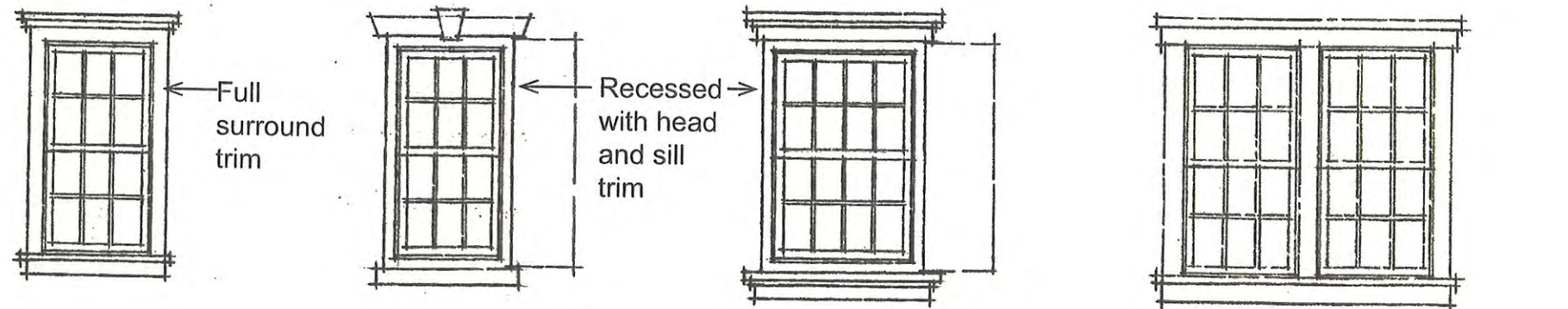


Entrance doors should be located in the center of wide houses and the corner of narrow houses. Doors include four, six, and eight panel patterns. All but the smallest homes should have sidelights or, when there is not a porch, transom surrounds of clear glass which can be rectangular or a segmented arch form.

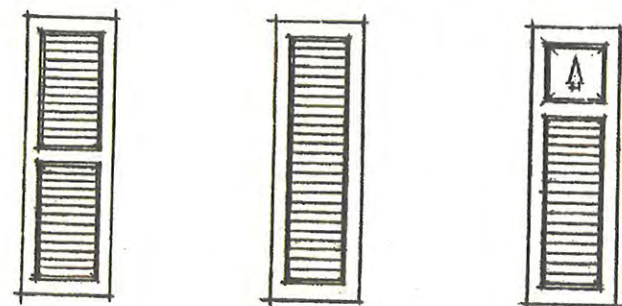
The façade composition of the American Classic is distinguished by a symmetrical placement of doors and windows; with vertical proportion of the door and window elements. On public facades, must use single or double-hung windows with full divided-light appearance. Standard windows usually occur as singles, but they can also be used in pairs. The window often has a decorative header.

On non-public sides of the facade, windows are not required to have a divided-light appearance or maintain vertical alignment between stories; may use windows with width no more than 1-1/2 times height. If windows exceed 4' in width, they must use a vertical divider.

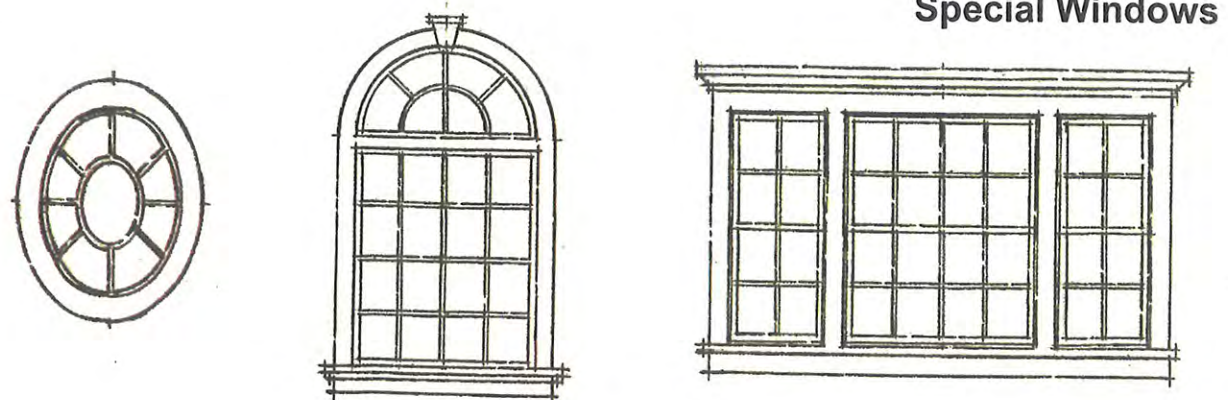
Special Windows include oriel, round top, triple windows, and skylights. Skylights may be used on the rear-facing roof slope; skylight color must coordinate with the roof color. Triple windows usually have broad, center sashes. Various combinations of small square, rectangular, arched, and round top windows are often used over the entry door.



Window Enhancements



TYPICAL SHUTTERS

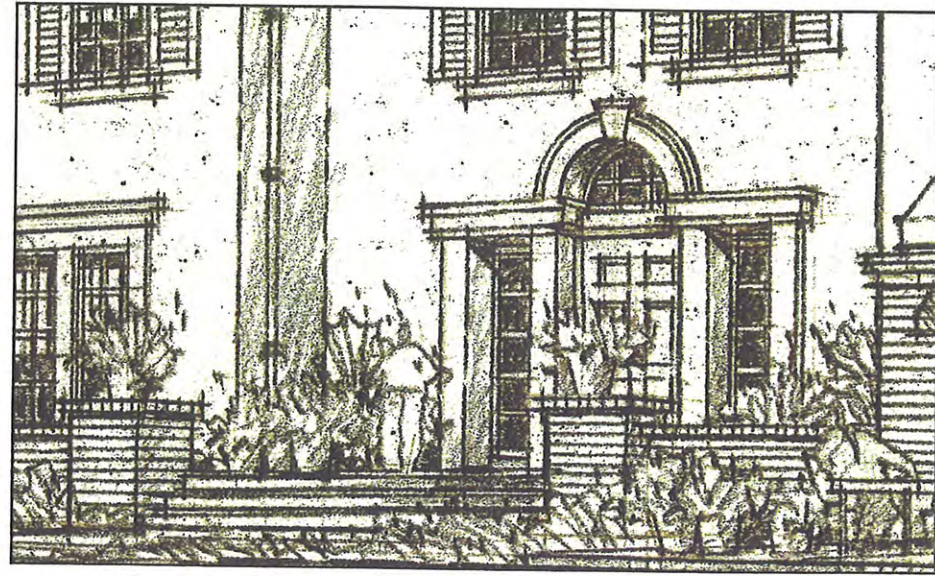


DOORS AND WINDOWS

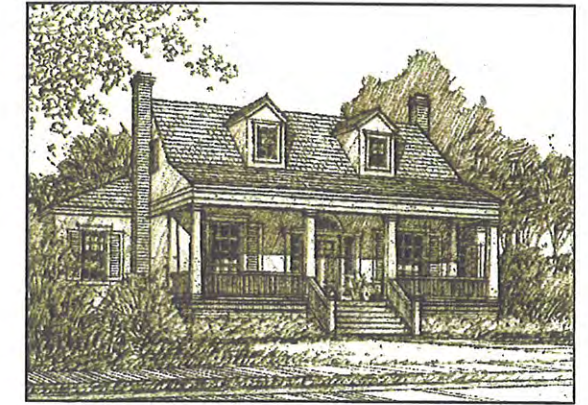
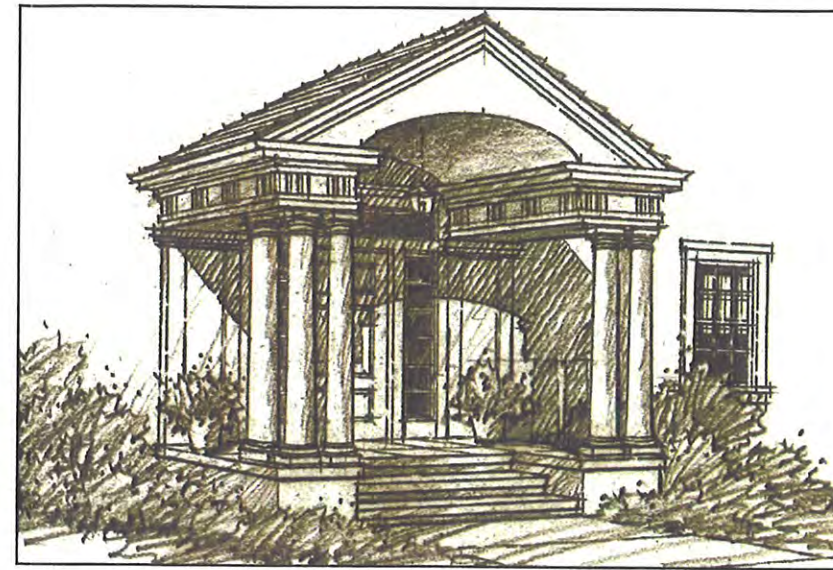
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BASIC ELEMENTS OF AMERICAN CLASSIC

Stoop



Portico



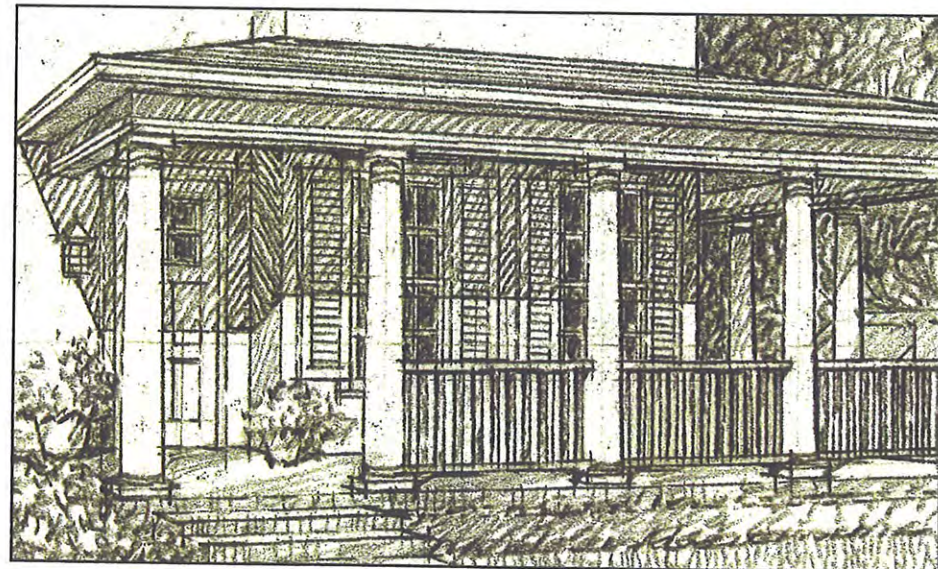
American Classic houses must have prominent pedimented entrance porticos or porches, with freestanding columns or pilasters, usually detailed in simplified versions of Tuscan, Doric, or Ionic orders. Porches can be one or two-stories with either flat or shallow hipped roofs; they can be partial or full front porches; many entry porches are topped by open balconies. The Dutch Colonial types have Gambrel roofs with entry porticos or full-front porches. Porches, stoops, and terraces must be elevated a minimum of 10".

Column variations include 10- and 12-inch-diameter Doric and Ionic order columns. Other column types include special stucco round columns, and square panel box columns.

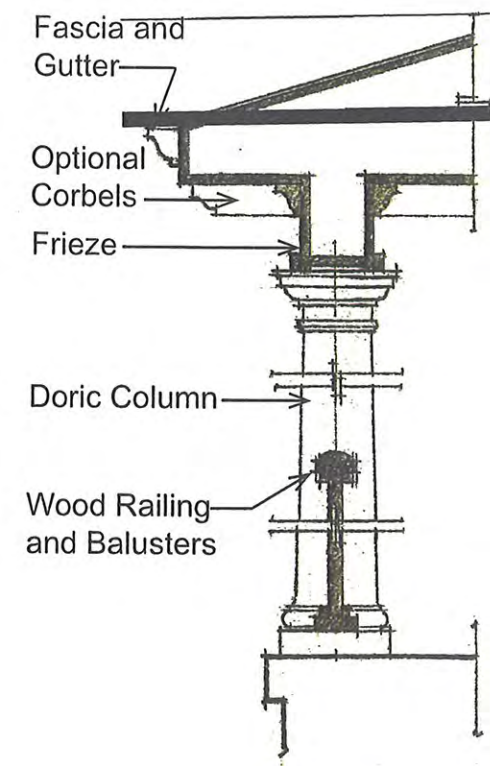
Houses without a stoop, portico, or porch must have a terrace or courtyard.

For courtyard and fence details, refer to the Section E - Master Fencing Program.

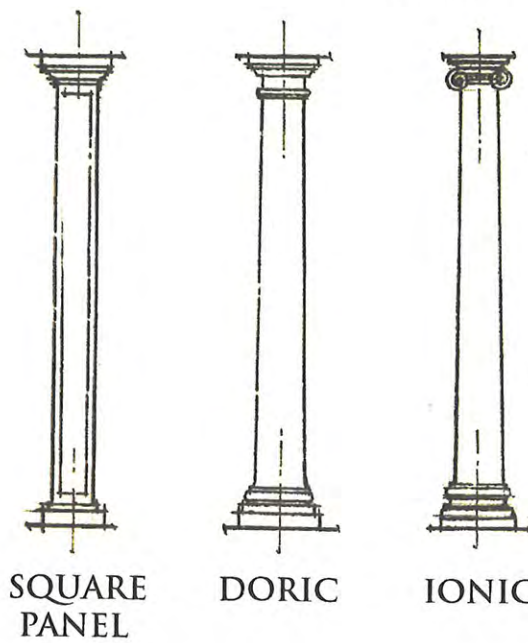
Porch



Porch/Baluster Detail



Columns



SQUARE PANEL

DORIC

IONIC



ENTRANCES AND OUTDOOR SPACES

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BASIC ELEMENTS OF AMERICAN CLASSIC

Materials

Cladding: Smooth stucco, stone, lap siding, shingles, or brick

Roofing: Composition, concrete, or cedar shingles. If not architectural grade shingles, must boost shingles at overhangs, hips, and ridges

Windows: Energy efficient wood, metal, or vinyl-clad wood, vinyl or steel frames and sashes with gridded windows on elevations facing public streets, side streets, or public open space

Trim: Wood, synthetic board, or polymer millwork

Columns: Fiberglass reproductions, polymer, or wood with classical emphasis and proportions

Railings: Straight or turned balusters with wood milled top and bottom rails

Eaves, soffits and porch ceiling: Stucco, smooth surface composition board, plaster, t & g wood, or polymer reproductions

Gutters: Metal with an ogee or half-round edge

Downspouts: Metal, round

Shutters: Fiberglass, wood, or polymer reproductions mounted as if operable and sized to cover the opening

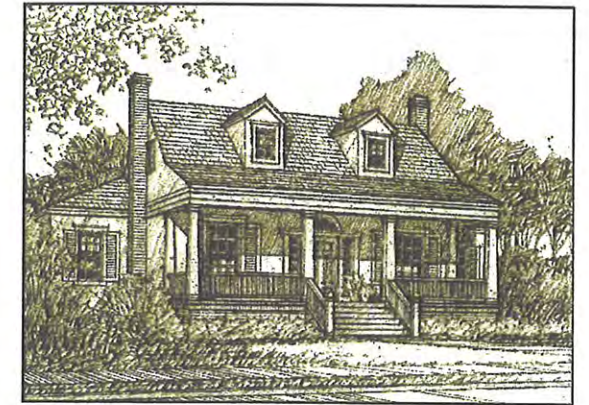
Exposed Foundations: (Over 12" vertical exposure) Stucco, brick, or stone required on elevations facing public streets, side streets, or public open space

Chimneys: When included, stucco, brick, or stone

Fences: Refer to Section E - Master Fencing Program

Lighting: Shielded or cut-off luminaires to direct light down

NOTE: REFER TO V ZONE ARCHITECTURAL DESIGN STANDARDS, TABLE V-3 FOR PERMITTED MATERIALS AND CONFIGURATIONS



Colors

Cladding: White, grey, light yellows, tans, caramel, light grey, medium grey, blue/grey, slate/grey, light green, grey/green, sea green, brown/green, taupe, or muted barn red

Brick: Red tones

Windows: White, tan, with an option to add neutral colors

Doors and Shutters: Black, dark green, dark blue, or burgundy, or off-white

Garage Doors: Match predominant cladding color; trim may be another color but should not increase prominence of the doors

Columns, and Trim: White, earthtones

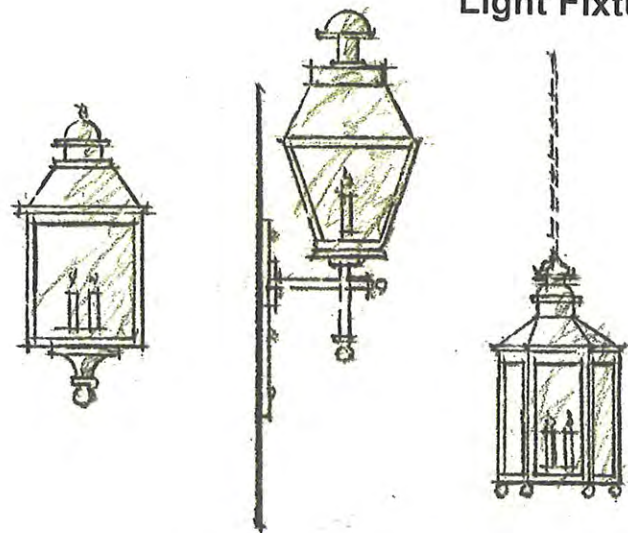
Roof Shingles: Weathered wood blend, and, black or dark gray
Note: all projections through the roof must be painted to match the roof

Gutters: Match trim color or natural copper color

Downspouts: Match siding color or natural copper color

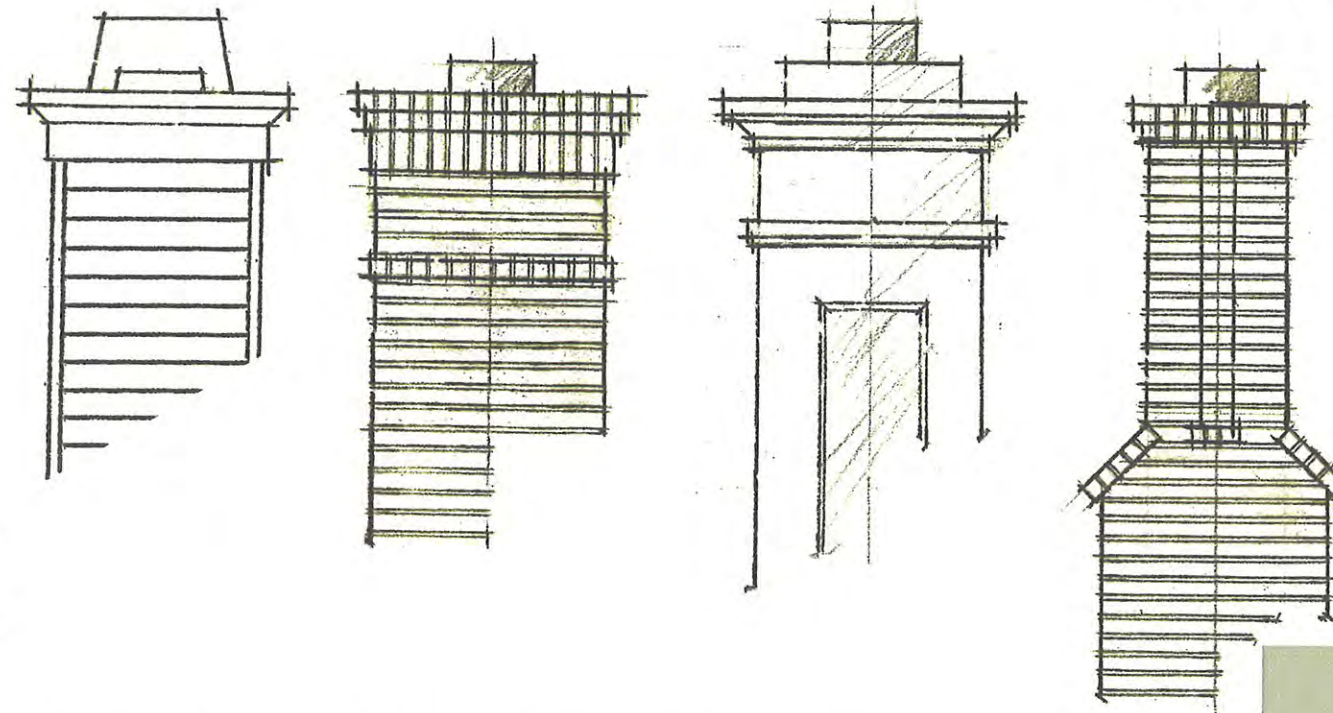
Fencing: Refer to Section E - Master Fencing Program

Light Fixtures



These are examples of light fixtures shown for character style; fixtures at porches and projections may also be a simplistic version or may be recessed

Chimneys

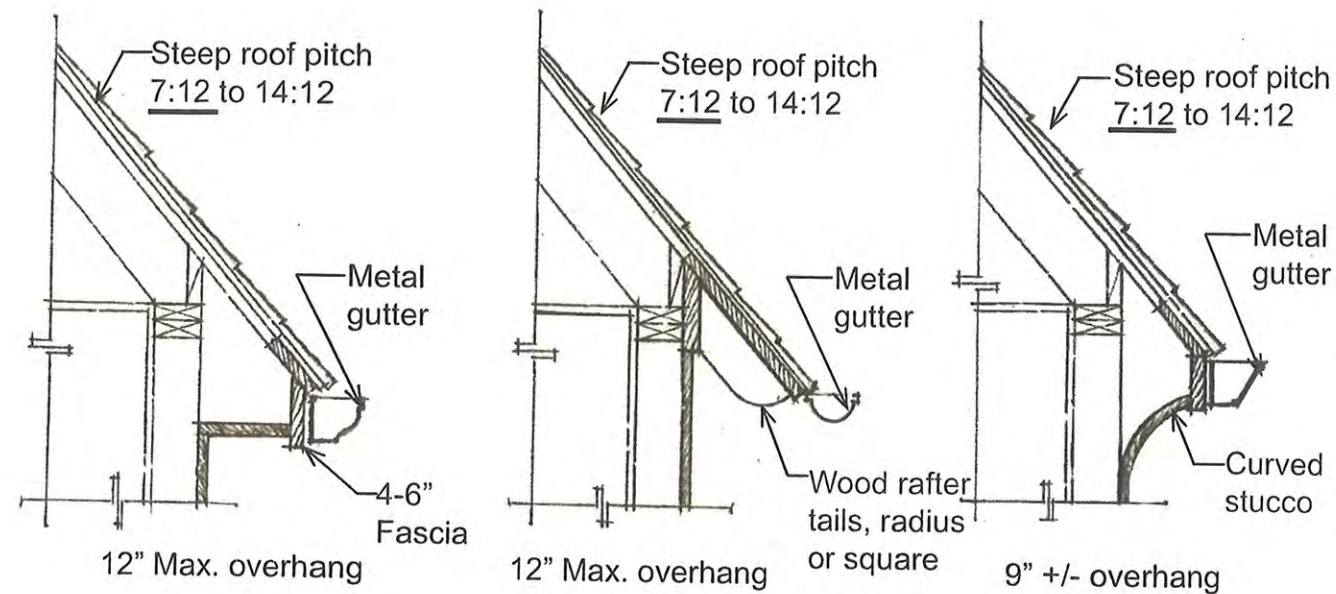


MATERIALS, COLORS, LIGHT FIXTURES, AND CHIMNEYS

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BASIC ELEMENTS OF AMERICAN CLASSIC

Eave Details



BOXED

OPEN

CURVED

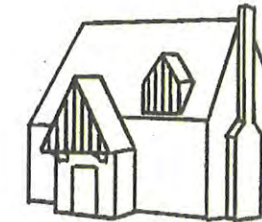
Boxed or open rafters are allowed

Massing and Composition

The interpretations of English Revival include a simple side-gabled box with a steeply pitched roof, which can have decorative half-timbering in the gable ends. The roof typically has little or moderate eave extension.



Multi-gabled facades on a side-gabled roof are also common in English Revival. Gable ends generally have no eave/overhang, except at half-timbered areas, where they may overhang up to 18".



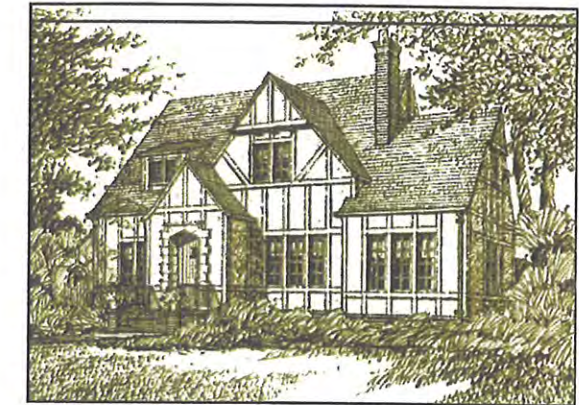
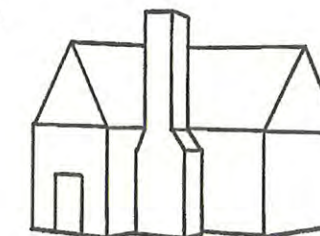
Overlapping gables with eave lines of varying heights are common. Telescoping gables, also known as catslides, are often found on this style. The rooflines often extend below windows on the second floor, and to the top of windows at first floor.



The character of the English Revival house is enhanced by the addition of wings and extensions, which through massing or detailing, appear to have been added.

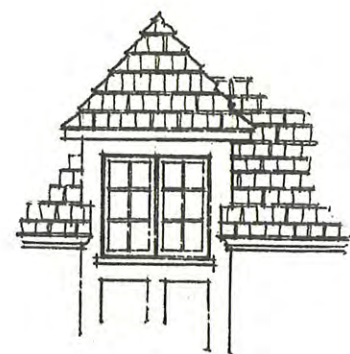


The one-and-a-half or two-story gable L form is appropriate on wider lots. Chimneys typically act as primary forms for the massing of the house; they are usually very large and located on the front or side of the house.

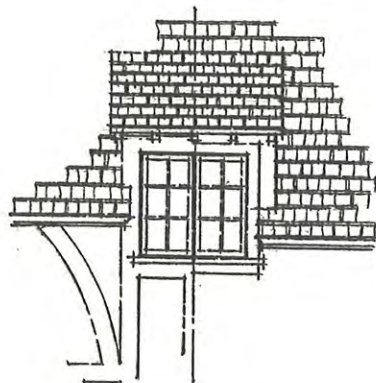


Basic Elements

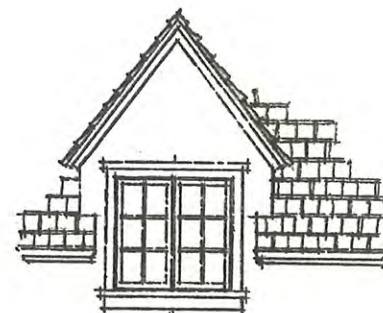
- Steeply pitched shingled roof, usually side-gabled; façade dominated by one or more prominent cross gables
- Roof lines extend below windows at second floor, and to top of window at first floor; little or moderate eave extension
- Exterior walls finished with stucco, stucco board and battens, brick, or stone, often with false half-timbering; use of a variety of these wall materials is common.
- Casement and single-hung windows with small panes; usually arranged in series, mostly groupings of three
- May have massive chimneys, commonly on front or side of the house and crowned with decorative chimney pots
- Entrance porticos with arched projection or shed roof; porches enclosed under extensions of main roof
- Dominant form is one of a solid mass with multiple small openings



HIPPED



SHED



GABLE

Dormers

Dormers through the cornice are recommended on elevations facing a public street, side street, or public open space, but are not required



Villebois

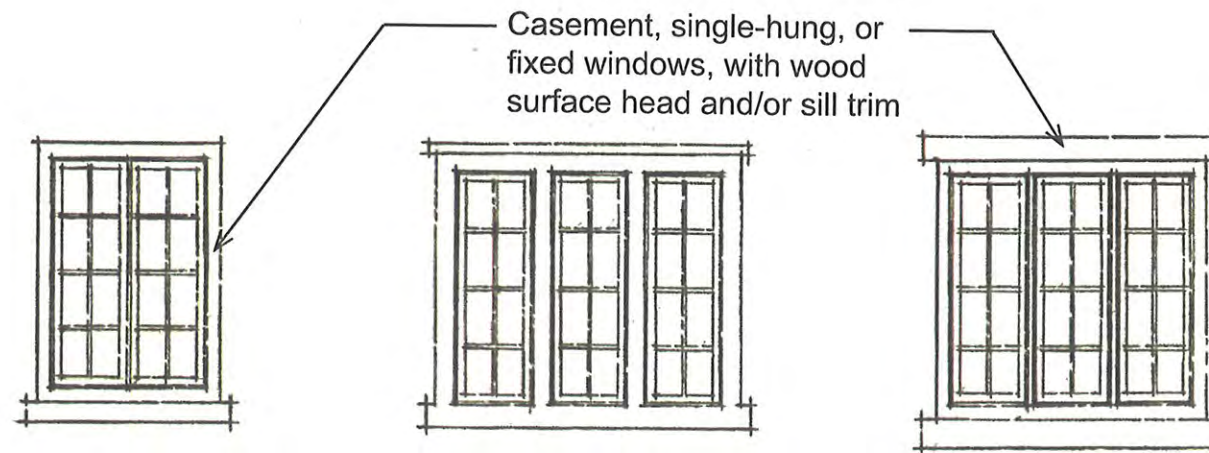
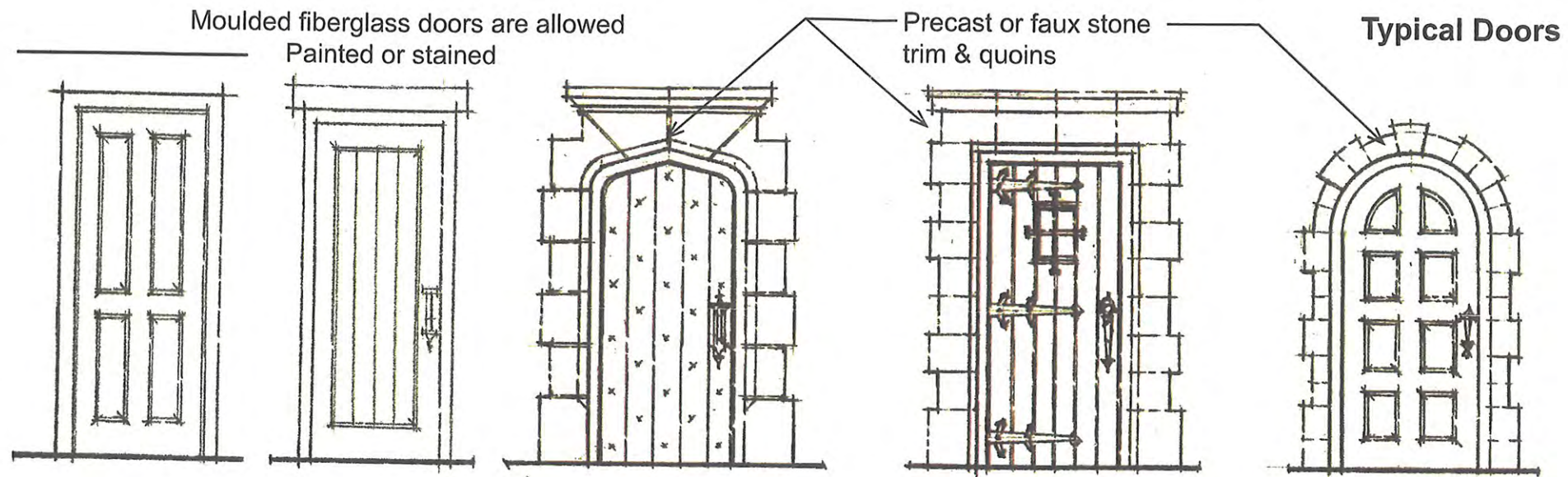
MASSING AND ROOF FORMS

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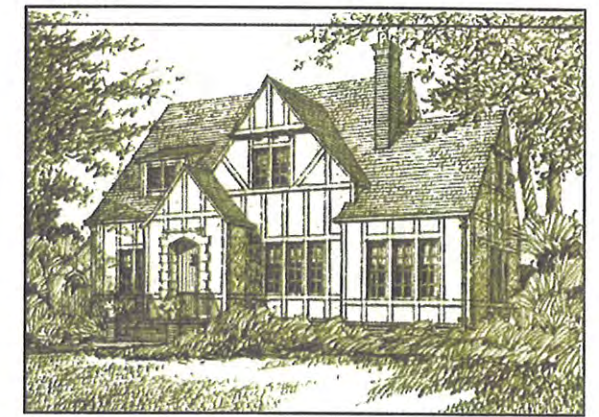
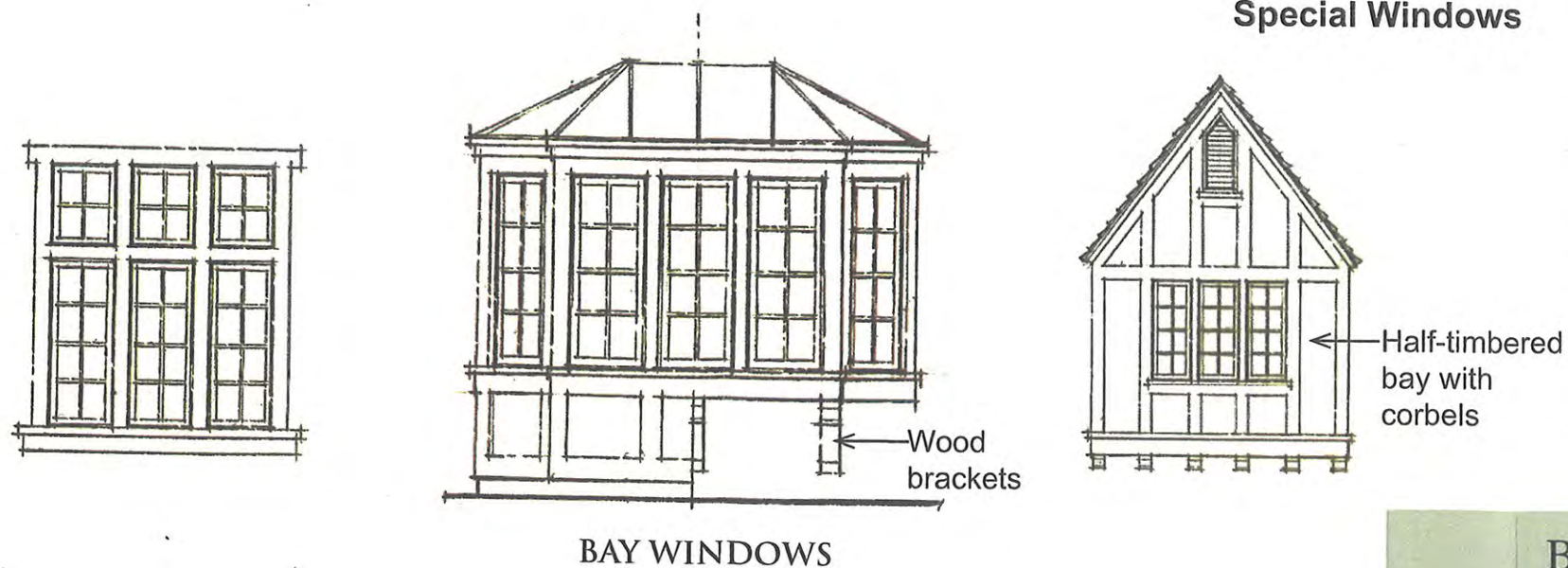
BASIC ELEMENTS OF ENGLISH REVIVAL

Garage Doors

Garage door style must match the facade design. Garage door proportions should be 9' wide by 8' high. If necessary, a 7' high opening may be designed to look like an 8' high opening. As an alternative, a custom 16' wide door delineated to look like two individual 8' wide by 7' high doors may be used. If the garage is set back from the facade, such as behind a portico or at the rear of the lot, then a 16' wide by 7' high door is acceptable. Garage door windows are not allowed on English Revival. See examples, pg. D2.



Typical Windows



In the English Revival style entrances are desirable places to add detailing. Typical entrance doors are plank/board or panel type single doors, often with a round or arched top and wrought iron accents, and commonly with little or no glass. Entry doors not covered shall be recessed 12-18".

Windows to be vertical in proportion. On public facades, recess windows at least 2", preferably with stucco board or stone return. On small English Revival houses, recess can be created by a 1-1/2" or more depth of trim for affordability. Lintels and sills are only required on non-stucco board elevations. Windows with divided-light appearance are required on public facades.

On non-public sides of the facade, it is not required to maintain vertical window alignment between stories or use windows with divided-light appearance; may use windows with width no more than 1-1/2 times height. If windows exceed 4' in width, they must have a vertical divider. Recessed windows are not required on non-public sides of the facade, window trim is required if windows are not recessed.

Special windows include bays and skylights. Skylights may be used on the rear-facing roof slope; skylight color must coordinate with the roof color.



DOORS AND WINDOWS

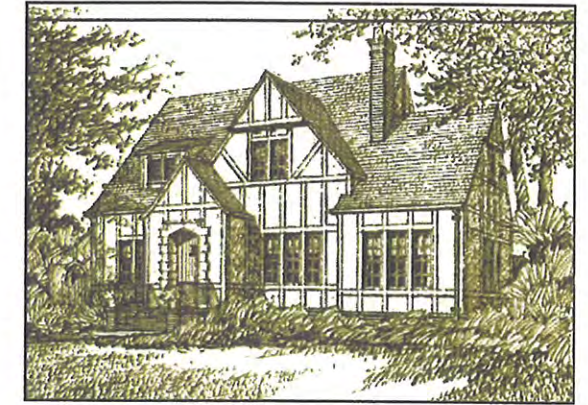
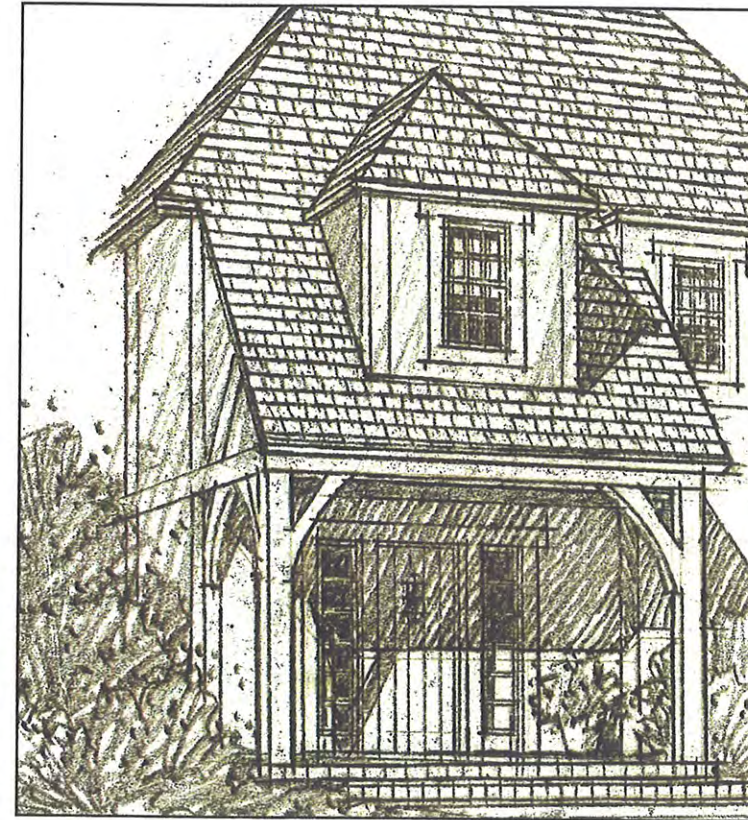
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BASIC ELEMENTS OF ENGLISH REVIVAL

Stoop



Portico



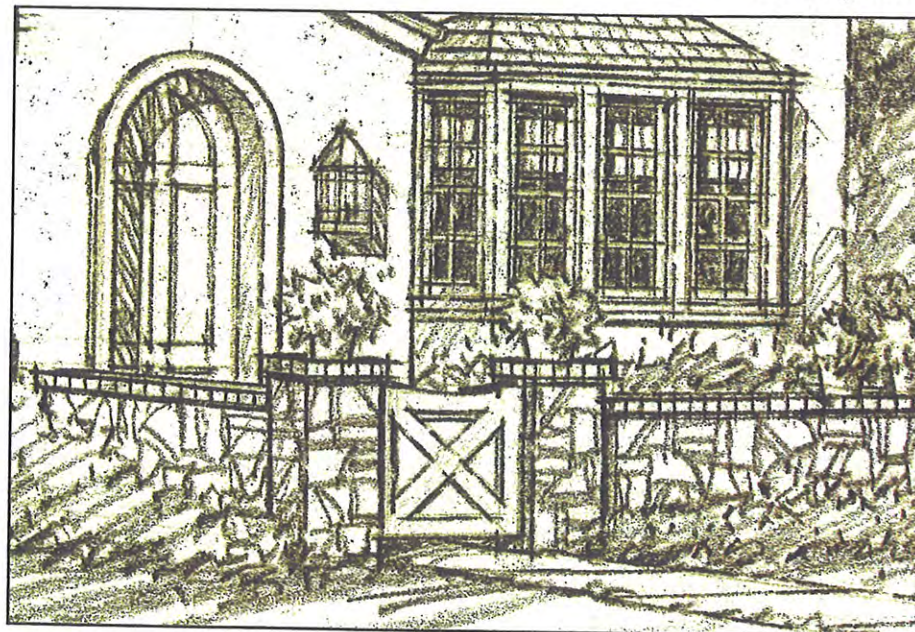
Raised stoops, porches and low-walled courtyards are important elements in the English Revival house's relationship to the pedestrian and the street. Porches are not dominant features of the typical English Revival style but are encouraged at Villebois. Porches must be focused at entrances and side wings and they should be understated. They feature post and beam construction, shed roofs, and arched braces between posts and beams.

Porches, stoops, and terraces must be elevated a minimum of 10".

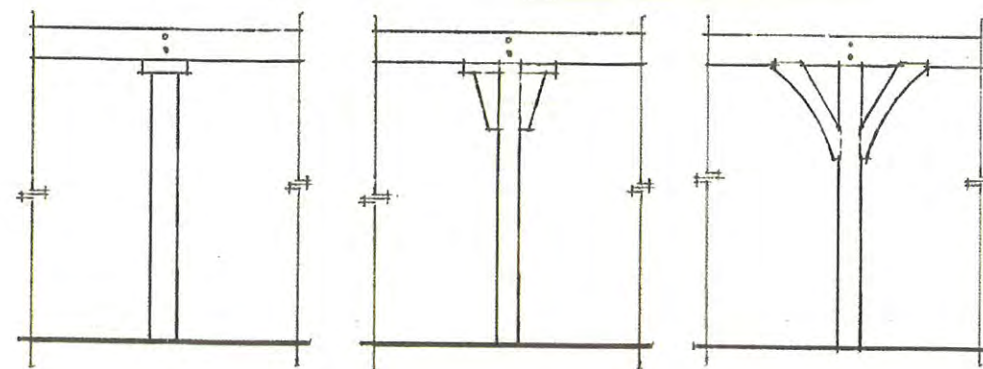
Houses without a stoop, portico, or porch must have a terrace or courtyard.

For courtyard and fence details, refer to Section E - Master Fencing Program.

Courtyard



Post Braces



Post size minimum 6 x 6



ENTRANCES AND OUTDOOR SPACES

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BASIC ELEMENTS OF ENGLISH REVIVAL

Cladding: Stucco with hand-made, plaster appearance, stucco board with battens, plaster, brick, or stone must be predominant on elevations facing a public street, side street, or public open space; skirl board, lap siding, shingles, or board and batten may be subdominant and may also be used on other elevations; stucco board may be used in half-timbering areas.

Half-Timbering: Decorative half-timbering in the gables is very common and can occur on the entire second story or in the upper gables. Where half-timbering is used at second stories, the plane should overhang the first floor 8 to 15 inches, supported by corbels below.

Roofing: Slate tile, flat concrete tile, composition shingles, or cedar shingles. If not architectural grade shingles, must boost shingles at overhangs, hips, and ridges

Windows: Energy efficient wood, metal, or vinyl-clad wood, vinyl or steel frames and sashes; with gridded windows on elevations facing a public street, side street, or public open space.

Columns: Wood posts

Trim: Ornamental cast stone or wood

Eaves, soffits, and porch ceiling: Plaster, stucco, boxed wood or stucco board, fiber-cement board, t & g wood or plywood; must use t & g wood or plywood with rafter tails

Gutters: Metal or wood with a half-round, ogee, or square profile

Downspouts: Round metal

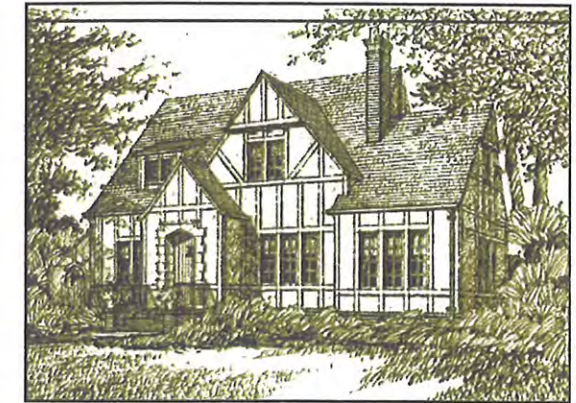
Chimneys: When included, stucco with hand-made / plaster appearance, or masonry

Fences: Refer to Section E - Master Fencing Program

Lighting: Shielded or cut-off luminaires to direct light down

NOTE: REFER TO V ZONE ARCHITECTURAL DESIGN STANDARDS, TABLE V-3 FOR PERMITTED MATERIALS AND CONFIGURATIONS

Materials



Colors

Cladding: White, ivory, creamy light tans, medium to dark tans, buff, khaki/green, brown/green, sage/green, grey/brown, tobacco

Half-timbering: Dark brown stain, brown or grey-brown paint

Roof: Dark brown, and weathered wood blends

Note: all projections through the roof must be painted to match the roof

Windows: Sashes and frames to be tan, and an option to add neutral colors.

Garage Doors: Match cladding or trim color; trim may be another color but should not increase the prominence of the doors

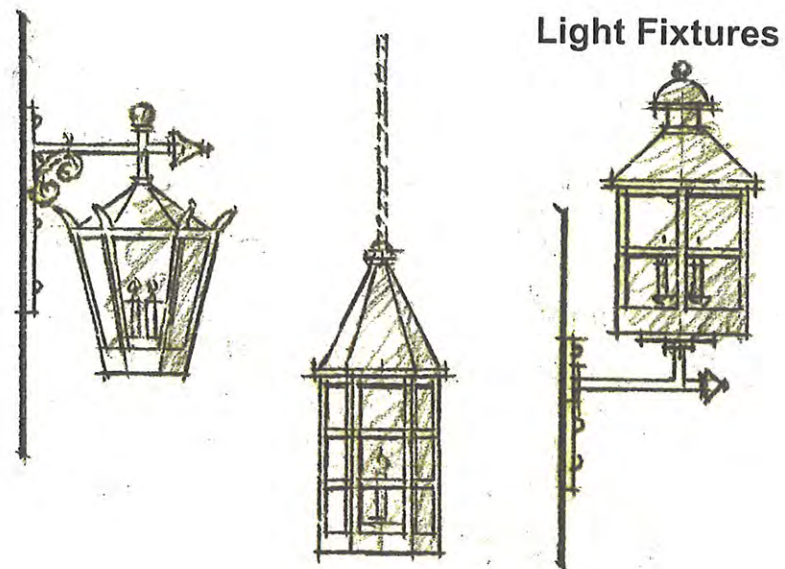
Trim: Dark brown stain, brown or grey-brown paint

Gutters: Earth tones recommended

Downspouts: Earth tones recommended

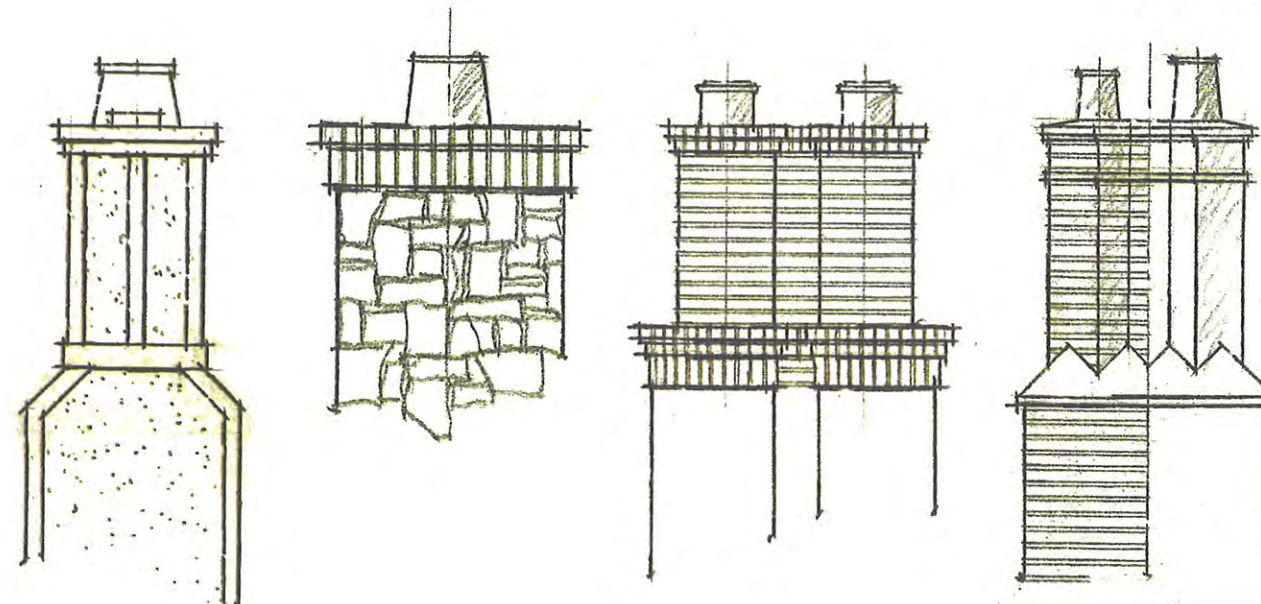
Fencing: Refer to Section E - Master Fencing Program

Chimneys



Light Fixtures

These are examples of light fixtures shown for character style; fixtures at porches and projections may also be a simplistic version or may be recessed



Chimneys

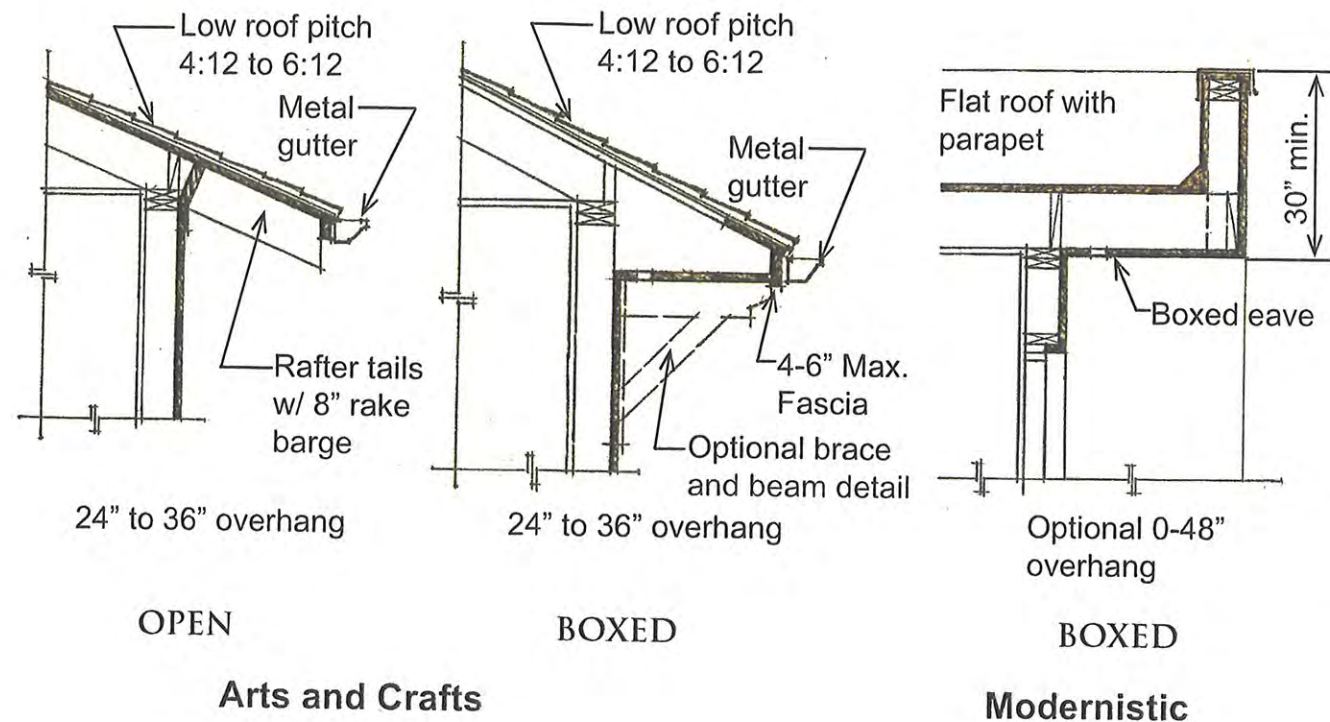


MATERIALS, COLORS, LIGHT FIXTURES, AND CHIMNEYS

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BASIC ELEMENTS OF ENGLISH REVIVAL

Eave Details

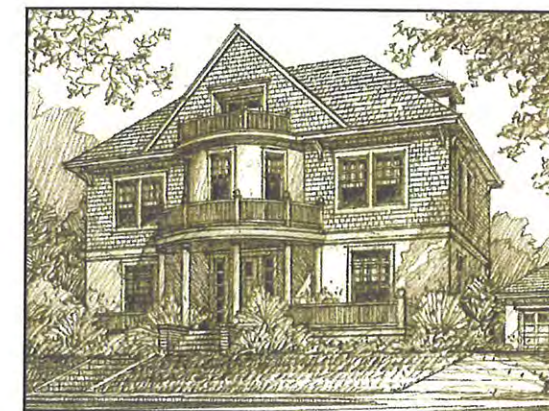


Massing and Composition

Arts and Crafts

The basic Arts & Crafts house is a Craftsman style that typically has a simple straightforward volume, normally one to one-and-a-half stories. The roof is low-pitched, end or side-gabled, with widely extended unenclosed eaves, usually supported by beam extensions or brackets. This subtype characteristically has a prominent front porch open to the street.

Arts and Crafts houses are also commonly built in a Prairie Box or Foursquare shape which is two-story with a low pitched hipped roof and front roof dormers. The roof has widely extended boxed-in eaves, sometimes supported by brackets. The basic plan is often augmented with a porch or one-story room attachment.



Basic Elements:

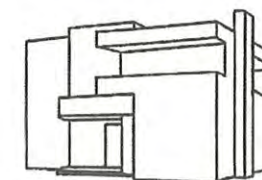
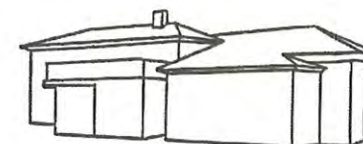
The American Modern style is composed of two subtypes - Arts and Crafts, including Prairie and Craftsman, which turned its back on historical precedent for decoration and design, and Modernistic, where the emphasis was on standardization of parts, absence of all non-functional decoration, and simple structural forms. It incorporates a number of progressive ideals of the early 1900's such as the straightforward use of materials, an informal way of living and accessibility to the outdoors.

- Roofs vary from steeply gabled to flat with multiple planes
- Simple composition of one or one-and-a-half or two stories
- Smooth exterior wall surfaces with simple or no decorative detailing at doors and windows
- Embellishment limited to expressive functional/structural detailing or the addition of natural materials that are native to the region
- Generous use of windows

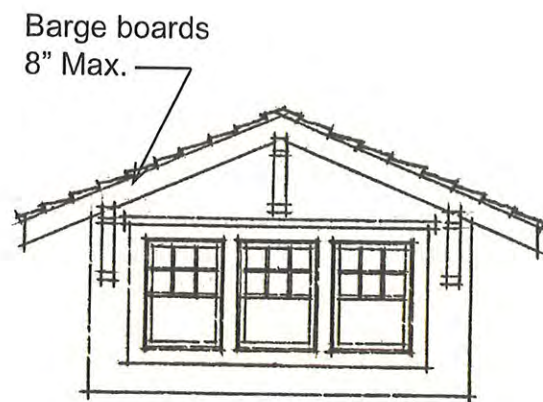
Modernistic

The Modernistic house subtype typically is composed of simple, asymmetrical shapes, which form a sculptural mass. Roofs are low sloped with extensive cantilevered eaves, often with multiple roof planes.

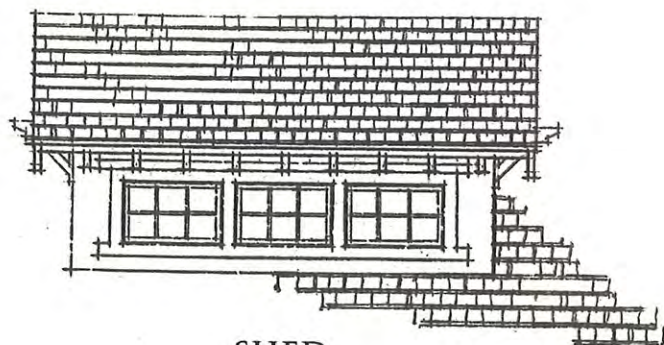
Modernistic houses also often have flat roofs that can have a parapet wall or wide boxed overhangs. One or more corners of the building may be curved, and cantilevered projections such as roofs, balconies, or second stories are common. Upper stories may also step back from lower ones creating balconies.



Dormers - Arts & Crafts



GABLE



SHED



MASSING AND ROOF FORMS

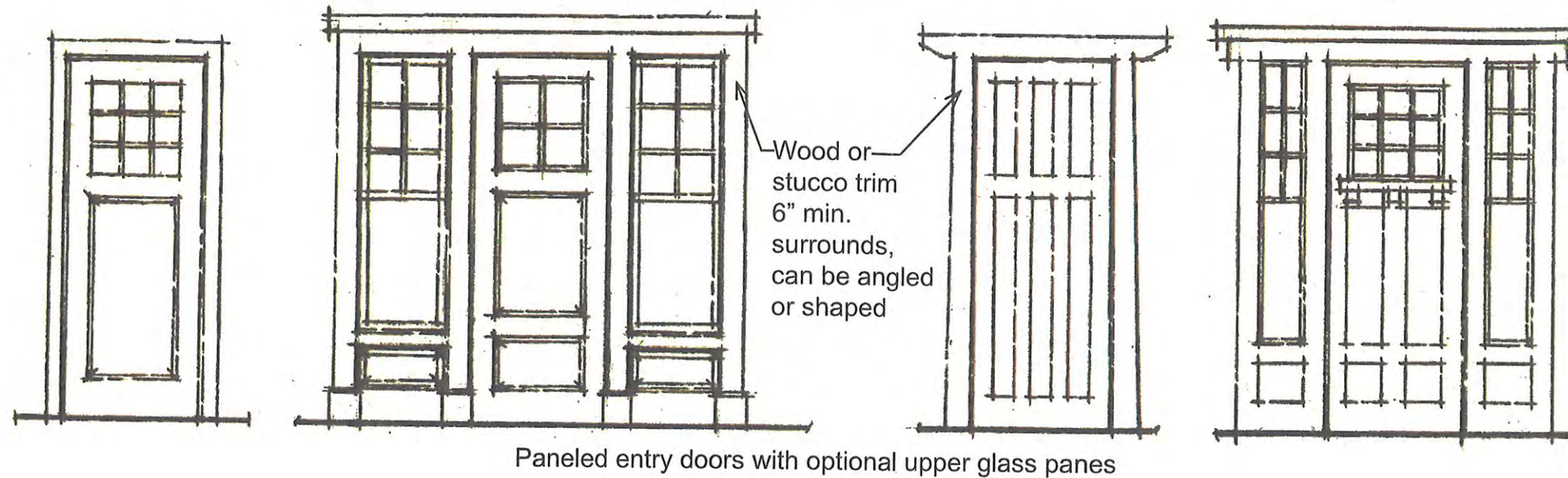
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BASIC ELEMENTS OF AMERICAN MODERN

Garage Doors

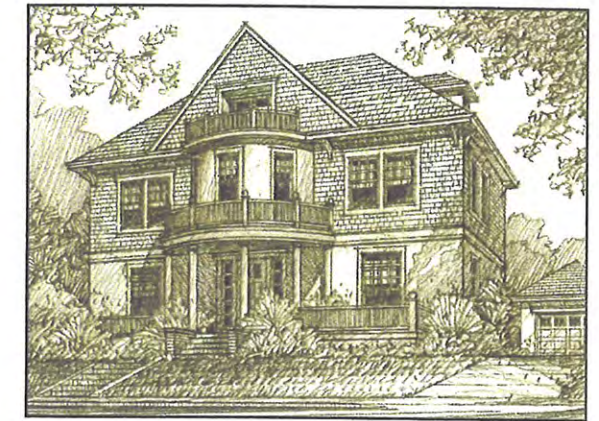
Garage door style must match the facade design. Garage door proportions should be 9' wide by 8' high. If necessary, a 7' high opening may be designed to look like an 8' high opening. As an alternative, a custom 16' wide door delineated to look like two individual 8' wide by 7' high doors may be used. If the garage is set back from the facade, such as behind a portico or at the rear of the lot, then a 16' wide by 7' high door is acceptable. Windows on garage doors are encouraged for American Modern. Non-rectilinear window shapes are not allowed. See examples, pg. D2.

Moulded fiberglass doors are allowed, painted or stained



Paneled entry doors with optional upper glass panes

Typical Doors



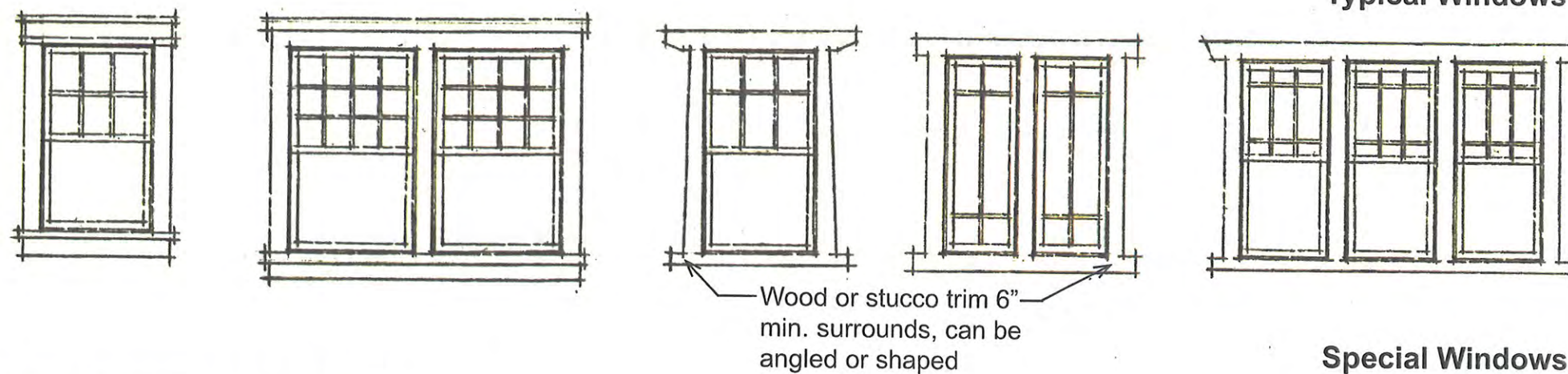
The doors on American Modern Arts and Crafts houses are simple in design; they are often a stained wood panel door or a wood plank design. They may have transoms, and/or decorative, stained glass sidelights.

American Modern houses have an abundance of windows, usually single-hung but occasionally casements, and ganged together in 3, 4, or 5 window combinations. All windows on elevations facing public streets, side streets, or public open space shall have a divided-light appearance.

On elevations facing non-public areas, it is not required to maintain vertical window alignment between stories or use windows with divided-light appearance; window width may be no more than 1-1/2 times window height. If windows exceed 4' in width, they must have a vertical divider.

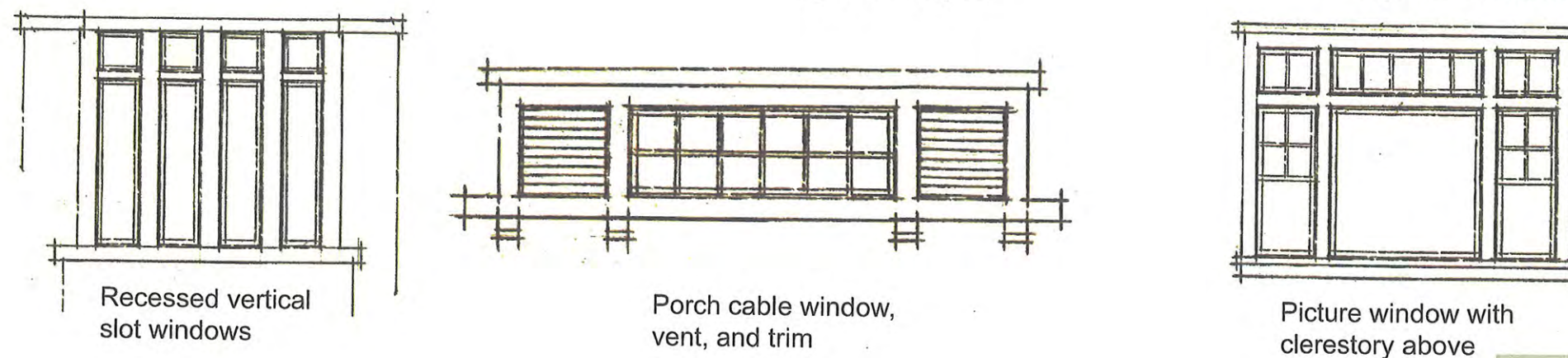
Special Windows include angled or boxed bay windows, small square windows, vertical slot windows, picture windows, stained glass, or other accent windows, and skylights. Skylights may be used on the rear-facing roof slope; skylight color must coordinate with the roof color.

Trim may be either a tapered or straight moulding, the head should extend beyond the jamb trim. A more formal house might use a cap molding.



Typical Windows

Special Windows



Recessed vertical slot windows

Porch cable window, vent, and trim

Picture window with clerestory above



DOORS AND WINDOWS - ARTS AND CRAFTS

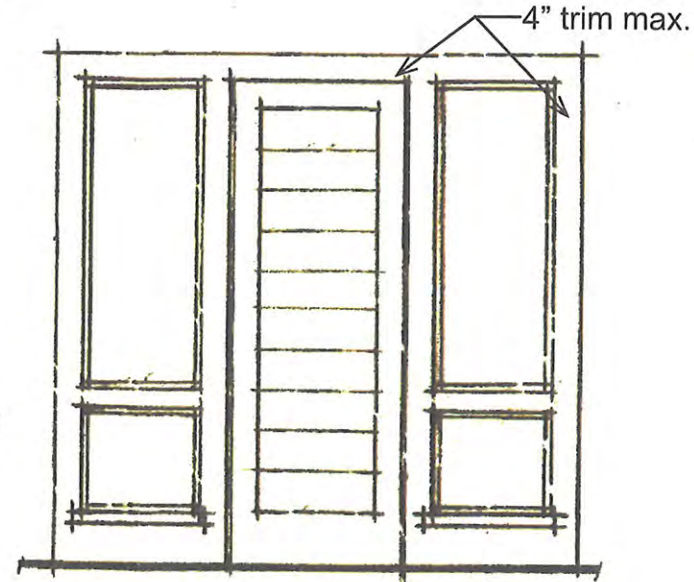
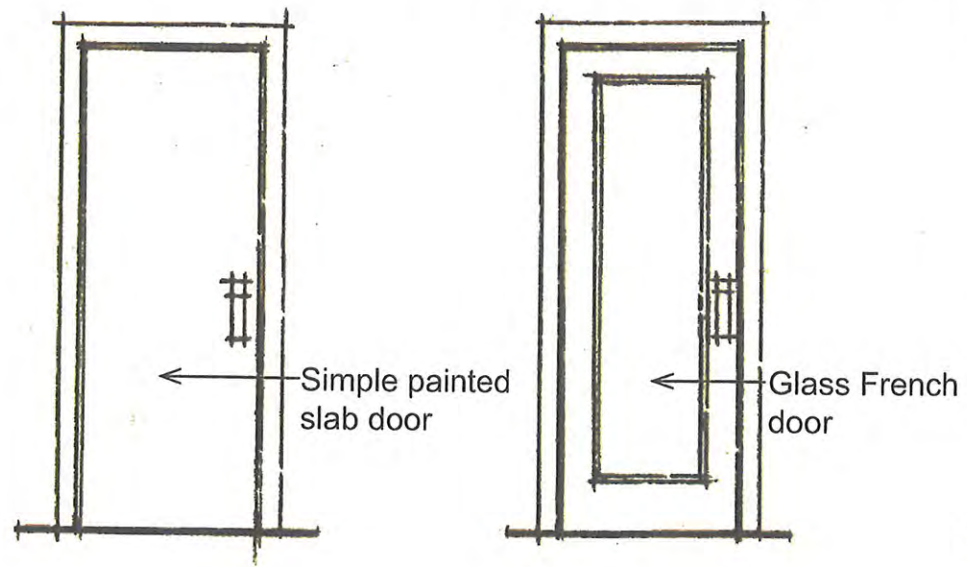
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BASIC ELEMENTS OF AMERICAN MODERN

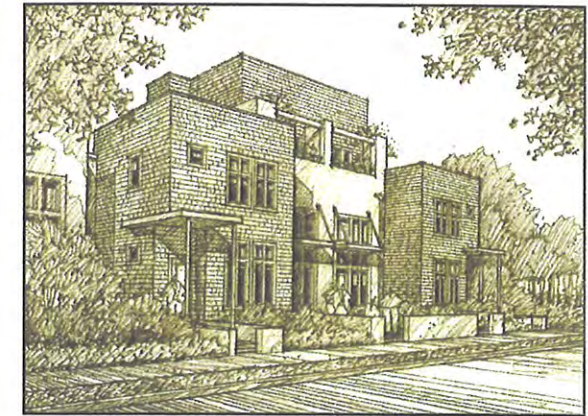
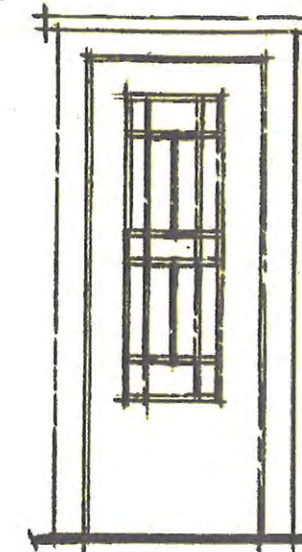
Garage Doors

Garage door style must match the facade design. Garage door proportions should be 9' wide by 8' high. If necessary, a 7' high opening may be designed to look like an 8' high opening. As an alternative, a custom 16' wide door delineated to look like two individual 8' wide by 7' high doors may be used. If the garage is set back from the facade, such as behind a portico or at the rear of the lot, then a 16' wide by 7' high door is acceptable. Windows on garage doors are encouraged for American Modern. Non-rectilinear window shapes are not allowed. See examples, pg. D2.

Moulded fiberglass doors are allowed; painted or stained



Typical Doors



The doors on Modernistic houses are to be simple in design; flush wood with a stained or painted finish. They are located at corners or wings, or set into a row of ribbon windows.

Modernistic houses have an abundance of windows, arranged in long ribbons; continuous bands of glazing with evenly spaced, thin, vertical mullions. Windows are usually casements, sometimes wrapping around building corners. Floor to ceiling windows and large picture windows are also common.

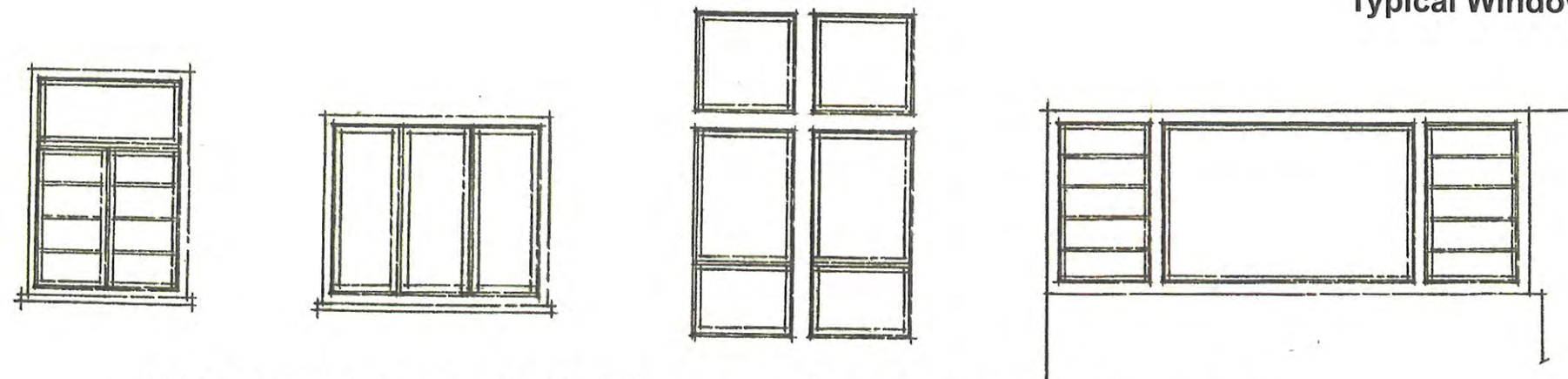
Special Windows include picture windows, small square windows and glass block, and skylights. Skylights may be used on the rear-facing roof slope; skylight color must coordinate with the roof color.

Trim is the simplest possible detail, or no trim on recessed doors and windows.

Windows on elevations facing public streets, side streets, or public open space must have divided-light appearance if front elevation uses them.

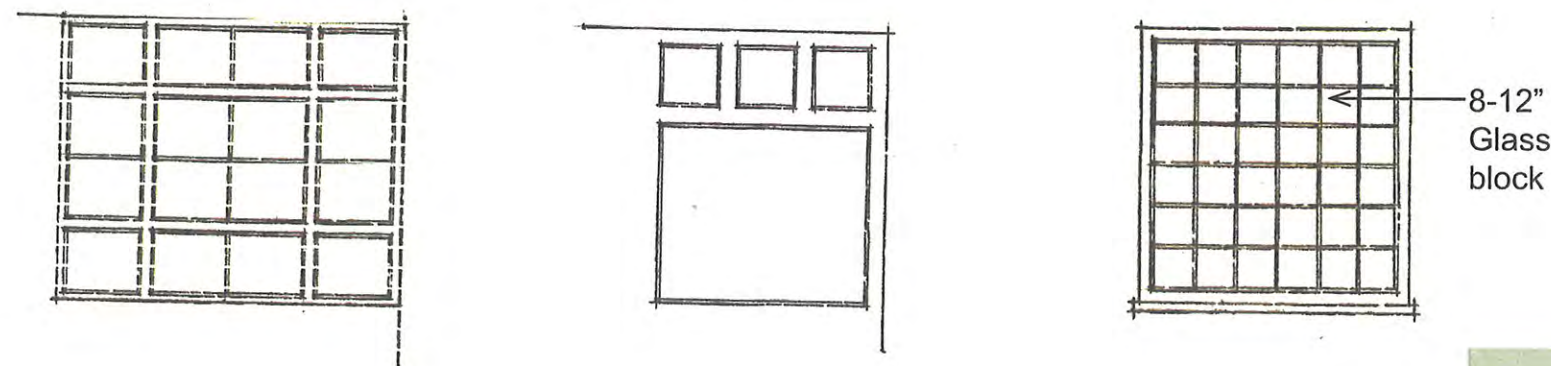
Elevations not facing onto public space are not required to maintain vertical alignment between stories or have divided-light appearance; may use windows with width no more than 1-1/2 times window height. If windows exceed 4' in width, they must have a vertical divider.

Typical Windows



Sliding, casement, awning, or fixed windows, recessed or surface mounted, minimal or no trim

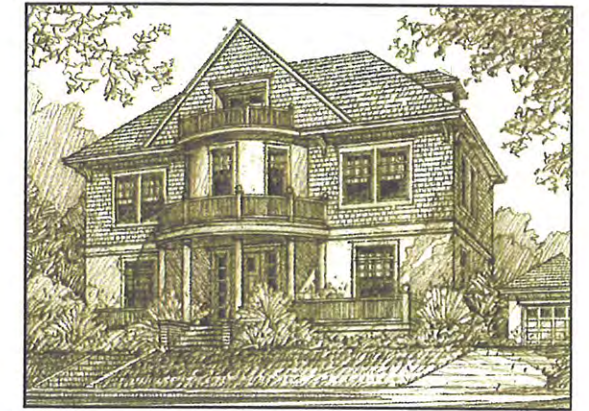
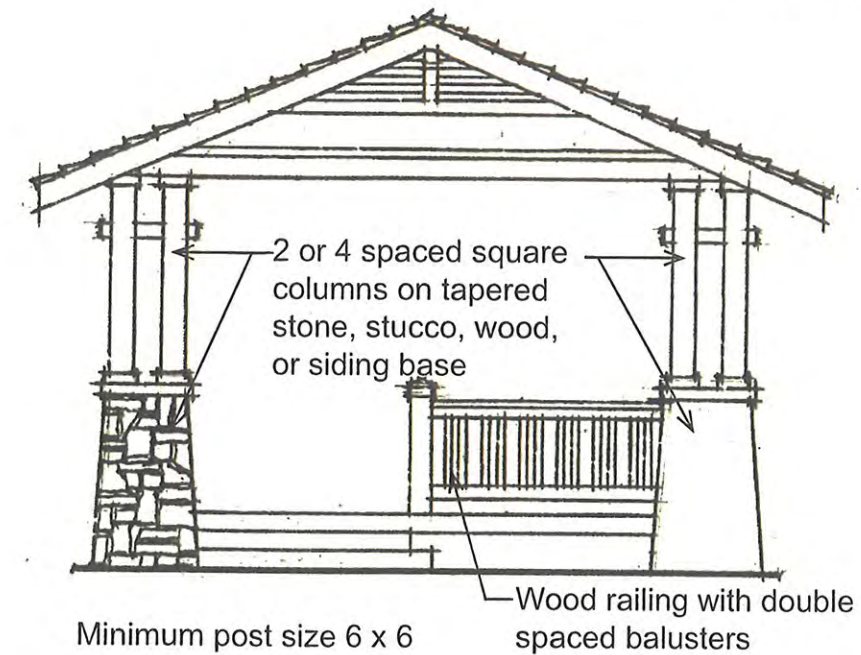
Special Windows



Porch



Porch Detail



Arts & Crafts houses have entrance doors under porches, often Craftsman style full-front porches with a wide variety of column styles typically used. Arts & Crafts styles also feature porch / balcony combinations or simple covered stoops and courtyards which relate well to the street and pedestrians. Porches may be incorporated into the main body of the house or stand-alone. Porches, stoops, and terraces must be elevated a minimum of 10".

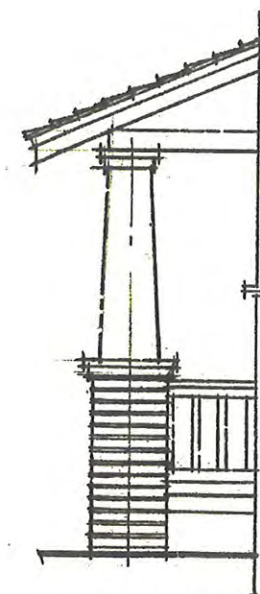
Houses without a stoop, portico, or porch must have a terrace or courtyard.

For courtyard and fence details, refer to Section E - Master Fencing Program.

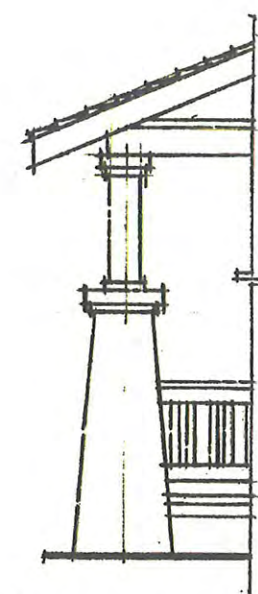
Portico & Balcony



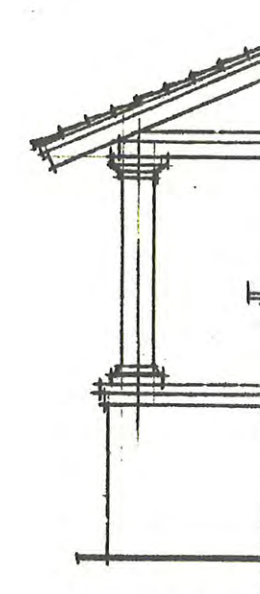
Column Variations



Square tapered column with brick base



Square column with tapered stucco, wood or siding base



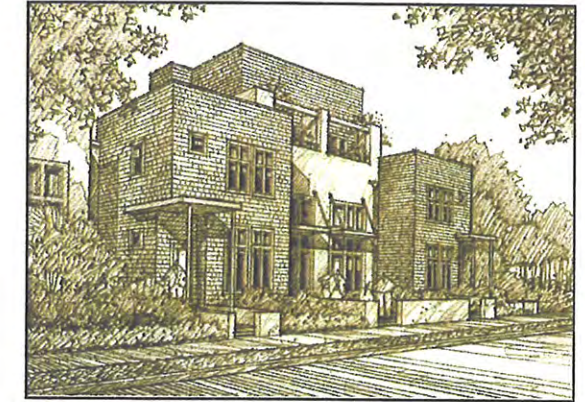
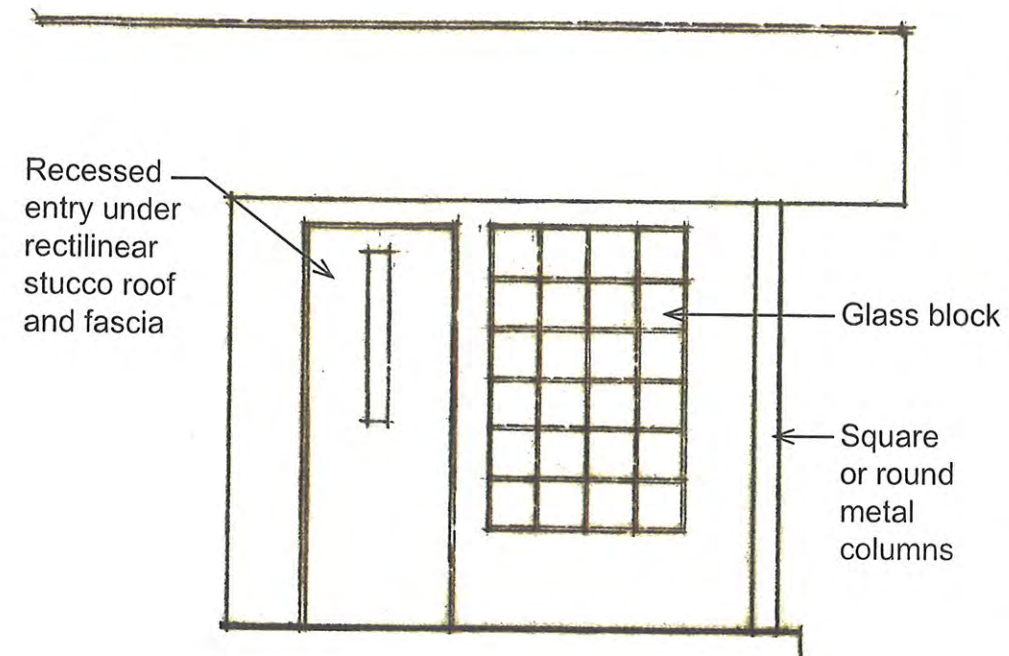
Round column on base wall



Courtyard



Entrance

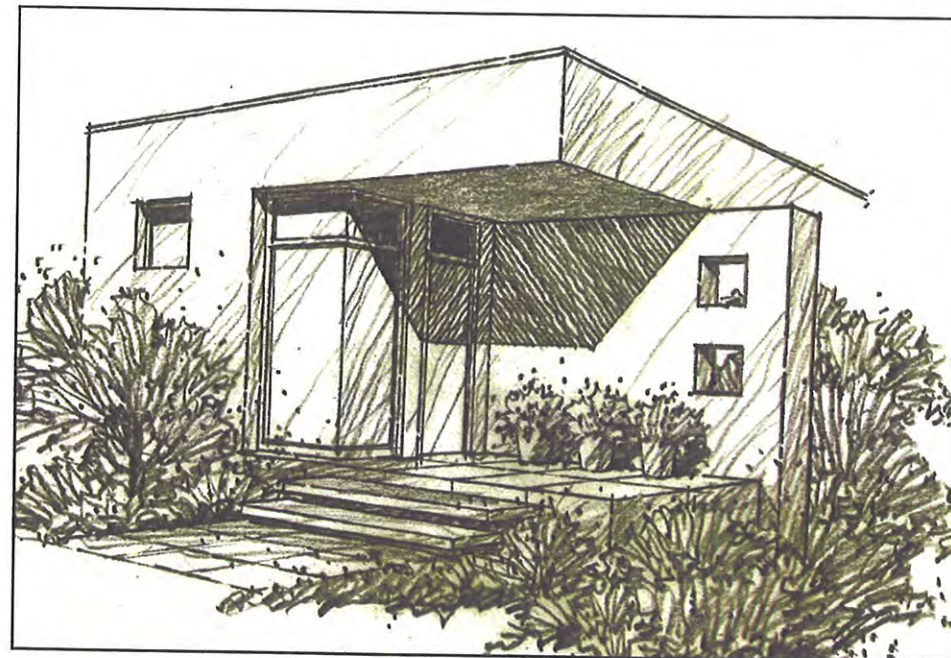


Modernistic houses often have entrance doors located off center under balconies or cantilevered projections. They have outdoor spaces such as courtyards and balconies which relate well to the street and pedestrians. Porches may be incorporated into the main body of the house or stand-alone. Porches, stoops, and terraces must be elevated a minimum of 10".

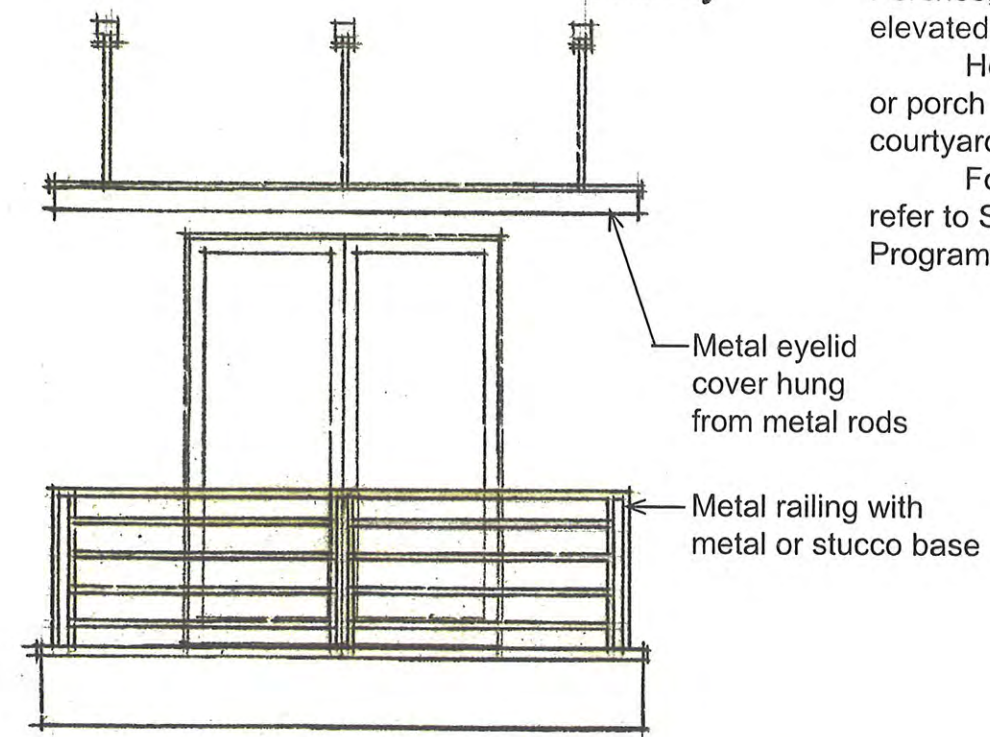
Houses without a stoop, portico, or porch must have a terrace or courtyard.

For courtyard and fence details, refer to Section E - Master Fencing Program.

Covered Stoop



Balcony



Cladding: Stucco, wood or fiber-cement lap or shingle siding, masonry, board and batten, or cast-in-place concrete (on Modernistic only)

Roofing: Composition or cedar shingles, concrete tiles, slate, and standing seam metal or built-up flat roofs (on Modernistic only). If not architectural grade shingles, must boost shingles at overhangs, hips, and ridges

Windows: Energy efficient wood, metal, or vinyl-clad wood, vinyl or steel frames and sashes

Trim: Wood, stucco, or synthetic board

Columns: Wood, siding, fiberglass, synthetic stone, brick, stucco, or cast concrete (on Modernistic only).

Eaves, soffits and porch ceiling: Plaster, stucco, stucco board, fiber-cement board, t & g wood or plywood; boxed

soffits are smooth, exposed eaves must use t & g wood or plywood with rafter tails

Railings: Iron, welded steel, or wood

Gutters: Metal with an ogee, half-round edge, or boxed

Downspouts: Metal, round or box

Exposed Foundations: (Over 12" vertical exposure) Stucco, brick, or stone required on elevations facing public streets, side streets or public open space only

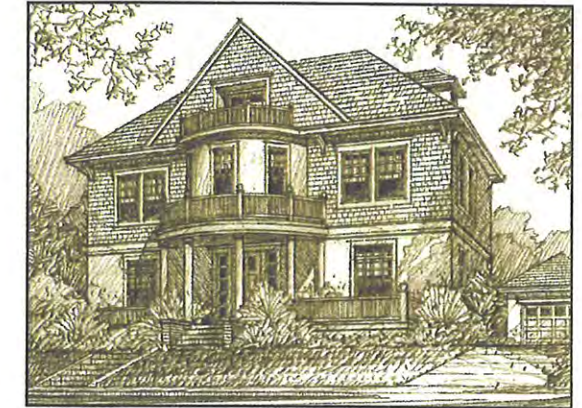
Chimneys: When included, stucco, brick, or stone

Fences: Refer to Section E - Master Fencing Program.

Lighting: Shielded or cut-off luminaires to direct light down

NOTE: REFER TO V ZONE ARCHITECTURAL DESIGN STANDARDS, TABLE V-3 FOR PERMITTED MATERIALS AND CONFIGURATIONS

Materials



Colors - Arts & Crafts

Cladding: Muted, light to medium tans, tan/rust, caramel, tobacco, muted terra cotta, light greens, blue/green, sage green, grey/greens, grey/brown, taupes and earth tones

Roof: Dark browns, and weathered wood blends

Windows: White, tan, option to add neutral colors

Garage Doors: Match cladding color, trim may be another color but should not increase the prominence of the doors

Trim: Dark to medium earthtones

Gutters: Match trim color, or natural copper

Downspouts: Match siding color, or natural copper

Colors - Modernistic

Cladding: Whites to very light muted grey earthtones

Roof: Dark browns, dark greys, and weathered wood blends

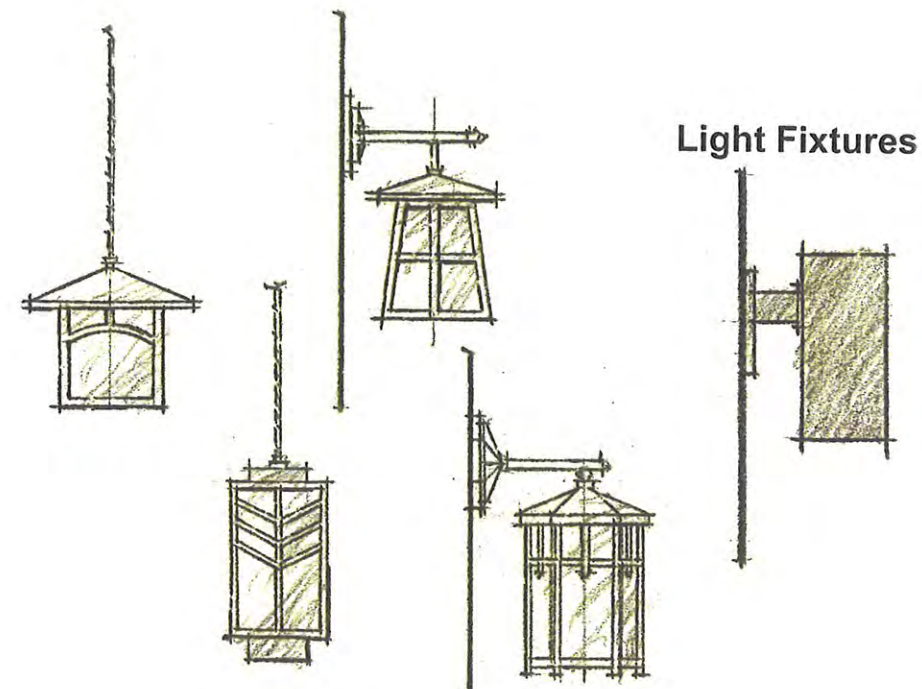
Windows and Doors: White or very dark colors-blue, green, terra cotta, earthtones, black

Garage Doors: Match cladding color, trim may be another color but should not increase the prominence of the doors

Trim, Gutters, Downspouts: Monochromatic with cladding

Fencing: Refer to Section E - Master Fencing Program

Note: projections through the roof must be painted to match the roof

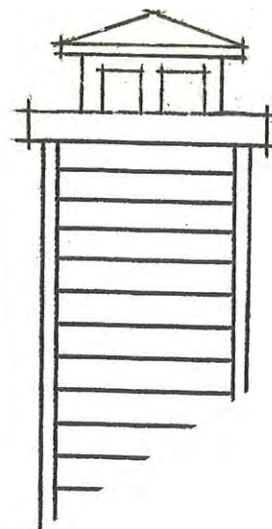


Light Fixtures

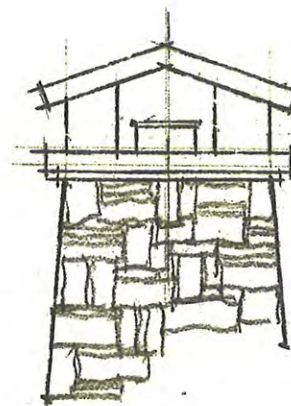
ARTS AND CRAFTS

MODERNISTIC

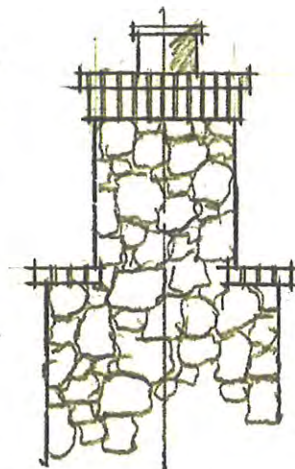
These are examples of light fixtures shown for character style; fixtures at porches and projections may also be a simplistic version or may be recessed



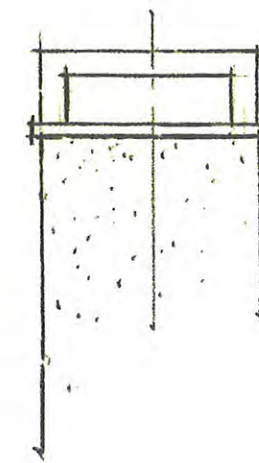
ARTS AND CRAFTS



Chimneys



MODERNISTIC



MATERIALS, COLORS, LIGHT FIXTURES, AND CHIMNEYS

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BASIC ELEMENTS OF AMERICAN MODERN

Architectural Styles C20

Diversity and Rules of Adjacencies

Diversity Since diversity is one of the guiding principals for Villebois, rules for allowable adjacencies and diversity are required. Houses and buildings based on the Appropriate Architectural Styles from the Architectural Pattern Book shall be combined using the Rules of Adjacencies to achieve the variety of styles required by the Villebois Village Master Plan.

Rules of Adjacencies This section is included to provide direction and examples for the Scale and Proportions requirement and Repetition issues in the Villebois Village Design Standards. The drawings are arranged on the following pages according to the land use type and the width of the front façade of the building. For each of the lot or land use types, examples are provided for each of the four Architectural Styles.

Drawings The drawings are the guidelines for proportions, scale and massing, composition of doors and windows, and additional examples of an Architectural Style. Although only the front elevation is shown, the other elevations of the building within the public view shed shall continue the style, massing and general composition as denoted on Page B1. In response to natural light and climate and to maximize daylighting, elevations not within the public view shed can have more glazing at the first floor and on second floors, and may have less detailing than is otherwise required.

Options The Architectural Style drawings illustrate patterns intended to be used only as a guideline for design. There are many other possibilities that would meet the Design Standards if they follow these examples of massing, composition, scale, and proportions appropriate for the width of the lot or land use type and the architectural style.

Adjacency For all lot types, no single family detached dwellings with both the same floor plan and style shall be plotted adjacent to each other or directly across the street from each other. For row houses and neighborhood apartments, no buildings with both the same composite floor plan configuration

and style shall be plotted on adjacent blocks. Adjacent row house and neighborhood apartment buildings separated by a green space or facing directly across the street from each other may be of both the same floor plan configuration and Style.

Small Lots Small lots may use the same style for up to 6 lots in a group when arranged on a courtyard.

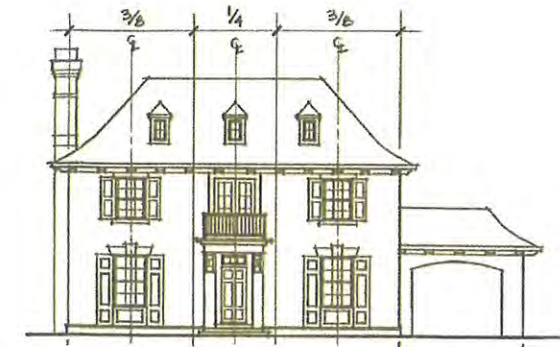
Small, Medium, Standard, Large & Estate Lots Required house style diversity for small, medium, standard, large and estate lots shall be as follows:

1. For five or less lots that are in-line along a street, or located directly across the same street, a minimum of one Appropriate Styles shall be utilized.
2. For six to twelve lots that are in-line along a street or located directly across the same street, a minimum of two Appropriate Styles shall be utilized.
3. For thirteen or more lots in-line on a street or located directly across the same street, a minimum of three Appropriate Styles shall be utilized.

Note: When more than one Style is required at least one shall be the European type.

Row Houses Required diversity for row houses shall be as follows:

1. For three or less buildings that are located in-line along a street or separated by a cross street, or four buildings plotted with two buildings directly across the street from two buildings, a minimum of one Appropriate Styles shall be utilized.
2. For four or more buildings that are located in-line along a street or separated by a cross street, or five or more buildings plotted directly across the street from each other, a minimum of two Appropriate Styles shall be utilized.



Required continuity for row houses shall be as follows:

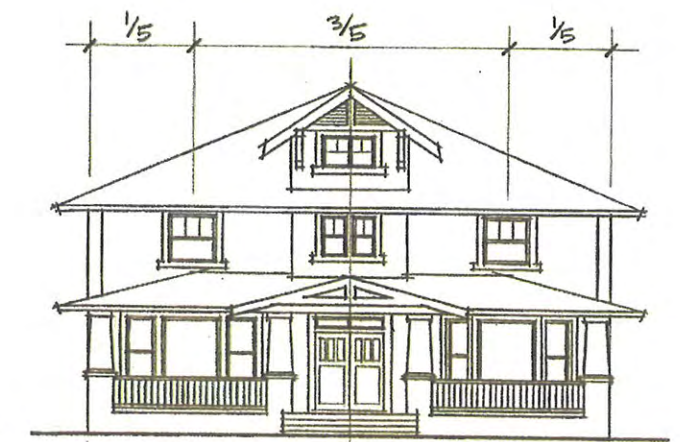
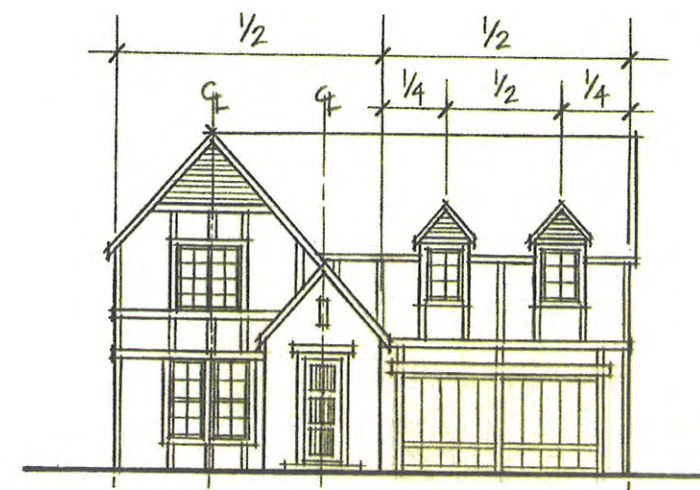
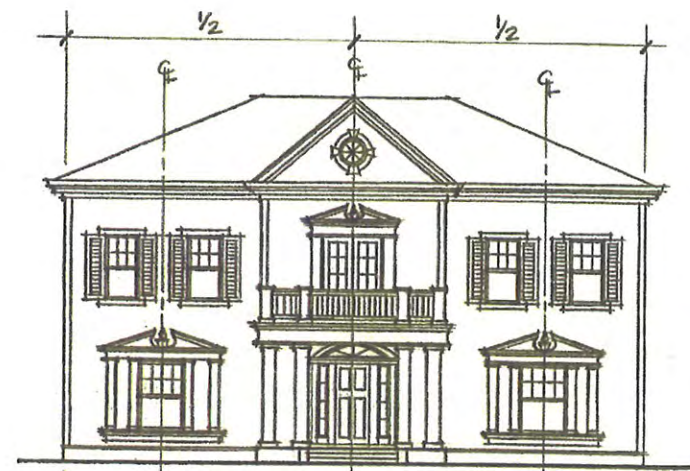
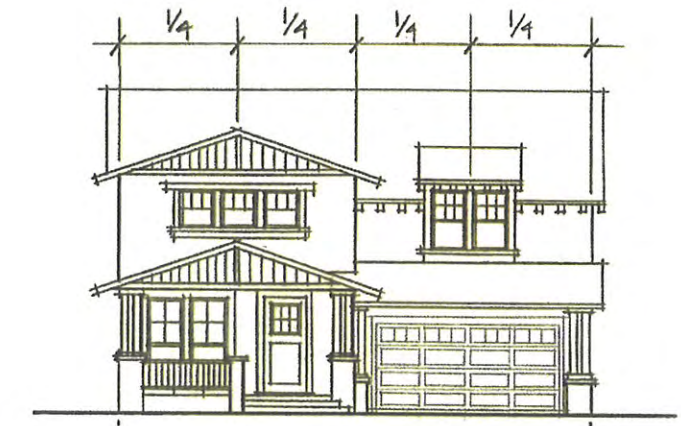
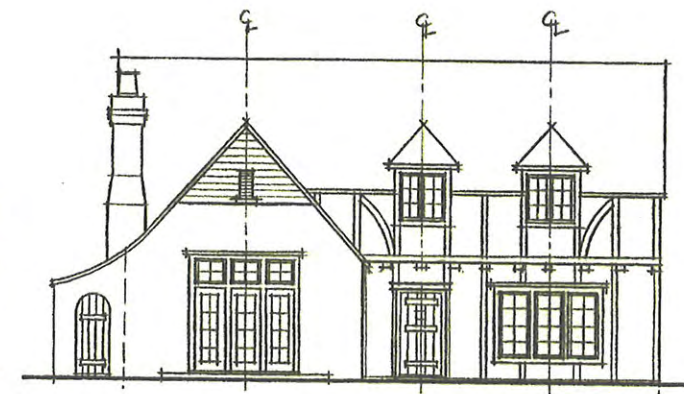
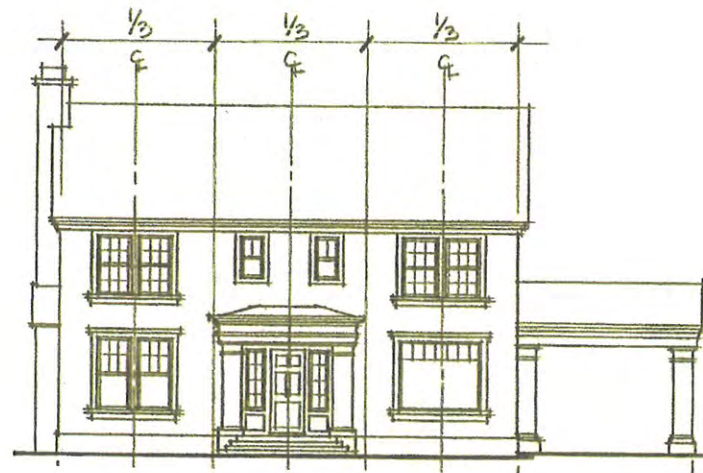
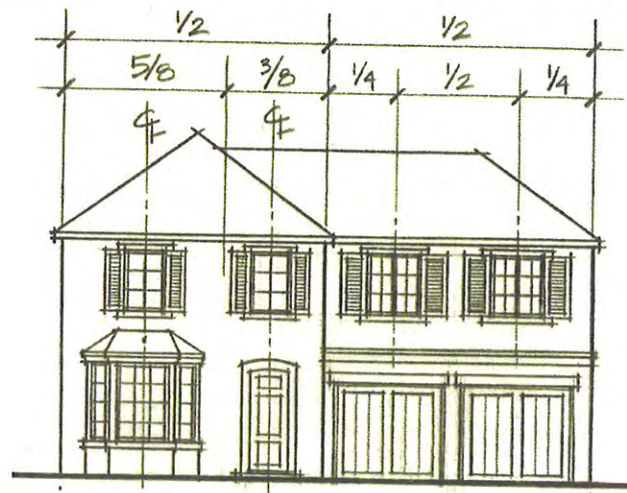
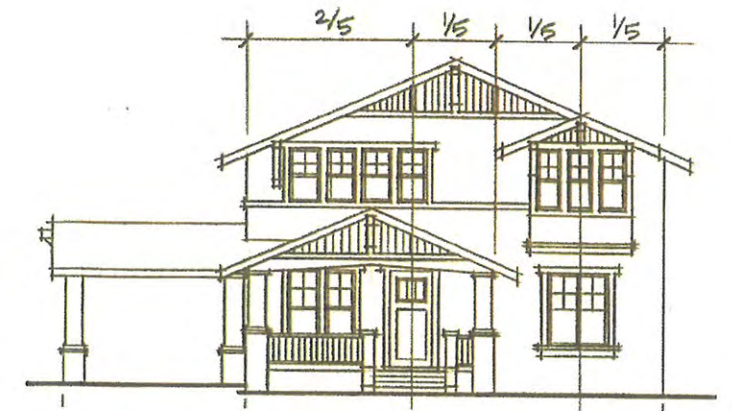
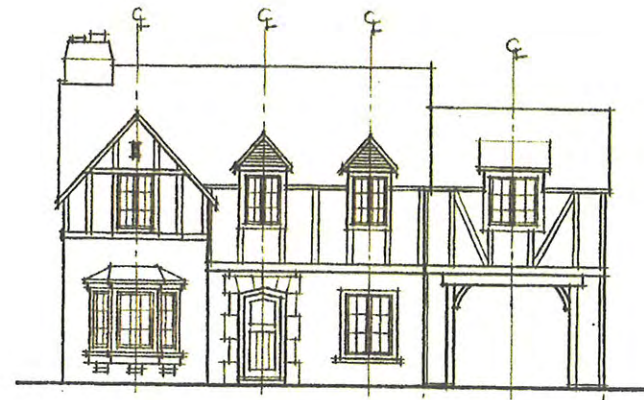
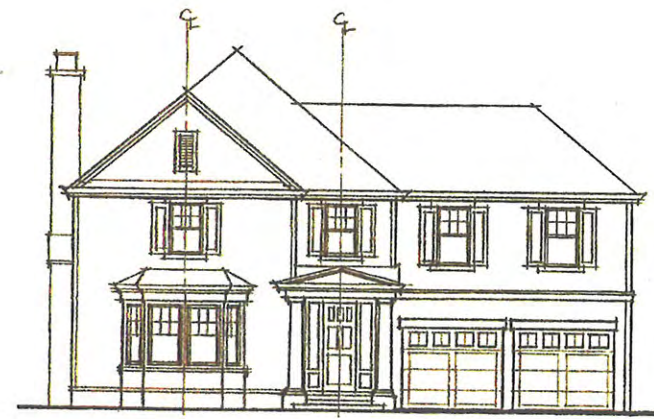
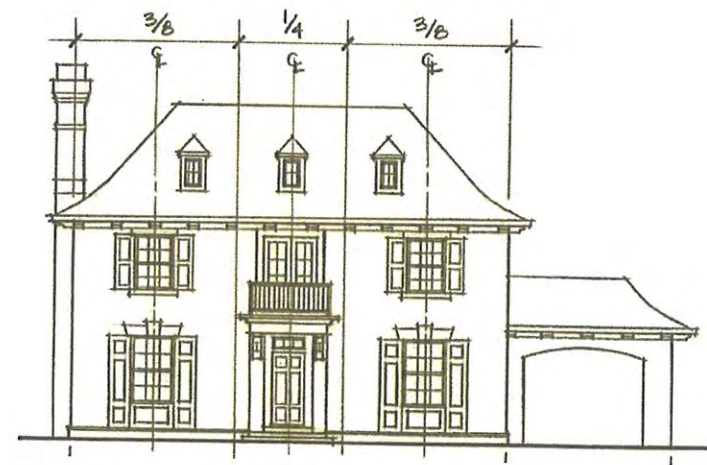
1. Buildings located directly across the same street shall be of the same Style.
2. Buildings located on the same block shall be of the same Style unless this would cause a conflict with rule number one, above.

Color For all lot types, no single family detached dwellings with the same color scheme shall be plotted adjacent to each other or directly across the street from each other. For row houses and neighborhood apartments, buildings with the same color scheme may be plotted on adjacent blocks.

Color palette for each Architectural Style shall be approved prior to building permit issuance and is subject to the Rules of Adjacencies.

Plot Plan Requirement Prior to building permit issuance, a plot plan is required showing all of the types of lots or uses, on which a builder plans to build, in the approved Specific Area Plan. The plot plan shall indicate the type of floor plan for single family detached dwellings and the floor plan composite configuration for row houses for each lot or location. The plan shall also indicate the proposed Architectural Style for each lot or land use.





FRENCH REVIVAL

AMERICAN CLASSIC

ENGLISH REVIVAL

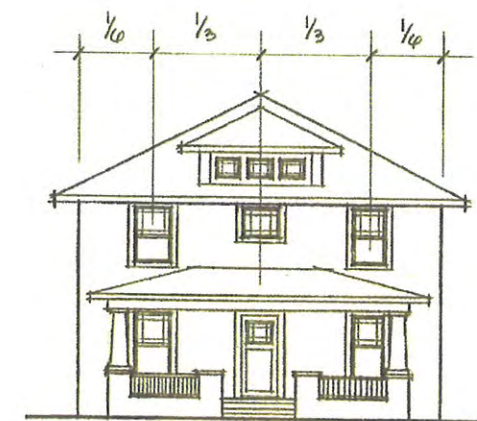
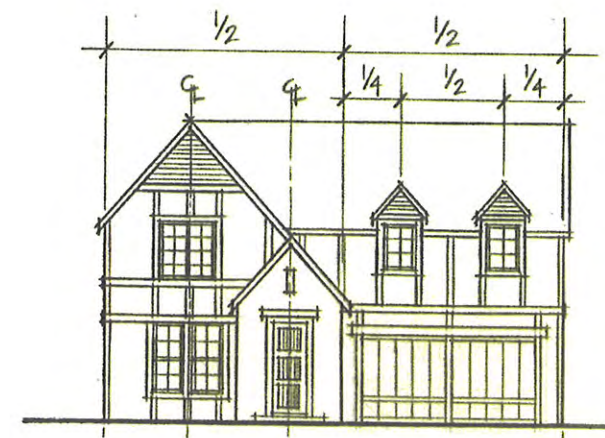
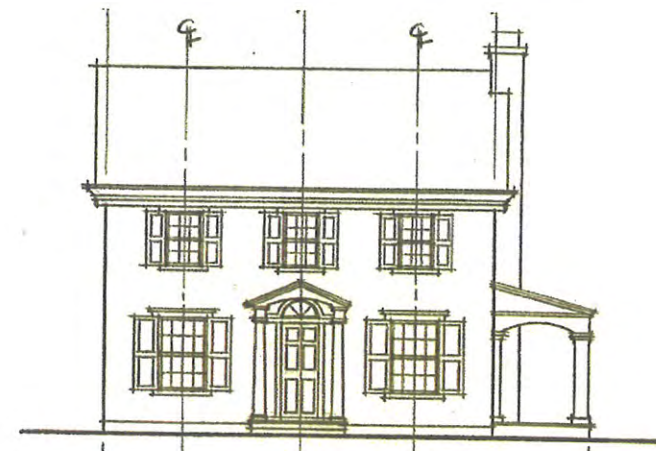
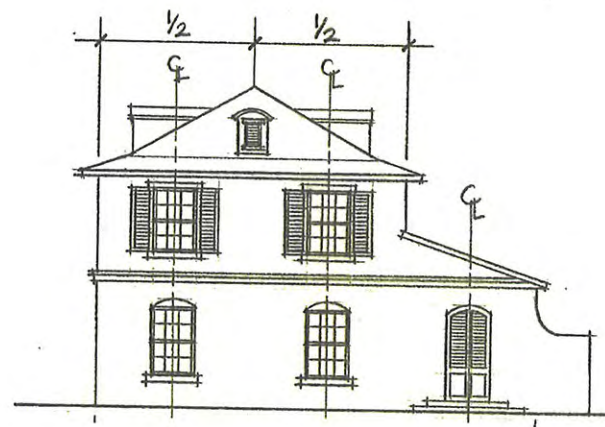
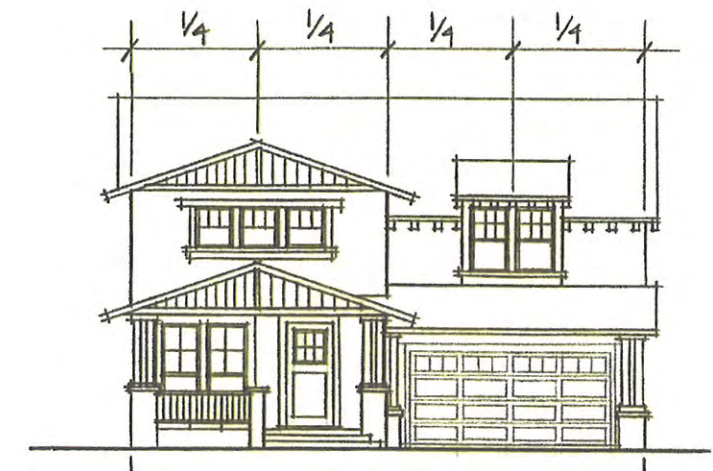
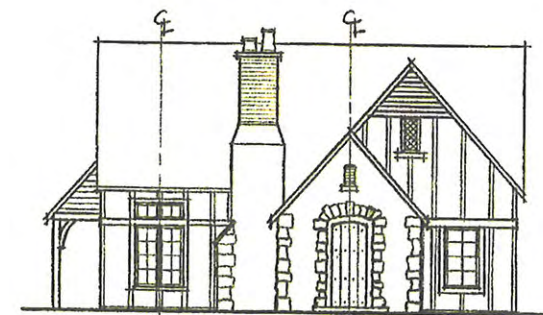
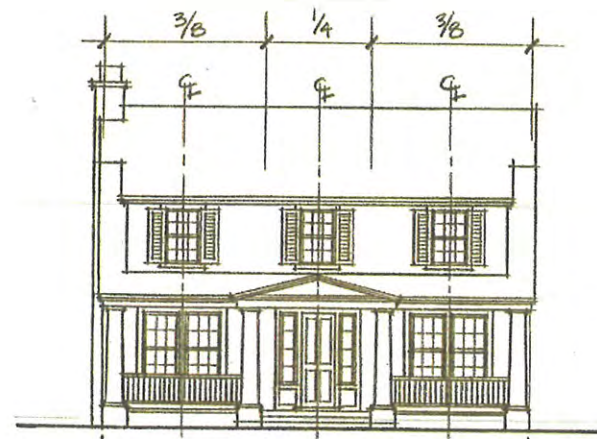
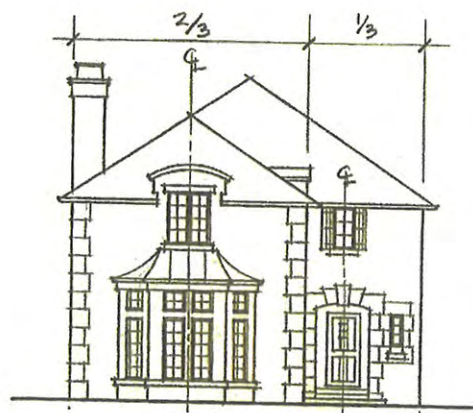
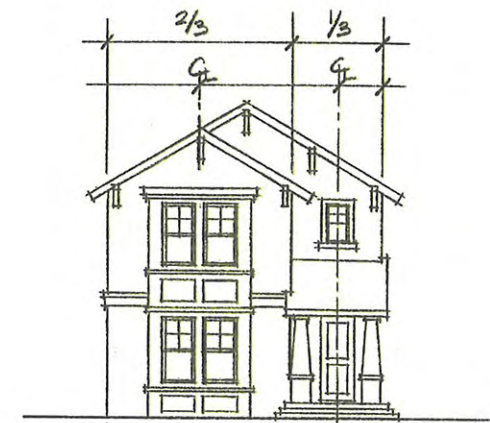
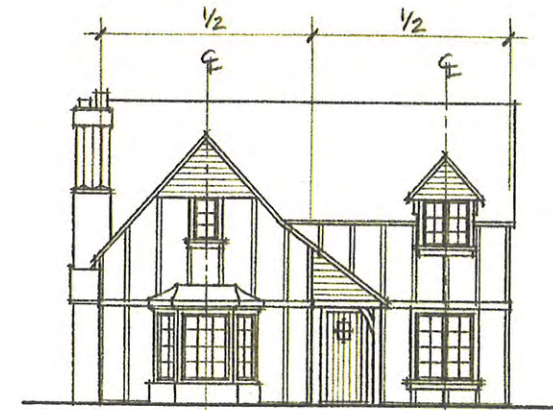
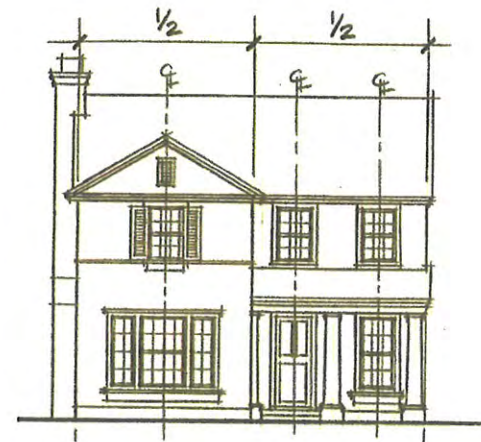
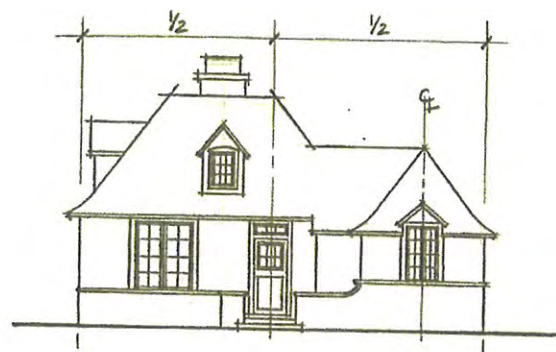
AMERICAN MODERN



STANDARD AND LARGE DETACHED

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SCALE & PROPORTIONS



FRENCH REVIVAL

AMERICAN CLASSIC

ENGLISH REVIVAL

AMERICAN MODERN



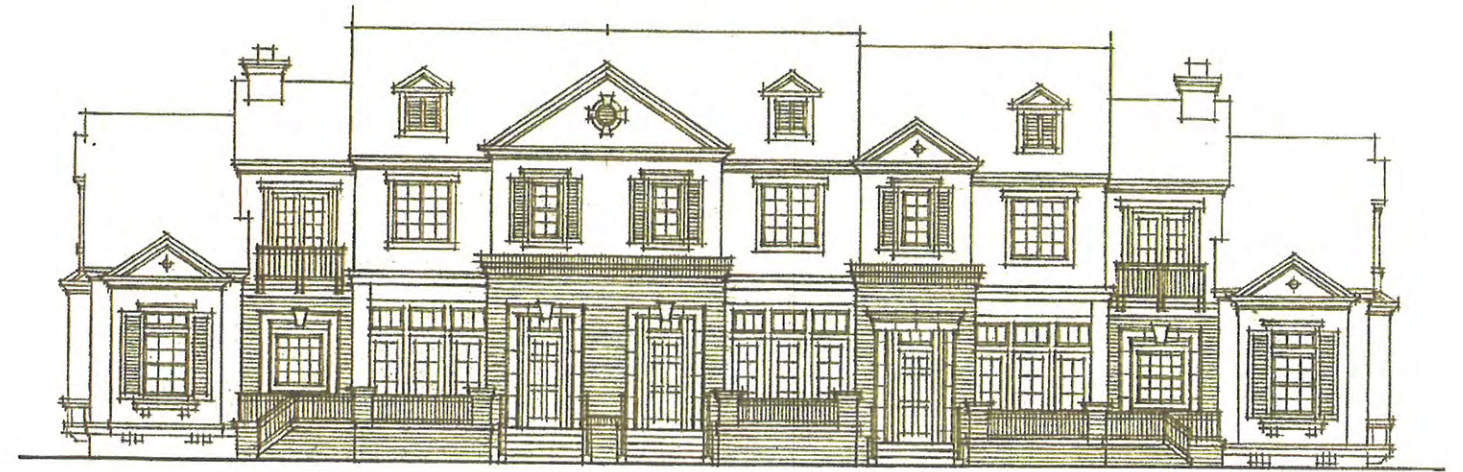
SMALL COTTAGES, SMALL, AND MEDIUM DETACHED

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SCALE & PROPORTIONS



FRENCH REVIVAL



AMERICAN CLASSIC



ENGLISH REVIVAL



AMERICAN MODERN



ROW HOUSES

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SCALE & PROPORTIONS

NOTES: See Fence Lot Diagrams for Clarification

1. Fence or wall height shall be measured from nearest grade in the yard of the lot with the higher grade.
2. A transparent fence has at least 50% of vertical surface open.
3. Fences located within the 2' setback from front or side street property lines adjacent to sidewalks must be transparent. The transparent fence may have a solid base, maximum height of base is 12". Maximum height of fence is 3'-0", minimum height of transparent fences is 2'-0" high.
4. A solid (non-transparent) fence or wall may be constructed in the front yard to a height of 3'-0" with a minimum 2'-0" offset from the front and side street property lines; for front-loaded Single Family Detached lots it may be constructed on the interior shared side property line. Minimum height of solid fences is 1'-6".
5. Front-loaded Single Family Detached lots and Row house buildings may construct a solid fence or wall in the interior side yard on the shared side property line to a height of 6'-0", with a minimum 4'-0" offset behind the front building line of the dwelling, or behind a significant architectural feature if there is one within the first 8'-0".
6. A transparent or solid fence or wall may be constructed in the side street yard to a maximum height of 6'-0", with a minimum 2'-0" offset from the side street property line.
7. A solid or transparent fence may be constructed in the rear yard on the rear property line of street-loaded lots, maximum height is 6'-0".
8. A solid or transparent fence or wall may be constructed in the rear yard of alley-loaded lots a minimum of 2'-0" behind the rear building line, maximum height is 6'-0".
9. Houses on alley-loaded lots with the garage set back behind a covered porch may construct a solid or transparent fence or wall in the rear yard with a minimum 3'-0" of landscaping adjacent to alley R.O.W., maximum height is 6'-0". Because of this unique fence condition, alley trees are required.
10. Posts, pilasters, columns, or bollards may extend an additional 8" above the maximum height of the fence or wall unless otherwise noted.
11. Fences/walls may not change height at corners, they must transition in height along side or front fences/walls. See Height Transitions diagram page E21.
12. Fences and walls to have level top surfaces, they may transition in height at posts to maintain maximum height, as required by changes in grade elevation. See Height Transitions diagram page E21.
13. Enhanced view fences or privacy fences with landscaping are located on the project perimeter along rear or side property lines. They have 1'-6" square masonry columns on the perpendicular lot lines, and additionally at the mid-point between the lot lines if the distance between them is greater than 65'. See locations pages E3-E4 and drawings page E10-E11.
14. Lots with side or rear elevations facing onto SROZ open space will have full view fences with 6" square metal posts at perpendicular lot lines and additionally as needed for support. These full view fences are to be painted black. See locations pages E3-E4 and drawing page E12.
15. Lots with side or rear elevations facing onto non-SROZ open space must use the same fencing as street facing elevations.
16. All construction must be of good quality and sufficient durability with an approved paint, weathering stain, and/or sealant to minimize water staining. See page E2.
17. Houses without a stoop, portico, or porch must have a terrace or courtyard.
18. See examples of Community Fencing designs pages E5-E12; Residential Fencing designs pages E22-E27.
19. Except where specifically required in the Pattern Book, fences are optional. All diagrams illustrate the maximum allowable extent of fencing conditions, less fencing is allowed.
20. If a conflict exists between the Master Fencing Program and other sections of the Pattern Book, then the Master Fencing Program takes precedence.
21. The Fencing Program does not regulate the signage to be placed on the monument fencing elements. For specifications regarding the signage elements, see the Master Signage and Wayfinding Plan adopted for the SAP.



NOTES ON FENCING

ALLOWABLE MATERIALS

- Stucco
- Wood or wood polymer pickets
- Cedar or wood polymer boards
- Metal
- Masonry: concrete, brick, stone (quarried or manufactured)
- Precast concrete trim and veneer
- Concrete block - split faced
- Cast-in-place concrete with textured finish

COLORS Refer to Color Key below





- | | | |
|--------------------|----------|------------------------------------|
| French Revival - | Metal: | 2, 3, 6 |
| | Wood: | A, D, or match body color |
| | Stucco: | Match body color of building |
| | Masonry: | Match building |
| American Classic - | Metal: | 1, 2, 4 |
| | Wood: | A, B, C, D, E, or match body color |
| | Stucco: | Match body color of building |
| | Masonry: | Match building |
| English Revival - | Metal: | 2, 3, 4 |
| | Wood: | A, C, D, E, or match body color |
| | Stucco: | Match body color of building |
| | Masonry: | Match building |
| American Modern - | Metal: | 2, 3, 4, 5 |
| | Wood: | A, C, D, E, or match body color |
| | Stucco: | Match body color of building |
| | Masonry: | Match building |

COLOR KEY

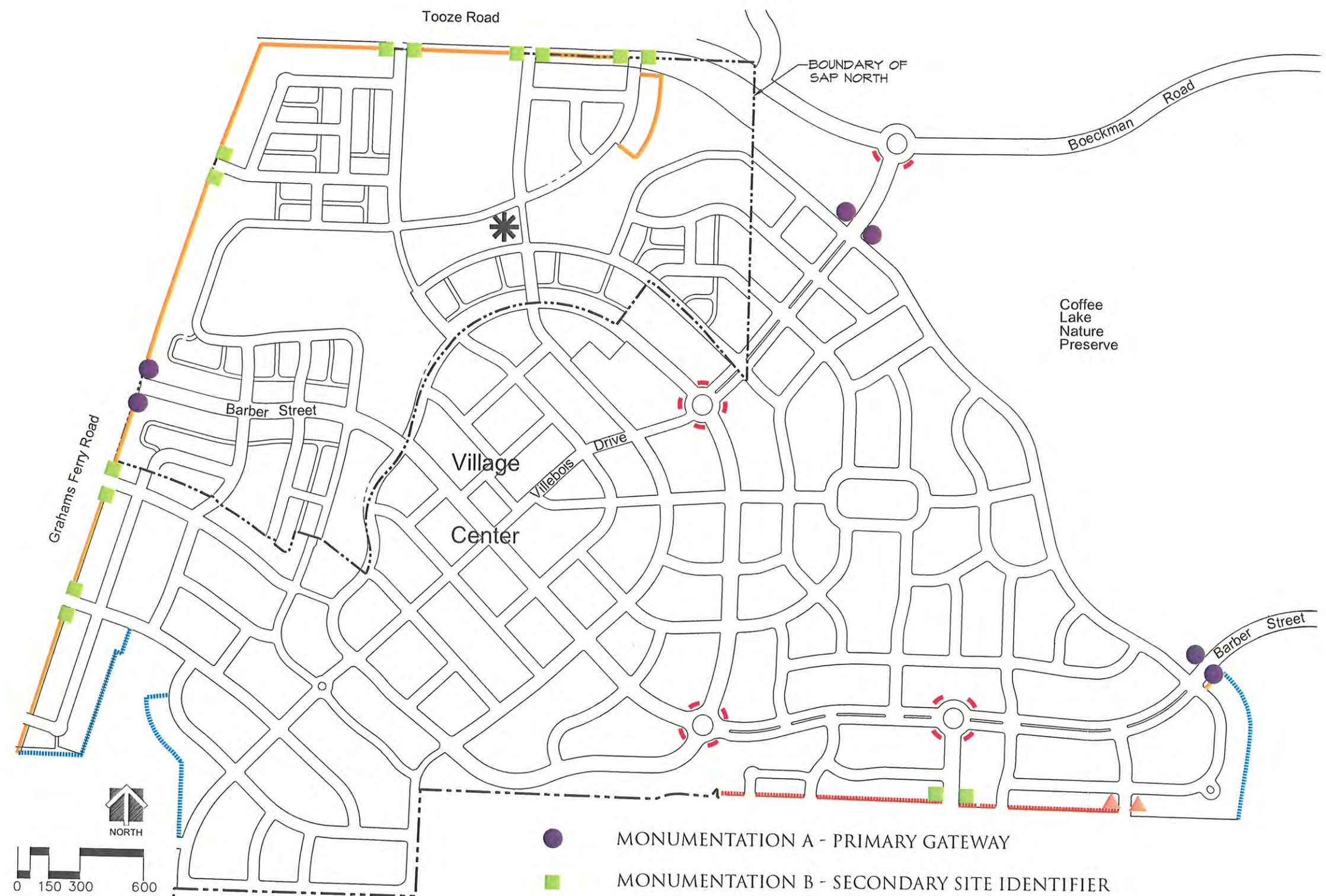
PAINTS: Benjamin Moore or equivalent - refer to actual color samples

- | | |
|---------------------------|---|
| 1) Brilliant White |  |
| 2) Black |  |
| 3) North Creek Brown 1001 |  |
| 4) Tarrytown Green HC-134 |  |
| 5) Newburg Green HC-158 |  |
| 6) Fort Pierce Green 712 |  |

STAINS: Olympic or equivalent - refer to actual color samples

- | | |
|---|---|
| A) Weathering Stain (naturally weathered, silver-gray finish) | |
| B) Solid Color Stain - White |  |
| C) Semi-transparent Stain: 909 Light Oak |  |
| D) Semi-transparent Stain: 916 Driftwood Gray |  |
| E) Semi-transparent Stain: 725 Dark Oak |  |





- MONUMENTATION A - PRIMARY GATEWAY
- MONUMENTATION B - SECONDARY SITE IDENTIFIER
- ▬ MONUMENTATION C - INTERNAL SITE IDENTIFIER
- ▲ MONUMENTATION D - MINOR SITE IDENTIFIER
- ENHANCED FULL VIEW OR PARTIAL VIEW FENCE W/ LANDSCAPING
- ▬ ENHANCED PRIVACY FENCE WITH LANDSCAPING
- ▬ SROZ - FULL VIEW FENCE



LOCATIONS

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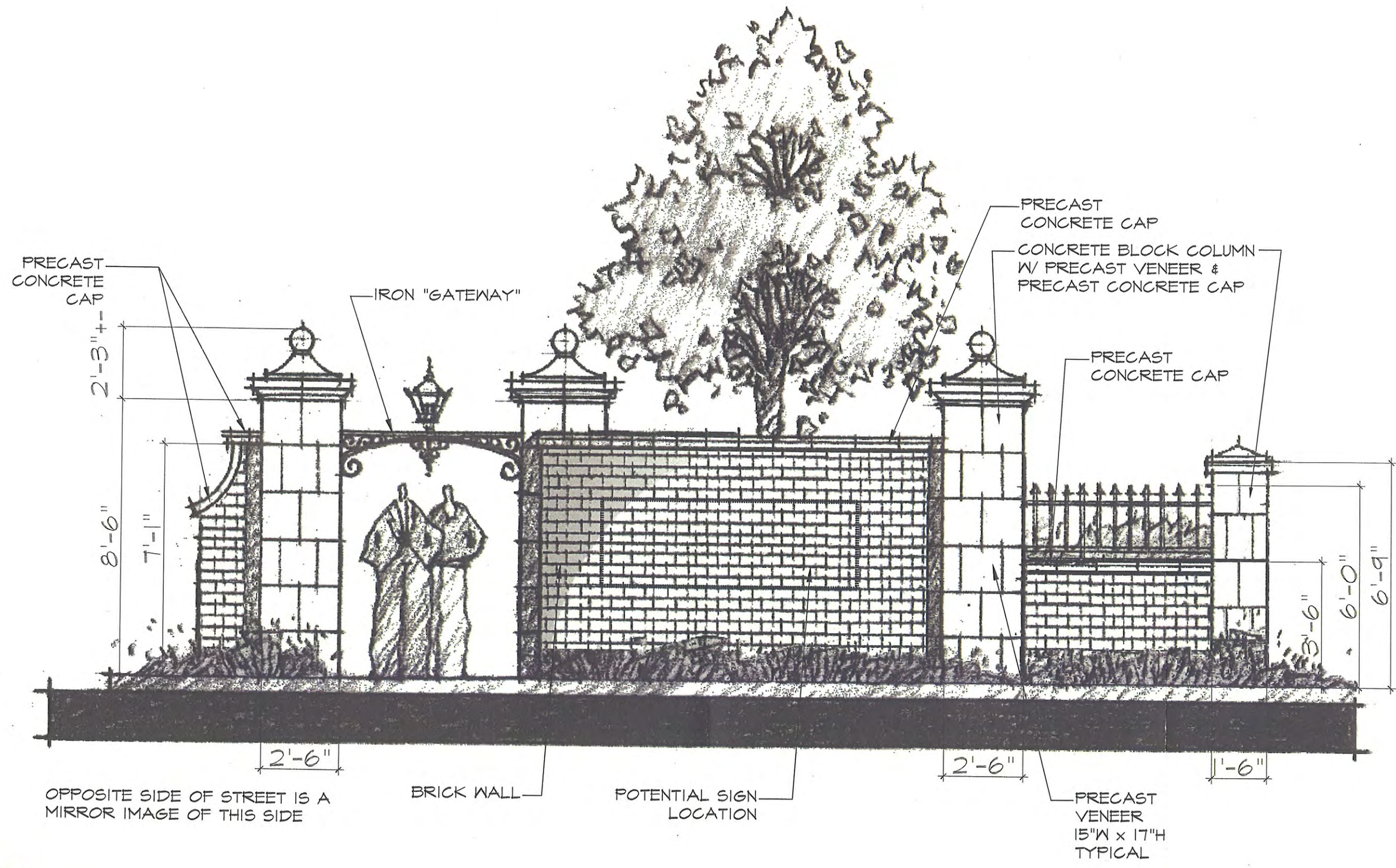
COMMUNITY FENCING



SAP NORTH LOCATIONS

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COMMUNITY FENCING



OPPOSITE SIDE OF STREET IS A MIRROR IMAGE OF THIS SIDE

BRICK WALL

POTENTIAL SIGN LOCATION

PRECAST VENEER 15"W x 17"H TYPICAL

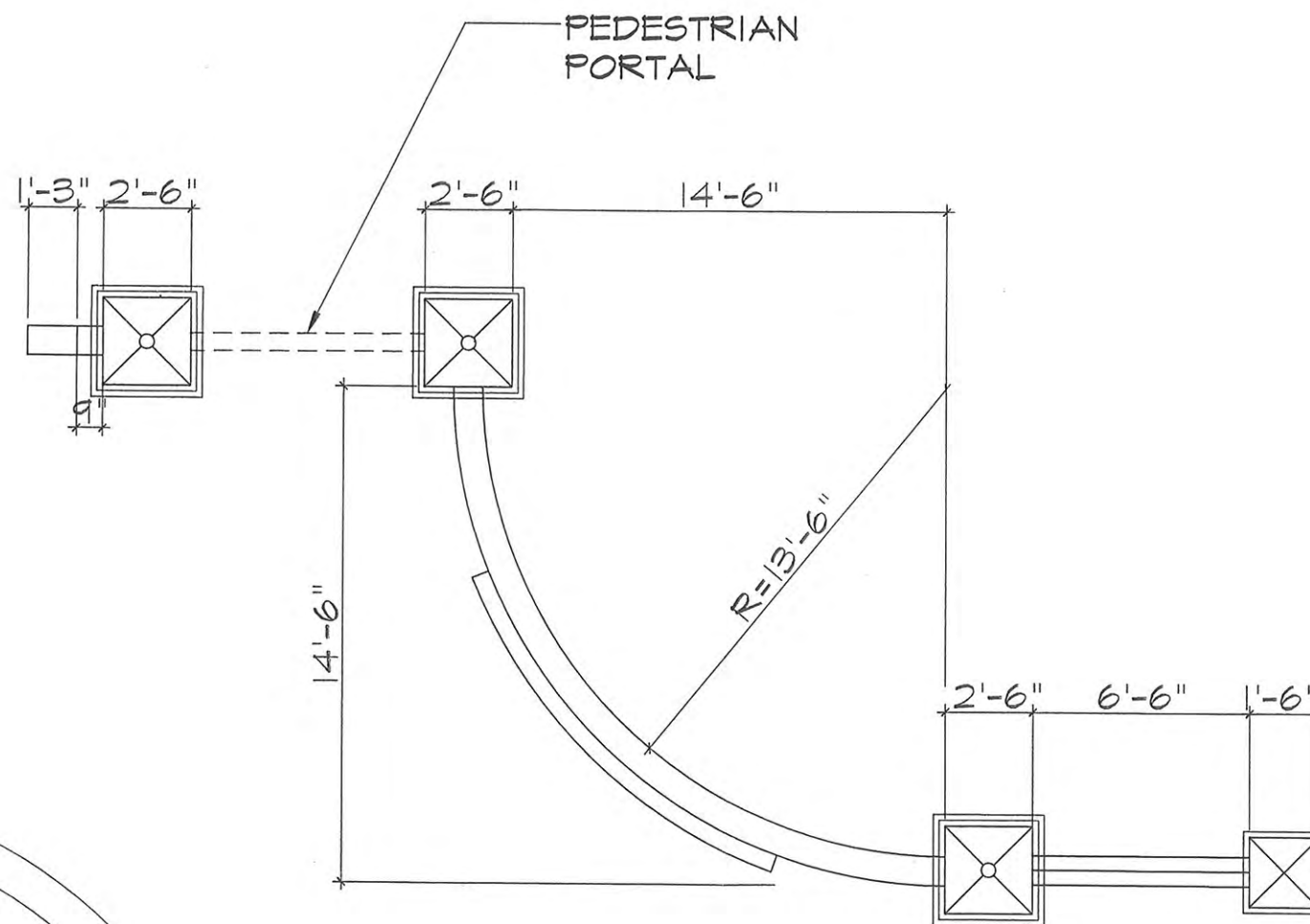
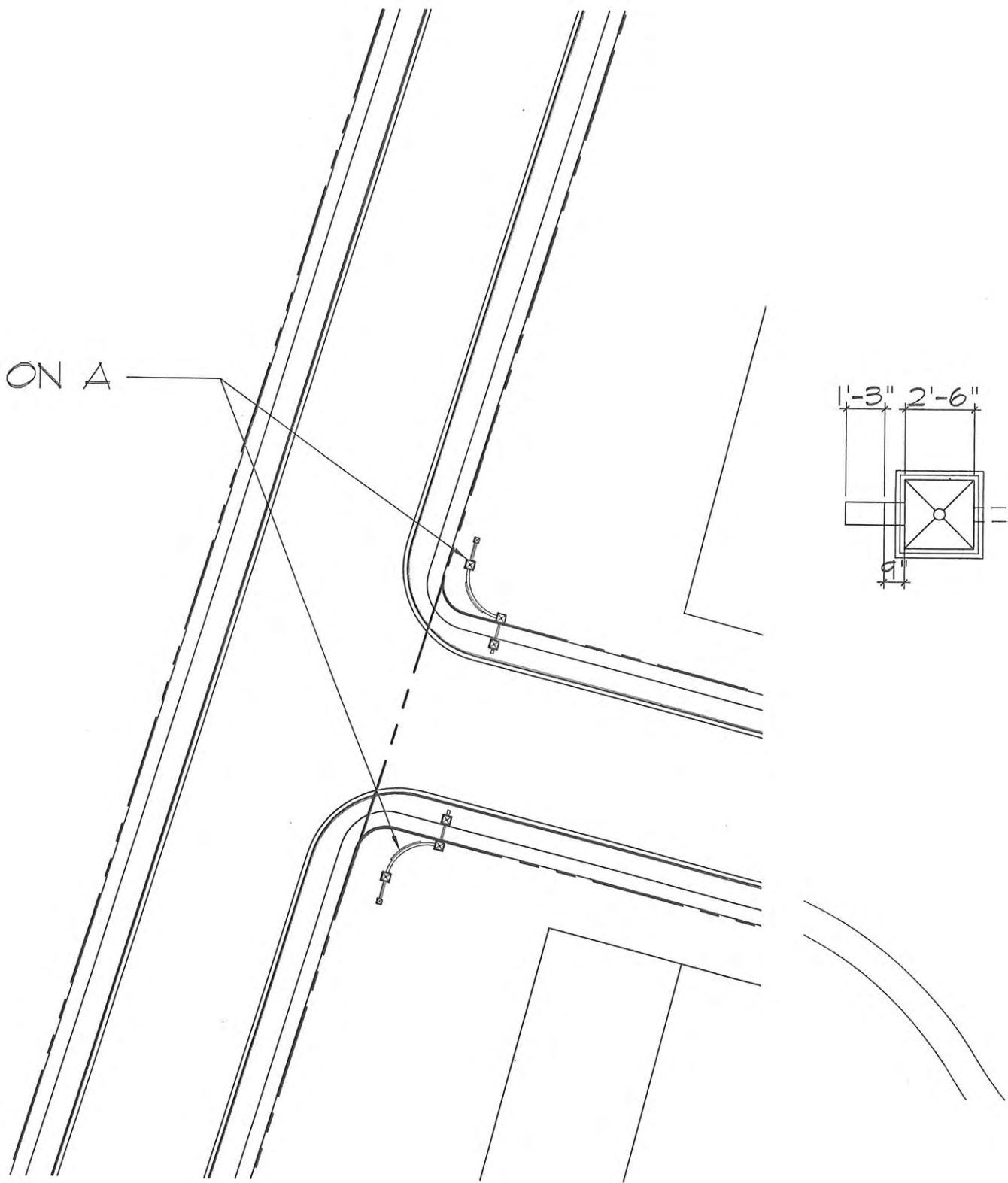


MONUMENTATION A - PRIMARY GATEWAY

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COMMUNITY FENCING

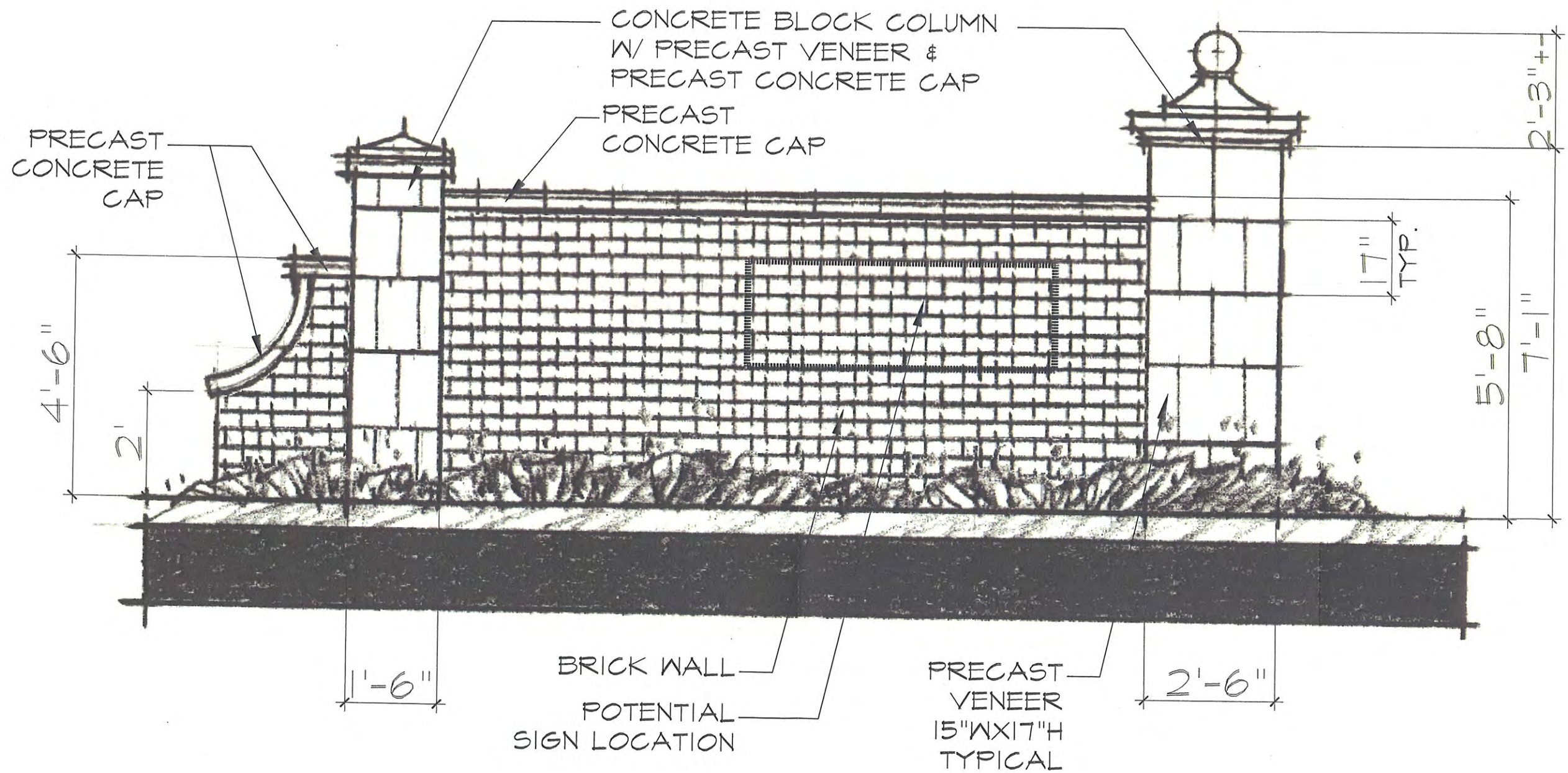
MONUMENTATION A



MONUMENTATION A - PRIMARY GATEWAY

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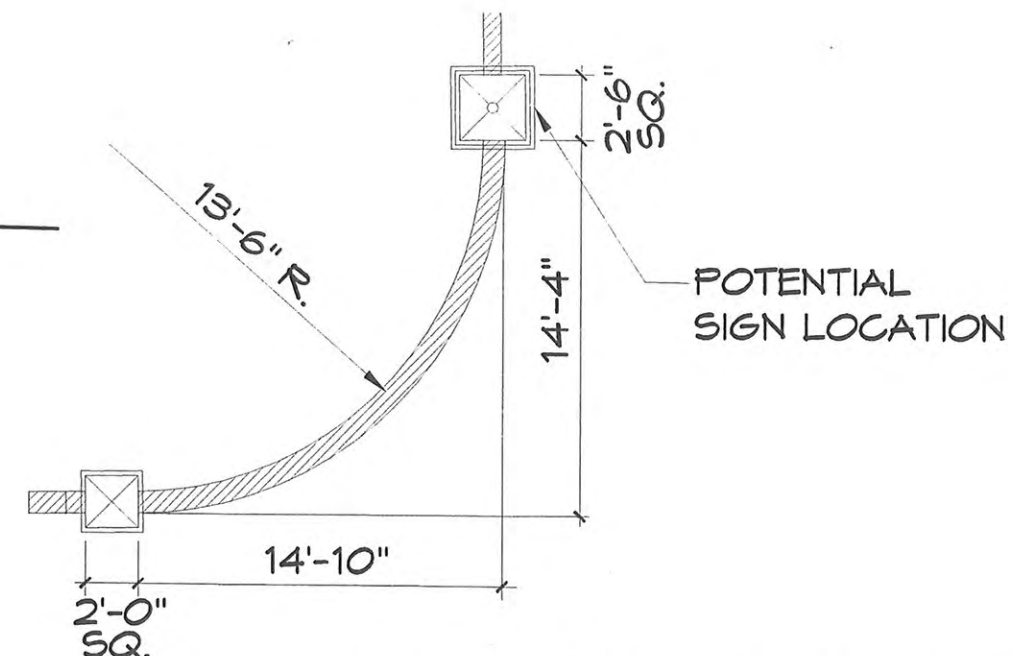
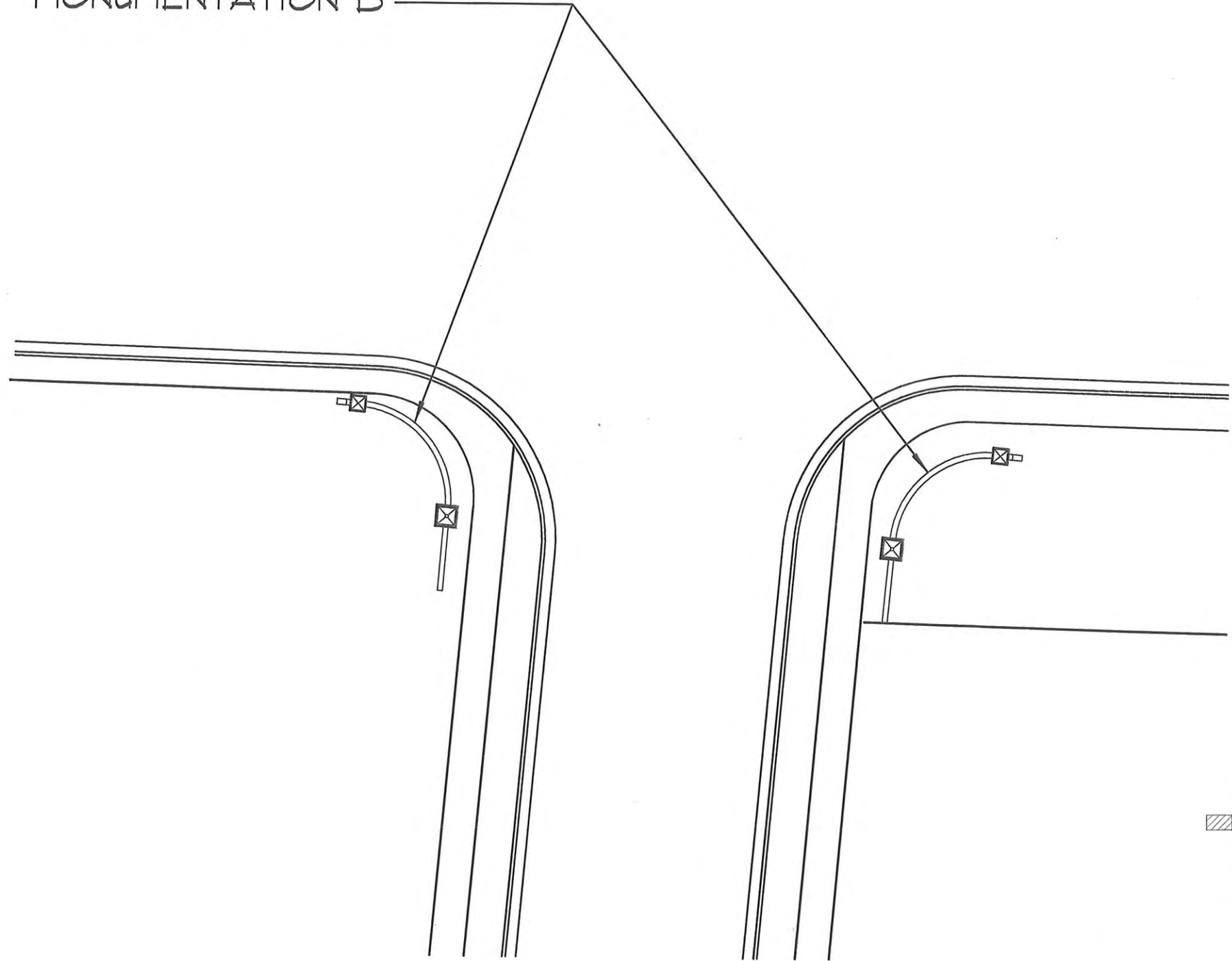


MONUMENTATION B - SECONDARY SITE IDENTIFIER

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COMMUNITY FENCING

MONUMENTATION B



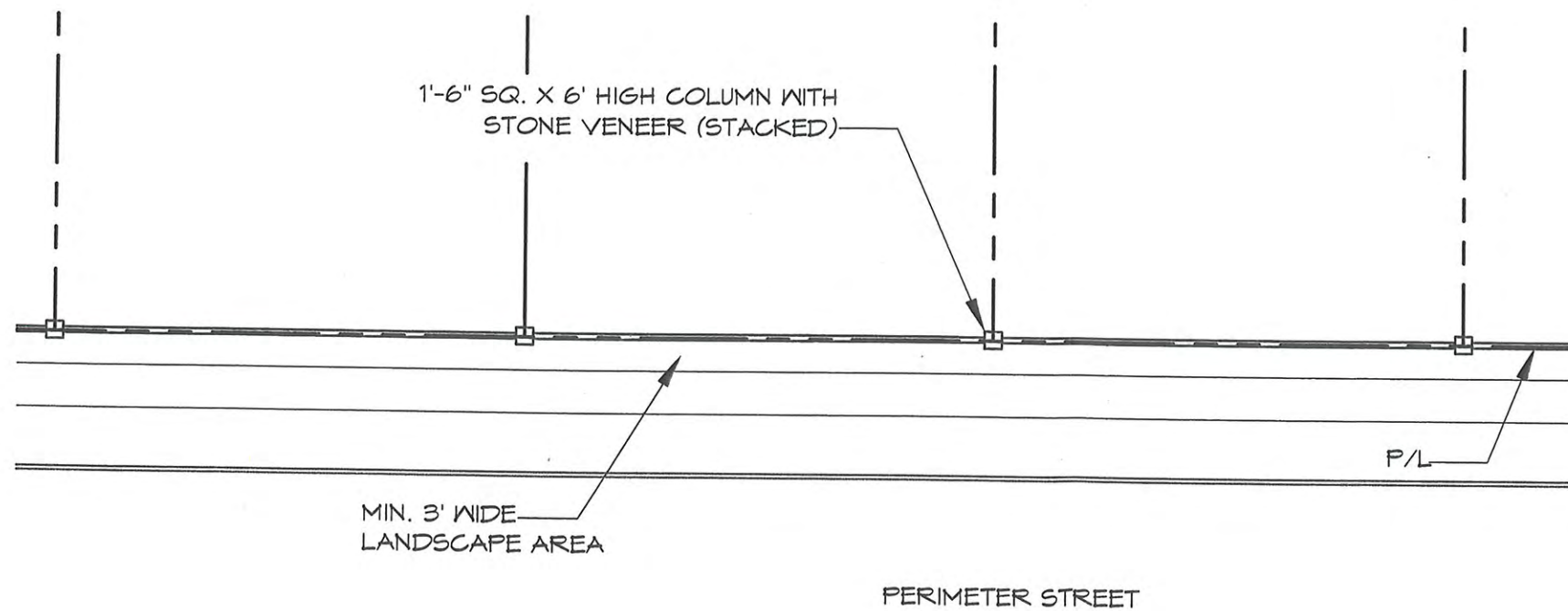
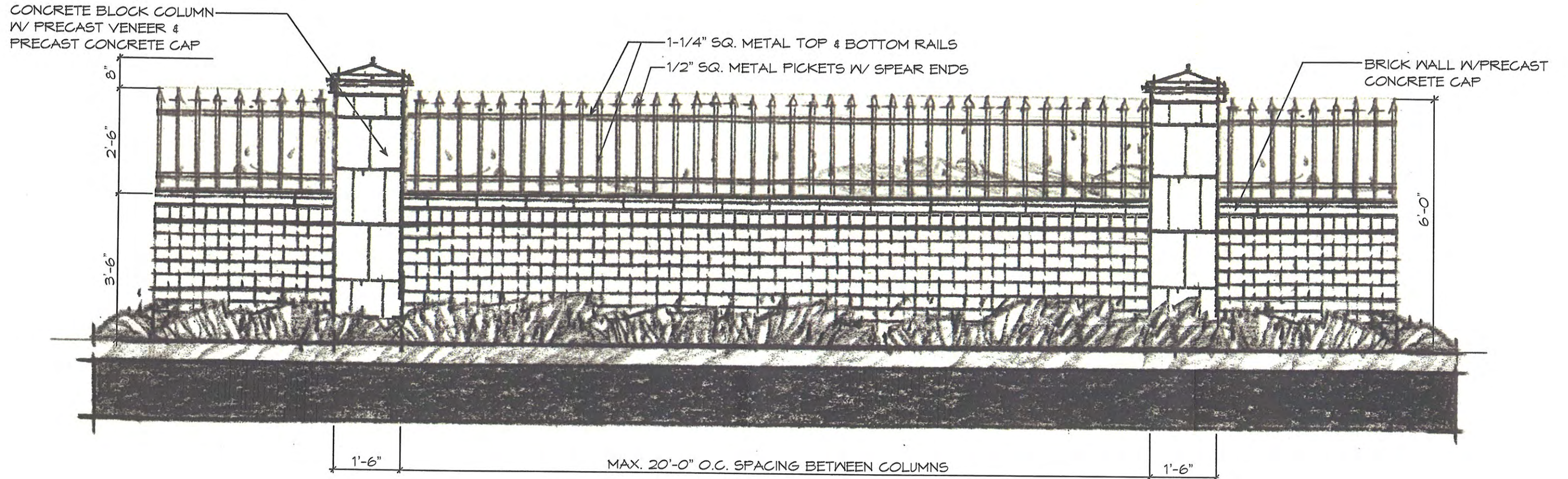
ENLARGED PLAN VIEW



MONUMENTATION B - PLAN VIEW

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COMMUNITY FENCING



NOTES

ENHANCED PARTIAL VIEW FENCES WITH LANDSCAPING ARE LOCATED ON THE PROJECT PERIMETER ALONG REAR OR SIDE PROPERTY LINES WHERE THERE ARE VIEW OPPORTUNITIES. THEY HAVE MASONRY COLUMNS 1'-6" SQ. CENTERED ON THE PERPENDICULAR LOT LINES, AND ADDITIONALLY AT 20'-0" O.C. INTERVALS. ENHANCED FENCING MUST HAVE A MINIMUM 3' DEEP LANDSCAPE AREA ON THE STREET SIDE. SEE PAGE E3 AND E4 FOR LOCATIONS.

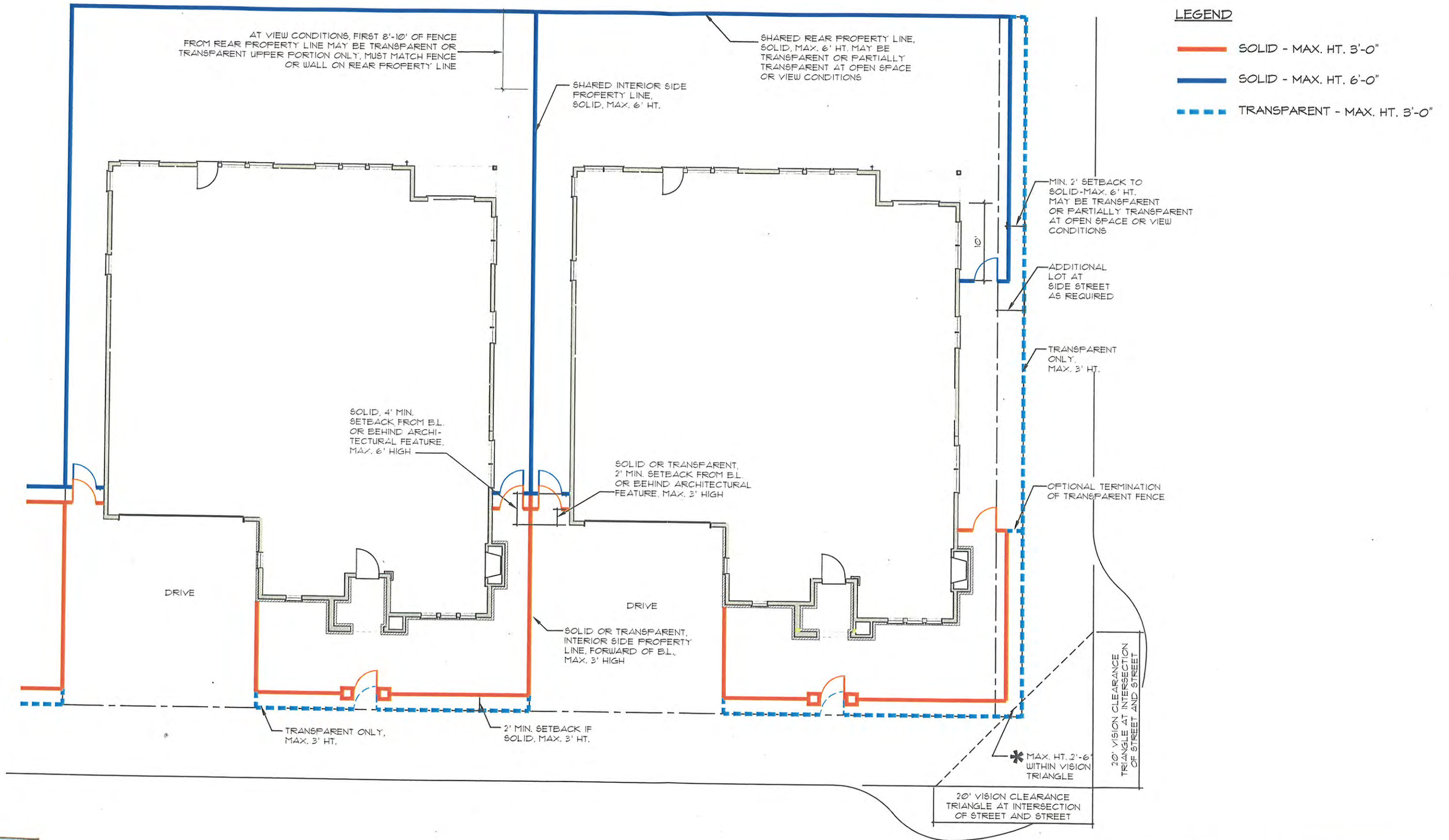
PARTIAL VIEW FENCE



ENHANCED FENCING WITH LANDSCAPING

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COMMUNITY FENCING

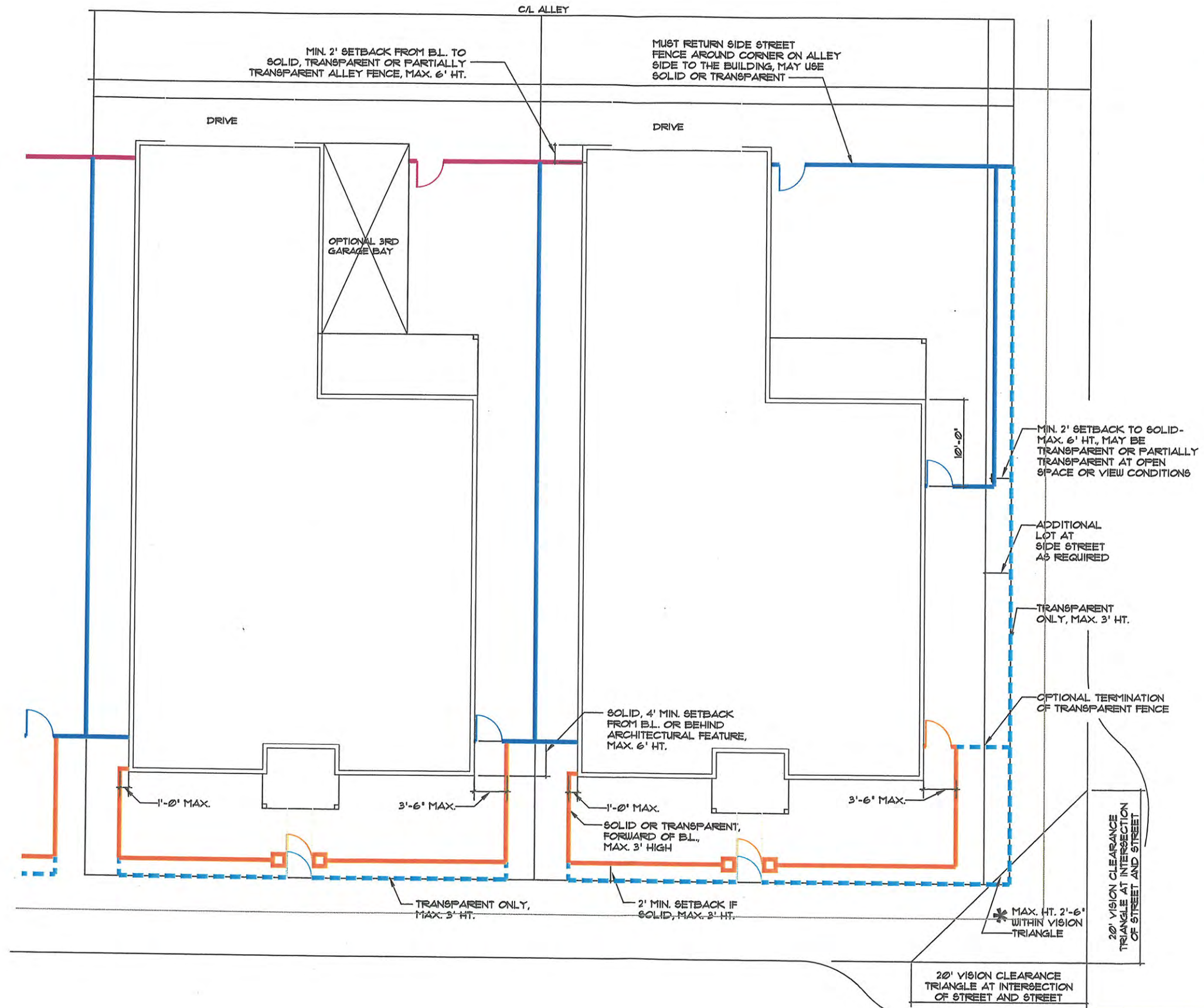


ESTATE, LARGE & MEDIUM LOTS - FRONT LOADED

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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS



- LEGEND**
- SOLID - MAX. HT. 3'-0"
 - SOLID - MAX. HT. 6'-0"
 - - - TRANSPARENT - MAX. HT. 3'-0"
 - ALLEY - SOLID OR TRANSPARENT - MAX. HT. 6'-0"

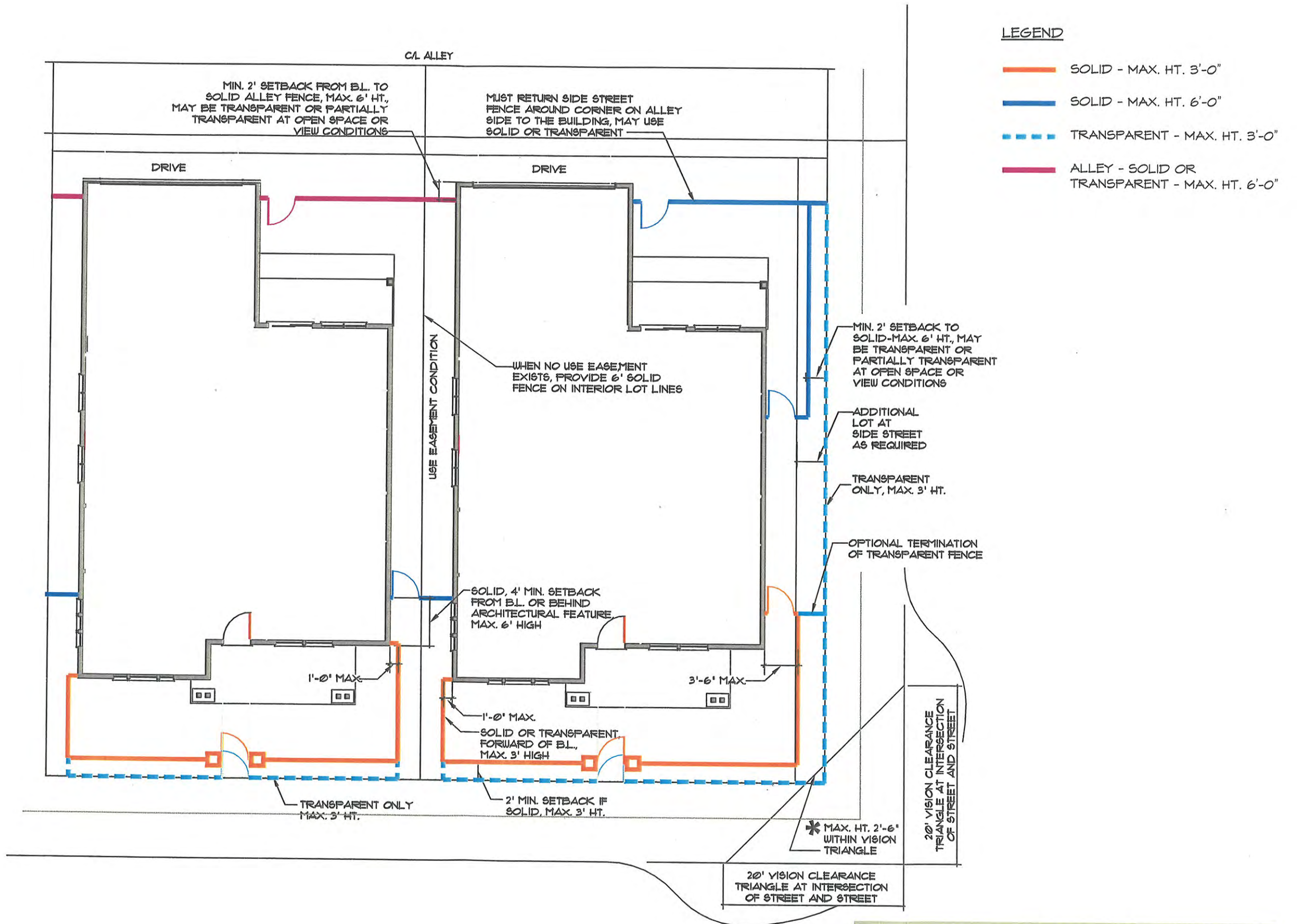


STANDARD & MEDIUM LOTS - REAR LOADED

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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS

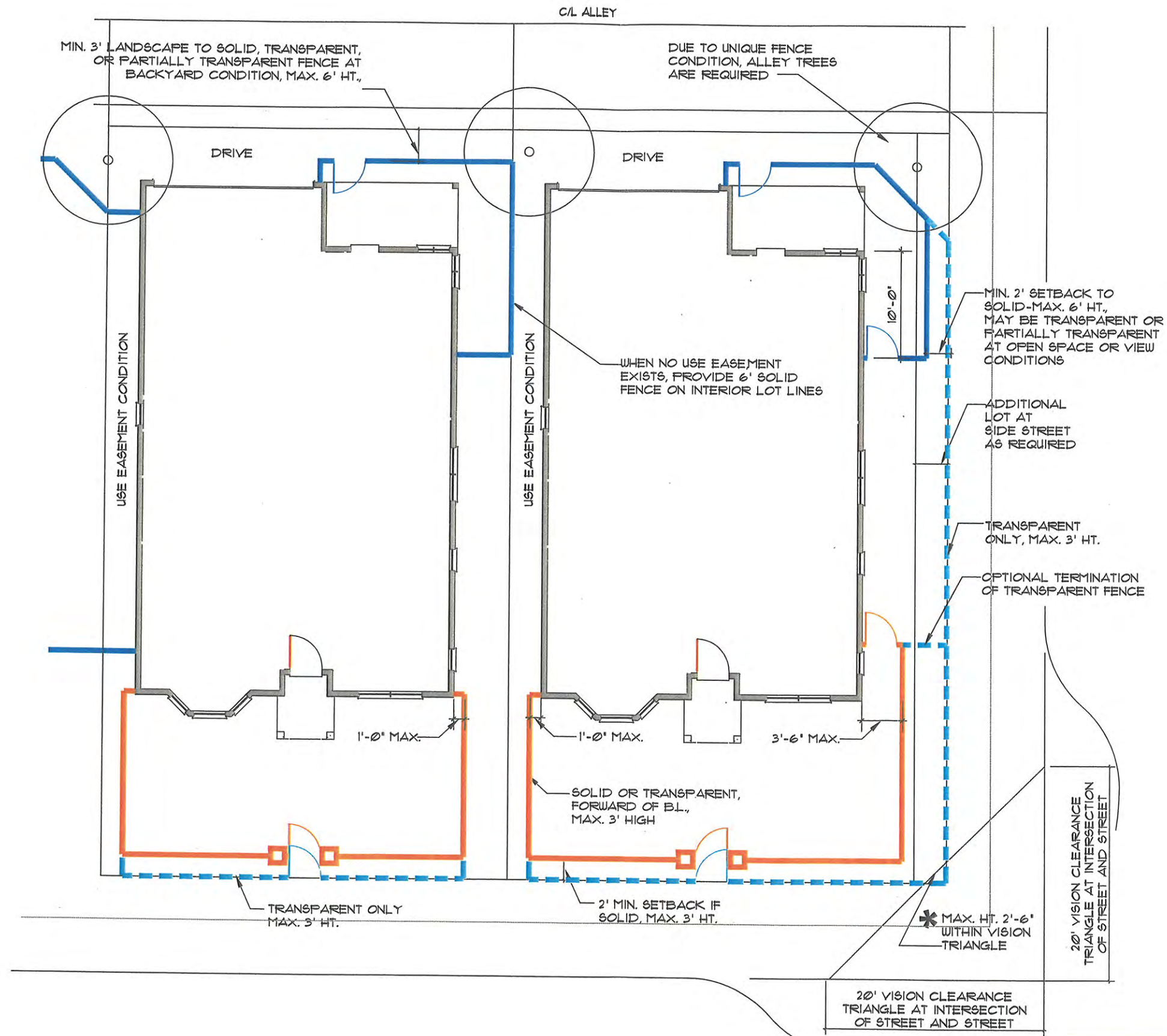


SMALL COTTAGE &
SMALL LOTS - (COURTYARD CLASSIC)

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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING
LOT DIAGRAMS



LEGEND

- SOLID - MAX. HT. 3'-0"
- SOLID - MAX. HT. 6'-0"
- - - TRANSPARENT - MAX. HT. 3'-0"

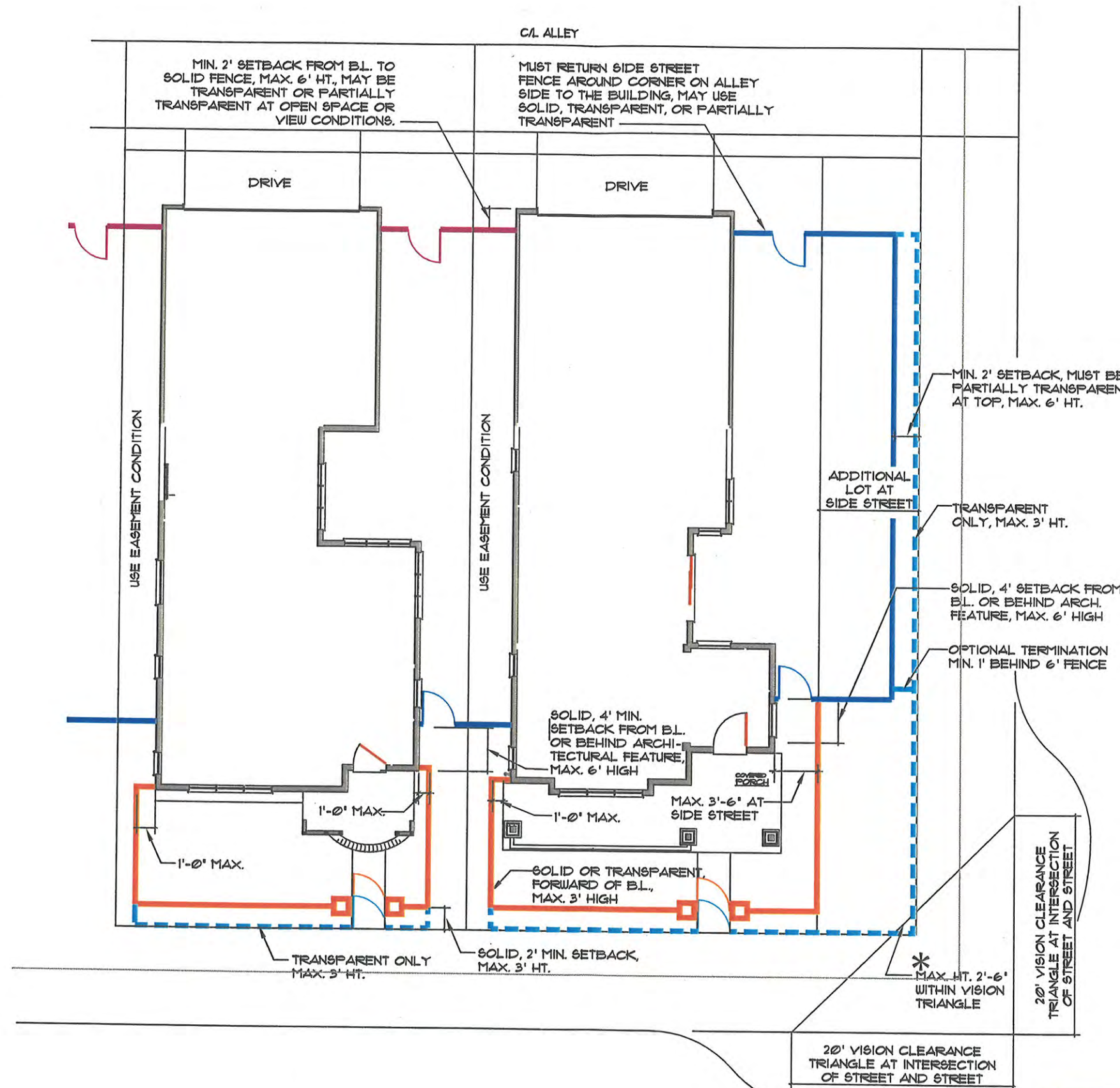


SMALL COTTAGE & SMALL LOTS - (COTTAGE)

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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS



LEGEND

- SOLID - MAX. HT. 3'-0"
- SOLID - MAX. HT. 6'-0"
- - - TRANSPARENT - MAX. HT. 3'-0"
- ALLEY - SOLID OR TRANSPARENT - MAX. HT. 6'-0"

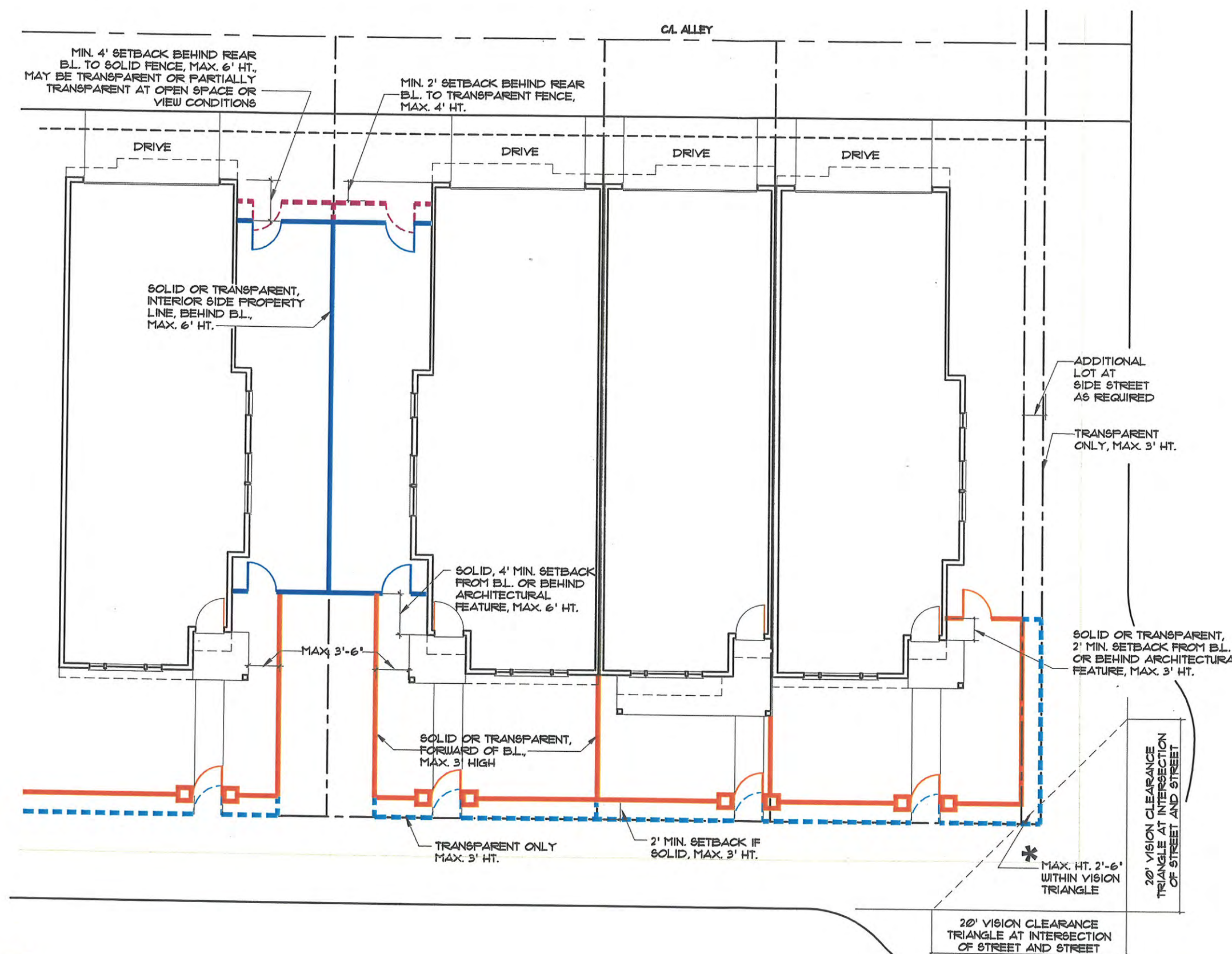


SMALL COTTAGE & SMALL LOTS - (TERRACE)

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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS



- LEGEND**
- SOLID - MAX. HT. 3'-0"
 - SOLID - MAX. HT. 6'-0"
 - - - TRANSPARENT - MAX. HT. 3'-0"
 - - - ALLEY - SOLID OR TRANSPARENT - MAX. HT. 6'-0"

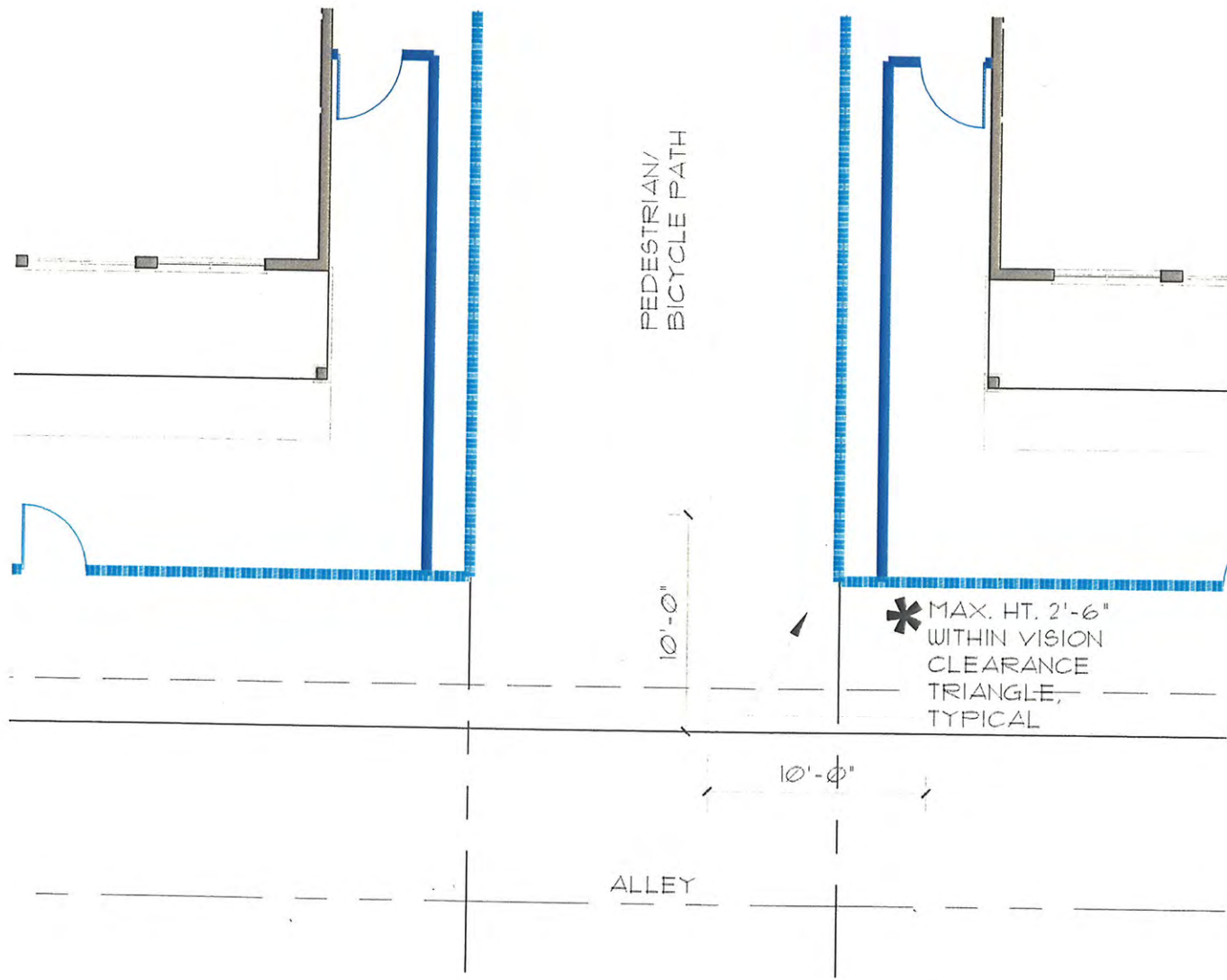
BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS

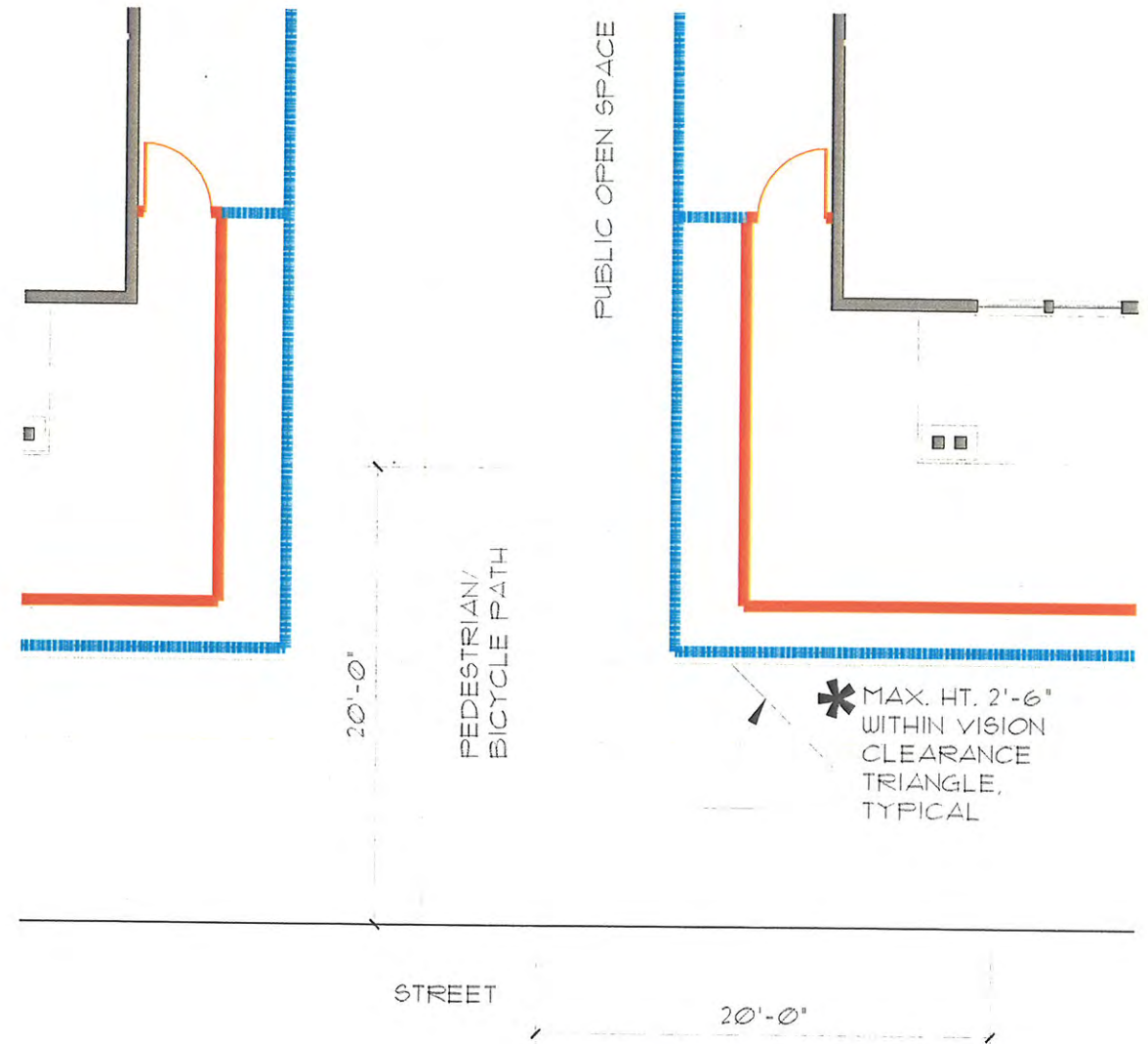


ROW HOUSES

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INTERSECTION WITH ALLEY



INTERSECTION WITH STREET

AT INTERSECTIONS OF PEDESTRIAN / BICYCLE PATHS WITH ALLEYS OR STREETS, THE VISION CLEARANCE TRIANGLE MUST BE MAINTAINED FROM THE EDGE OF THE PATH TO THE EDGE OF PAVING

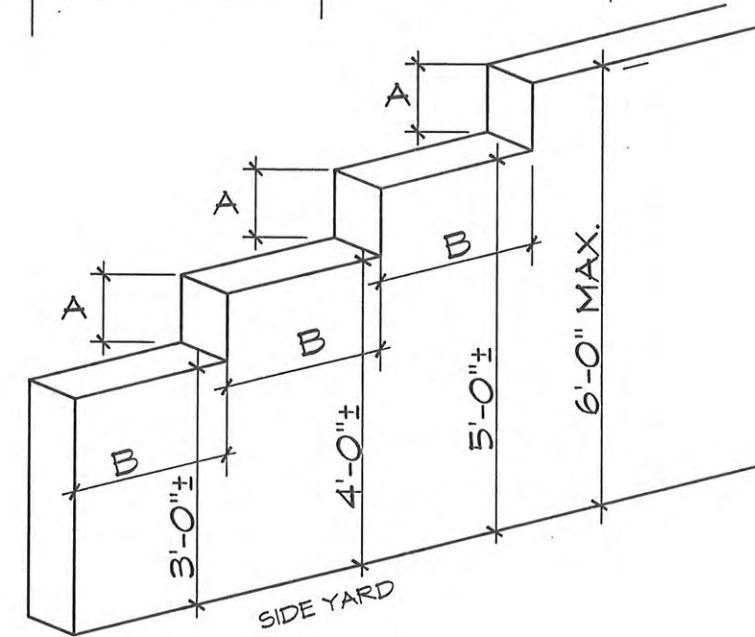
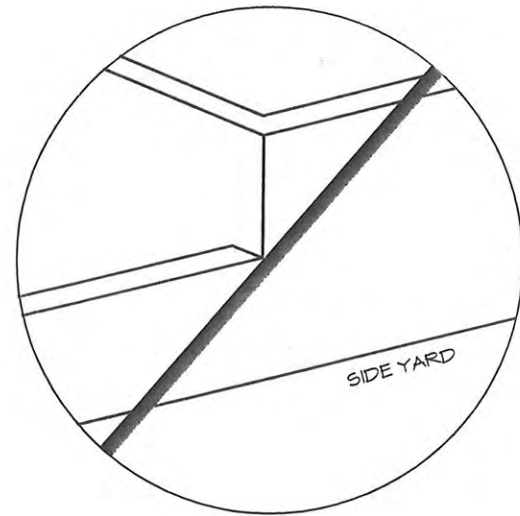
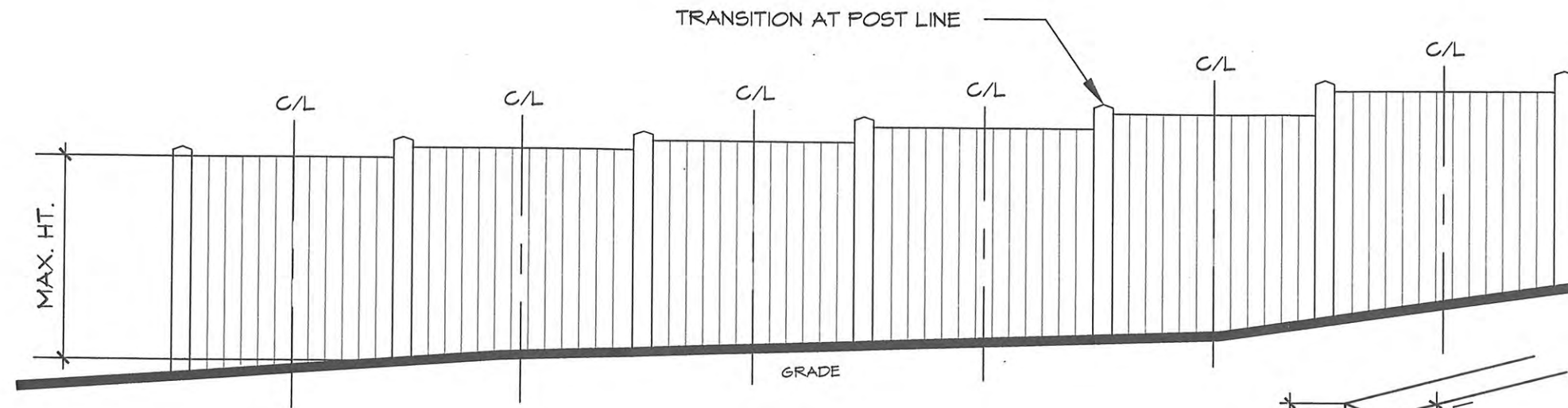


PEDESTRIAN & BICYCLE PATH

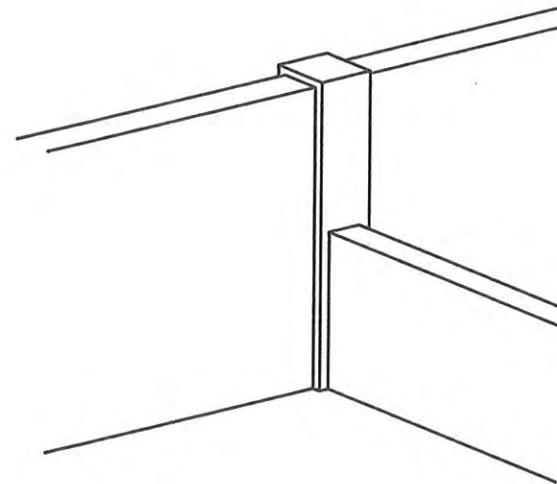
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BUILDING FOOTPRINTS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE

FENCING LOT DIAGRAMS



A = 12"-18"
B = 24" MIN.



NOTES:

1. FENCES AND WALLS MUST HAVE LEVEL TOP SURFACES, THEY MAY TRANSITION IN HEIGHT AT POSTS WHERE REQUIRED BY CHANGES IN GRADE TO MAINTAIN MAXIMUM HEIGHT. MAXIMUM HEIGHT AT THIS CONDITION TO BE MEASURED AT MIDPOINT BETWEEN POSTS ON THE SIDE WITH THE HIGHER GRADE.
2. FENCES AND WALLS MAY NOT TRANSITION IN HEIGHT AT CORNERS.
3. WHEN TRANSITIONING FROM TALLER BACK YARD FENCES/WALLS TO LOWER FRONT YARD FENCES/WALLS, HEIGHT TRANSITIONS MUST BE EQUAL. TRANSITIONS MUST OCCUR ALONG SIDE YARD FENCES/WALLS, NOT FRONT YARD FENCES/WALLS, EXCEPT FOR TRANSITIONS DUE TO CHANGES IN GRADE OR WHEN COMMUNITY MONUMENTATION TRANSITIONS TO A RESIDENTIAL FRONT YARD FENCE.
4. WHEN A 3' HIGH FRONT YARD FENCE ENDS PERPENDICULAR TO A 6' HIGH SIDE YARD FENCE, THE TRANSITION MUST OCCUR AT A POST OR COLUMN.

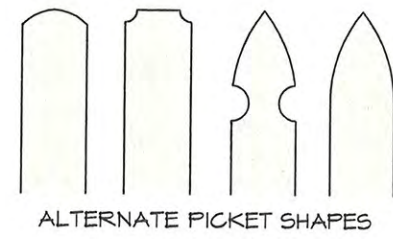
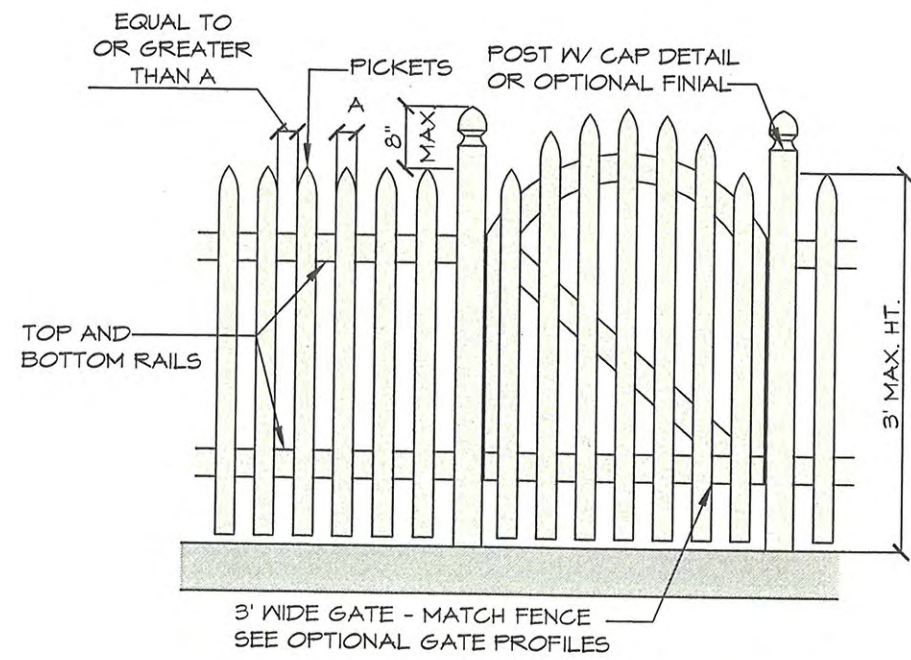


HEIGHT TRANSITIONS

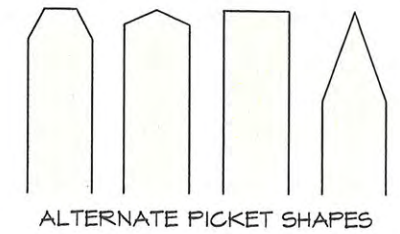
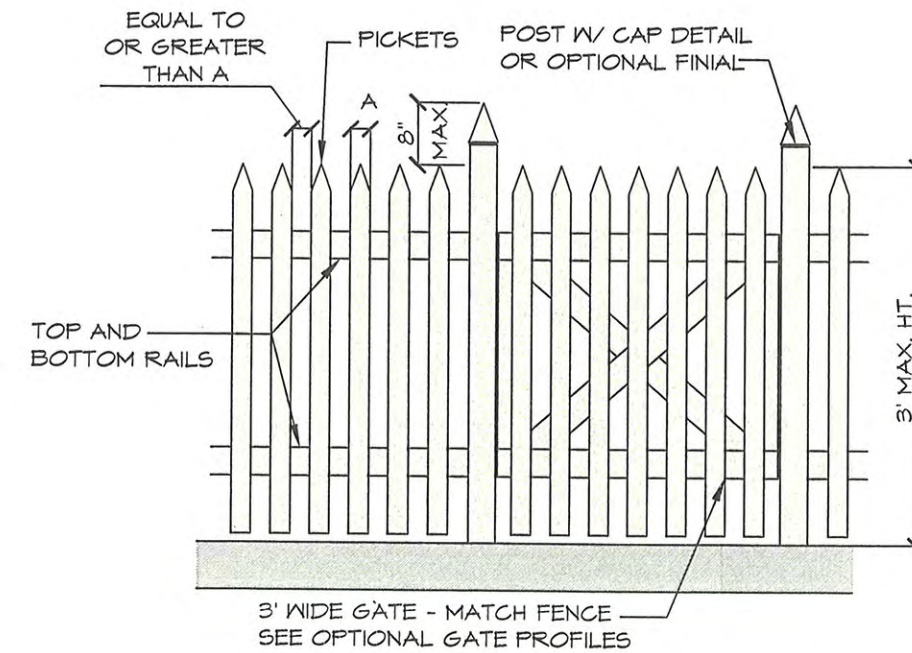
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CONSTRAINTS

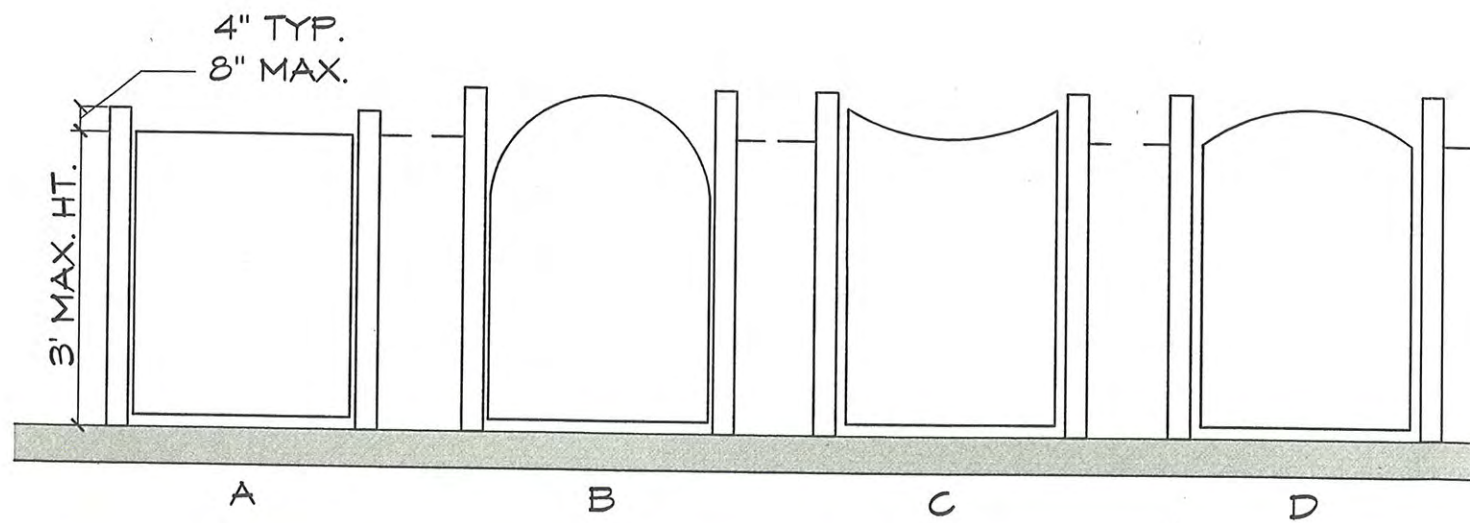
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Low



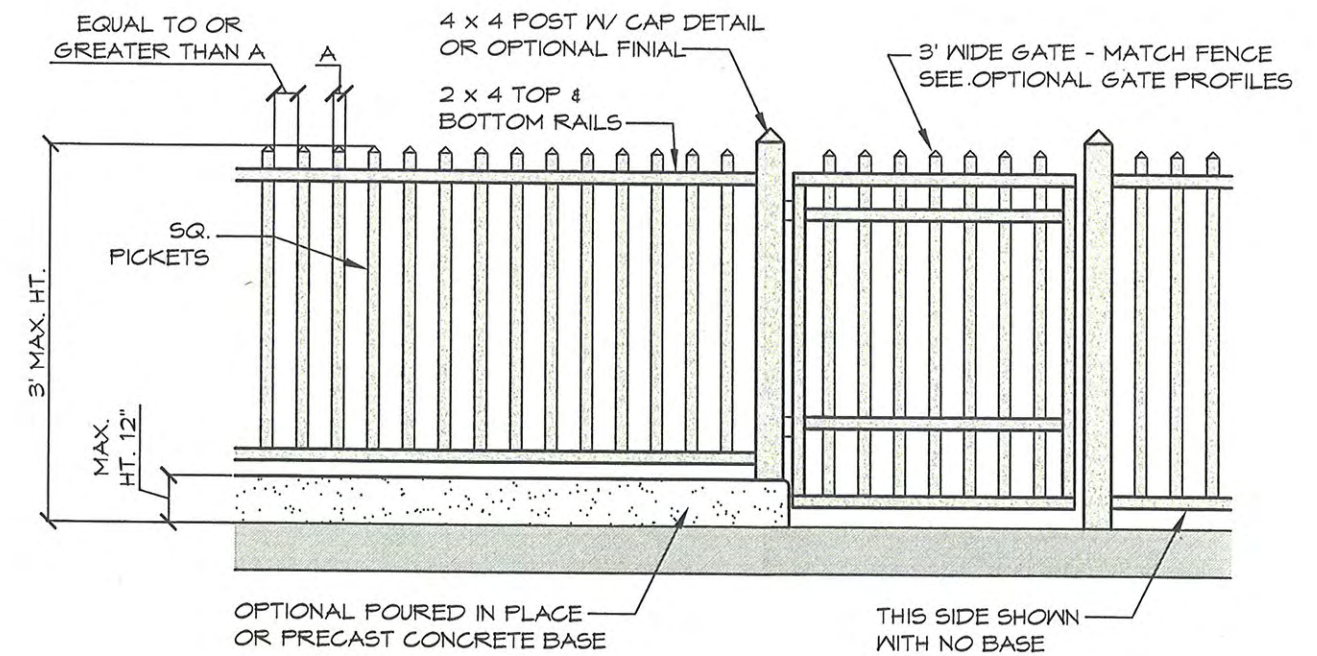
ENGLISH & FRENCH REVIVAL



AMERICAN CLASSIC & AMERICAN MODERN



PICKET GATE PROFILES



ALL STYLES

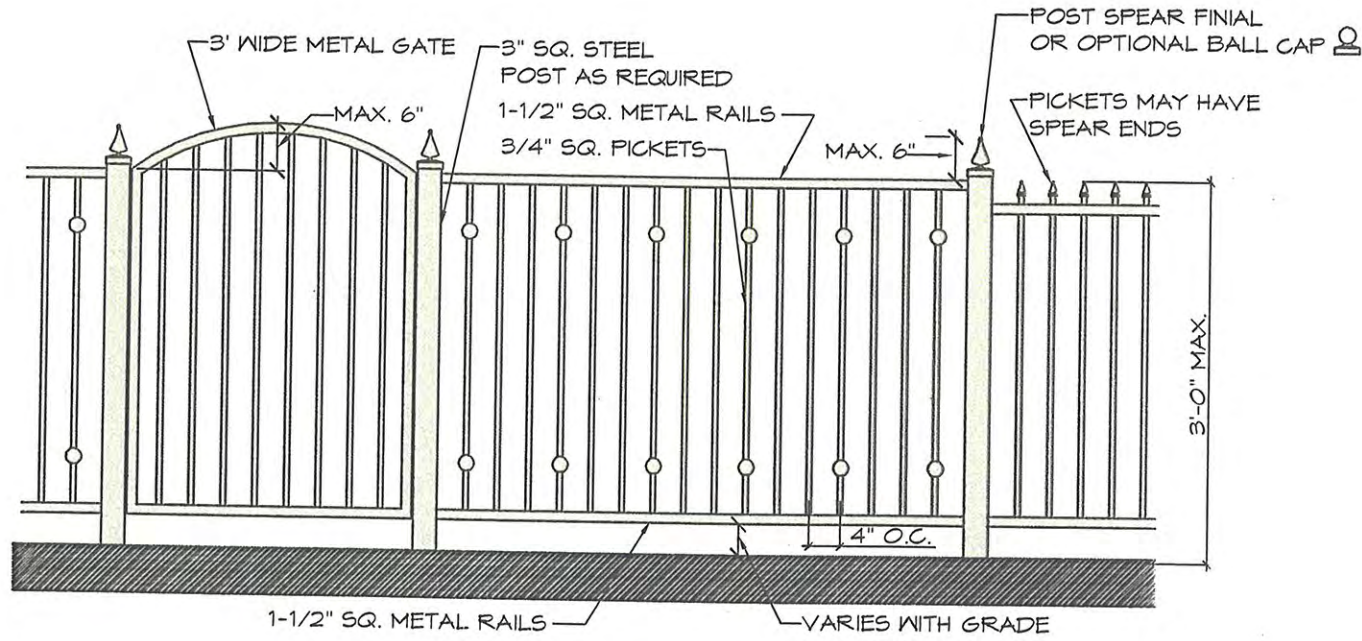


TRANSPARENT - MAXIMUM HEIGHT 3'-0"

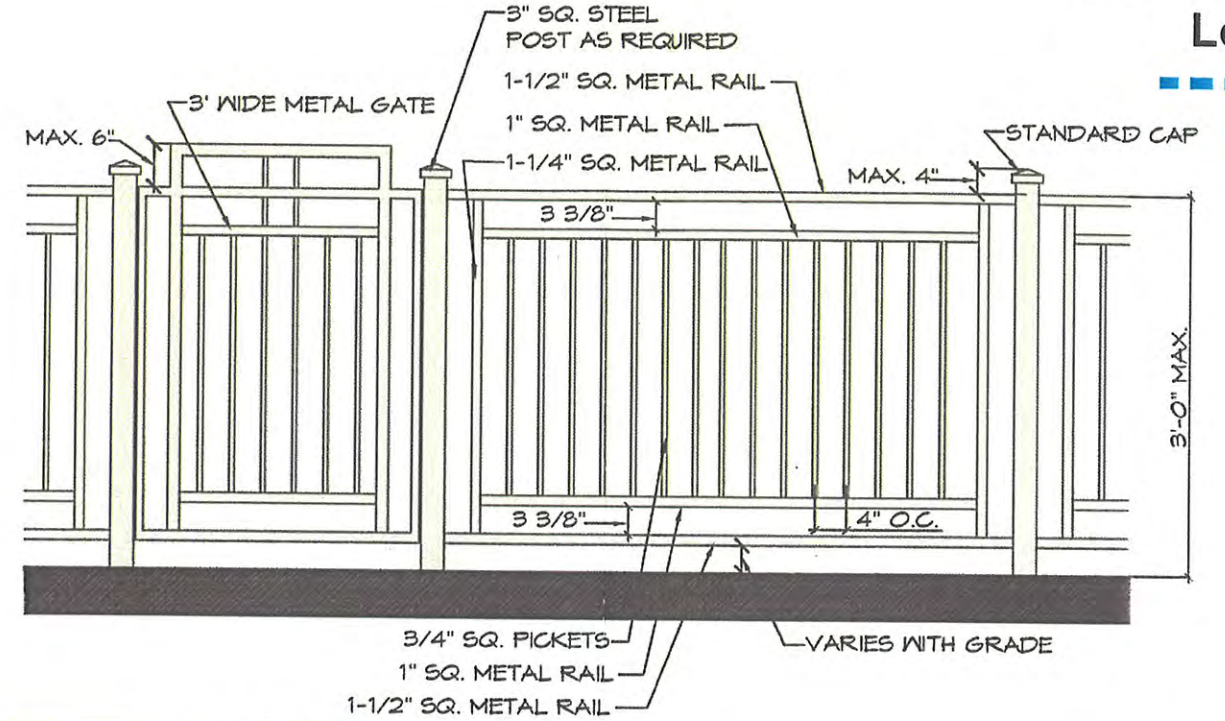
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RESIDENTIAL FENCING

Transparent
Low

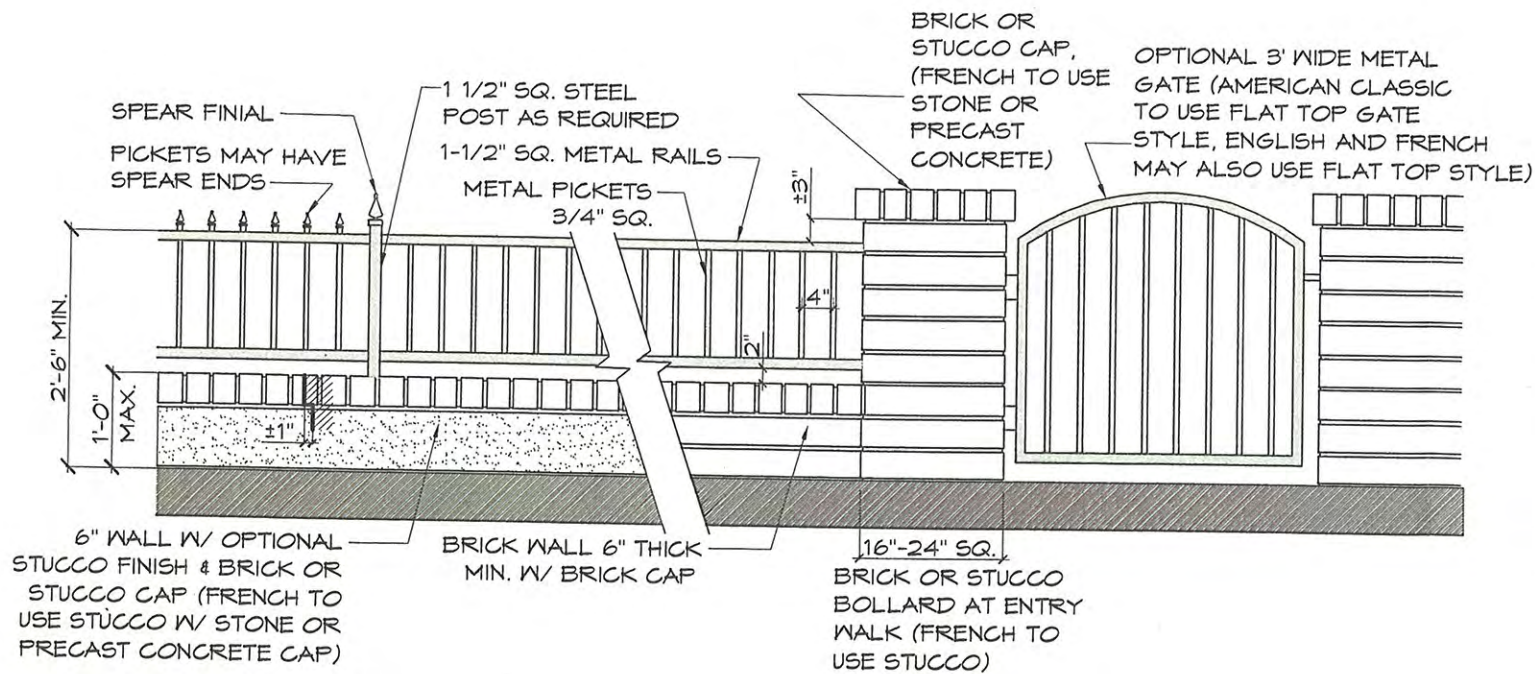


ENGLISH & FRENCH REVIVAL, AMERICAN CLASSIC

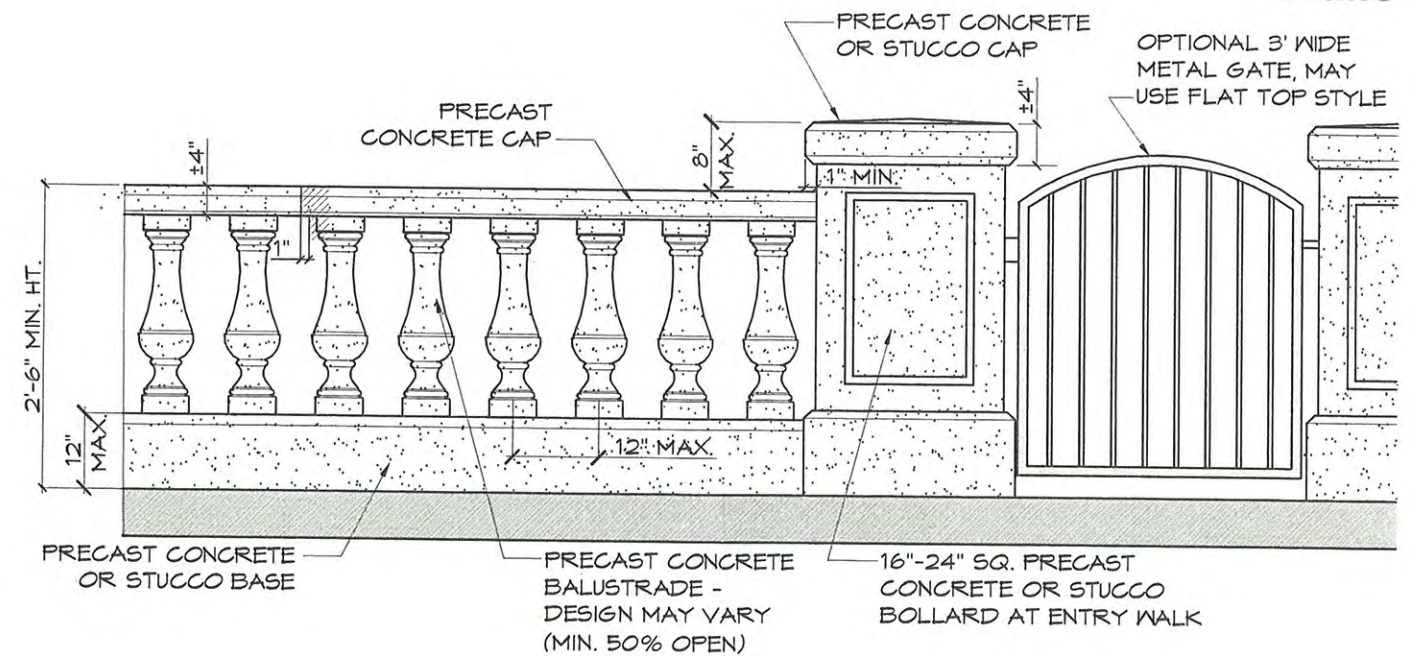


AMERICAN MODERN

Courtyard
Walls



ENGLISH & FRENCH REVIVAL, AMERICAN CLASSIC



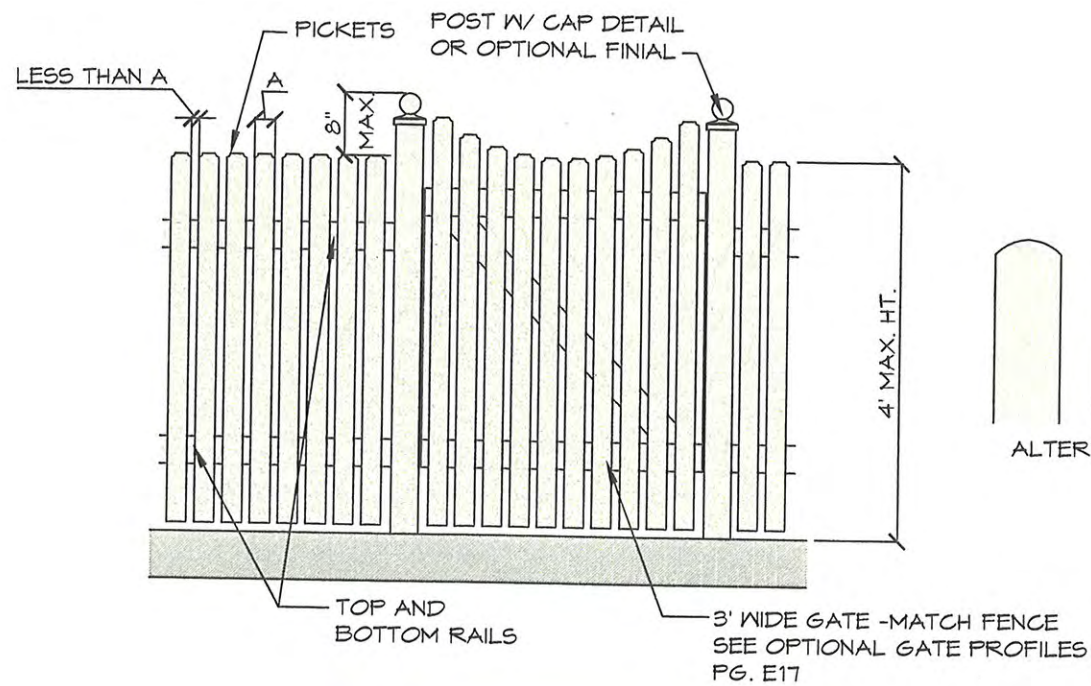
FRENCH REVIVAL



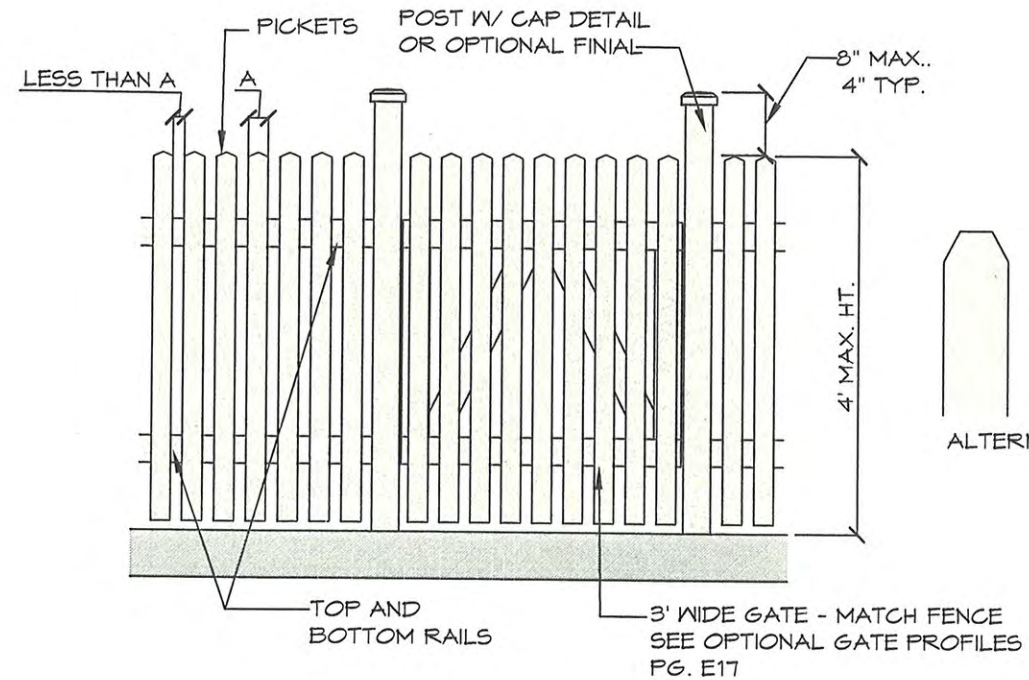
TRANSPARENT - MAXIMUM HEIGHT 3'-0"

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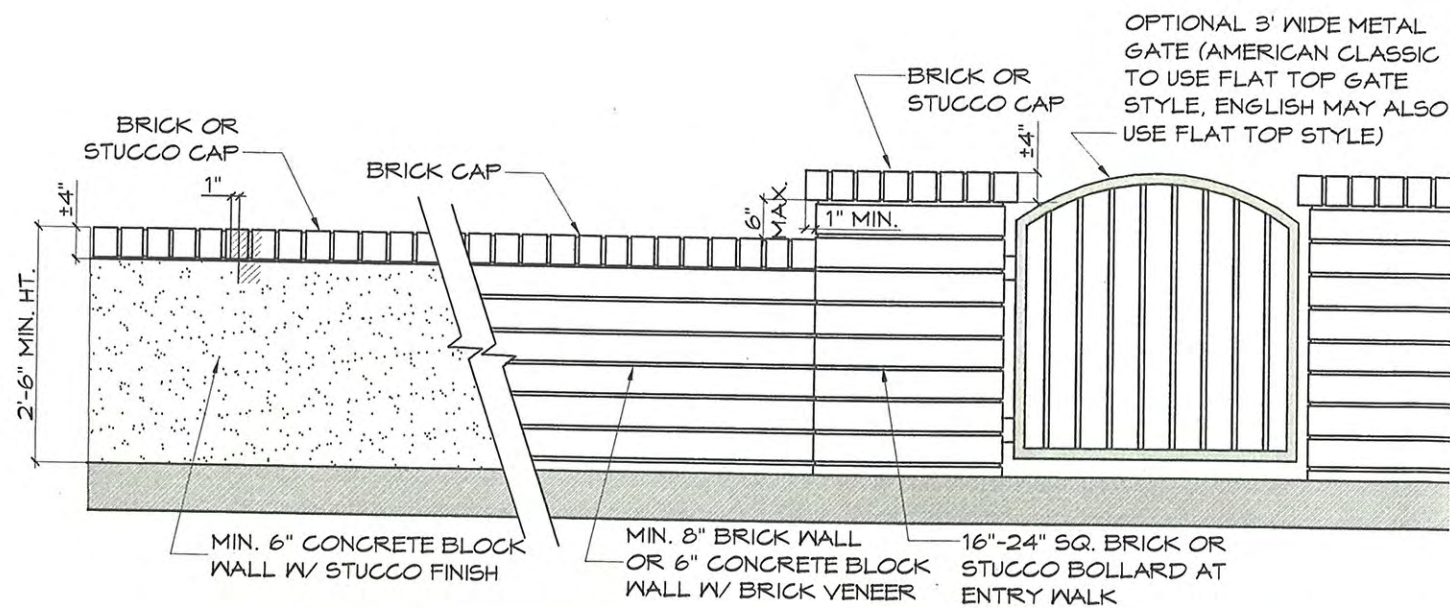
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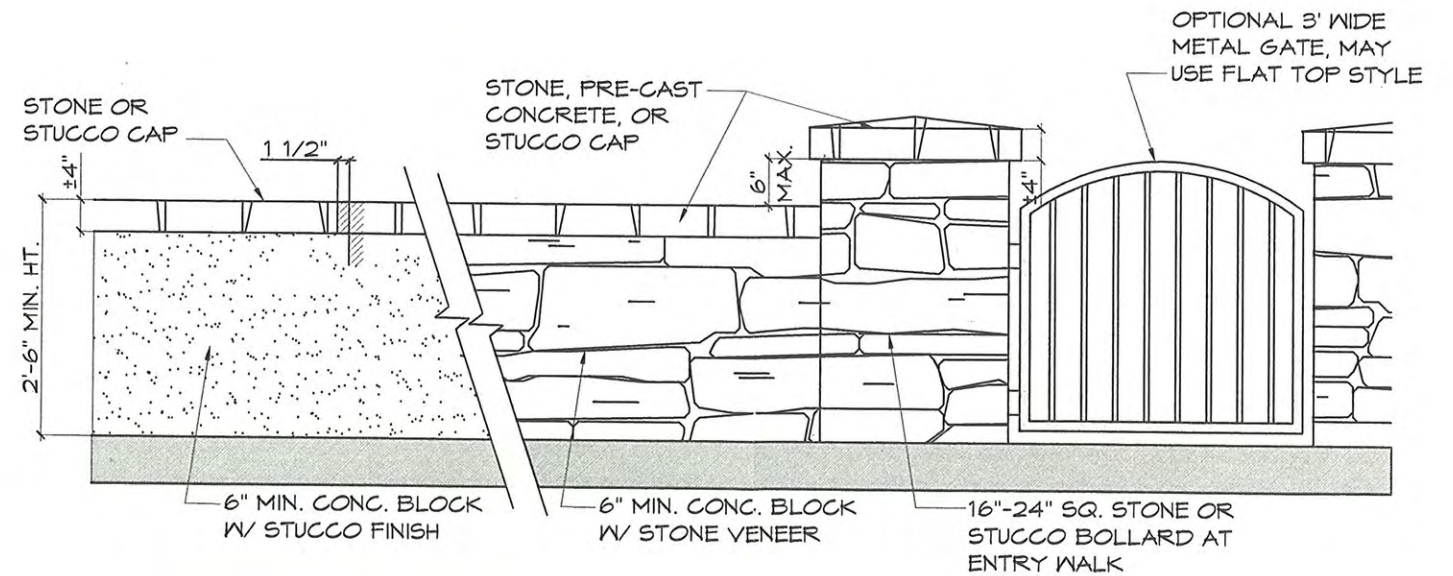
ENGLISH & FRENCH REVIVAL



AMERICAN CLASSIC & AMERICAN MODERN



ENGLISH REVIVAL & AMERICAN CLASSIC



FRENCH REVIVAL

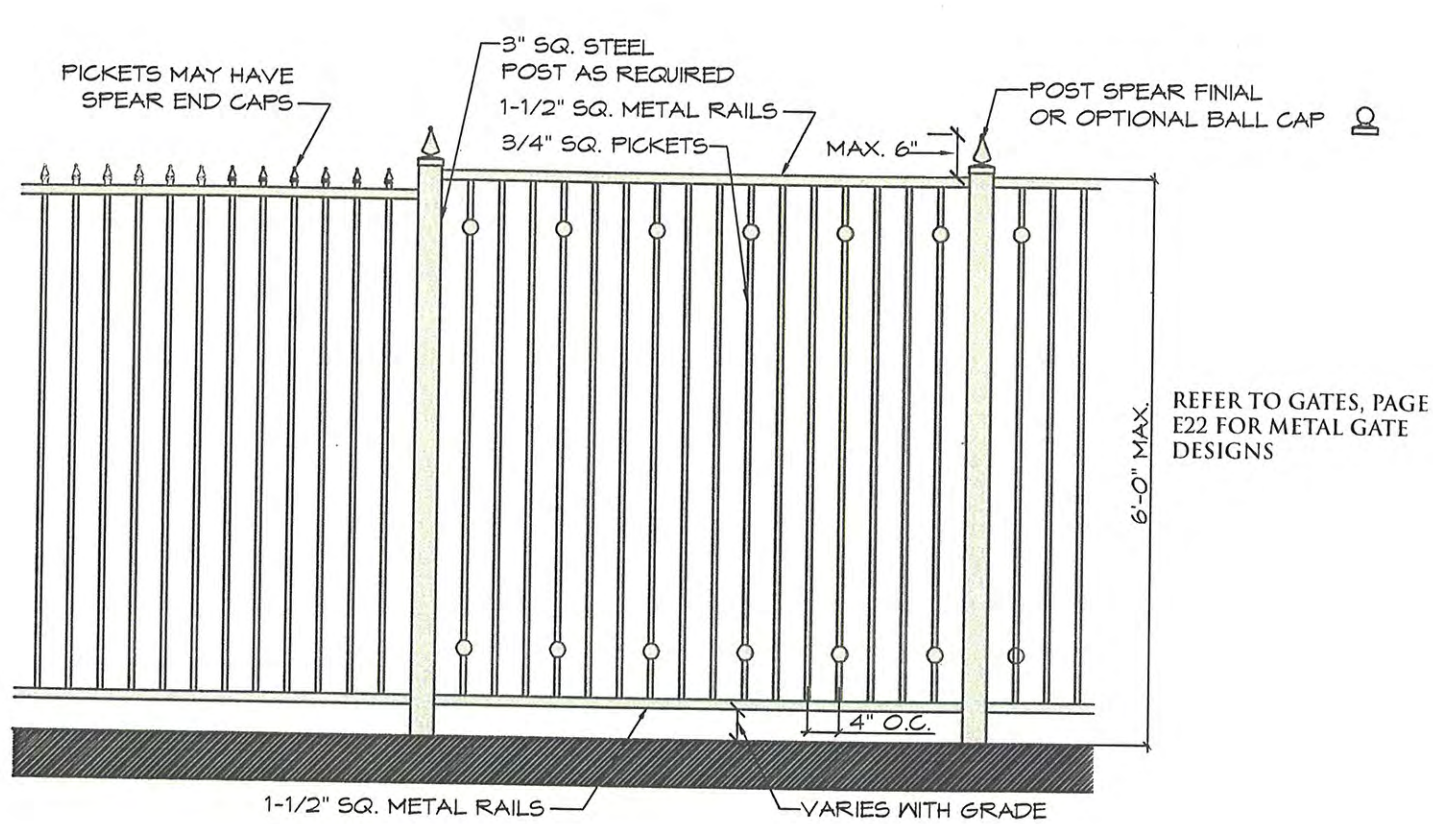
**Courtyard
Walls**



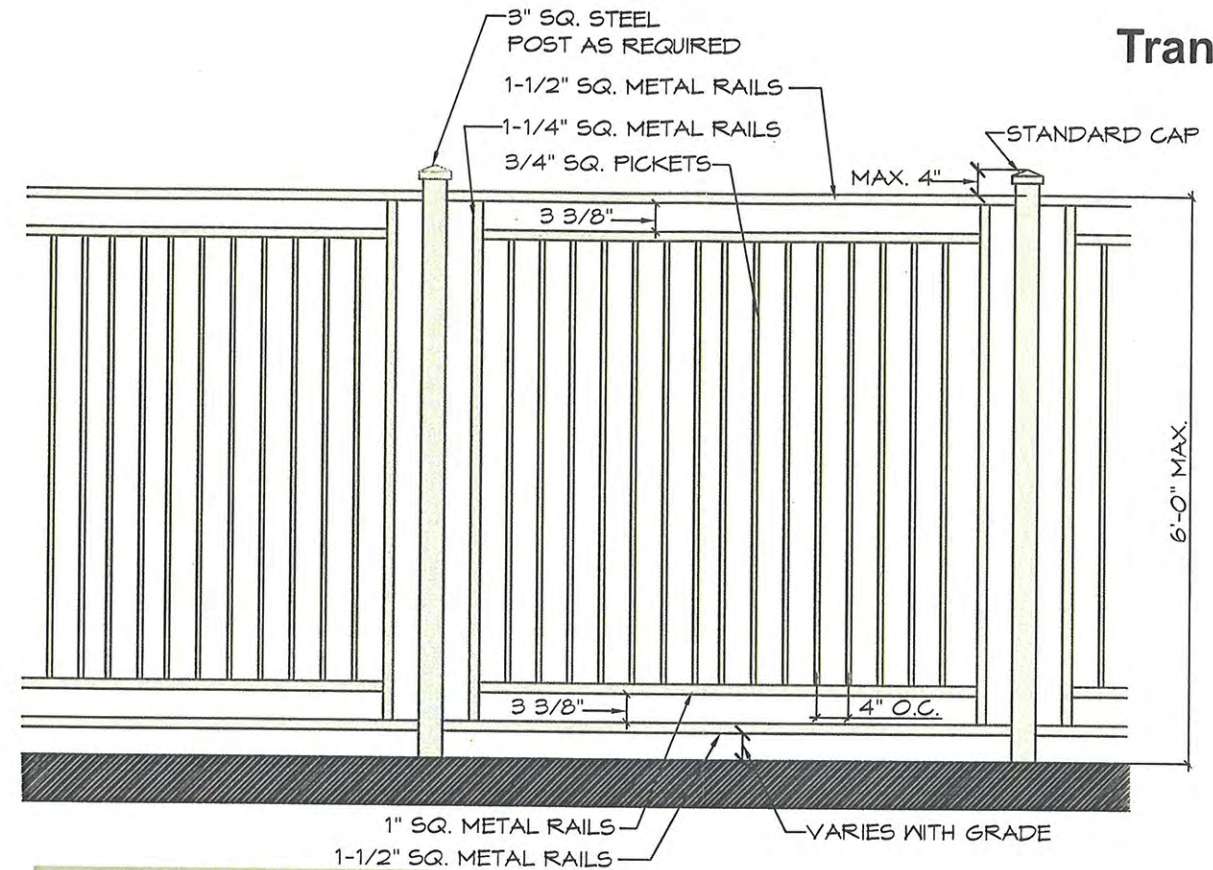
SOLID - MAXIMUM HEIGHT 3'-0"

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RESIDENTIAL FENCING

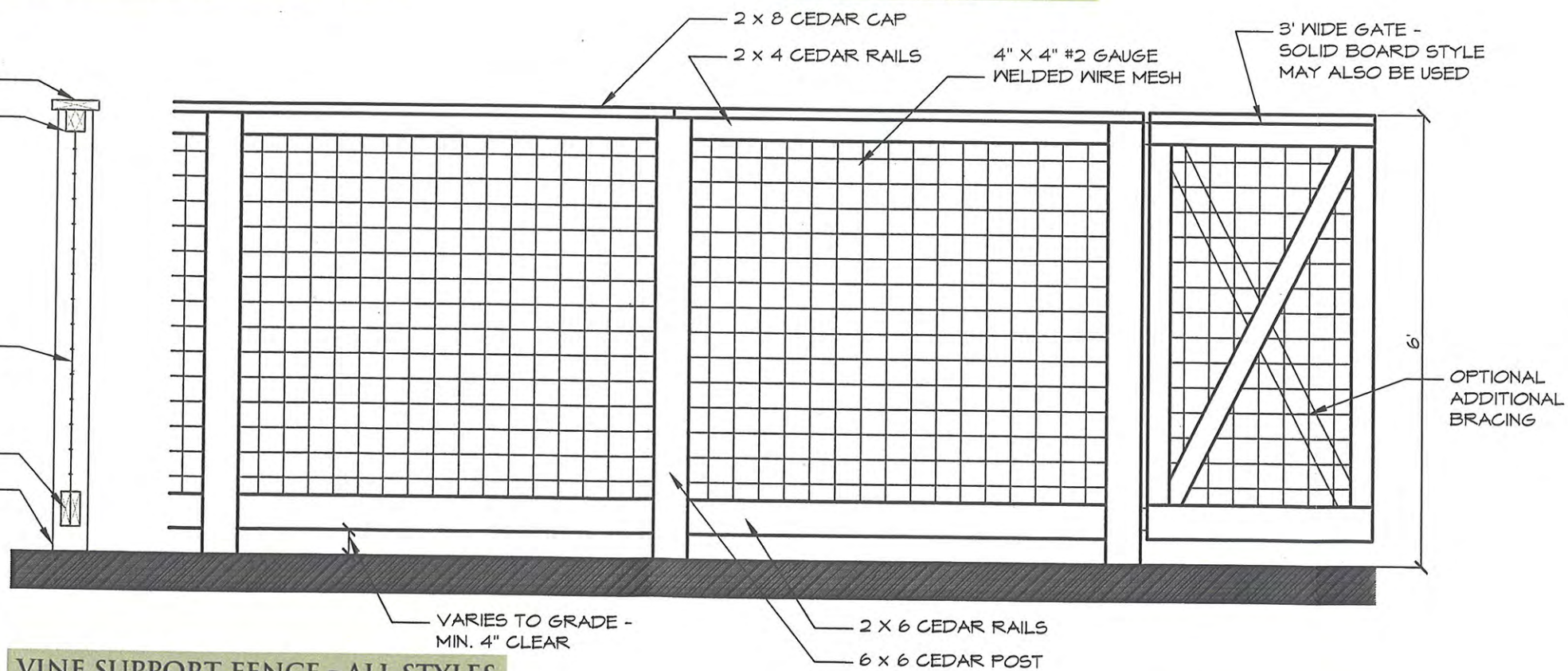
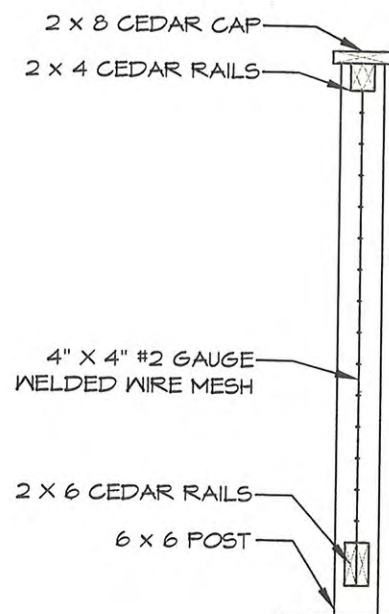


ENGLISH & FRENCH REVIVAL, AMERICAN CLASSIC



AMERICAN MODERN

Transparent High



VINE SUPPORT FENCE - ALL STYLES

Alley



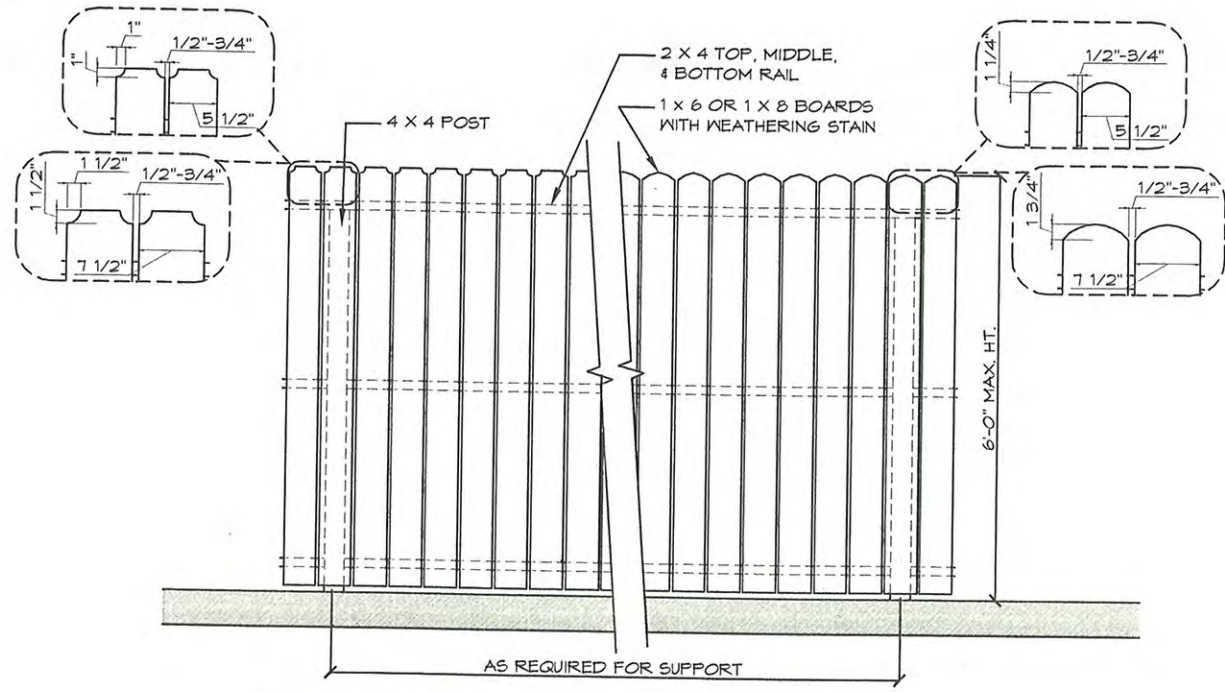
ANY OTHER TRANSPARENT LOW FENCE DESIGN THAT MATCHES THE STYLE OF THE HOUSE MAY ALSO BE USED



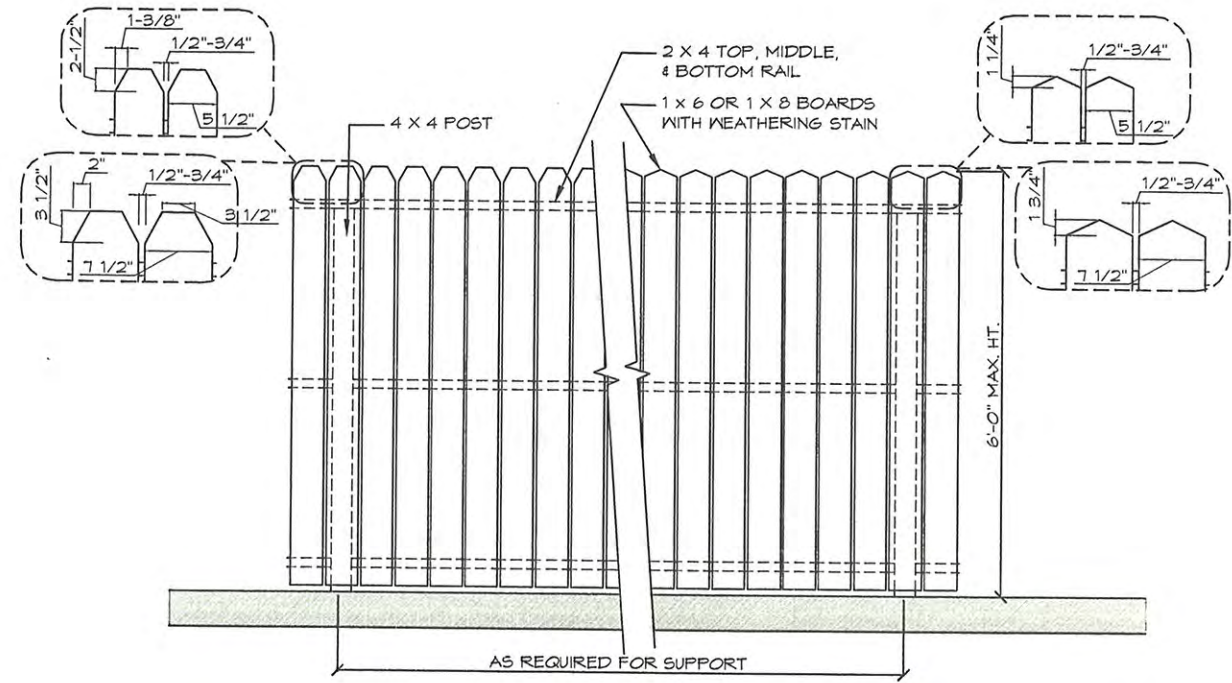
TRANSPARENT - MAXIMUM HEIGHT 6'-0"

© 2007 Iverson Architects

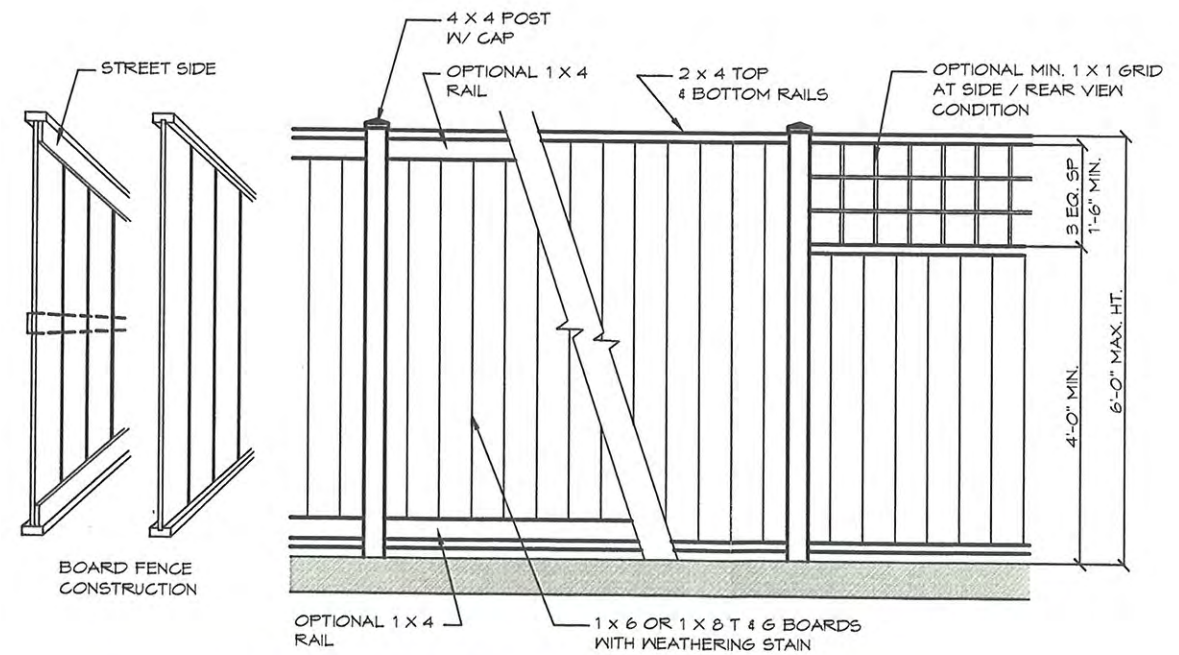
RESIDENTIAL FENCING



ENGLISH & FRENCH REVIVAL



AMERICAN CLASSIC & AMERICAN MODERN



ALL STYLES - SIDE OR REAR LOT LINES, & ALLEYS

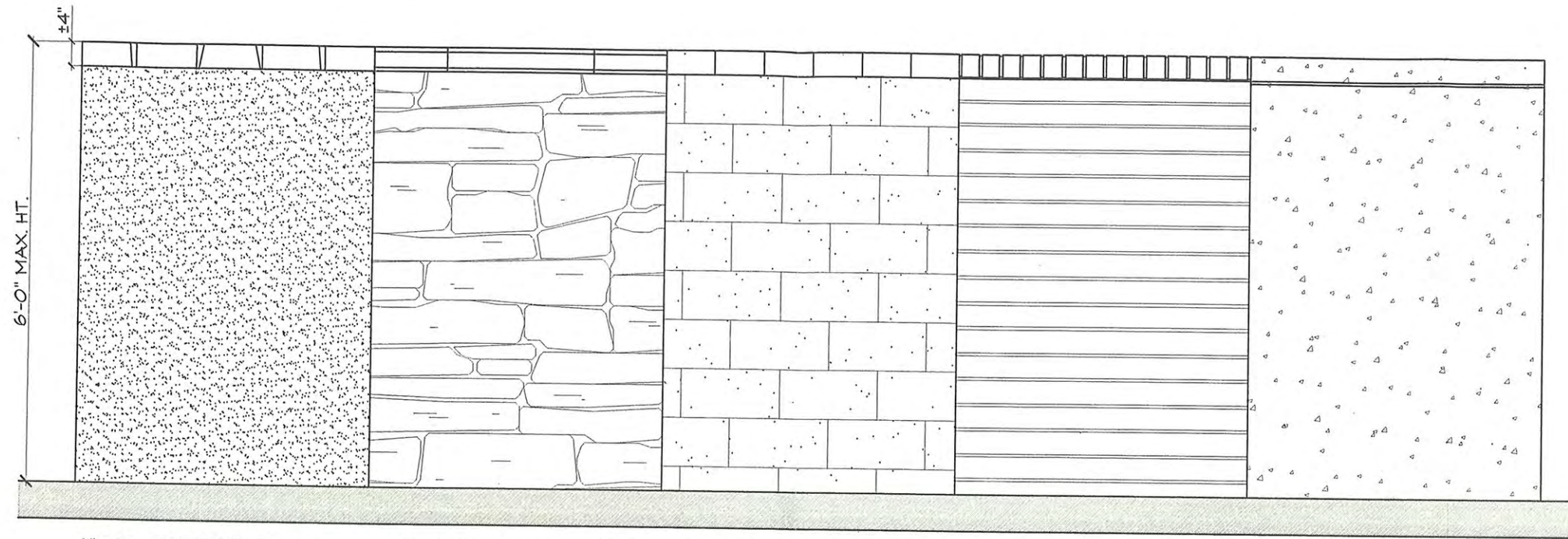


SOLID - MAXIMUM HEIGHT 6'-0"

© 2007 Iverson Architects

RESIDENTIAL FENCING

Solid High



THESE DESIGNS ARE ALSO SUITABLE FOR LOW WALLS AND RETAINING WALLS

6" MIN. CONCRETE BLOCK WALL W/ STUCCO FINISH & STUCCO, BRICK, STONE, OR PRECAST CONCRETE CAP

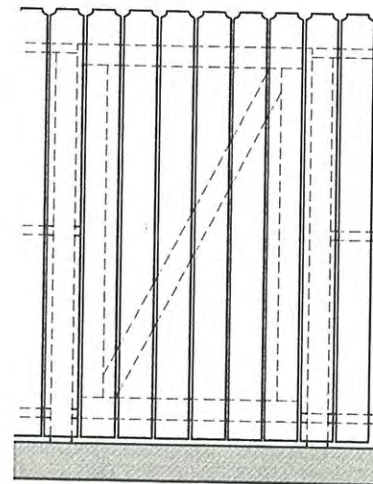
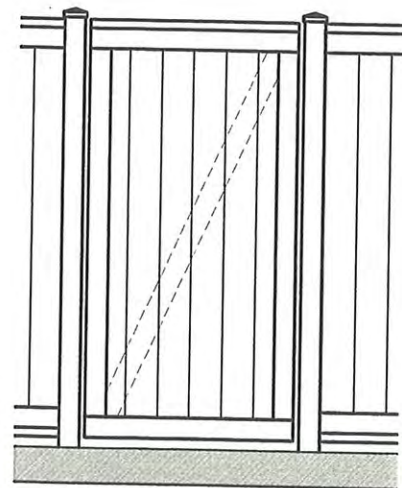
MIN. 6" CONCRETE BLOCK WALL W/ STONE VENEER & STONE OR PRECAST CONCRETE CAP

MIN. 6" SPLIT-FACE CONCRETE BLOCK WALL W/ CMU OR PRECAST CONCRETE CAP

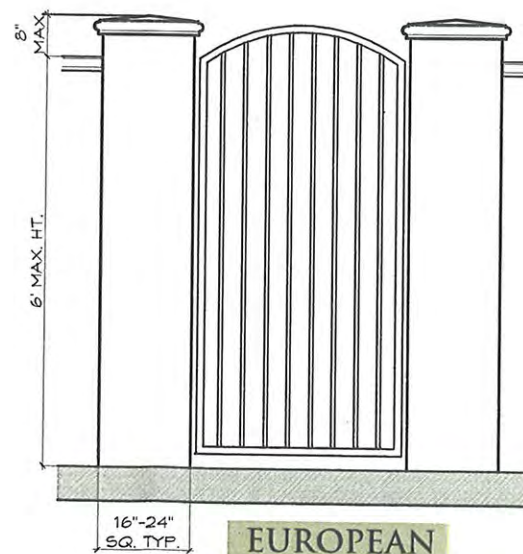
6" MIN. CONCRETE BLOCK WALL W/ BRICK VENEER & BRICK CAP OR 8" MIN. BRICK WALL W/ BRICK CAP

(RETAINING WALLS ONLY) 8" CAST-IN-PLACE CONCRETE WALL W/ TEXTURED FINISH- MAY USE PRECAST CONCRETE CAP

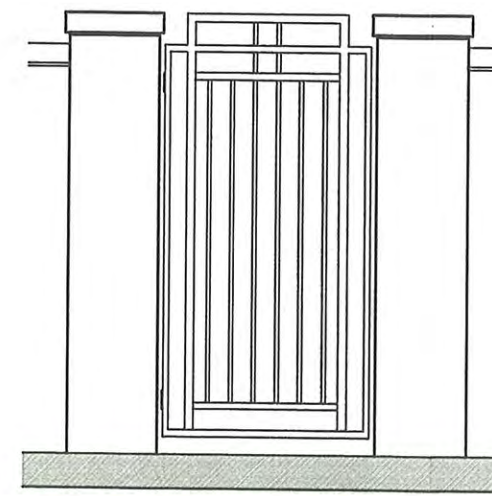
ALL STYLES - OPTIONS FOR SIDE OR REAR LOT LINES



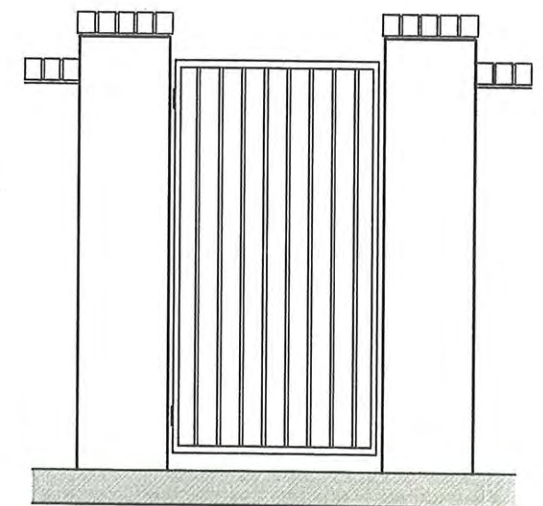
MATCH GATE STYLE TO FENCE STYLE



EUROPEAN



AMERICAN MODERN



AMERICAN CLASSIC

METAL GATE OPTIONS
USE WITH METAL FENCE, OR MASONRY, STUCCO, OR STONE WALLS

Gates

ALL STYLES - WOOD GATES
SEE PG. E19 FOR OPTIONAL BOARD SHAPES

SOLID - MAXIMUM HEIGHT 6'-0"

© 2007 Iverson Architects

RESIDENTIAL FENCING



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Hawkins, William J. III & Willingham, William F., *Classic Houses of Portland, Oregon 1850-1950*, Timber Press, 1999, Portland OR

Heard, Malcolm, *French Quarter Manual-An Architectural Guide to New Orleans Vieux Carre*, University Press of Mississippi, 2000

Jones, Robert T. (edited by), *Authentic Small Houses of the Twenties*, Dover Publications, Mineola, N.Y., 1987

McAlester, Virginia & Lee, *Field Guide to American Houses*, Alfred A. Knopf, 1984, New York

McAlester, Virginia & Lee, *Field Guide to America's Historic Neighborhoods and Museum Houses-The Western States*, Alfred A. Knopf, 1998, New York

Portland General Electric, *Earth Advantage™*, (888) 327-8433, www.earthadvantage.com

Definitions

Accessory Building A subordinate building or use, the function of which is permitted

Accessory Dwelling Unit A dwelling unit of not more than 600 square feet located on the same lot as a single family dwelling, and being of substantially the same exterior design as the single family dwelling

Active Side When utilizing optional Private Space Use Easement, side yard of house with use of adjacent lot sideyard

Asymmetrical Lack of similarity of form or arrangement of parts on either side of a vertical dividing line or plane

Baluster One of a number of short vertical members, often circular in section, used to support a stair handrail or a coping

Balustrade An entire railing system, as along the edge of a balcony, including a top rail and its balusters, and sometimes a bottom rail

Cap Molding The trim at the topmost member of any vertical architectural element, often projecting, with a drip as protection from the weather

Coping A protective cap, top, or cover of a wall, parapet, pilaster, or chimney

Cornice The exterior trim of a structure at the meeting of the roof and wall or at a pediment and the wall or opening below

Eave That part of a roof that projects beyond the exterior wall; usually the lower edge of a sloped roof

EMF Electro-magnetic field produced by an electric current such as in the motors of refrigerators, heat pumps, etc. (There is a strong correlation between EMF's and health; low EMF design reduces potential for exposure to EMF's by locating EMF sources away from frequently used areas, especially sleeping areas)

Facade The exterior face of a building which is the architectural front, sometimes distinguished from the other faces by elaboration of architectural details

Fascia A board that is nailed vertically at the ends of roof rafters; sometimes supports a gutter; also called a fascia board

Flex Space Ground floor units of a multi-family or mixed-use building that can be converted to commercial or residential uses

Gable A vertical surface on a building usually adjoining a pitched roof, commonly at an end, whose shape depends on the type of roof and parapet, although most often it is triangular. If the gable is on the facade, rather than the end, the building is said to be front-gabled

Lintel A horizontal structural member such as a beam, over an opening which carries the weight of the wall above

Mullion A vertical member separating and often supporting windows, doors, or panels set in series

Muntin A secondary framing member to hold panes within a window, window wall, or glazed door

Passive Side When utilizing optional Private Space Use Easement, side yard of house with high or obscure glazing only, for privacy of adjacent active side yard

Pediment In Classical architecture, a triangular gable usually having a horizontal cornice, with raked cornices on each side, surmounting or crowning a portico or another major division of a facade or end wall

Pilaster An engaged pier or pillar, often with capital and base; decorative features that imitate engaged piers but are not supporting structures, often used as a simulated pillar at entrances and other door openings

Porch An open air room appended to the mass of a building, with floor and roof, but may also be partially enclosed, screened, or glass-enclosed. The minimum area of usable space must be 6' x 6', with a minimum of 4' covered depth.

Porte Cochere A covered automobile entryway leading to a courtyard

Portico A covered entrance, commonly placed at the front of a building

Private Outdoor Space A space outside the building not intended for or controlled by, and normally not visible to the public; typically refers to the enclosed rear yard

Private Space Use Easement A yard area adjacent to a house which may be used as part of the private outdoor space of the house next door

Public Open Space An area without buildings, reserved for public use, whether owned and maintained by a public or private organization, including but not limited to, plazas, parks, natural preserves, and trails

Public View Shed Those building elevations that face a public front or side street, or a public open space, and also extending a minimum of two feet (2') on rear elevations on corner alley-loaded lots; and the distance along an interior side elevation to a significant architectural feature or a minimum of four feet (4') if there is no significant architectural feature within the first eight feet (8') of the facade

Quoin In masonry, a hard stone or brick used, with similar ones, to reinforce an external corner or an edge of a wall or the like; often distinguished decoratively from adjacent masonry or stucco; may be imitated in non-load-bearing materials

Raking or Raked Cornice A cornice following the slope of a gable, pediment, or roof

Sash, Window Sash Any framework of a window, may be movable or fixed; may slide in a vertical plane (as in a double-hung window) or may be pivoted (as in a casement window)

Semi-Private Outdoor Space A space outside the building not intended for or controlled by, but visible to the public; refers to porches, stoops, courtyards, terraces

Semi-Public Outdoor Space A space outside the building not intended for or controlled by, but visible to the public; typically refers to the front yard

Setback The minimum distance between a reference line (usually a property line) and a building, or portion thereof, as required by ordinance or code

Significant Architectural Feature Features which block the line of sight from front yards and the public street along interior side yards. Such features include chimneys, porte cocheres and porches, fences, walls and other features that effectively block the line of sight.

Sill The horizontal bottom member of a window frame

Soffit The exposed undersurface of any overhead component of a building such as an outdoor ceiling, or an arch, balcony, beam, cornice, lintel, or vault

Stoop A platform or small porch, usually up several steps, at the entrance to a house, usually not covered

Symmetrical Similarity of form or arrangement of parts on either side of a dividing line or plane

Telescoping Gable, Catslide The long sloping roof at the front of an English Revival house usually on only one side of a gable

Terrace A raised space or platform adjoining a building, paved or planted, especially one used for leisure enjoyment

Transom A small window or shutter-like panel directly over a door or window, usually hinged to the lintel

VOC Volatile organic compounds often present in various common household products which emit potentially toxic gases

Wing A subsidiary part of a building extending out from the main portion



Compliance Checklist

The purpose of this checklist is to provide a means of measuring or evaluating an Architectural Design application to determine if it is in substantial compliance with the Approved Pattern Book for land uses located in the Villebois Specific Area Plan South.

In addition, the Architectural Design application shall comply with the Villebois Village Zone Design and Development Standards.

The areas of evaluation of the submittal shall include the following:

1. Concurrence with the appropriate Land Use Patterns and Lot Diagrams
2. Use of Appropriate Architectural Styles from the Pattern Book
3. Inclusions of the Basic Elements for the Architectural Style
4. Concurrence with the Scale and Proportion diagrams and Rules of Adjacencies
5. Earth Advantage certification

1. Concurrence with the appropriate Land Use Patterns and Lot Diagrams

- Building orientation, vehicular access and off-street parking match diagram for lot type
- Setbacks are located per diagram and comply with Development Standards
- Outdoor space is provided and located per appropriate lot diagram
- Fences are located per diagram and comply with the Villebois Master Fencing Program
- Accessory buildings or uses, if allowed, match appropriate lot diagram

2. Use of Appropriate Architectural Styles from the Pattern Book

- Proposed elevations are based on one of the Appropriate Architectural Styles

3. Inclusions of the Basic Elements of the Architectural Styles proposed

- Massing and Composition generally match illustrative diagrams
- Roof forms, eave details and dormers are per elements of style
- Doors match material, form, and trim as shown for basic elements
- Window type, proportion, trim, and glazing treatment are per elements of style

- Window enhancements and special windows per elements if part of the style
- Entrances and outdoor space, columns and baluster details per style shown
- Porches, stoops, and terraces are elevated a minimum of 10"
- Light fixtures and chimneys are of similar design to those shown for style
- Materials and colors are per those listed for the style
- Accessory buildings are of the same exterior design and architecture as the primary dwelling unit on the property

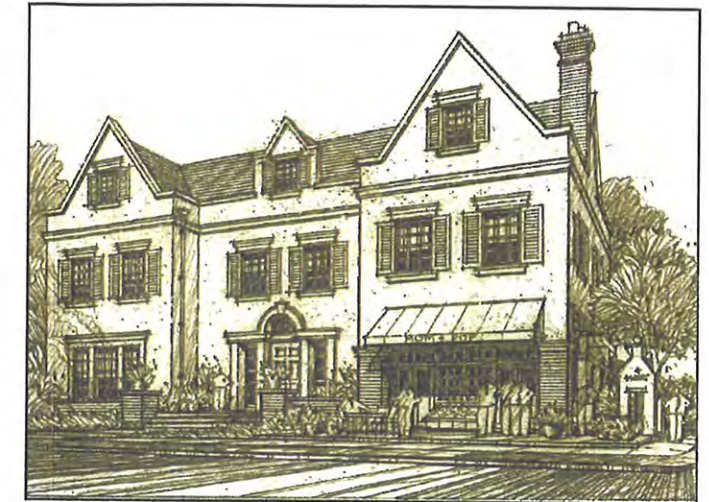
Note: It is not permitted to use elements from one style on another style.

4. Concurrence with the Scale and Proportion diagrams and Rules of Adjacencies

- Proportions of facades match diagrams for appropriate lot or land use width
- Windows and doors align vertically and, or, are centered in the wall plane on which they are located
- Proportion and placement of windows match the order on the diagram for the appropriate style
- Roof shape, slope, fascias and dormers agree with the diagram of the style
- A review of the required plot plan shows that the proposed floor plan or composite floor plan types, and their associated Architectural Styles comply with the Rules of Adjacencies and Diversity

5. Earth Advantage certification

- Floor plans reviewed by and meet certification standards of Earth Advantage™



III
Community Elements Book
(No Amendments)



Villebois

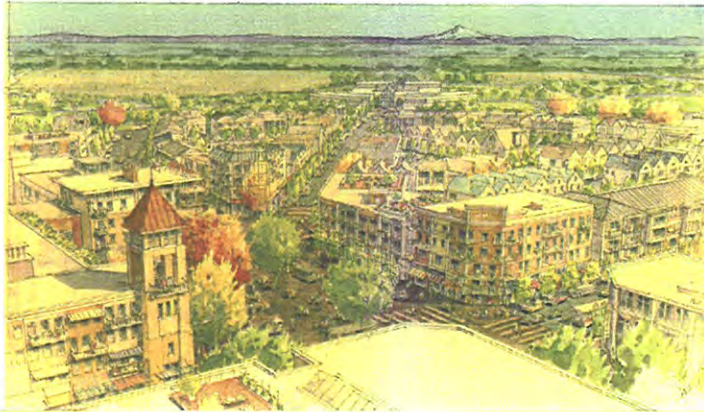
VILLEBOIS

SPECIFIC AREA PLAN - NORTH

Vol. IV: COMMUNITY ELEMENTS BOOK

Walker Macy
Landscape Architects & Planners
Fletcher Farr Ayotte
Architects
Iverson Associates
Architecture
Otak, Inc.
Civil Engineers and Planners
William L. Owen & Associates
Tree and Landscape Consulting

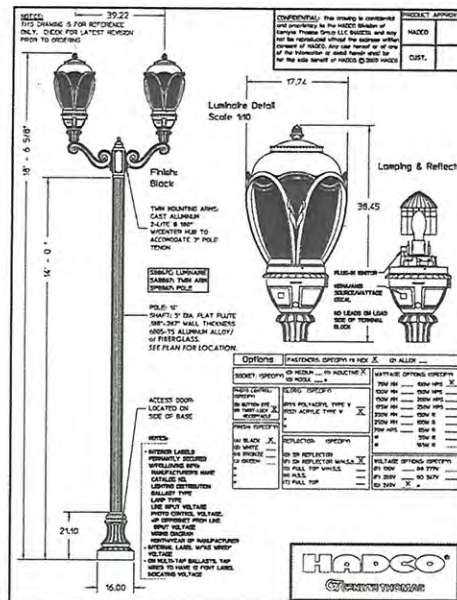
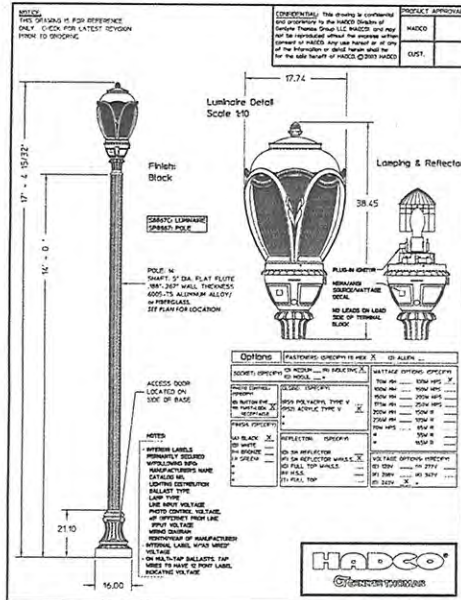
June 4, 2007



This Community Elements Book is a key component in the development of Villebois. This plan identifies plants, street trees, tree protection, lighting, curb extensions, play structures and site furnishings to be used throughout the community. These are important contributing elements that will establish a coherent identity for the community while meeting Villebois' goals for connectivity, diversity and sustainability.

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 LIGHTING MASTER PLAN DIAGRAM4
 CURB EXTENSION CONCEPT PLAN DIAGRAM5
 CURB EXTENSION DIAGRAMS6
 STREET TREE MASTER PLAN DIAGRAM7
 STREET TREE MASTER PLAN LIST8
 MAIL BOX LOCATION MAP DIAGRAM 11
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 SITE FURNISHINGS – BENCHES 13
 SITE FURNISHINGS – MISC 14
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 TREE PROTECTION 18
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Substitutions to the above light fixtures must be an approved equal as determined by the Master Planner and pre-approved by PGE.



Examples of selected light fixtures from recently-built projects.



LIGHTING MASTER PLAN CONCEPT

The Lighting Concept for Villebois is an important element of the community's plan. Lighting is often overlooked in the myriad details of construction and design, but when considered carefully, good lighting can contribute to a coherent identity for a community while meeting traditional goals of safety and wayfinding.

Connectivity: The Lighting Concept is intended to provide clear connections throughout Villebois. These connections will occur on primary streets, intersections, and the greenway. The light fixtures, including Luminaire, Pole, and Base will be the same throughout the community to provide a sense of unity and connectivity.

Diversity: Light levels will vary based on the location. Variations in number of heads, spacing and light levels will establish a hierarchy for the streets and neighborhoods.

The drawings and photos provided illustrate the specific light fixtures that have been selected for Villebois streets, trails and parks. The plan illustrated on the following page describes the concept for the placement and spacing of the selected fixtures, and the light level, or "Candle Power" that is recommended for different streets at Villebois. The general concept is for light levels to remain low around the community's edges, especially adjacent to protected greenspaces, and increase in intensity closer to the Village Center.

Sustainability: In order to respect the community's sense of place and proximity to nature, the lighting at Villebois is also restricted to those fixtures that minimize light pollution, and allow night-sky viewing.

LIGHT FIXTURE

Luminaire: Hadco S8867C

Pole: 14 Foot Decorative Cast Aluminum - Anchor Base
Hadco-P-2065-14-A or Hapco: 77920

16 Foot Decorative Cast Aluminum
Hadco-P-2165-16-A or Hapco: 77920X16

Footing: AB Chance: C1124NG4TK w/ round mounting plate
Concrete footing PGE specifications - In Swales


Finish: Black

NOTE: Lighting Concept Plan is for illustrative purposes outside of the current SAP submission area. This plan will be updated as minor modifications are made in subsequent SAP submissions.



LEGEND

HADCO 58867C LIGHTS

-  Single Hoco Light Fixture
120' O.C.
0.6 CP @ 150 watts
-  Single Hoco Light Fixture
155' O.C.
0.4 CP @ 150 watts
-  Cobro Hoco Light Fixture
140' O.C.
0.9 CP @ 200 watts
-  Single Hoco Light Fixture
120' O.C.
0.6 CP @ 200 watts
-  Single Hoco Light Fixture
75' O.C.
0.9 CP @ 150 watts
-  Double Hoco Light Fixture
120' O.C.
0.6 CP @ 200 watts
-  Single Hoco Light Fixture
65' O.C.
0.9 CP @ 150 watts
-  Single Hoco Light Fixture
50' O.C.
1.2 CP @ 150 watts
Double Hoco Light Fixture possible in
Central Plaza area, per design
-  Single Hoco Light Fixture
200 watts
-  SAP North Boundary

Note:

1. Light fixtures are triangular to describe spacing.
2. CP = Candle Power; O.C. = On Center

NOTE: Curb Extension Plan is for illustrative purposes outside of the current SAP submission area. This plan will be updated as minor modifications are made in subsequent SAP submissions.

CURB EXTENSION CONCEPT PLAN



LEGEND

— TRAFFIC CALMING
CURB EXTENSIONS

— PEDESTRIAN ACCOMMODATION
CURB EXTENSIONS

— SAP North Boundary

CURB EXTENSIONS

The Villebois Village plan includes curb extensions in locations of high pedestrian activity. Curb extensions serve to minimize speeds and the length of exposure for pedestrians crossing streets, and also provide protection for on-street parked cars. It is recognized that curb extensions may restrict the ability for larger vehicles to turn at street corners.

A conceptual master plan identifying placement of curb extensions within the Villebois Village is illustrated here. As shown in the plan, curb extensions are proposed at every intersection involving a collector street approach to facilitate pedestrian crossing of the collector street. Curb extensions are also proposed at (1) local street intersections in high pedestrian activity areas and (2) at local street intersections with approach lengths in excess of 1,000 feet without upstream traffic control (e.g. stop signs) or traffic calming measures (e.g. curb extensions, roundabouts).

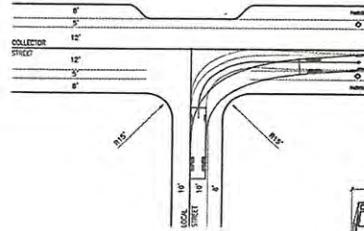


CURB EXTENSIONS

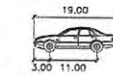
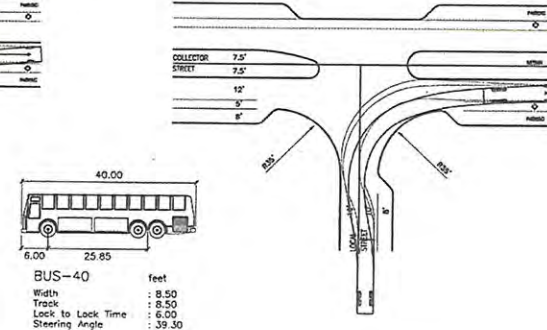
The Villebois Village plan includes curb extensions in locations of high pedestrian activity. Curb extensions serve to minimize speeds and the length of exposure for pedestrians crossing streets, and also provide protection for on-street parked cars. It is recognized that curb extensions may restrict the ability for larger vehicles to turn at street corners.

The following basic principles shall be used for the placement and design of curb extensions:

- A minimum of 20-foot face-of-curb- to face-of-curb street width shall be provided at all residential street intersections, even where curb extensions are located. In the Village Center (inside the Village Loop), the minimum curb-to-curb street width should be 22 feet, in order to accommodate delivery and garbage truck movements.
- Fire trucks, buses, and single-unit trucks (i.e., garbage trucks) shall be able to negotiate from collector/arterial streets without crossing the collector/arterial street centerline. Fire trucks shall be able to negotiate through residential streets, although it is acceptable for them to cross the street centerline on residential streets.
- Passenger car turning movements shall be able to stay within the street centerline on all streets.
- Bike lanes shall not be forced into vehicle travel lanes.
- Applicable curb return radii for combinations of collector street/local street intersections with various cross-sections are illustrated on this page.

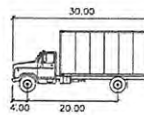
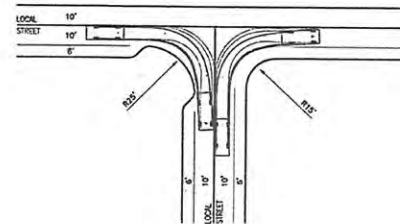


BUS/FIRE TRUCK TURNING RADIUS DETAILS



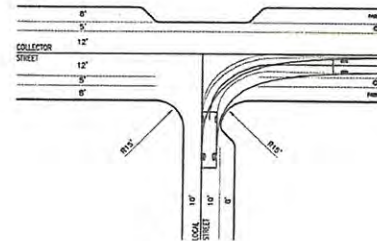
P		feet
Width	:	7.00
Track	:	6.00
Lock to Lock Time	:	6.00
Steering Angle	:	31.60

CAR TURNING RADIUS DETAIL



SU		feet
Width	:	8.00
Track	:	8.00
Lock to Lock Time	:	6.00
Steering Angle	:	31.90

TRUCK TURNING RADIUS DETAILS

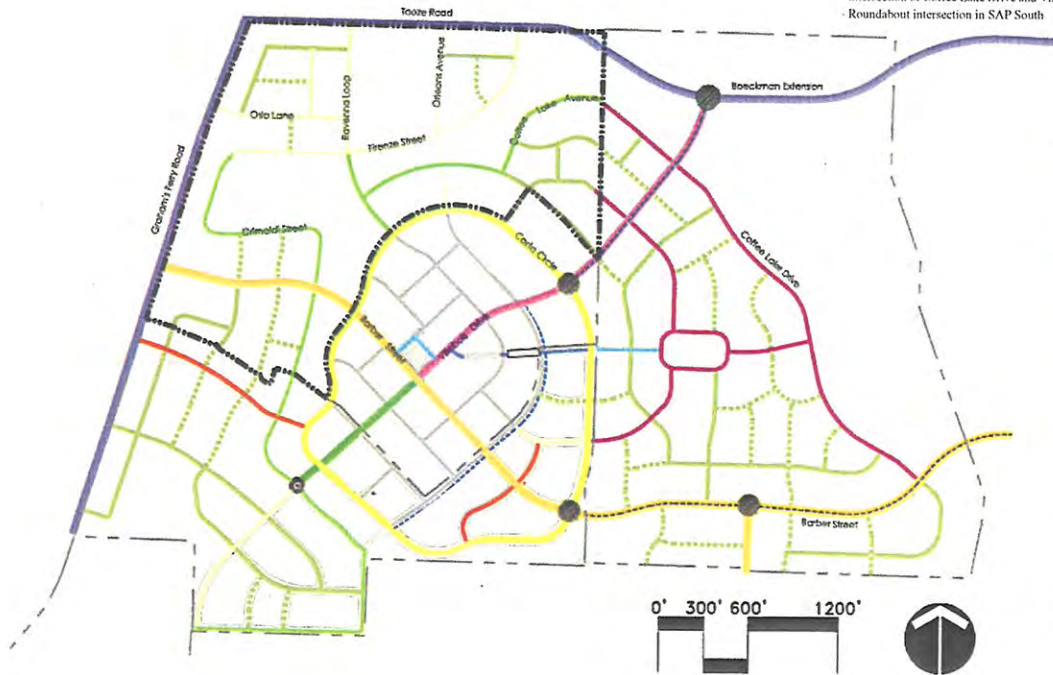


NOTE: Street Tree Plan is for illustrative purposes outside of the current SAP submission area. This plan will be updated as minor modifications are made in subsequent SAP submissions.

STREET TREE TRANSITIONS

In order to establish continuity throughout Villebois, one species of tree has been chosen as primary for each type of street and should be used the length of the street. Due to availability concerns, other trees have been chosen as substitutes, but only if the primary tree is unavailable in the numbers required along the streets. Primary trees have not been chosen for each of the neighborhood street trees. Trees should be chosen from the list provided for the length of each street (see following pages). Species shall match on opposite sides of the street and change only at intersections. A change in species due to lack of availability is permitted only at the following points:

- Arterial Streets:*
 - Intersection of Tooze Road and Grahams Ferry Road
 - Intersection of Boeckman Extension and Villebois Drive
- Collector Streets:*
 - Intersections of Barber Street and Loop Road
- Greenway Streets:*
 - Intersection of Coffee Lake Drive and Villebois Drive
 - Roundabout intersection in SAP South



LEGEND

- A. Grahams Ferry, Tooze, Boeckman**
40' O.C. Spacing Inside, 2 1/2' Caliper
- B. Barber Street, Villebois Drive**
25' O.C. Spacing Inside, 2 1/2' Caliper
35' O.C. Outside Castle Circle, 2 1/2' Caliper
- C. Loop Road**
25' O.C. Spacing, 2" Caliper
- D. Greenway Streets**
30' O.C. Spacing, 2' Caliper
- E. Streets with Existing Street Trees**
Spacing Varies, 2' Caliper
- F. Village Center Streets**
25' O.C. Spacing, 2' Caliper
- G. Private Woonerf Street**
Spacing varies, 2 1/2' Caliper
- H. Mt. Hood View**
25' O.C. Spacing, 2' Caliper
- I. Significant Residential Streets**
30' O.C. Spacing, 2' Caliper
- J. Primary Residential Streets**
30' O.C. Spacing, 2' Caliper
- K. Secondary Residential Streets**
30' O.C. Spacing, 2' Caliper
- L. Accent Trees of Roundabouts**
Spacing varies, 2' Caliper
Dependant on Vision Clearance
- M. Swales**
Spacing and Caliper Varies according to street type
- N. Pedestrian Linkage**
30' O.C. Spacing, 2' Caliper
- O. Greenway Crossing - No Street Trees**
Except Villebois Drive
- SAP North Boundary**

STREET TREE CONCEPT

The Street Tree Concept for Villebois addresses the Master Plan's core principles of connectivity, diversity and sustainability. Street tree patterns are key to a community's visual quality and livability. The following is a summary of how the selection of street trees relate to Villebois' core principles:

Connectivity: A carefully-selected palette of street trees can serve as an intrinsic form of wayfinding. The choice of trees at Villebois has been tailored to match the significance and role of the street. A hierarchy of street trees has been established in sired response to the hierarchy of streets. For example, broader arterials or collectors feature larger, taller trees with broad foliage in summer. Neighborhood street trees contribute to a more intimate scale, and perhaps might grow over the street to form a tunnel effect as the canopies meet from either side of the street. Streets along greenways feature trees that match the character of greenway plantings. On certain streets, views of Mt. Hood are emphasized through the use of trees that are tall and columnar.

Another important element in the selection of street trees is the recognition of the need to provide a continuity of vegetation types, as a wayfinding element. For example, in 20 years, someone could be driving on the Villebois Village Center Loop Road, which features colorful Tulip Trees and arriving at a roundabout, they will be able to discern that to continue along the Loop Road, they can simply follow the line of Tulip Trees that curves ahead beyond the roundabout. Similarly, pedestrians at Villebois could recognize a woonerf by noticing the distinct Honey Locust tree that may only be planted along such streets.

Diversity: The wide variety of trees planted along streets will serve to enhance the diversity of housing choices and open spaces. In the future, residents of different Villebois neighborhoods will be able distinguish their particular "place" by the type of street tree growing there. Implicit in this goal of diversity is the recognition that there should be no areas in Villebois that feature monotonous stretches of a single type of tree. Diversity of bird and small mammal habitat is another important benefit from the planting of a variety of tree species, which also contributes to the level of sustainability of Villebois.

Sustainability: Villebois will demonstrate a certain measurable level of environmental protection through the provision of numerous street trees, which can cool microclimates by shading asphalt and filtering breezes. Street trees have also been proven to clean certain amounts of auto emissions and they serve to 'capture' rainwater and release it slowly. Street trees, when combined with carefully designed open spaces and protected ecosystems nearby, can also provide important migratory and resident bird habitat.

Street Tree Transitions: Establishing continuity is also an important aspect of street tree selection. Continuity helps to link neighborhoods and streets and establish a sense of order and importance for certain streets. In order to establish continuity throughout Villebois, one species of tree has been chosen as primary for each type of street and should be used the length of the street, as indicated in the Street Tree Diagram. Due to availability concerns, other trees have been chosen as substitutes, but only if the primary tree is unavailable in the numbers required along the streets. A change in species may be used due to lack of availability but only at the following points:

Arterial Streets:

- Intersection of Tooze Road and Grahams Ferry Road
- Intersection of Boeckman Extension and Villebois Drive

Collector Streets:

- Intersections of Barber Street and Loop Road

Greenway Streets:

- Intersection of Coffee Lake Drive and Villebois Drive
- Roundabout intersection in SAP South

Primary trees have not been chosen for each of the neighborhood street trees. Trees should be chosen from the list provided for the length of each street. Species shall match on opposite sides of the street and change only at intersections.

STREET TREE LIST & PHOTOGRAPHS

* Asterix denotes that this tree is the preferred species, to be planted in continuous stretches of approx. 600' length. All other species listed may be considered as substitutes subject to approval by the master planner.

NOTE: Color bars refer to lines used in preceding street tree diagram.



Quercus rubra - Red Oak

ARTERIAL / COLLECTOR STREET TREES:
Grahams Ferry Road, Tooze Road,
Boeckman Extension

- *Quercus rubra - Red Oak
- Quercus coccinea - Scarlet Oak
- Tilia tomentosa - Silver Linden
- Tilia x euchlora - Crimean Linden
- Fagus sylvatica - European Beech
- Quercus macrocarpa - Bur Oak



Ulmus hybrids - Accolade Elm

COLLECTOR STREET TREES:
Barber Road, Villebois Drive

- *Ulmus japonica x wilsoniana 'Morton' - Accolade Elm
- Ulmus 'Frontier' - Frontier Elm
- Zelkova serrata 'Green Vase' - Green Vase Zelkova
- Zelkova serrata 'Village Green' - Village Green Zelkova



Liriodendron tulipifera - Tulip Tree

LOOP ROAD STREET TREES

- *Liriodendron tulipifera - Tulip Tree
- Platanus acerifolia 'Bloodgood' - Bloodgood London Planetree
- Ginkgo biloba 'Autumn Gold' - Autumn Gold Ginkgo



Quercus alba - White Oak

GREENWAY STREETS TREES: D Street

- *Quercus alba - White Oak
- Quercus rubra - Red Oak
- Aesculus x carnea 'Briotti' - Red Horsechestnut
- Quercus robur - English Oak
- Cladrastis kentukea - Yellowwood





Liriodendron tulipifera 'Fastigiatum' - Columnar Tulip Tree

**MT. HOOD VIEW STREET TREES:
T Street**

- **Liriodendron tulipifera 'Fastigiatum' - Columnar Tulip Tree*
- Ginkgo biloba 'Princeton Sentry' - Princeton Sentry Ginkgo*
- Pyrus calleryana 'Glens Form' - Chanticleer Pear*
- Fagus sylvatica 'Dawcyk Purple' - Dawyck Purple Beech*



Acer x fremanii 'Armstrong' - Armstrong Red Maple

PRIVATE WOONERF STREET TREES

- Pyrus calleryana 'Glensform' - Chanticleer Pear*
- Pyrus calleryana 'Redspire' - Redspire Pear*
- Zelkova serrata 'Musashino' - Musashino Zelkova*
- Acer x fremanii 'Armstrong' - Armstrong Red Maple*
- Gleditsia triacanthos 'Shademaster' - Shademaster Honeylocust*
- Gleditsia triacanthos 'Skyline' - Skyline Honeylocust*
- Gleditsia triacanthos 'Impcole' - Imperial Honeylocust*
- Koelreuteria paniculata - Goldenrain Tree*



Quercus robur - English Oak

SECONDARY RESIDENTIAL STREET TREES: K, J, M, N & S Streets

- Landscape Strips 5' - 8' Wide**
- Acer pseudoplatanus - Sycamore Maple*
- Koelreuteria paniculata - Goldenrain Tree*
- Acer rubrum 'Red Sunset' - Red Sunset Maple*
- Cornus florida - Flowering Dogwood*
- Crataegus viridis 'Winter King' - Winter King Hawthorne*
- Landscape Strips 8'+ Wide**
- Quercus robur - English Oak*
- Catalpa speciosa - Northern Catalpa*
- Quercus acutissima - Sawtooth Oak*
- Quercus macrocarpa - Bur Oak*



Platanus acerifolia - London Planetree

SIGNIFICANT RESIDENTIAL STREET TREES: H, L & R Streets

- Landscape Strips 5' - 8' Wide**
- Acer x fremanii 'Autumn Blaze' - Autumn Blaze Maple*
- Zelkova serrata 'Green Vase' - Green Vase Zelkova*
- Zelkova serrata 'Village Green' - Village Green Zelkova*
- Landscape Strips 8'+ Wide**
- Aesculus x carnea 'Briotti' - Red Horsechestnut*
- Platanus acerifolia 'Bloodgood' - Bloodgood London Planetree*
- Cercidiphyllum japonicum - Katsura Tree*
- Quercus palustris - Pin Oak*
- Quercus macrocarpa - Bur Oak*
- Ginkgo biloba - Ginkgo*



Aesculus x carnea - Red Horsechestnut

PRIMARY RESIDENTIAL STREET TREES: C & B Streets

- Landscape Strips 5' - 8' Wide**
- Tilia x euchlora - Crimean Linden*
- Fagus sylvatica - European Beech*
- Fagus sylvatica 'Riversii' - Rivers Beech*
- Acer x fremanii 'Autumn Blaze' - Autumn Blaze Maple*
- Fraxinus oxycarpa 'Raywood' - Raywood Ash*
- Fraxinus americana 'Autumn Applause' - Autumn Applause Ash*
- Landscape Strips 8'+ Wide**
- Aesculus x carnea 'Briotti' - Red Horsechestnut*
- Quercus coccinea - Scarlet Oak*
- Celtis occidentalis - Hackberry*
- Quercus phellos - Willow Oak*



Gleditsia triacanthos - Honeylocust

VILLAGE CENTER STREET TREES: O, F & P Streets

- Gleditsia triacanthos 'Shademaster' - Shademaster Honeylocust*
- Gleditsia triacanthos 'Skyline' - Skyline Honeylocust*
- Pyrus calleryana 'Glensform' - Chanticleer Pear*
- Pyrus calleryana 'Redspire' - Redspire Pear*
- Platanus acerifolia 'Bloodgood' - Bloodgood London Planetree*
- Sophora japonica - Chinese Scholar Tree*
- Acer x fremanii 'Armstrong' - Armstrong Red Maple*



Cercis canadensis - Eastern Redbud



**ACCENT TREES FOR ROUNDABOUTS
AND INFILL ON STREETS WITH
EXISTING TREES: I & Q Streets**

- Cercis canadensis* - Eastern Redbud
- Cornus florida* - Flowering Dogwood
- Pyrus calleryana 'Aristocrat'* - Aristocrat Pear
- Stewartia pseudocamellia* - Japanese Stewartia



*Cercidiphyllum japonicum -
Katsura Tree*



TREES FOR MINOR PEDESTRIAN PATHWAYS

- Quercus alba* - White Oak
- Quercus rubra* - Red Oak
- Aesculus x carnea 'Brionii'* - Red Horsechestnut
- Quercus robur* - English Oak
- Cercidiphyllum japonicum* - Katsura Tree

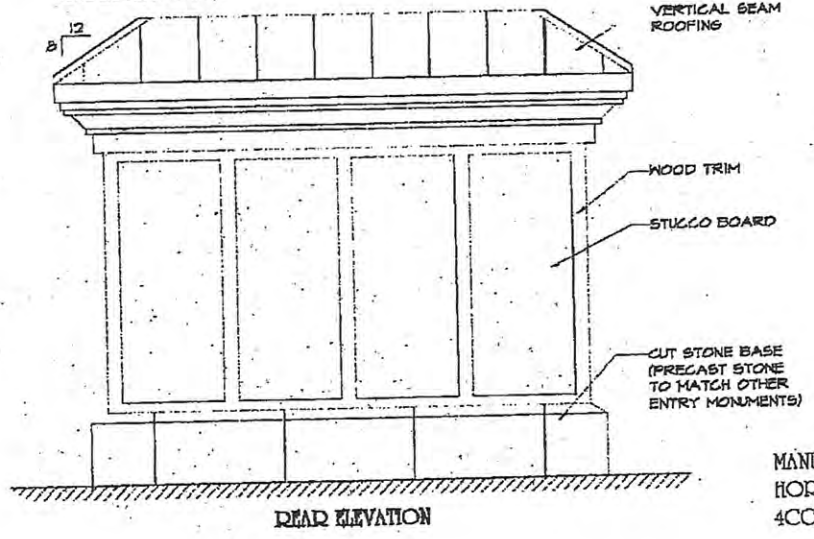
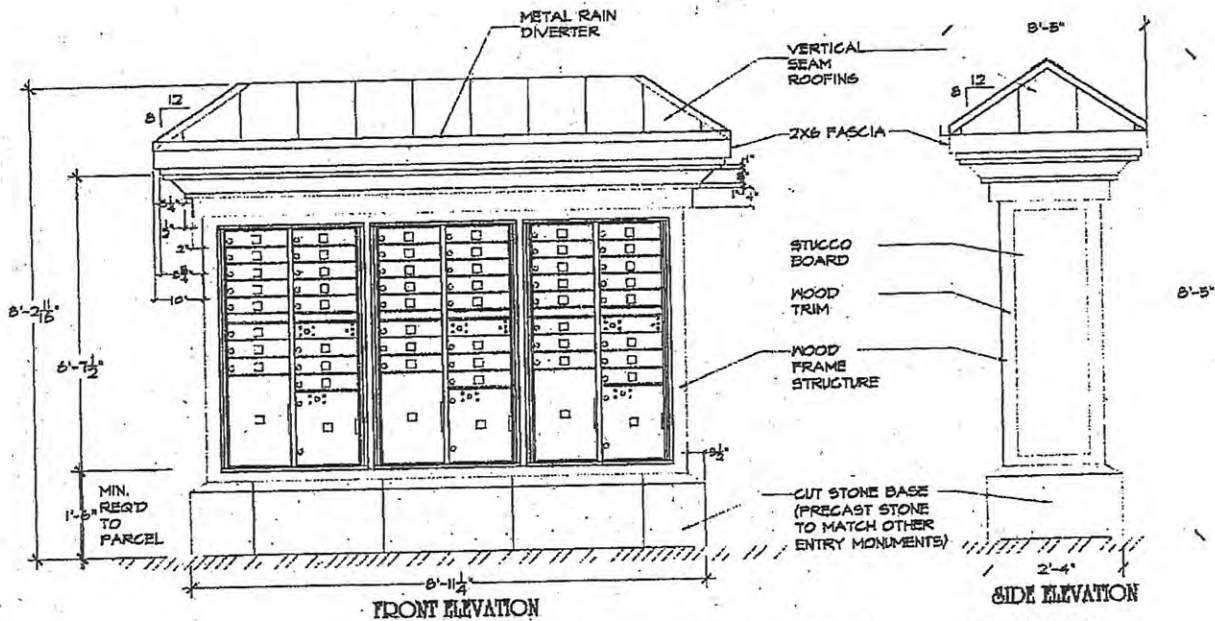


Fraxinus latifolia - Oregon Ash



STREET TREES FOR SWALES

- Alnus rubra* - Red Alder
- Fraxinus latifolia* - Oregon Ash
- Quercus bicolor* - Swamp White Oak
- Salix babylonica* - Babylon Weeping Willow
- Ulmus japonica x wilsoniana 'Morton'* -
Accolade Elm (Side Slope Only)
- Ulmus 'Frontier'* - Frontier Elm (Side Slope Only)
- Zelkova serrata 'Green Vase'* - Green Vase
Zelkova (Side Slope Only)
- Zelkova serrata 'Village Green'* - Village
Green Zelkova (Side Slope Only)
- Acer macrophyllum* - Big Leaf Maple (12'
Minimum Planting Areas)



VILLEBOIS MAIL BOX STRUCTURE
 UPDATED ELEVATIONS PER METAL ROOF
 SCALE 1/8"=1'-0"

MANUFACTURED BY: AUTH-FLORENCE
 HORIZONTAL MAILBOX SYSTEMS
 4CC12-16

IVERSON
 ARCHITECTS
 0112 01-18-07

SITE FURNISHINGS CONCEPT

Site furnishings at Villebois have been selected for their simplicity and elegance of design and to provide continuity between private dwellings and public space. Site furnishings are the background elements of a community which serve to reinforce the aesthetic theme of a place like Villebois. One rarely thinks about the bench in a park, or the simple bicycle rack, but these are the elements that build identity and provide continuity.

Connectivity: An extensive network of pedestrian sidewalks and the Villebois Greenway enhances the connectivity throughout Villebois. Site furnishings are support elements for these pedestrian connections creating strong links between neighborhoods, parks, and the Village Center.

Diversity: While it is important to use similar elements to develop aesthetic unity, it is equally important to include a variety of amenities to build diversity throughout Villebois. For example, a teak bench has been chosen for neighborhood parks to create a more park-like character, whereas the hardwood bench with metal armrests will be placed in the Village Center and the Greenway's edge to create a more urban feeling. Also, wood bollards will be installed at Greenway crossings and will contrast with iron bollards at the Village Center Plaza, helping to give these areas different characteristics.

Sustainability: Much of the site furnishings for Villebois were chosen because of the type of wood and harvesting methods the manufacturers guarantee. For example, the 'Ipe' wood in the "Plainwell Series" bench is certified by the Forestry Stewardship Council (FSC). Wood products that carry the FSC logo are guaranteed to be from well-managed forests with environmental management as a top priority.

The following pages and the next four pages show specific models of site furnishings which have been selected for Villebois. Substitutions must be approved by the Master Planner and should match these models as closely as possible. Wherever possible, site furnishings should consider suppliers that use materials and production processes that are sustainable and environmentally benign. Part of this consideration includes choosing local suppliers that use materials from Oregon. Durability and ease of maintenance of the furnishings are equally important.



URBAN / GREENWAY BENCH

Manufacturer: Landscape Forms

Model: The Plainwell Series

Material: Sustainably harvested 'Ipe' wood, certified by the Forestry Stewardship Council

Finish: No finish required for wood. Staining not recommended.

Metal is painted Black, powdercoated.

Size: 72" or 96" Length



NEIGHBORHOOD PARKS BENCH

Manufacturer: Landscape Forms

Model: Gretchen #3 Backless Bench

Material: Ipe wood or recycled plastic

Finish: No finish for wood. Metal is powder coated black

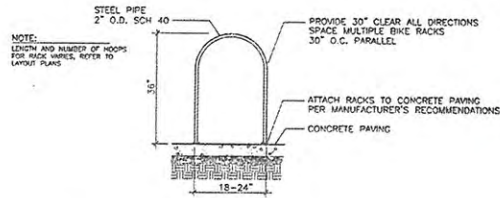
Size: 6' to 8' Length

Substitution requests must be approved by the Master Planner.



TREE GRATE

Manufacturer: Olympic Foundry
Model: CNK Series 48
Material: Cast Iron
Finish: None
Size: 4' Square; 2 sections. 16" Tree hole diameter



BICYCLE RACK

Manufacturer: Function First Bike Security
Model: The Bike Rib
Material: Steel Pipe
Finish: Powdercoat-Paint, Black only
Size: 1.25" Schedule 40 Steel Pipe; 18" W/32" H
 Can be grouped as 2, 3 or 4 ribs, up to 90" long.



TRASH/RECYCLING RECEPTACLE

Manufacturer: Landscape Forms
Model: Plainwell Litter Receptacle
Material: Steel, or sustainably harvested 'Ipe' wood, certified by Forestry Stewardship Council
Finish: No finish required for wood. Staining not recommended. Metal is painted Black and powdercoated.
Sizes: 30" Diameter 38" Height; 35 gallon capacity.

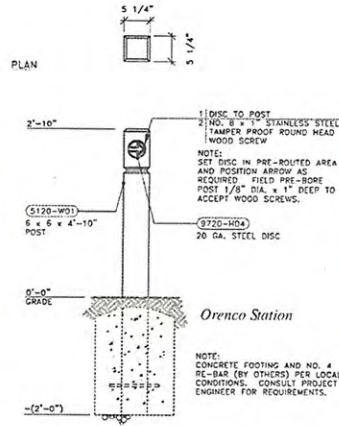
Substitution requests must be approved by the Master Planner.



Orenco Station

DRINKING FOUNTAIN

Manufacturer: Murdock
Model: MC-76-2
Material: Iron Pedestal / Brass Bowls
Finish: Oil Based Paint, Black



Orenco Station

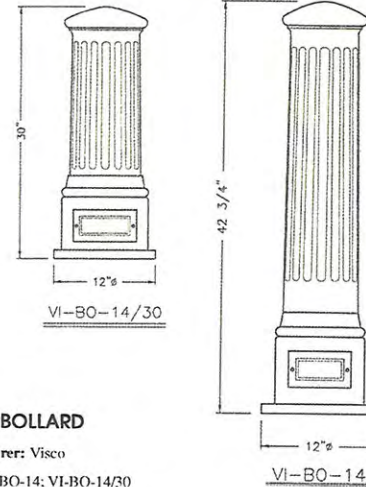
ELEVATION

PARKS AND PATH WAYFINDING BOLLARD

Manufacturer: Timberform
Model: Timber Bollard with directional arrow, 2553-3
Material: Seasoned Douglas Fir
Finish: Clear preservative
Sizes: 6" x 6" Square timber, 2'-10" height.



Substitution requests must be approved by the Master Planner.



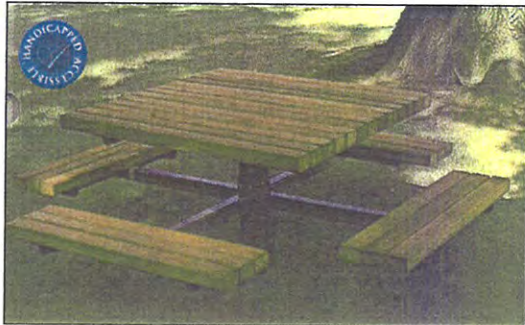
URBAN BOLLARD

Manufacturer: Visco
Model: VI-BO-14; VI-BO-14/30
Material: Steel or cast-iron
Finish: Powder Coated, Painted Black
Sizes: 30" or 42 3/4" Tall; Base 12" Diameter



Bollards at Orenco Station





PICNIC TABLE (4-SIDED)

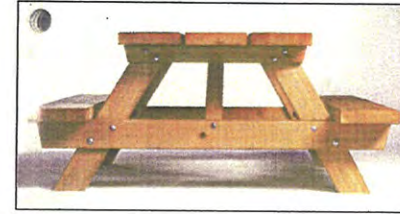
Manufacturer: Du Mor

Model: 76-34R

Material: Western Red Cedar Wood or Recycled Plastic (Cedar Color)

Finish: Clear Preservative, Metal is powder coated black

Sizes: 4' Square Tabletop, 4 Seat Capacity



PICNIC TABLE

Manufacturer: Timberform

Model: Arbor Picnic Table with Seats, Model 2242-6

Material: Seasoned Douglas Fir

Finish: Clear Preservative

Sizes: Length: 5'-10" or 7'-10"; Width: 5'-7"; Height 2' - 6"

Substitution requests must be approved by the Master Planner.



PLAY STRUCTURES

Playgrounds and play structures are an integral part of community parks. A playground should be a social place for children as well as for parents. The above photos show a typical play structure that meets the general design intent for Villebois. Actual Villebois playground sizes and locations will be determined in the individual Specific Area Plans.

The design of the play areas should have a balance of activities and diversity to challenge children of all ages. There should be multiple structures and linkages to encourage movement and promote exploration. There should also be interactive equipment such as swings which are enjoyed by adults as well as children. Above all, it is important for the play areas to be safe as well as accessible to children with disabilities.

There is no specific manufacturer recommended, but the play structures chosen should meet the following technical requirements:

- Must comply to ASTM F- 1487: Standard Consumer Safety Performance Specifications for Playground Equipment for Public Use.
- Must be IPEMA-certified: IPEMA is a non-profit organization that tests play equipment confirming manufacturers conformance to ASTM F - 1487.

- Hardware must be stainless steel with lifetime warranty.
- Structure materials must be monochromatic with earthtone colors matching other site furnishings, preferably dark green. Primary colors are not acceptable.
- Safety surface material is required for all areas within the fall zone of the play structures. Acceptable surface material is IPEMA certified Engineered Wood Fiber to a minimum depth ten inches (10”).
- Platforms - minimum 8” and maximum 72” in height for youth play areas
- Platforms - minimum 8” and maximum 48” in height for tot play areas
- Transitional platforms or ramps meeting ADA requirements in areas for children with disabilities
- Various ground-level activities



GOAL

To preserve existing trees where they will be an amenity for the community and integral to a diverse, sustainable and well-connected Village.

POLICIES

1. Existing trees six inches DBH or more shall be preserved when healthy and compatible with the project design. Native species of trees and trees with historical importance shall be given special consideration for retention.
2. Open space areas shall be organized to incorporate existing trees where feasible.
3. Existing tree streets shall be incorporated into the design and the trees preserved to the extent feasible.
4. The alignment of public streets and private lanes shall consider preservation of existing trees. Alternate street sections shall be pursued as needed to preserve trees that are integral to the design of the Village, and shall require City Engineer approval.
5. Lot lines shall be organized to locate trees along lot lines and non-typical shaped lots shall be used where feasible to preserve trees that would provide an amenity to the community and not compromise the design of an urban village.

IMPLEMENTATION MEASURES

1. A Tree Preservation Plan, which meets the requirements of the City of Wilsonville Ordinance 464 Tree Preservation and Protection, shall be prepared with each Specific Area Plan that classifies to aid in determining whether the tree is desirable to preserve and is capable of survival. Tree classification shall be conducted by a duly licensed and certified arborist and shall include the following:
 - Health, structure and vigor of tree;
 - Age and/or DBH;
 - Species rating per ISA standards for the Pacific NW Region;
 - Strong or weak wooded;
 - Compatibility with development and ability to withstand impacts;
 - Free-standing well formed tree or within intact groupings;
 - Mature form and size, level of visual interest, and aesthetic contribution;
 - Historical importance.

The Arborist report shall take into account the following categories:

"IMPORTANT" CLASSIFICATION IS COMPRISED OF:

- Trees that rated high in the following categories:
- Health, structure and vigor of tree;
 - Age and/or DBH;
 - Species rating per ISA standards for the Pacific NW Region;
 - Strong or weak wooded;
 - Compatibility with development and ability to withstand impacts;
 - Free-standing well formed tree or within intact groupings;
 - Mature form and size, level of visual interest, and aesthetic contribution;
 - or are classified as "good" but have historical importance.

"GOOD" CLASSIFICATION IS COMPRISED OF:

- Trees that rated high in the following categories:
- Health, structure and vigor of tree;
 - Age and/or DBH;
 - Species rating per ISA standards for the Pacific NW Region;
 - Strong or weak wooded;
- Trees that rated adequate in the following categories:
- Compatibility with development and ability to withstand impacts;
 - Free-standing well formed tree or within intact groupings;
 - Mature form and size, level of visual interest, and aesthetic contribution;

"MODERATE" CLASSIFICATION IS COMPRISED OF:

- Trees that rated adequate in the following categories:
- Health, structure and vigor of tree;
 - Age and/or DBH;
 - Species rating per ISA standards for the Pacific NW Region;
 - Strong or weak wooded;
 - Compatibility with development and ability to withstand impacts;
 - Free-standing well formed tree or within intact groupings;
- Mature form and size, level of visual interest, and aesthetic contribution.

"POOR" CLASSIFICATION IS COMPRISED OF:

- Trees in poor health and/or when substantially damaged;
- Trees found to be potentially hazardous based on species history or present condition.

"NOT EXAMINED" CLASSIFICATION IS COMPRISED OF:

- Trees which were inaccessible due to property ownership.

"REMOTE EXAMINED" CLASSIFICATION IS COMPRISED OF:

- Trees with limited accessibility due to property ownership and/or physical limitations (such as thick berry bushes).
2. For trees that are to be preserved, the existing grade and drainage pattern within the drip line shall be maintained to the extent feasible and the impact to the tree root system shall be minimized to the extent feasible.

3. A Tree Protection Plan shall be prepared by a duly licensed and certified arborist with each Preliminary Development Plan addressing protection of trees prior to construction, during construction, and post-construction. Pre-construction measures to protect trees shall include, but are not limited to fencing, activities prohibited within drip line, and removal of adjacent trees. Tree protection measures during construction shall include, but are not limited to, fencing and identification of conditions that would require presence of arborist on site. Tree protection measures after construction may include but are not limited to, tree conservation easements on private property, open space/park dedication, etc. Tree work described in the Tree Protection Plan shall be done to National Standards Institute (ANSI 300) specifications under supervision of a duly licensed and certified arborist. Monitoring inspections shall occur as specified in the Tree Protection Plan.



VILLEBOIS PLANT LIST

The following list of trees, shrubs and other plants is provided as the basis for selection of plants for Villebois parks and open spaces, public urban spaces, residential pocket parks and housing sites. Substitutions to this plant list must be approved by the Villebois master planner.

NON-NATIVE PLANTS

TREES

- Abies concolor* var. — White Fir varieties
- Abies lasiocarpa* — Rocky Mountain Fir
- Acer buergerianum* — Trident Maple
- Acer campestre* — Hedge Maple
- Acer davidii* — David Maple
- Acer x freemanii* 'Marmo' — Marmo Maple
- Acer ginnala* — Amur Maple
- Acer grandidentatum* 'Schmidt' — Rocky Mtn Glow Maple
- Acer griseum* — Paperbark Maple
- Acer henryi* — Henry Maple
- Acer japonicum* (straight species) — Fullmoon Maple
- Acer nigrum* 'Greencolumn' — Greencolumn Maple
- Acer palmatum* var. — Japanese Maple
- Acer pseudoplatanus* — Sycamore Maple
- Acer rubrum* — Red Maple varieties
- Acer saccharum* var. — Sugar Maple varieties
- Acer x freemanii* — Autumn Maple varieties
- Acer x truncatum x platanoides* 'Warrenred' — Pacific Sunset Maple or Norwegian Sunset Maple
- Betula nigra* — River Birch
- Calocedrus decurrens* — Incense Cedar
- Carpinus betulus* 'Fastigiata' — Pyramidal European Hornbeam
- Cedrus deodara* — Deodar Cedar
- Cercidiphyllum japonicum* — Katsura Tree
- Cercis chinensis* — Chinese Redbud
- Chamaecyparis lawsoniana* — Chamaecyparis varieties
- Cladrastis lutea* — Yellow Wood
- Clerodendrum trichotomum* — Harlequin Glorybower
- Cornus kousa chinensis* — Chinese Kousa Dogwood
- Crataegus phaenopyrum* 'Washington Lustre' — Washington Hawthorn
- Crataegus x lavalleyi* — Lavalley Hawthorn
- Cryptomeria japonica* var. — Japanese Cryptomeria varieties
- Cupressocyparis leylandii* — Leland Cypress
- Cupressocyparis leylandii* 'Naylor's Blue' — Naylor's Blue Leland Cypress
- Davidia involucreata* — Dove Tree
- Disanthus cercidifolius* — Disanthus
- Fagus sylvatica* — Copper Beech varieties
- Fraxinus pennsylvanica* — Ash varieties
- Ginkgo biloba* var. — Ginkgo varieties
- Gleditsia triacanthos* — Honey Locust varieties
- Gynocladus dioica* — Kentucky Coffee Tree
- Halesia carolina* — Silver Bell
- Juniperus scopulorum* 'Skyrocket' — Skyrocket Juniper
- Laburnum anagyroides* — Goldenrain Tree
- Lagerstroemia indica* 'Natchez' — Natchez Crepe Myrtle
- Larix decidua* — European Larch
- Liriodendron tulipifera* — Tulip Tree
- Magnolia stellata* 'Royal Star' — Royal Star Magnolia
- Magnolia x soulangiana* — Saucer Magnolia
- Magnolia virginiana* — Sweetbay Magnolia
- Malus* 'Golden Raindrops' — Golden Raindrops Crabapple
- Malus* 'Snowdrift' — Snowdrift Crabapple
- Metasequoia glyptostroboides* — Dawn Redwood
- Nyssa sylvatica* — Sour Gum
- Ostrya virginiana* — American Hophornbeam
- Oxydendron arboreum* — Sourwood
- Parrotia persica* — Persian Parrotia
- Pinus monticola* — Western White Pine
- Pinus strobus fastigiata* — Columnar Eastern White Pine
- Platanus x acerifolia* 'Bloodgood' — London Plane Tree
- Prunus x blireiana* — Blireiana Plum
- Prunus serrulata* 'Shirofugen' — Shirofugen Cherry
- Pyrus calleryana* 'Capital' — Capital Callery Pear
- Pyrus calleryana* 'Chanticleer' or 'Glen's Form' — Chanticleer or Glen's Form Callery Pear
- Pyrus calleryana* 'Redspire' — Redspire Callery Pear
- Quercus phellos* — Willow Oak
- Quercus robur* — English Oak

- Quercus rubra* — Red Oak
- Sassafras albidum* — Sassafras
- Sequoiadendron giganteum* — Giant Sequoia
- Sequoia sempervirens* — Coast Redwood
- Sophora japonica* — Japanese Pagoda Tree
- Sorbus aucuparia* — European Mountain Ash
- Stewartia koreana* — Korean Stewartia
- Stewartia monadelphica* — Tall Stewartia
- Stewartia pseudocamelia* — Japanese Stewartia
- Syrax japonica* — Japanese Snowbell
- Syrax obassia* — Bigleaf Japanese Snowbell
- Tilia americana* 'Redmond' — Redmond American Linden
- Tilia cordata* var. — Little Leaf Linden varieties
- Ulmus japonica x wilsoniana* 'Morton' — Accolade Elm
- Ulmus parvifolia* 'Emerald Vase' — Emerald Vase Lacebark Elm
- Zelkova serrata* 'Halka' or 'Green Vase' — Halka or Green Vase Zelkova

SHRUBS

- Abelia grandiflora* 'Edward Goucher' — Edward Goucher Glossy Abelia
- Abelia grandiflora* 'Prostrata' — Prostrate White Abelia
- Arbutus unedo* 'Compacta' — Dwarf Strawberry Bush
- Arctostaphylos* 'John Dourley' — John Dourley Manzanita
- Azalea species* — Azalea
- Berberis thunbergii* — Japanese Barberry
- Berberis thunbergii* 'Crimson Pygmy' — Crimson Pygmy Japanese Barberry
- Berberis thunbergii* 'Kobold' — Kobold Barberry
- Berberis verruculosa* — Warty Barberry
- Berberis x mentorensis* — Mentor Barberry
- Buddleia davidii* 'Empire Blue' — Buddleia
- Callicarpa bodinieri* — Beautybush
- Caryopteris clandonensis* 'Arthur Simmon' — Arthur Simmon Blue Mist
- Chaenomeles speciosa* — Chinese Flowering Quince
- Choisya ternata* — Mexican Ternate Orange
- Cistus purpureus* — Purple Rock Rose

- Cornus sericea* 'Alleman's Compact' — Alleman's Compact Redtwig Dogwood
- Cornus sericea* 'Isanti' — Isanti Redtwig Dogwood
- Cornus stolonifera* 'Kelsey' — Kelsey Dogwood
- Corylopsis spicata* — Spike Winter Hazel
- Cotoneaster horizontalis* — Rock Cotoneaster
- Cotoneaster lacteus* — Parney Cotoneaster
- Daphne burkwoodii* — Burkwood Daphne
- Daphne burkwoodii* 'Carol Mackie' — Carol Mackie Burkwood Daphne
- Daphne odora* — Winter Daphne
- Deutzia gracilis* 'Nikko' — Nikko Slender Deutzia
- Deutzia x rosea* — Deutzia Hybrid
- Elaeagnus pungens* 'Fruitlandii' — Silverberry
- Enkianthus perulatus* — Enkianthus
- Escallonia* 'Compacta' — Compact Escallonia
- Escallonia* 'Newport Dwarf' — Newport Dwarf Escallonia
- Euonymus alata* 'Compacta' — Dwarf Burning Bush
- Euonymus japonica* 'Silver Princess' — Silver Princess Euonymus
- Euonymus japonicus* 'Silver Queen' — Silver Queen Euonymus
- Euonymus microphylla* — Box Leaf Euonymus
- Exochorda macrantha* 'The Bride' — Pearl Bush
- Fatsia japonica* — Japanese Aralia
- Fothergilla gardenii* 'Jane Platt' — Dwarf Fothergilla
- Fothergilla monticola* — Fothergilla
- Hamelis mollis* 'Coombe Wood' — Witch Hazel
- Hamelis mollis* 'Pallida' — Palida Witch Hazel
- Hydrangea arborescens* 'Annabelle' — Annabelle Hydrangea
- Hydrangea macrophylla* 'Nikko Blue' — Nikko Blue Hydrangea
- Hydrangea macrophylla* 'Lemon Wave' — Lemon Wave Hydrangea
- Hydrangea quercifolia* — Oak Leaf Hydrangea
- Hydrangea serrata* 'Blue Billow' — Blue Billow Laccap Hydrangea
- Hydrangea seratta* 'Bluebird' — Blue & Pink Laccap Hydrangea



Hypericum androsaemum 'Albure's Purple' — Albure's Purple St. John's Wort
Hypericum androsaemum 'Hidcote' — Hidcote Shrub Hypericum
Hypericum 'Rowallane' — Rowallane Shrub Hypericum
Ilex crenata 'Compacta' — Compact Japanese Holly
Ilex crenata 'Convexa' — Convex Leaf Japanese Holly
Ilex crenata 'Green Island' — Green Island Japanese Holly
Ilex crenata 'Helleri' — Helleri Japanese Holly
Ilex crenata 'Hetzi' — Hetzi Japanese Holly
Itea virginica 'Henry's Garnet' — Henry's Garnet Sweetspire
Itea virginica 'Little Henry's' — Little Henry's Sweetspire
Jasminum nudiflorum — Winter Jasmine
Juniperus chinensis — Chinese Juniper
Kalmia latifolia — Mountain Laurel
Kalmia latifolia 'Elf' — Elf Mountain Laurel
Leucothoe fontanesiana — Drooping Leucothoe
Ligustrum 'Lodense' — Lodense Privet
Ligustrum 'Suwanee River' — Suwanee River Privet
Lonicera nitida — Box Honeysuckle
Lonicera nitida 'Red Tip' — Red Tip Box Honeysuckle
Lonicera pileata — Privet Honeysuckle
Loropetalum chinensis 'Burgandy' — Chinese Loropetalum
Nandina domestica 'Harbor Dwarf' — Harbor Dwarf Heavenly Bamboo
Osmanthus delavayi — Delavay Osmanthus
Pernettya mucronata — Gaultheria mucronata
Philadelphus coronarius — Sweet Mock Orange
Philadelphus x virginalis 'Dwarf Minnesota Snowflake' — Dwarf Minnesota Snowflake Mock Orange
Pieris 'Forest Flame' — Forest Flame Pieris
Pieris framosa var *forestii* 'Wakehurst' — Wakehurst Pieris
Pieris japonica 'Blush' — Blush Pieris
Pieris japonica 'Spring Snow' — Spring Snow Pieris
Polystichum setiferum — Alaska Fern
Potentilla fruticosa 'Klondike' — Klondike Bush Cinquefoil
Potentilla fruticosa 'Day Dawn' — Daydawn Bush Cinquefoil

Prunus laurocerasus 'Otto Luyken' — Otto Luyken Laurel
Rhododendron species — Rhododendron
Rosa bonica — Bonica Rose
Rosa 'de L'Hay' — de L'Hay Rose
Rosa 'Red Meidiland' — Red Meidiland Rose
Rosa rugosa var. — Rugosa Rose varieties
Rosa 'Scarlet Meidiland' — Scarlet Meidiland Rose
Rosa 'Snow on Heather' — Snow on Heather Rose
Rosa 'White Meidiland' — White Meidiland Rose
Rosmarinus officinalis 'Tuscan Blue' — Tuscan Blue Rosemary
Salix purpurea 'Nana' — Dwarf Purple Osier Willow
Salix repens argentea — Silver Creeping Willow
Sambucus racemosa 'Plumosa Aurea' — Golden Elderberry
Sarcococca hookerana 'Humilis' — Sweet Box - Himalayan Sarcococca
Sarcococca ruscifolia — Fragrant Sarcococca
Spiraea humalda 'Anthony Waterer' — Anthony Waterer Spiraea
Spiraea japonica 'Shirobana' — Shirobana Spiraea
Spiraea nipponica 'Snowmound' — Snowmound Japanese Spiraea
Spiraea prunifolia 'Plena' — Bridal Wreath Spiraea
Spiraea thunbergii — Thunberg Spiraea
Spiraea thunbergii 'Compacta' — Compact Japanese Spiraea
Spiraea x humalda 'Goldflame' — Goldflame Spiraea
Spiraea x vanhouttei — Vanhoutte Spiraea
Syringa microphylla 'Superba' — Little Leaf Lilac
Taxus baccata 'Repandens' — English Yew
Taxus x media 'Hicksii' — Hicks Yew
Viburnum carlesii 'Compactum' — Compact Korean Spice Viburnum
Viburnum carlesii 'Nana' — Nana Korean Spice Viburnum
Viburnum davidii — David Viburnum
Viburnum opulus 'Compactum' — Compact European Cranberry Bush
Viburnum opulus 'Nanum' — Dwarf European Cranberry Bush
Viburnum plicatum tomentosum 'Mariesii' — Mariesii

Doublefile Viburnum
Viburnum plicatum var. *tomentosum* — Doublefile Viburnum
Viburnum tinus 'Spring Bouquet' — Spring Bouquet Laurustinus
Viburnum trilobum — Cranberry Bush
Viburnum x bodnantense — Bodnanse Viburnum
Viburnum x burkwoodii — Burkwood Viburnum
Viburnum x rhytidophyllodes 'Alleghany' — Alleghany Viburnum
Weigela florida var. — Variegated Weigela varieties

GRASSDOVERS, VINES, PERENNIALS, GRASSES, BULBS

Ajuga reptans 'Catlin's Giant' — Catlin's Giant Carpet Bugle
Alchemilla mollis — Lady's Mantle
Aubrieta deltoidea 'Rockey's Purple' — Rocky's Purple False Rock-Cress
Bergenia 'Silberlicht' — Heart Leaf Bergenia
Calamagrostis x acutiflora 'Overdam' — Variegated Feather Reed Grass
Calamagrostis x acutiflora 'Karl Foerster' — Foerster's Feather Reed Grass
Calluna vulgaris — Scottish Heather
Carex buchananii — Leather Leaf Sedge
Carex deweyana — Dewey Sedge
Carex 'Frosted Curis' — Frosted Curis Sedge
Carex morrowii 'Variegata' — Variegated Japanese Sedge
Carex morrowii 'Ice Dance' — Ice Dance Sedge
Carex morrowii 'Evergold' — Evergold Sedge
Carex obtusa — Slough Sedge
Carex pendula — Weeping Sedge
Clematis florida 'Alba Piena' — Alba Piena Clematis
Clematis viticella 'Etoile Violette' — Etoile Violette Clematis
Cotoneaster dammeri 'Canadian Creeper' — Canadian Creeper Cotoneaster
Crocus — Crocus
Daboecia cantabrica — Irish Heath

Deschampsia caespitosa — Tufted Hair Grass
Erica species — Heath
Euonymus x fortunei var. — Winterreecer varieties
Euphorbia characias ssp. *Wulfenii* — Wall Spurge
Euphorbia robbiae — Robb's Spurge
Fragaria chiloensis — Coast Strawberry
Gaultheria procumbens — Wintergreen
Geranium x cantabrigiense 'Biokovo' — True Geranium
Geranium x cantabrigiense 'Cambridge Blue' — Cambridge Blue Geranium
Geranium dalmaticum — Dalmatian Cranesbill
Geranium 'Johnson's Blue' — Johnson's Blue Geranium
Geranium macrorrhizum — Cranesbill Geranium
Hakonechloa macro 'Areola' — Japanese Forest Grass
Helianthemum 'Annabel' — Annabel Sun Rose
Helictotrichon sempervirens — Blue Oat Grass
Helleborus orientalis — Lenten Rose
Hemerocallis 'Crazy Lace' — Crazy Lace Daylily
Hemerocallis 'Catherine Woodbury' — Woodbury Daylily
Hemerocallis 'Stella d'Oro' — Stella d'Oro Daylily
Hypericum calycinum — Hypericum
Iberis sempervirens 'Snowflake' — Snowflake Candytuft
Iris — Iris
Juncus effusus — Soft Rush
Juniperus conferta 'Blue Pacific' — Blue Pacific Juniper
Juniperus conferta 'Silver Mist' — Silver Mist Juniper
Lavandula angustifolia var. — English Lavender varieties
Liriope var. — Liriope varieties
Lithodora diffusa 'Grace Ward' — Grace Ward Lithodora
Mentha corsica — Corsican Mint
Miscanthus sinensis 'Variegatus' — Variegated Japanese Silver Grass
Miscanthus sinensis 'Yaku Jima' — Yaku Jima Japanese Silver Grass
Narcissus — Daffodil
Pachysandra terminalis — Pachysandra
Panicum virgatum 'Haense Herus' — Red Switch Grass



Panicum virgatum 'Rotestrahibusch' — Glowing Red Switch Grass
Parthenocissus quinquefolia — Virginia Creeper
Parthenocissus tricuspidata — Boston Ivy
Pennisetum alopecuroides — Fountain Grass
Pennisetum alopecuroides 'Hameln' — Dwarf Fountain Grass
Pennisetum alopecuroides 'Moudry' — Black Seeded Fountain Grass
Polystichum seriferum — Alaska Fern
Rubus calycinoides — Bramble
Santolina chamaecyparissus — Lavender Cotton
Salvia officinalis 'Alba Flora' — Alba Flora Sage
Salvia officinalis 'Icterina' — Golden Variegated Sage
Stachys byzantina 'Silver Carpet' — Silver Carpet Lambs Ear
Teucrium chamaedrys — Wall Germander
Thymus citriodorus 'Aurea' — Gold Variegated Lemon Thyme
Tulipa — Tulip
Vaccinium vitis-idaea — Lingonberry
Vinca minor — Periwinkle

NATIVE PLANTS**TREES**

Abies grandis — Grand Fir
Acer circinatum — Vine Maple
Acer macrophyllum — Bigleaf Maple
Alnus rubra — Red Alder
Amelanchier alnifolia — Western Serviceberry
Cornus nuttallii — Pacific Dogwood
Corylus cornuta — Western Hazelnut
Crataegus douglasii — Douglas Hawthorne
Fraxinus latifolia — Oregon Ash
Pinus ponderosa — Ponderosa Pine
Pseudotsuga menziesii — Douglas Fir
Quercus garryana — Oregon Oak
Sambucus racemosa — Red Elderberry
Sequoiadendron giganteum — Giant Sequoia
Thuja plicata — Western Red Cedar

Tsuga heterophylla — Western Hemlock

SHRUBS

Berberis nervosa — Cascade Oregon Grape
Cornus stolonifera — Red Osier Dogwood
Gaultheria shallon — Salal
Holdiscus discolor — Ocean Spray
Lonicera involucrata — Black Twinberry
Mahonia aquifolium — Oregon Grape
Mahonia aquifolium 'Compacta' — Compact Oregon Grape
Mahonia repens — Creeping Mahonia
Oenlaria cerasiformis — Indian Plum
Philadelphus lewisii — Mock Orange
Physocarpus opulifolius — Pacific Ninebark
Rhododendron macrophyllum — Pacific Rhododendron
Ribes sanguineum — Red Flowering Currant
Rosa nutkana — Nootka Rose
Spiraea douglasii — Douglas Spiraea
Symphoricarpos albus — Common Strawberry
Taxus brevifolia — Pacific Yew
Vaccinium ovatum — Evergreen Huckleberry

GROUNDCOVER, FERNS, HERBS

Anemone oregona — Oregon Windflower
Aquilegia formosa — Red Columbine
Arctostaphylos uva-ursi 'Vancouver Jade' — Vancouver Jade Kinnickinnick
Arctostaphylos uva-ursi 'Emerald Carpet' — Kinnickinnick
Blechnum spicatum — Deer Fern
Calypto bulbosa — Fairyslipper
Camassia quamash — Camas
Claytonia lanceolata — Western Spring Beauty
Corydalis scouleri — Western Corydalis
Cornus canadensis — Bunchberry
Delphinium bicolor — Montana Larkspur
Dicentra formosa — Wild Bleeding Heart
Dodecatheon pulchellum — Shooting Star
Eriophyllum lanatum — Oregon Sunshine

Erythronium oregonum — Fawn Lily
Fragaria virginia var. *platypetala* — Broad Petal Strawberry
Fritillaria lanceolata — Checker Lily
Helianthus annuus — Common Sunflower
Iris tenax — Oregon Iris
Linnaea borealis — Twin Flower
Lupinus sulphureus — Sulphur Lupine
Mimulus species — Monkey Flower
Oxalis oregona — Redwood Sorrel
Polystichum munitum — Western Swordfern
Pteridium aquilinum — Bracken Fern
Rhus spectabilis — Salmonberry
Rubus parviflorus — Thimbleberry
Smilacina racemosa — False Solomon Seal
Tellima grandiflora — Fringe-cup
Thalictrum occidentale — Western Meadow Rue
Tiarella trifoliata — Foam Flower
Trillium ovatum — Western Trillium
Vancouveria hexandra — Inside Out Flower
Viola glabella — Stream Violet

BIOSWALE PLANTINGS**POND MARSH / SWALE BOTTOM PLANT COMMUNITY****GROUNDLAYER**

Alisma plantago-aquatica — Water Plantain
Beckmannia syzigachne — American Sloughgrass
Bromus carinatus — California Bromegrass
Camassia quamash — Common Camas
Carex abnupta — Slough Sedge
Deschampsia caespitosa — Tufted Hairgrass
Eleocharis ovata — Ovate Spike Rush
Eleocharis palustris — Common Spike Rush
Elymus glaucus — Blue Wildrye
Festuca rubra v. *rubra* — Native Red Fescue
Iris tenax — Oregon Iris
Juncus effusus — Soft Rush
Juncus ensifolius — Dagger Leaf Rush

Lysichiton americanum — Skunk Cabbage
Regreen — Wheat Cover Crop
Sagittaria latifolia — Wapato Duck Potato
Scirpus acutus — Hardstem Bulrush
Scirpus microcarpus — Small Fruited Bullrush

UNDERSTORY

Spiraea douglasii — Douglas Spiraea

SHRUB / PLANT COMMUNITY**GROUNDLAYER**

Deschampsia caespitosa — Tufted Hairgrass
Festuca rubra v. *rubra* — Native Red Fescue

UNDERSTORY

Cornus stolonifera — Redtwig Dogwood
Rosa nutkana — Nootka Rose
Salix lasianдра — Pacific Willow
Salix piperi — Piper Willow
Salix scouleriana — Scouler's Willow
Salix sitchensis — Sitka Willow
Spiraea douglasii — Douglas Spiraea

PROHIBITED PLANT SPECIES

Cirsium arvense — Canadian Thistle
Convolvulus spp. — Morning Glory
Cytisus scoparius — Scotch Broom
Dipsacus sylvestris — Common Teasel
Festuca arundinaceae — Tall Fescue
Hedera helix — English Ivy
Holcus canatus — Velvet Grass
Lolium spp. — Rye Grasses
Lotus corniculatus — Bird's Foot Trefoil
Lythrum salicaria — Purple Loose Strife
Melilotus spp. — Sweet Clover
Myriophyllum spicatum — Eurasian Milfoil
Phalaris arundinaceae — Reed Canary Grass
Rubus discolor — Himalayan Blackberry
Solanum spp. — Nightshade



III
Master Signage & Wayfinding
(No Amendments)



Villebois

SPECIFIC AREA PLAN - NORTH
MASTER SIGNAGE & WAYFINDING

JUNE 8, 2007



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We are pleased to present the Villebois Signage Design Manual. In developing these standards, we have pursued the following goals and objectives:

- To develop an effective wayfinding system for pedestrians and vehicular traffic that functions as an integral part of the village urban environment.
- To use wayfinding to express Villebois's unique culture, philosophy, and image as it guides users to key destinations.

The wayfinding system will:

- Provide effective wayfinding for vehicular traffic between major destinations within the village.
- Cultivate an overall "Sense of Place" for the urban area, while allowing the various neighborhoods to express their own identities, within the system's guidelines.
- Enhance and reinforce the village experience for the various user groups.
- Enhance and reinforce the boundaries of Villebois with gateway and identity treatments.
- Provide all necessary information in a clear, concise, and minimal manner, while not adding to visual clutter.
- Be cost effective.
- Allow for ease of updating and maintenance.

This manual should be used as a guide by staff, consultants and fabricators engaged in the planning, design, fabrication, installation and maintenance of the sign system. The manual provides necessary drawings, details and specifications required to implement the signage/wayfinding system. Adherence to the standards in this manual will ensure consistency and a common visual language throughout Villebois.

An effective signage/wayfinding system functions not as a separate entity but as an integral part of its environment. Carefully planned signs communicate essential information while also enhancing the urban environment. Graphics, in the form of banners, inlays and subtle textural shifts extend the scope of the system by adding color, movement and vitality.

As the visual introduction to the community, signs play a prominent role in defining Villebois's identity and boundaries. Caution and restraint must be observed in the final placement of signs. The phrase "less is more" is relevant in the context of signage/wayfinding for an urban system. Over signing will create visual clutter and ultimately communicate less information to the user.

For this Master Plan to function as intended, signs should be added only with a comprehensive review of the sign family and how each new sign will impact the overall system and streetscape. If this premise is followed, the signs will form a cohesive system that unites the village and provides visual continuity and enables the visitor to navigate with ease.

The Design Manual comprehensively detail the correct use of the logo, typography, colors and the family of signs that comprise the wayfinding program. The environmental graphic design package is presented as a comprehensive, consistent and integrated system.

Sign materials have been selected for their longevity and regional context. "Textural" materials are layered with highly finished graphic panels to provide a comprehensive visual language that will reinforce the Villebois graphic vocabulary. The sign system has been designed to help first time and infrequent visitors with wayfinding and to define the Villebois boundaries.

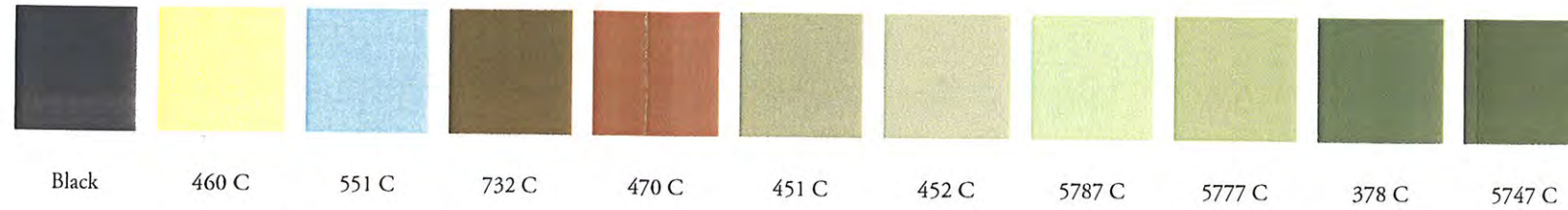
Through thoughtful programming and use of this Design Manual, signage and wayfinding will reinforce the link between the city, the community and the region.



LOGO



COLOR PALETTE



FRUTIGER BOLD CONDENSED

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9
a b c d e f g h i j k l m n o p q r s t u v w x y z . , " ! @ # \$ % ^ & * ()

GARAMOND

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9
a b c d e f g h i j k l m n o p q r s t u v w x y z . , " ! @ # \$ % ^ & * ()

SYMBOLS



LOGO

The logo is the official mark of Villebois. It is used to provide continuity throughout the community.

TYPOGRAPHY

Two fonts comprise the approved type family, Frutiger Bold Condensed and Garamond. These fonts shall be used for all signage communications throughout the community.

SYMBOLS

International symbols communicate a range of complex messages, are clearly legible at a distance and address users of different ages and cultures.





- PRIMARY SITE IDENTIFIER
- SECONDARY SITE IDENTIFIER
- ▬ INTERNAL SITE IDENTIFIER
- ▲ MINOR SITE IDENTIFIER
- ENHANCED FULL VIEW OR PARTIAL VIEW FENCE W/ LANDSCAPING
- ⋯ ENHANCED PRIVACY FENCE WITH LANDSCAPING
- ⋯ SROZ - FULL VIEW FENCE

NORTH AREA PLAN



3" THICK FABRICATED LOGOTYPE.
PAINT FINISH TO MATCH PANTONE
470C. VISUALLY CENTER LOGOTYPE.
PIN MOUNT AND EPOXY FOR
PERMANENT ATTACHMENT.



24" X 24" PORCELAIN ENAMEL
FULL COLOR LOGO PANEL.

1 ELEVATION / Primary Site Identifier (32 S.F.)
3/16" = 1'-0"

LOCATION

Located at major entries into site. Refer to site plan G0.4 for final locations.

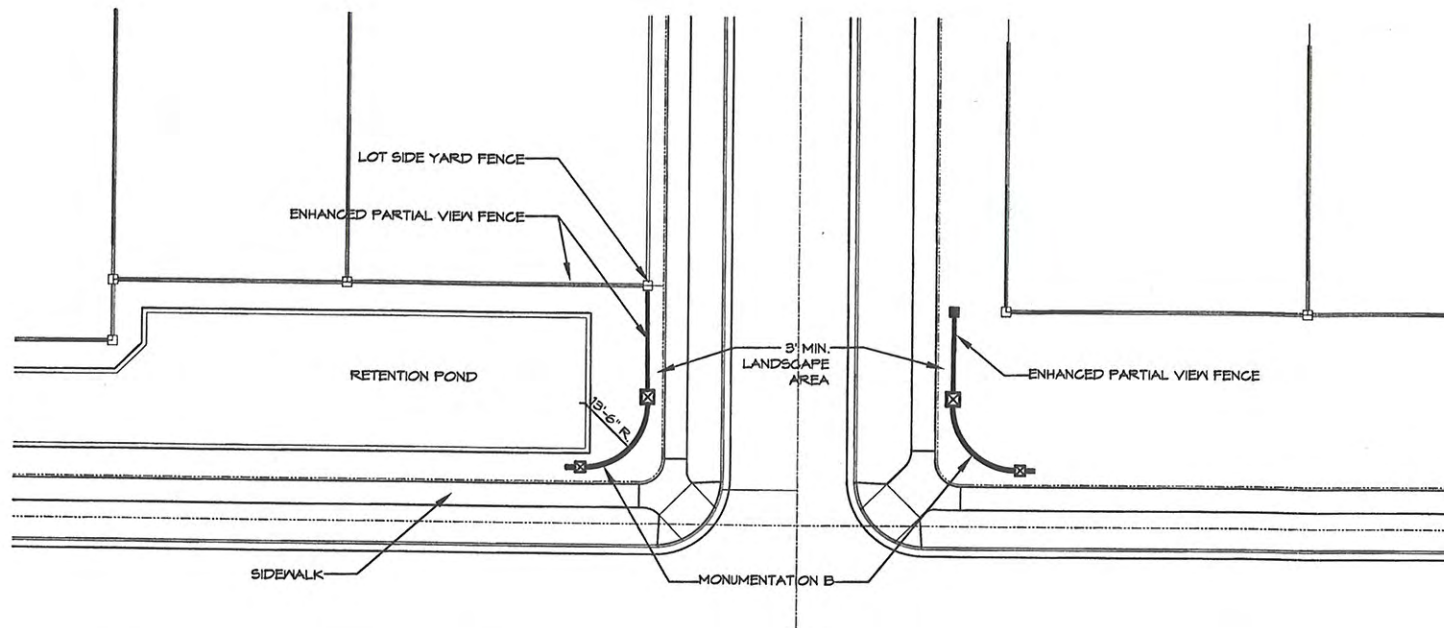
APPLICATION

Gateway elements capture attention from afar: this assists with identification and wayfinding and establishes a sense of arrival. In addition to providing recognizability, gateway elements featured within a community context assist visitors and residents alike orient and position themselves in the larger environment, providing comfort and knowledge of their place relative to the destination.

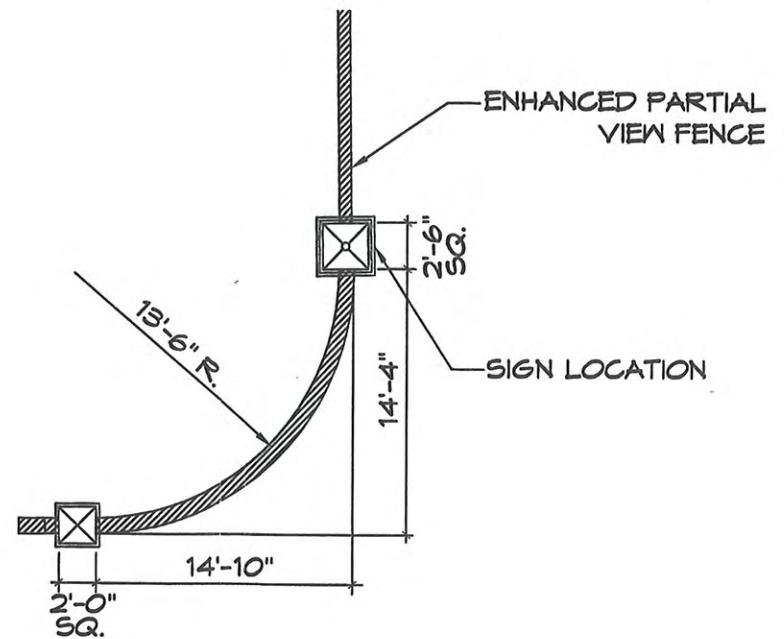
DESCRIPTION

The use of the logo and logotype to identify community boundaries. Materials and colors to reflect the architectural palette of Villebois.

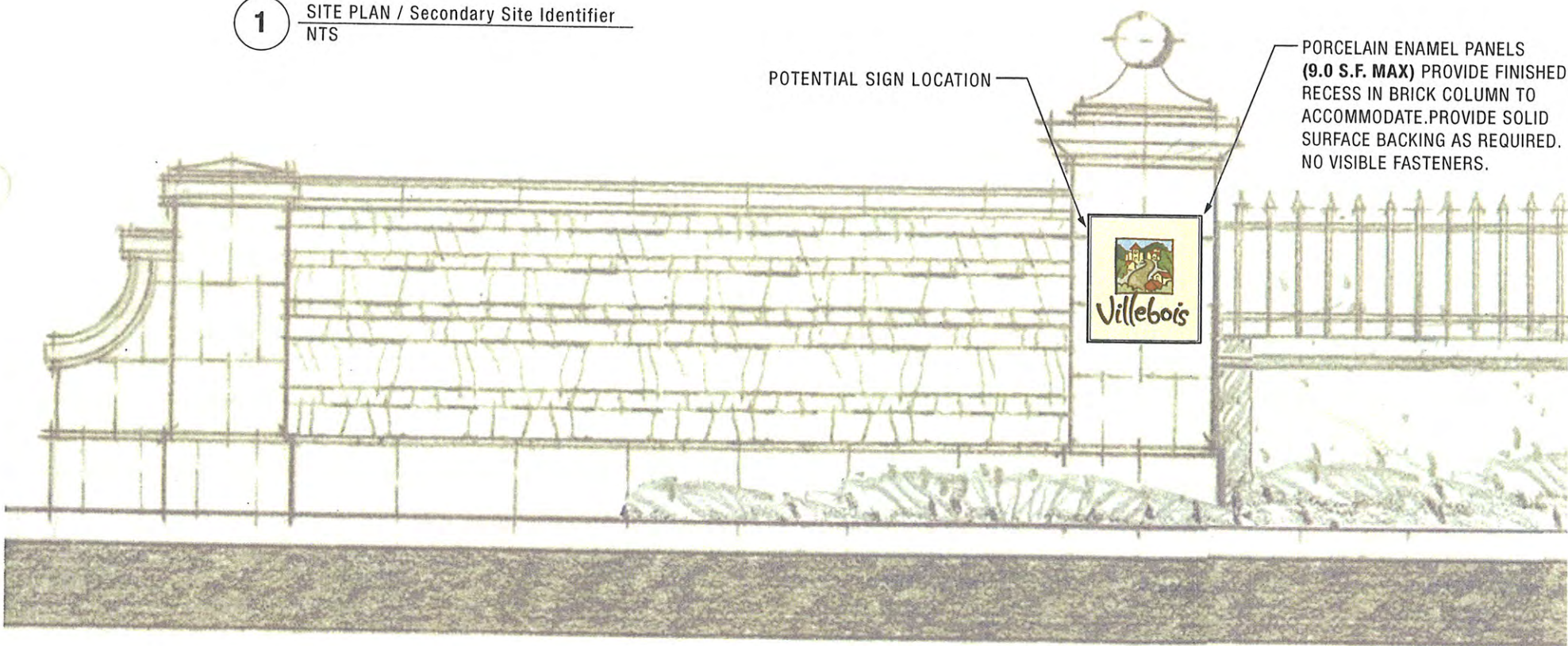




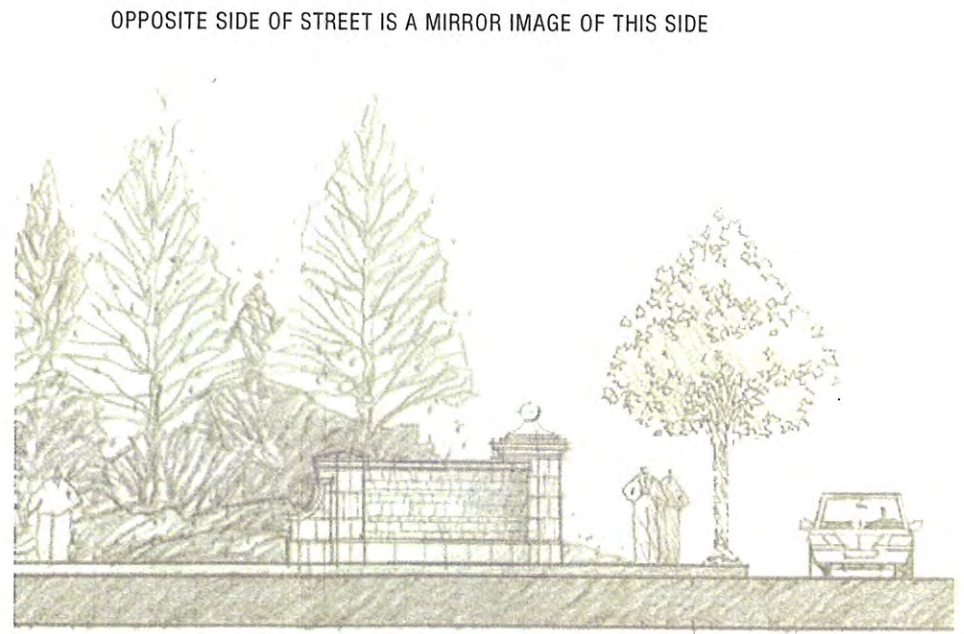
1 SITE PLAN / Secondary Site Identifier
NTS



3 PLAN VIEW / Secondary Site Identifier
3/8" = 1'-0"



2 ELEVATION / Secondary Site Identifier
3/8" = 1'-0"



4 SIDE VIEW / Secondary Site Identifier
3/32" = 1'-0"

LOCATION

Placed at secondary vehicular community entries. Refer to site plan G0.4 for final locations.

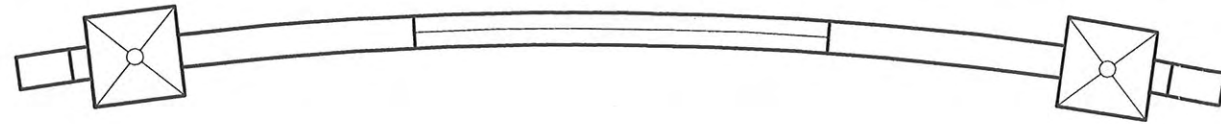
APPLICATION

Gateway elements capture attention from afar: this assists with identification and wayfinding and establishes a sense of arrival. In addition to providing recognizability, gateway elements featured within a community context assist visitors and residents alike orient and position themselves in the larger environment, providing comfort and knowledge of their place relative to the destination.

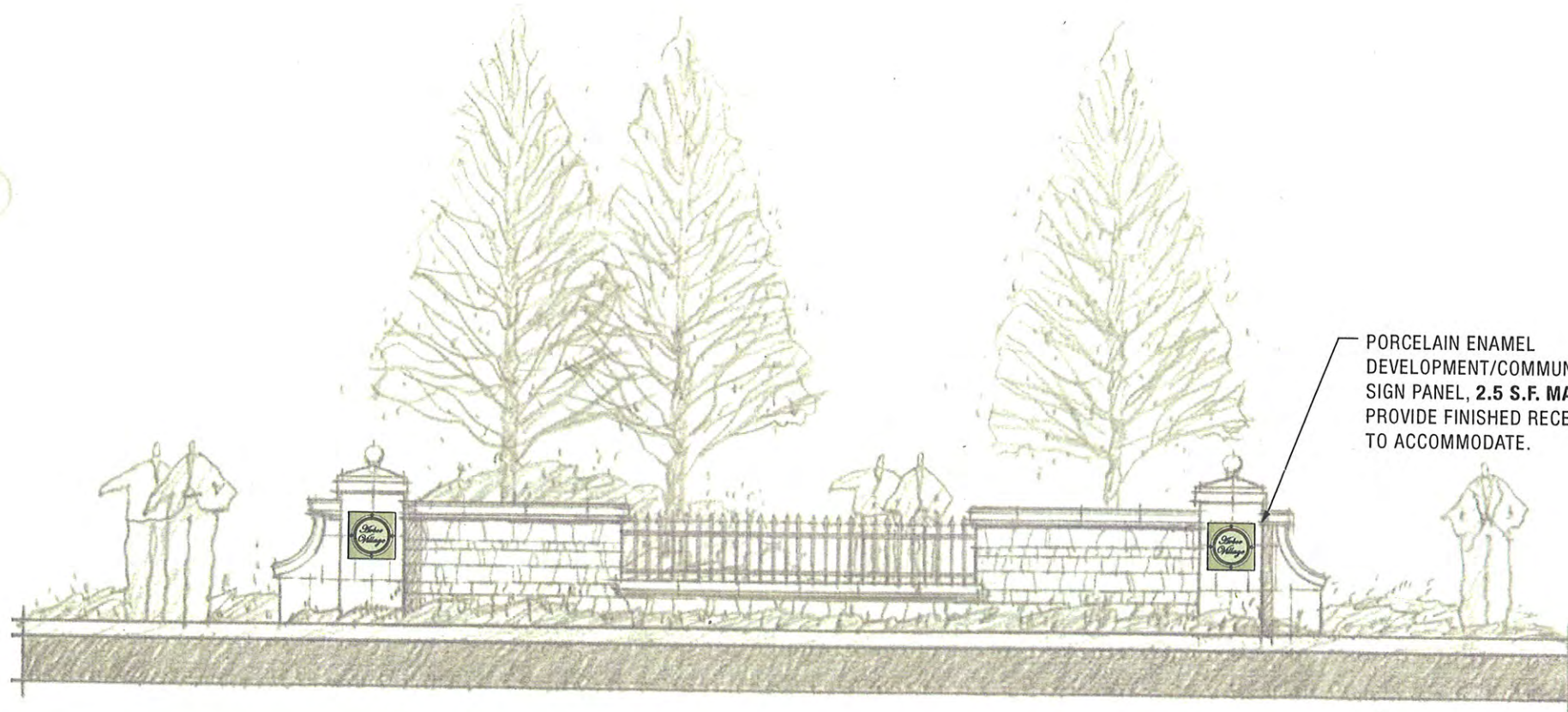
DESCRIPTION

The use of the logo and logotype to identify community boundaries and gateways into neighborhoods. Materials and colors to reflect the architectural palette of Villebois. Integration of street names and regulatory signs as required will consolidate information and reduce visual clutter. Two plaques allowed maximum per entry.

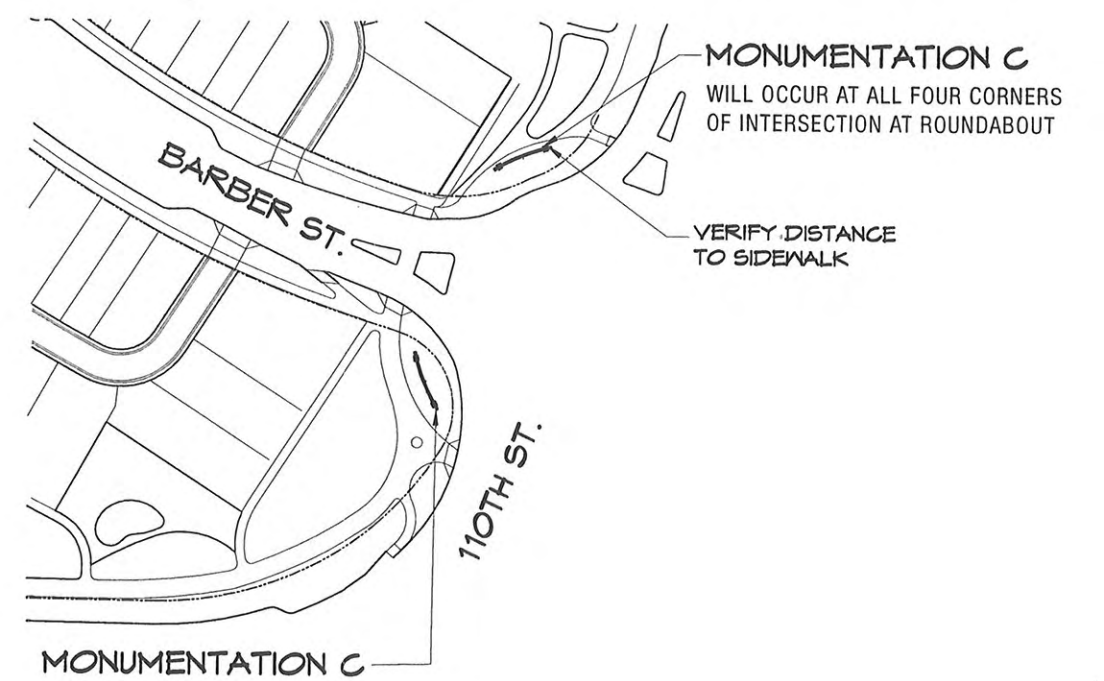




1 PLAN VIEW / Internal Site Identifier
NTS

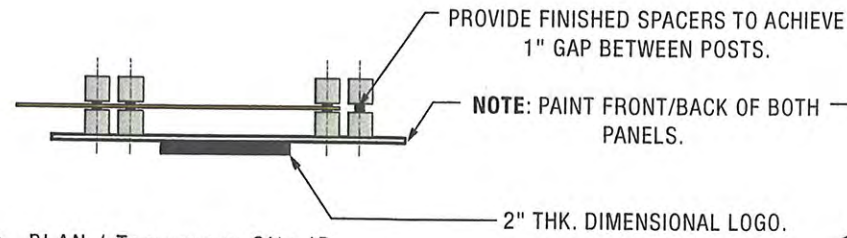


2 ELEVATION / Internal Site Identifier
3/16" = 1'-0"



3 SITE PLAN / Internal Site Identifier
NTS





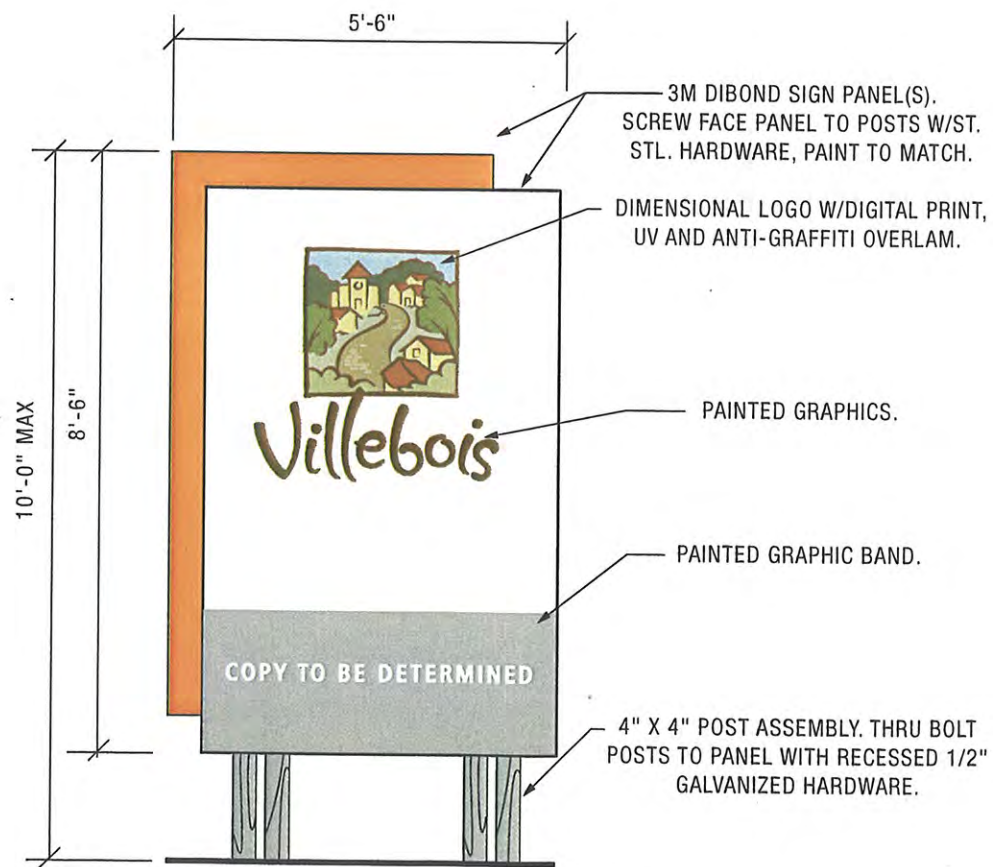
1 PLAN / Temporary Site ID
3/8" = 1'-0"



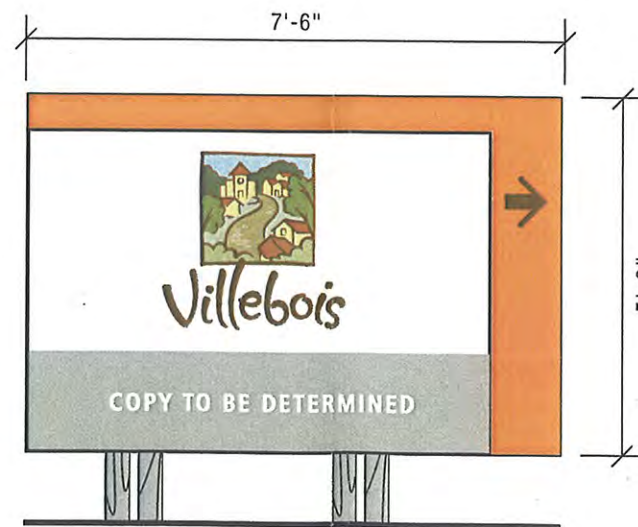
3 PLAN / Temporary Directional - Large
3/8" = 1'-0"



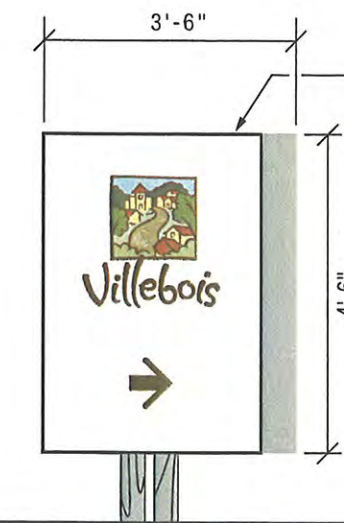
5 PLAN / Temporary Directional - Small
3/8" = 1'-0"



2 ELEVATION / Temporary Construction Sign
3/8" = 1'-0" (47 S.F.)



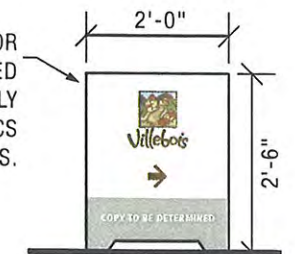
4 ELEVATION / Temporary Directional Sign- Large
3/8" = 1'-0" (35 S.F.)



6 ELEVATION / Temporary Directional Sign- Small
3/8" = 1'-0" (15 S.F.)

NOTE: MATERIALS, FINISH AND ASSEMBLY SIMILAR ON ALL TEMPORARY SITE SIGNAGE.

1/2" THK. EXTERIOR GRADE PLYWOOD, PAINTED ALL SURFACES, DIGITALLY PRINTED, UV GRAPHICS AND V.D.C. GRAPHICS.



7 ELEVATION / "A" Board
3/8" = 1'-0" (5 S.F.)

LOCATION

Placed along primary vehicular corridors at major identification/directional intersections. Signs to be located on project site, outside of sight visual distance triangles. Two (2) signs may be used to form a gateway. Temporary signage shall be subject to approval by City Staff. Temporary signs shall not obstruct regulatory signs visibility. The sign(s) shall be removed prior to the receipt of approval for building occupancy by the City Building Official.

APPLICATION

Direct vehicular traffic to temporary sales offices located within site. Content includes project logo and builder information. Only allowed on site during period that property is available for sale.

DESCRIPTION

Single or double sided, painted aluminum structure with digitally printed exterior graphics. Vertical supports are wood posts with natural finish.



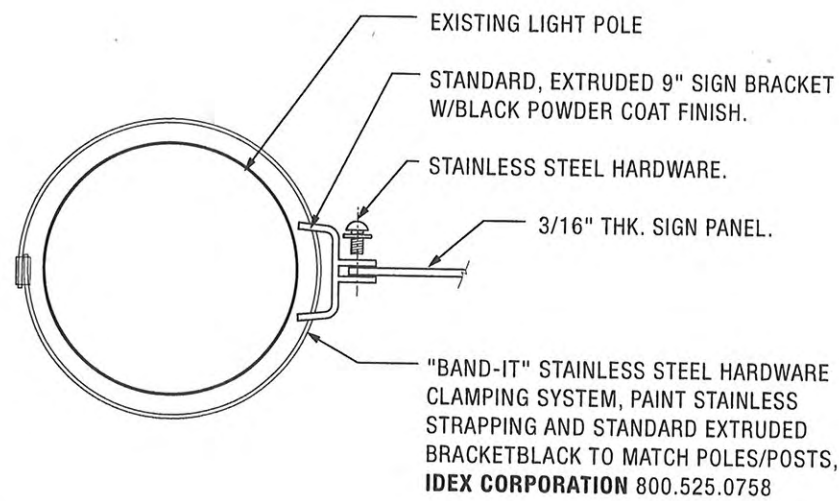
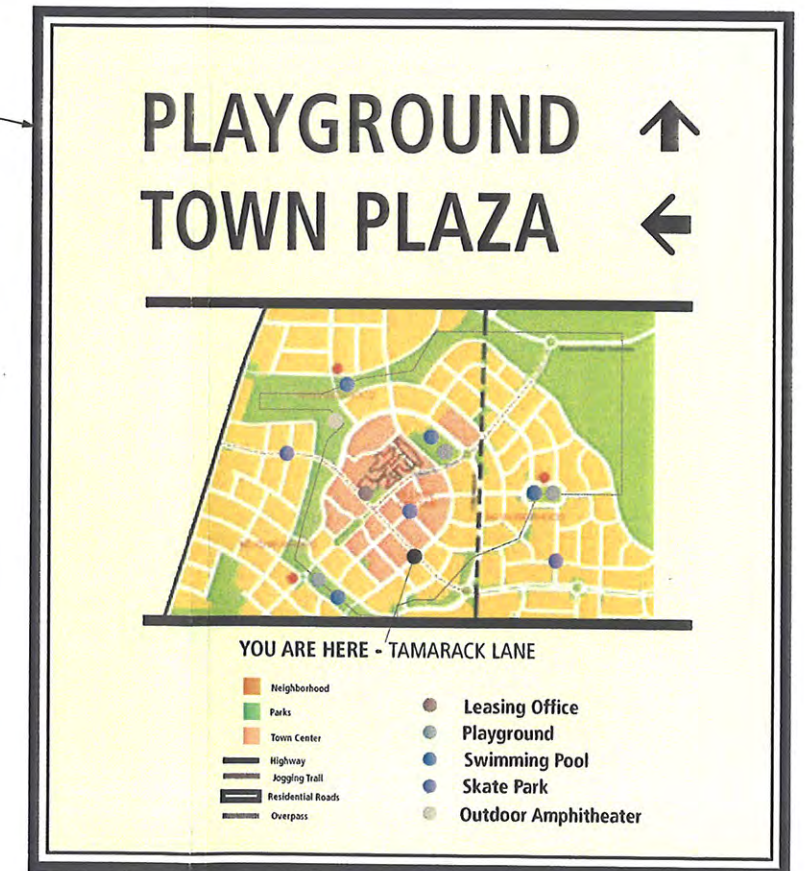
DIRECTIONAL: PORCELAIN ENAMEL FRONT AND BACK TO MATCH PANTONE 460C AND BLACK PORCELAIN ENAMEL BORDER. 3.5" CAP. BLACK, REFLECTIVE TYPE AND ARROW.

6.0 S.F.



FULL-COLOR PORCELAIN ENAMEL PANEL WITH PEDESTRIAN DIRECTIONAL INFORMATION AND MAP, RE: G0.3 FOR TYPE STYLE-FRUTIGER BOLD CONDENSED

RE:4, G1.1 FOR PLACEMENT OF PANEL IN SECONDARY SITE IDENTIFIER.



1 DETAIL / Light Pole Sign Bracket
3" = 1'-0"

2 ELEVATION / Vehicular Directional (6.0 S.F.)
3/8" = 1'-0"

3 ELEVATION / Pedestrian Directional Panel (9.0 S.F.)
1 1/2" = 1'-0"

LOCATION

As required to properly define areas regulating traffic conditions and address life and safety issues in accordance with Oregon DOT and MUTCD manual uniform traffic control devices.

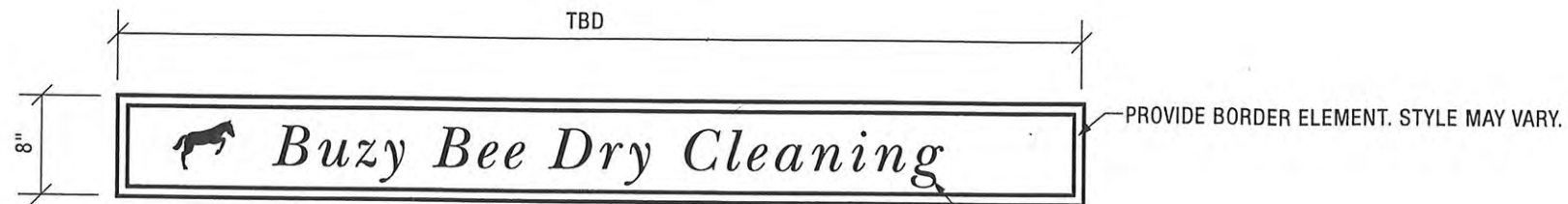
APPLICATION

Provide a common graphic and visual language with the community element light fixtures.

DESCRIPTION

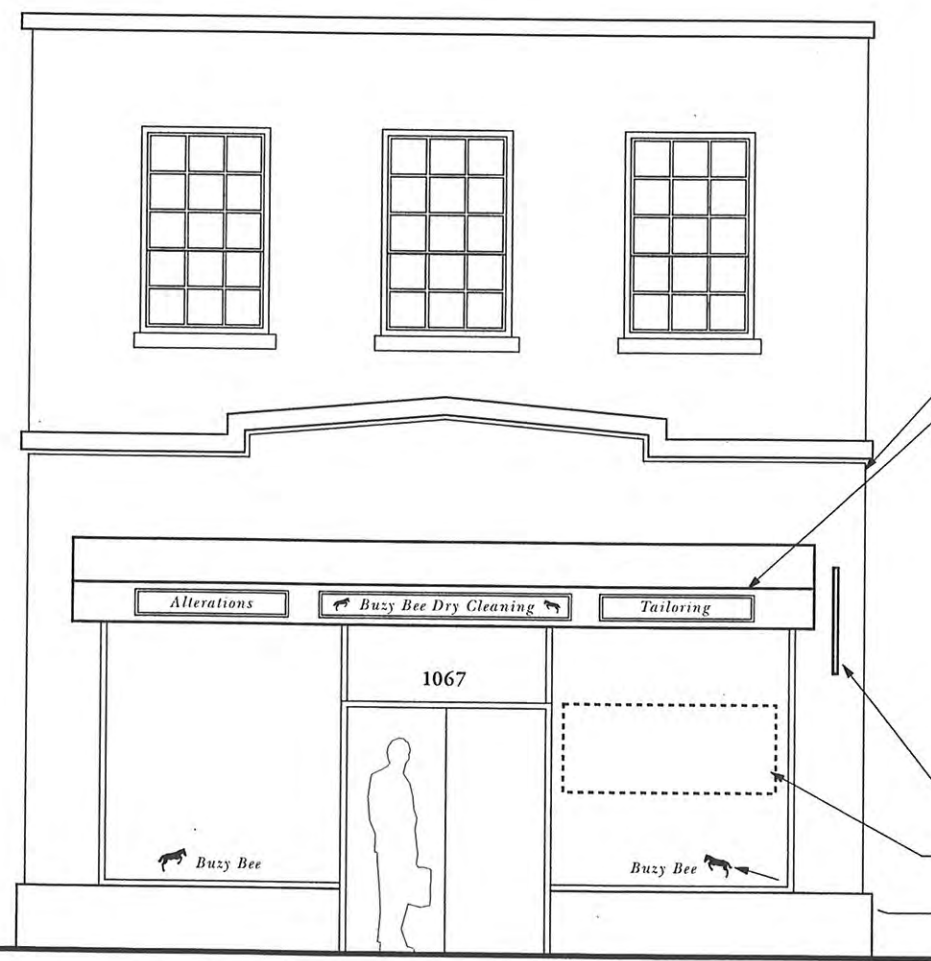
Regulatory signs; painted aluminum sign panels with vinyl reflective graphics.
Directional/identifier signs; porcelain enamel steel sign panels with vinyl reflective graphics.





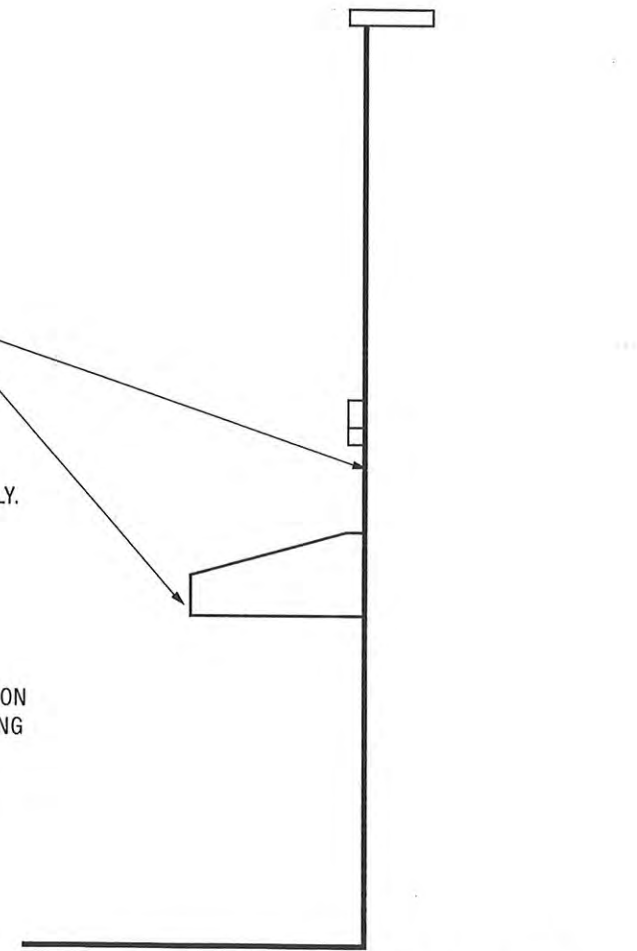
1 DETAIL / Retail Canopy Sign
 1 1/2" = 1'-0"

LOGO/LOGOTYPE GRAPHICS AND BORDER MAY BE APPLIED IN VINYL OR CONSIST OF A FABRIC APPLIQUE TO MATCH AWNING WITH SCREEN PRINTED OR FABRIC GRAPHICS.



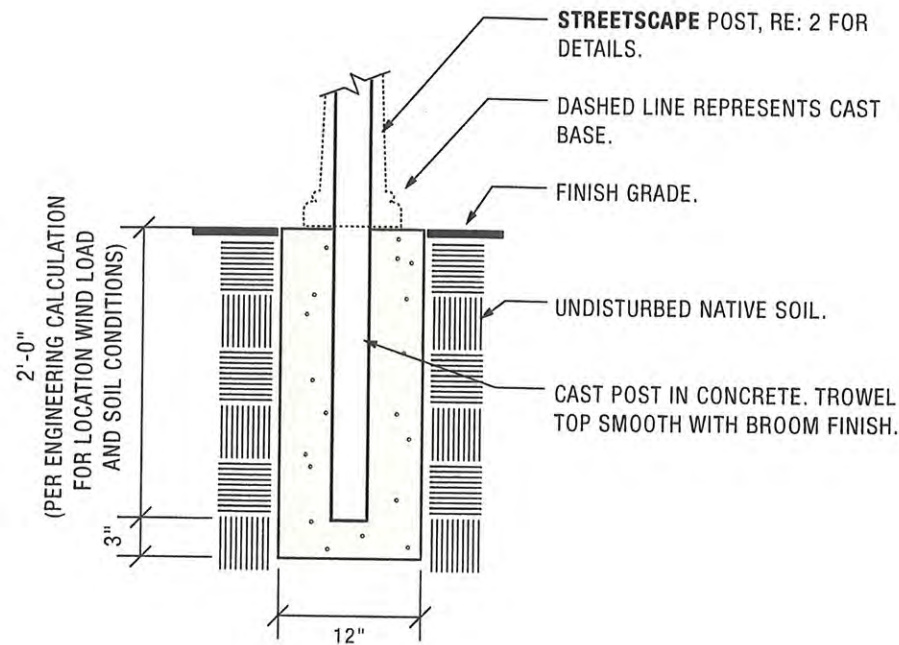
2 ELEVATION / Storefront
 3/16" = 1'-0"

- BUILDING FASCIA
- RETAIL CANOPY SIGN:** NOT FOR USE IN CONJUNCTION WITH BULKHEAD SIGN.
 - MAXIMUM OF THREE GRAPHIC AREAS OR APPLIQUES PER LEASE SPACE
 - MOUNTED TO LEADING EDGE OF CANOPY ONLY.
 - 1 SQ. FT. PER LINEAR FOOT, UP TO A TOTAL MAXIMUM OF 32 SQ. FT.
 - MAXIMUM SIGN HEIGHT OF 8"
 - SEWN PANEL OR VINYL GRAPHICS APPLIQUE ON FABRIC AWNING.
 - SEE VILLAGE CENTER ARCHITECTURAL STANDARDS REGARDING FACADE ARTICULATION FOR SPECIFIC STANDARDS REGARDING AWNING
- RETAIL BLADE SIGN:** RE: G3.1 FOR DETAILS
- TEMPORARY WINDOW SIGN**
- PERMANENT WINDOW SIGN**

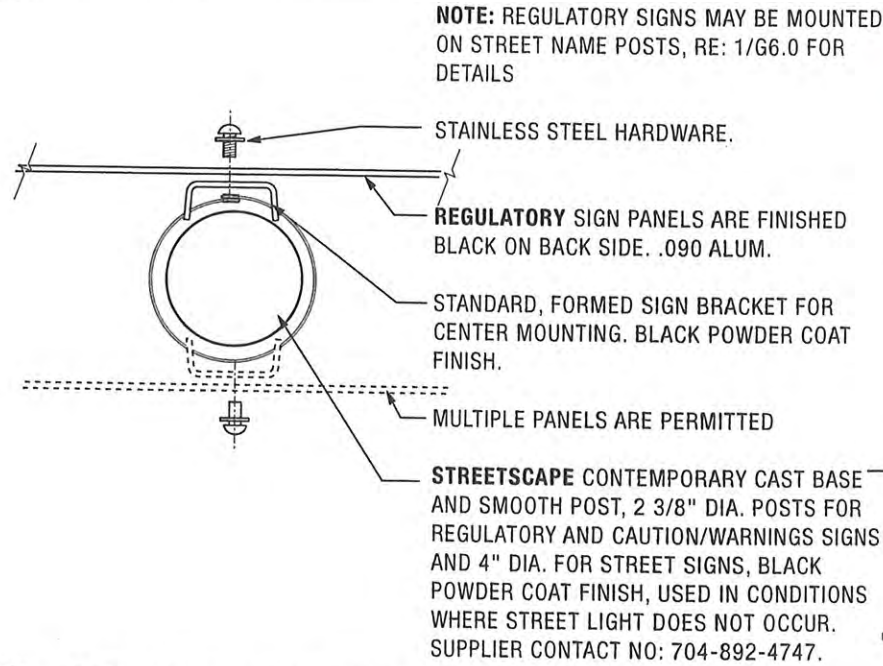


3 SIDE ELEVATION / Retail Canopy Sign





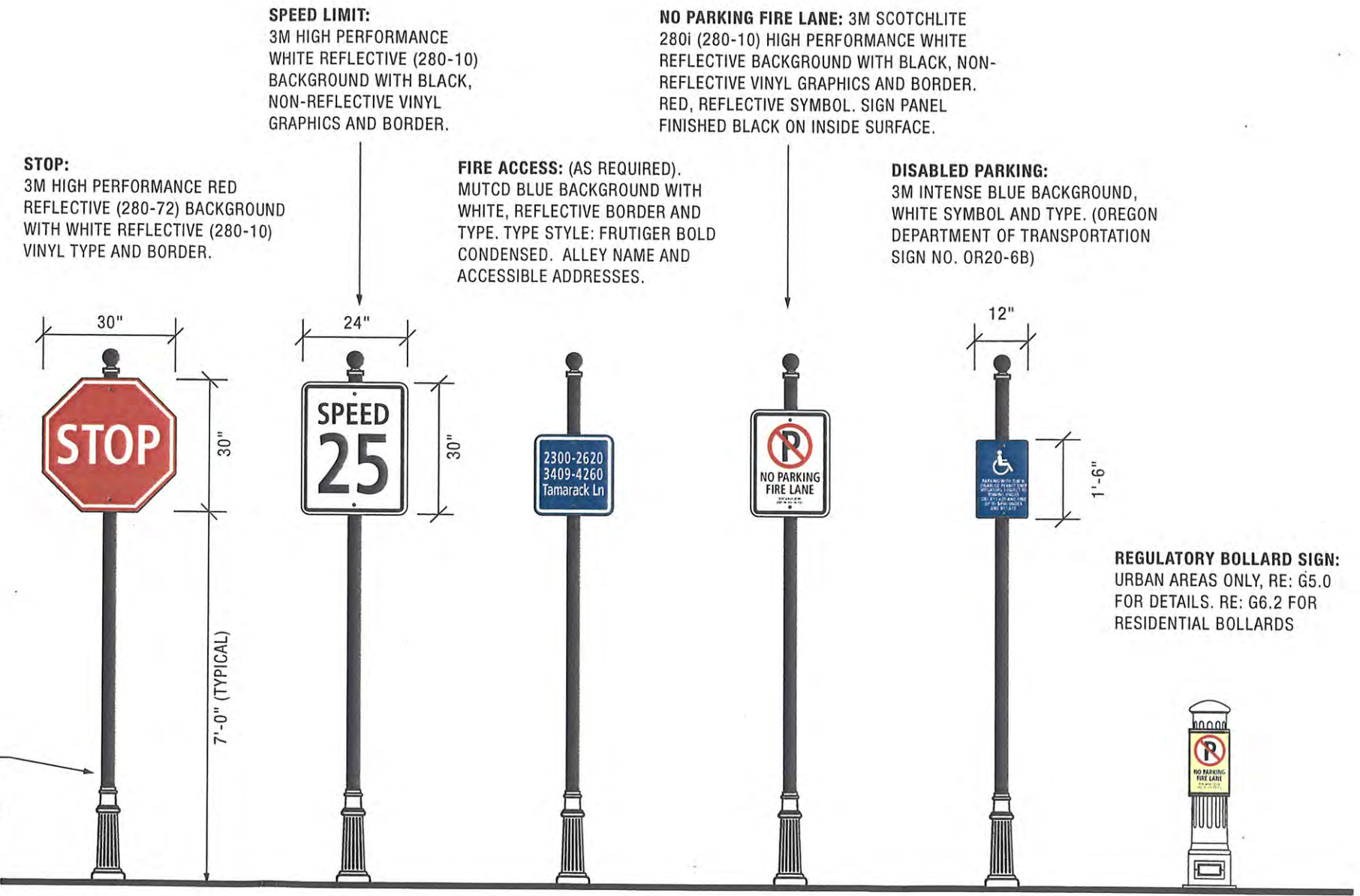
1 DETAIL / Post Footing
3/4" = 1'-0"



2 DETAIL / Typical 2 3/8" Pole Bracket
3" = 1'-0"

LOCATION

Placed along primary vehicular streets at intersections and cross streets as required.



3 ELEVATION / Regulatory Signs
3/8" = 1'-0"

APPLICATION

Identify all streets located within the Villebois community and to provide regulatory information as required.

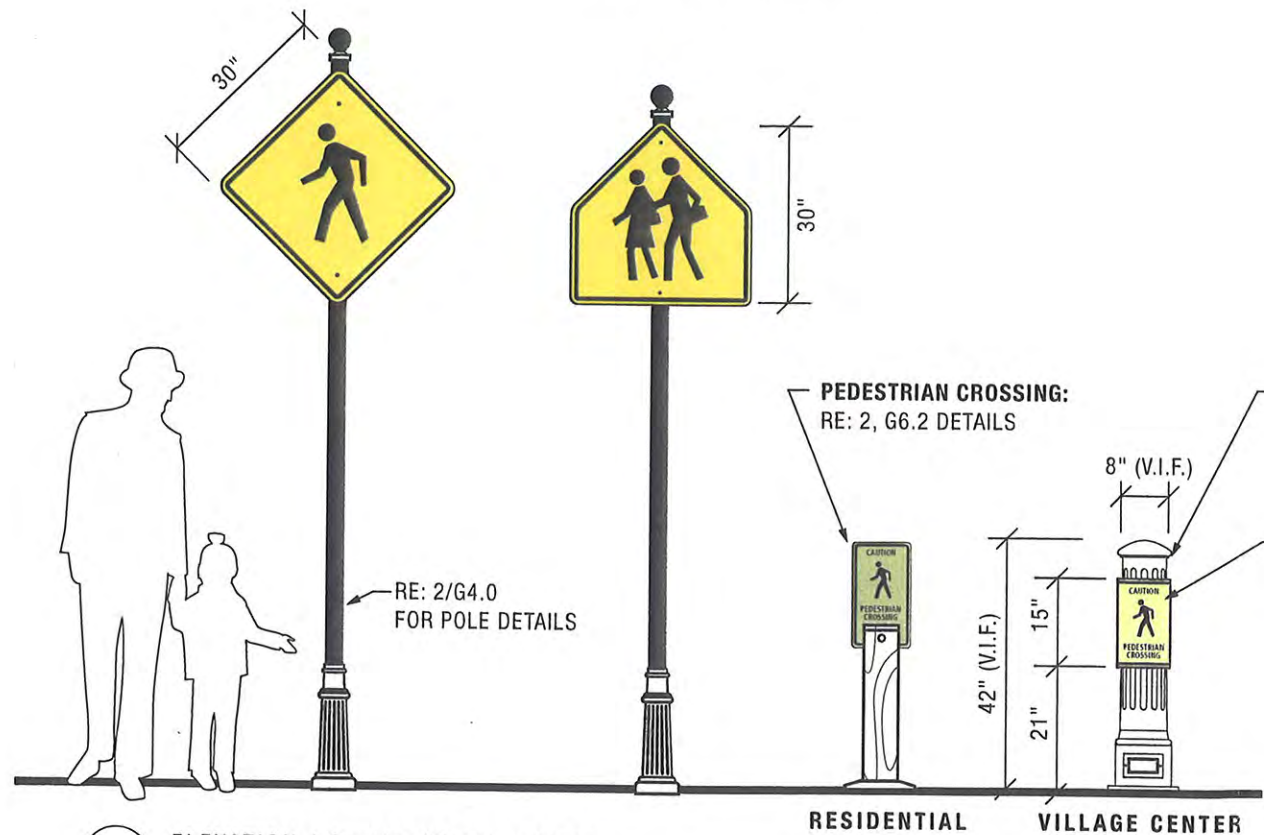
DESCRIPTION

Regulatory signs; painted aluminum sign panels with vinyl reflective graphics.
Directional/identifier signs; porcelain enamel steel sign panels with vinyl reflective graphics.

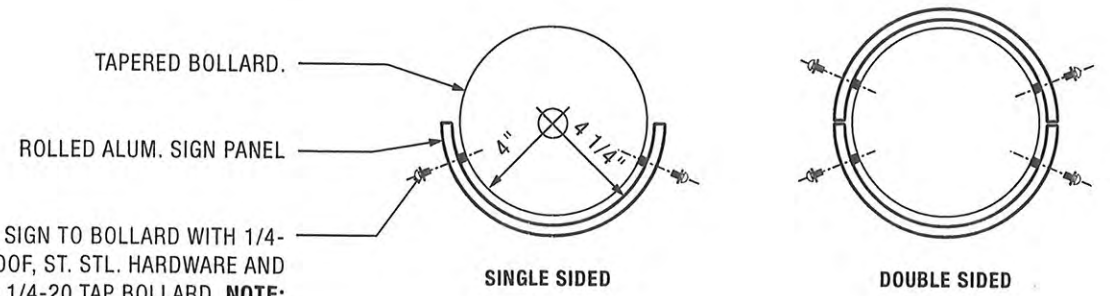


CAUTION/WARNING:
3M HIGH PERFORMANCE YELLOW REFLECTIVE (280-71) WITH BLACK, NON-REFLECTIVE VINYL.

SCHOOL ZONE:
PER MUTCD, BACKGROUND IS FLOURESCENT YELLOW-GREEN # 3981, DIAMOND GRADE. TYPE IS BLACK, NON-REFLECTIVE VINYL.

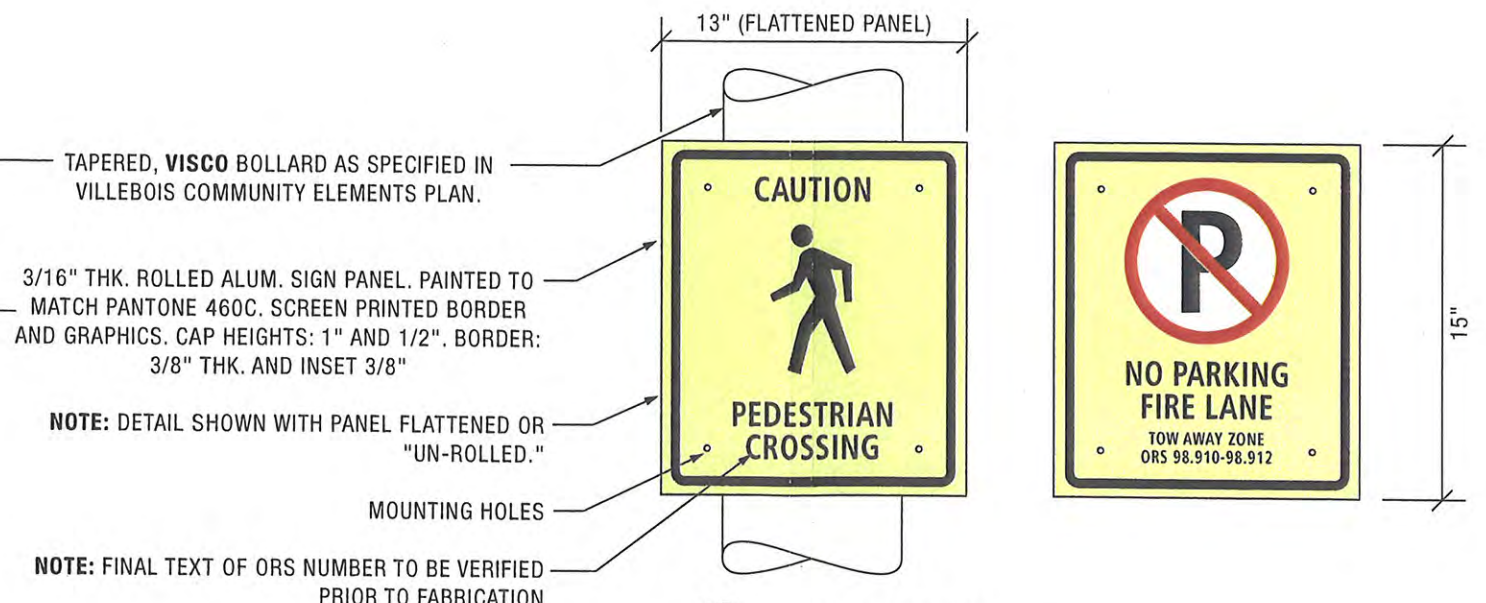


1 ELEVATION / Caution/Warning Signs
3/8" = 1'-0"



MECHANICALLY ATTACH SIGN TO BOLLARD WITH 1/4-20 TAMPERPROOF, ST. STL. HARDWARE AND SPACERS. DRILL AND 1/4-20 TAP BOLLARD. **NOTE:** PROVIDE WATERPROOF SEAL OR EMBEDMENT WHERE FASTENERS PENETRATE BOLLARD.

2 PLAN / Urban Bollards
1 1/2" = 1'-0"



3 DETAIL / Graphics
1 1/2" = 1'-0"

LOCATION

As required to properly define areas regulating traffic conditions and address life and safety issues in accordance with Oregon DOT and MUTCD manual uniform traffic control devices.

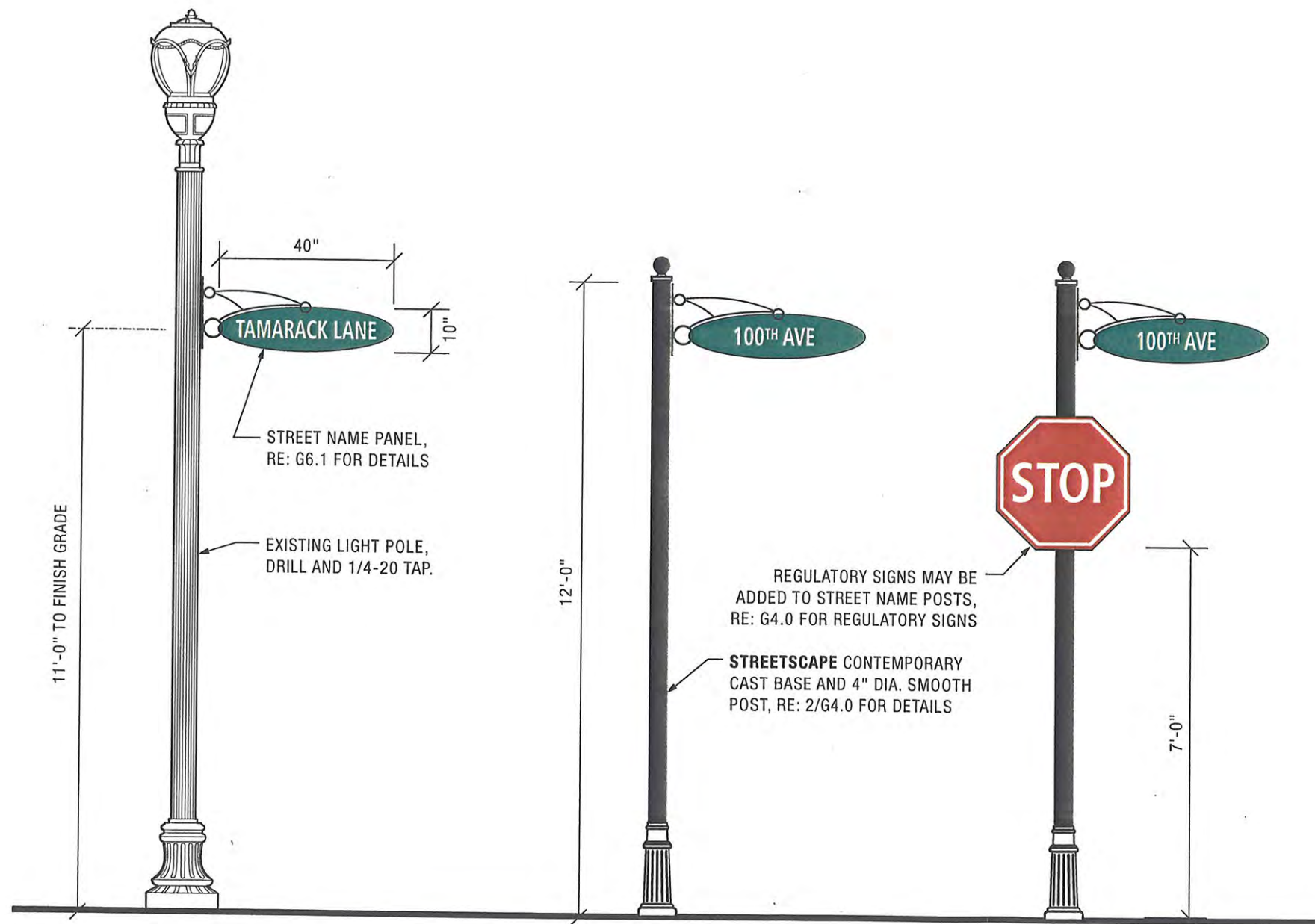
APPLICATION

Provide a common graphic and material language with village street furniture system.

DESCRIPTION

Rolled and painted aluminum sign panels with vinyl reflective graphics.





1 ELEVATION / Street Name
3/8" = 1'-0"

LOCATION

Placed along primary vehicular streets at intersections.

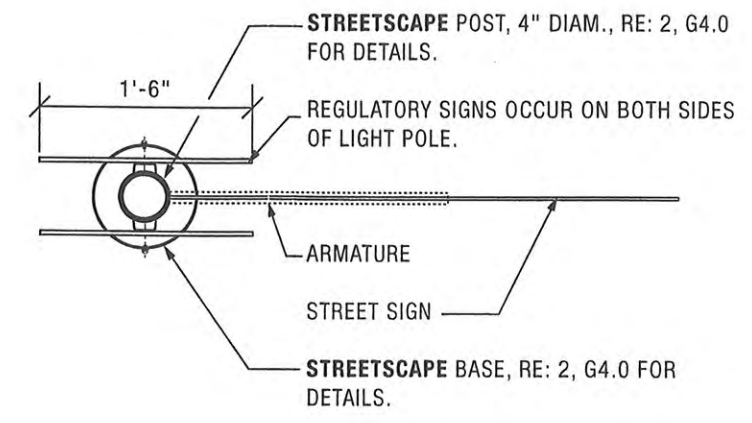
APPLICATION

Identify all streets located within the Villebois community. This design is the standard to be used throughout the community.

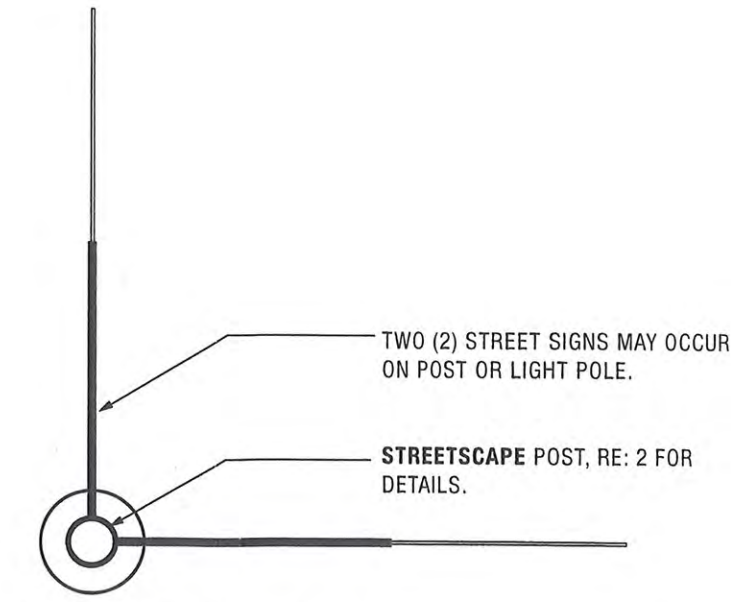
DESCRIPTION

Two sided porcelain enamel steel sign panels with exterior grade reflective vinyl die-cut typography. Custom metal armature that supports the sign panel. All signs are double-sided.

NOTE: ALL HARDWARE ATTACHED W/"BANDIT" CLAMPING SYSTEM, RE: 1, G2.0 FOR DETAILS

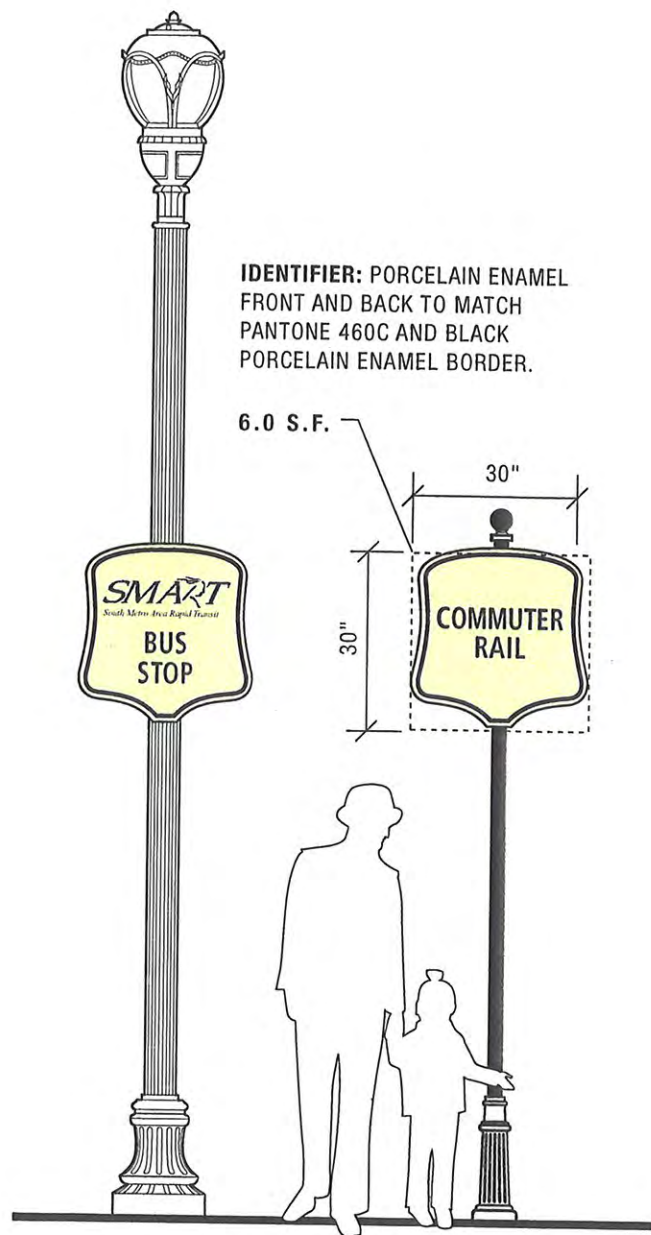


2 PLAN / Street Signage
3/4" = 1'-0"



3 PLAN / Street Name
3/4" = 1'-0"





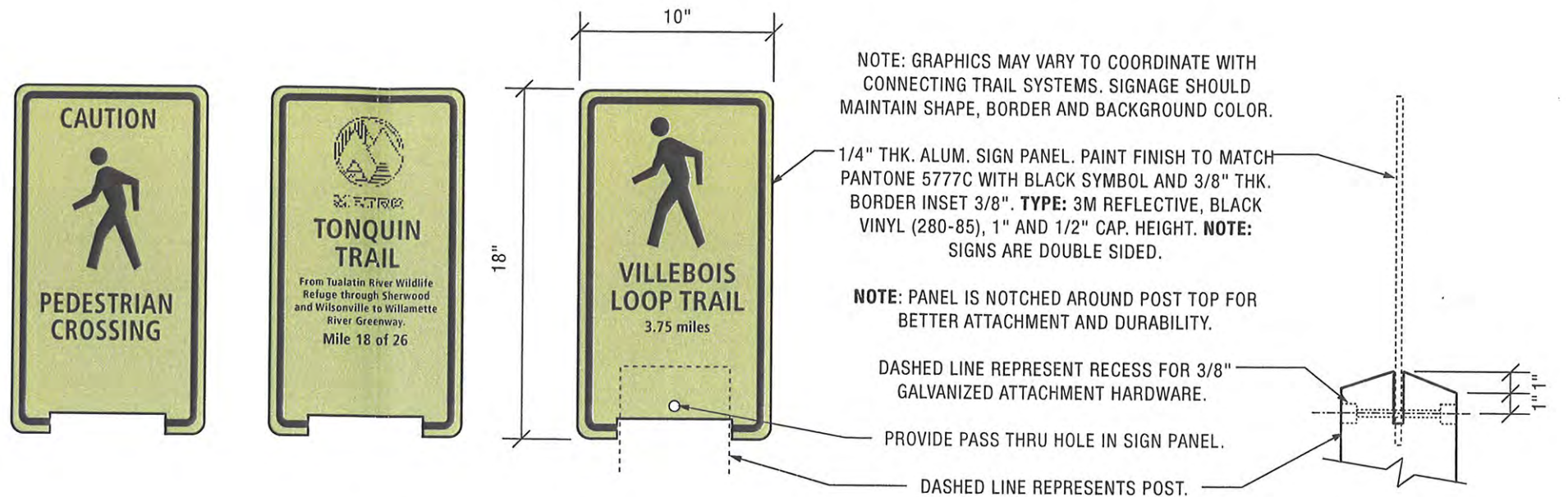
IDENTIFIER: PORCELAIN ENAMEL FRONT AND BACK TO MATCH PANTONE 460C AND BLACK PORCELAIN ENAMEL BORDER.

6.0 S.F.

1 ELEVATION / Identifier (6.0 S.F.)
3/8" = 1'-0"

LOCATION

Placed along primary vehicular streets at intersections.



NOTE: GRAPHICS MAY VARY TO COORDINATE WITH CONNECTING TRAIL SYSTEMS. SIGNAGE SHOULD MAINTAIN SHAPE, BORDER AND BACKGROUND COLOR.

1/4" THK. ALUM. SIGN PANEL. PAINT FINISH TO MATCH PANTONE 5777C WITH BLACK SYMBOL AND 3/8" THK. BORDER INSET 3/8". TYPE: 3M REFLECTIVE, BLACK VINYL (280-85), 1" AND 1/2" CAP. HEIGHT. NOTE: SIGNS ARE DOUBLE SIDED.

NOTE: PANEL IS NOTCHED AROUND POST TOP FOR BETTER ATTACHMENT AND DURABILITY.

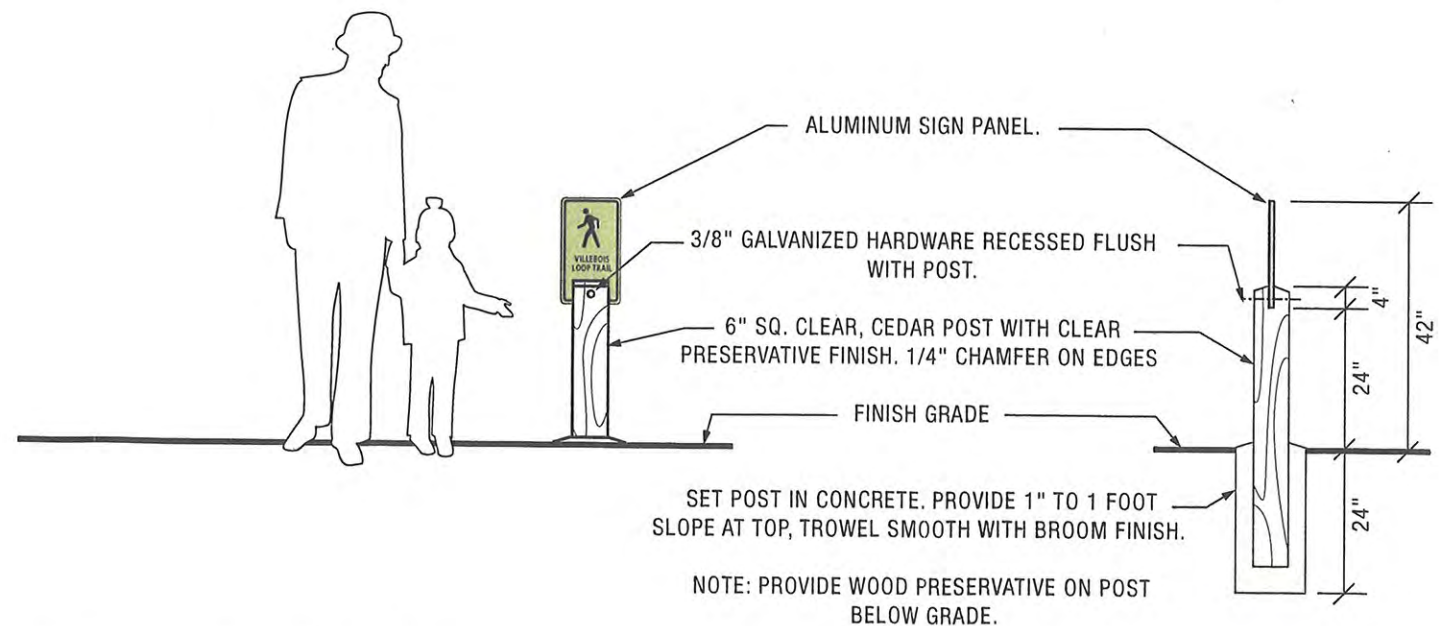
DASHED LINE REPRESENT RECESS FOR 3/8" GALVANIZED ATTACHMENT HARDWARE.

PROVIDE PASS THRU HOLE IN SIGN PANEL.

DASHED LINE REPRESENTS POST.

2 DETAIL / Trail Marker
1 1/2" = 1'-0"

4 SIDE DETAIL / Trail Marker
1 1/2" = 1'-0"



3 ELEVATION / Trail Marker
3/8" = 1'-0"

5 SIDE / Trail Marker
3/8" = 1'-0"

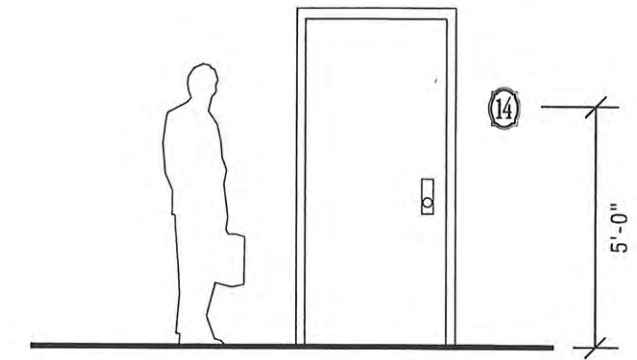
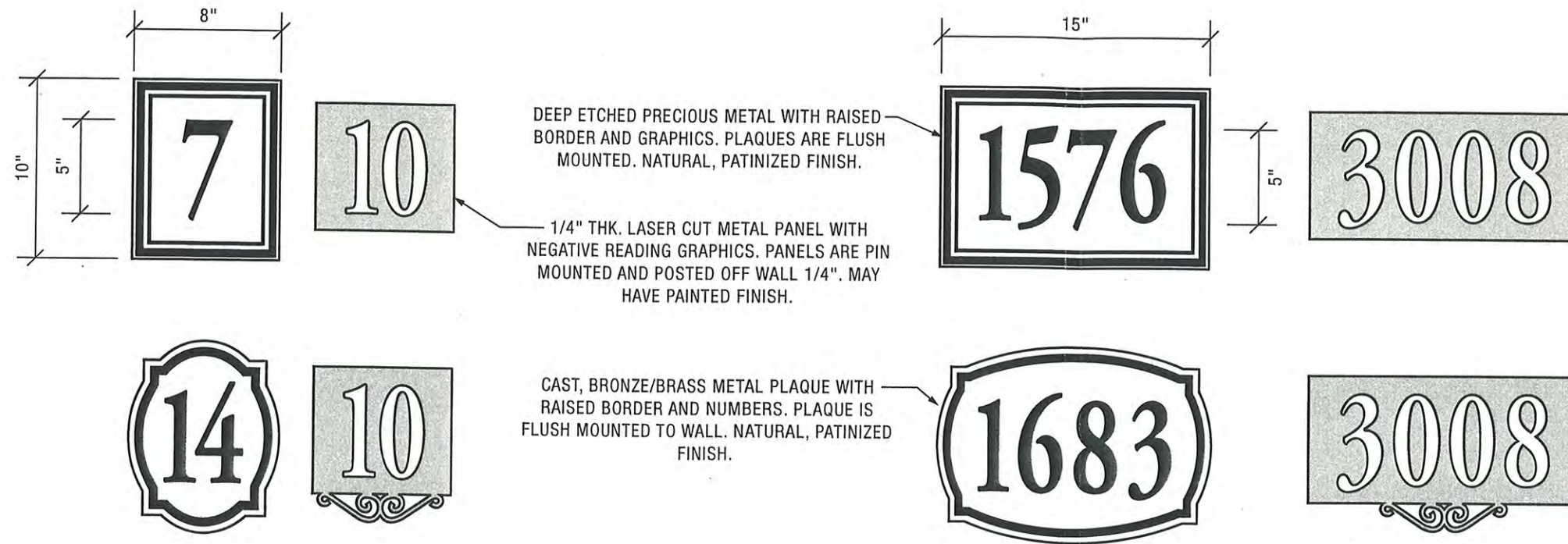
APPLICATION

Identify all streets located within the Villebois community. This design is the standard to be used throughout the community.

DESCRIPTION

Two sided porcelain enamel steel sign panels with exterior grade reflective vinyl die-cut typography. Custom metal armature that supports the sign panel. All signs are double-sided.

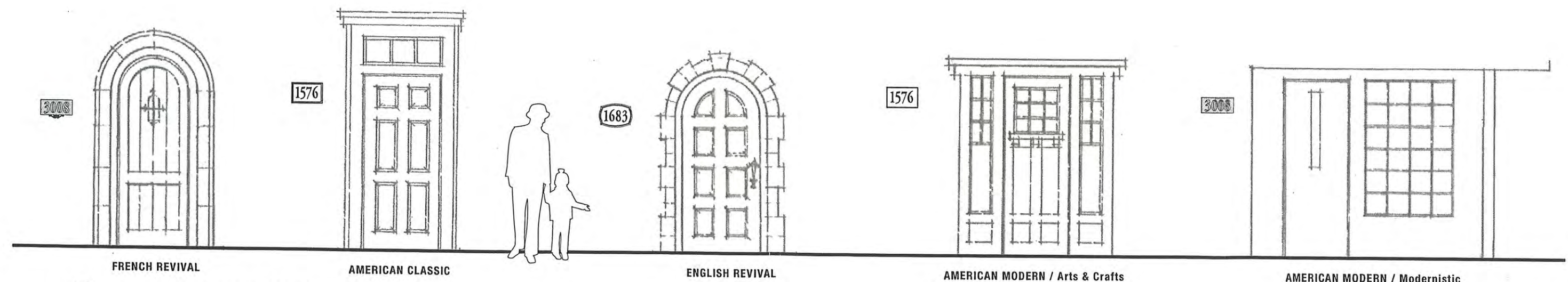




1 DETAIL / Unit Identifiers
1 1/2" = 1'-0"

3 DETAIL / Residential Addresses
1 1/2" = 1'-0"

4 ELEVATION / Unit - Condo/Apartment
1/4" = 1'-0"



2 ELEVATION / Residential Addresses
1/4" = 1'-0"

LOCATION

Place on or near residential entry so as to be visible from the street.

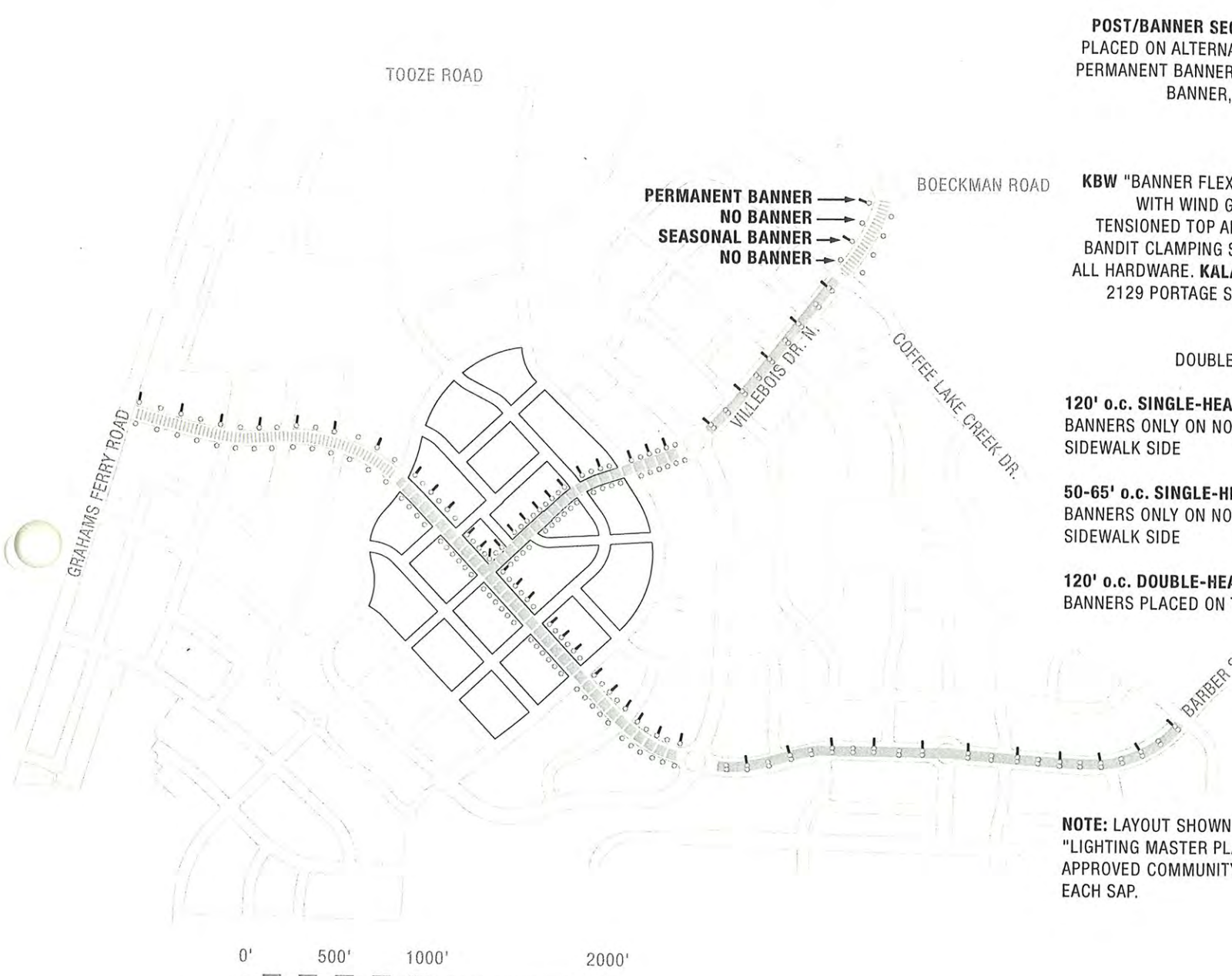
APPLICATION

To reinforce the home's architectural style. To provide a common typographic style and consistent number size throughout the neighborhoods.

DESCRIPTION

Cast, deep-etched or water jet-cut metals. Numbers and background of signs should be matte or non-glare finish and should contrast well, either light numbers on a dark background or dark numbers on a light background.





0' 500' 1000' 2000'



1 DIAGRAMMATIC PLAN / Typical Banner Placement
NTS

POST/BANNER SEQUENCE: BANNERS ARE PLACED ON ALTERNATE POSTS AS FOLLOWS:
PERMANENT BANNER, NO BANNER, SEASONAL BANNER, NO BANNER.

KBW "BANNER FLEX" FIBERGLASS ARMS FLEX WITH WIND GUSTS AND KEEPS BANNER TENSIONED TOP AND BOTTOM. ATTACH WITH BANDIT CLAMPING SYSTEM. BLACK FINISH ON ALL HARDWARE. **KALAMAZOO BANNER WORKS**
2129 PORTAGE ST., KALAMAZOO, MI 49001
PHONE: 800.525.6424

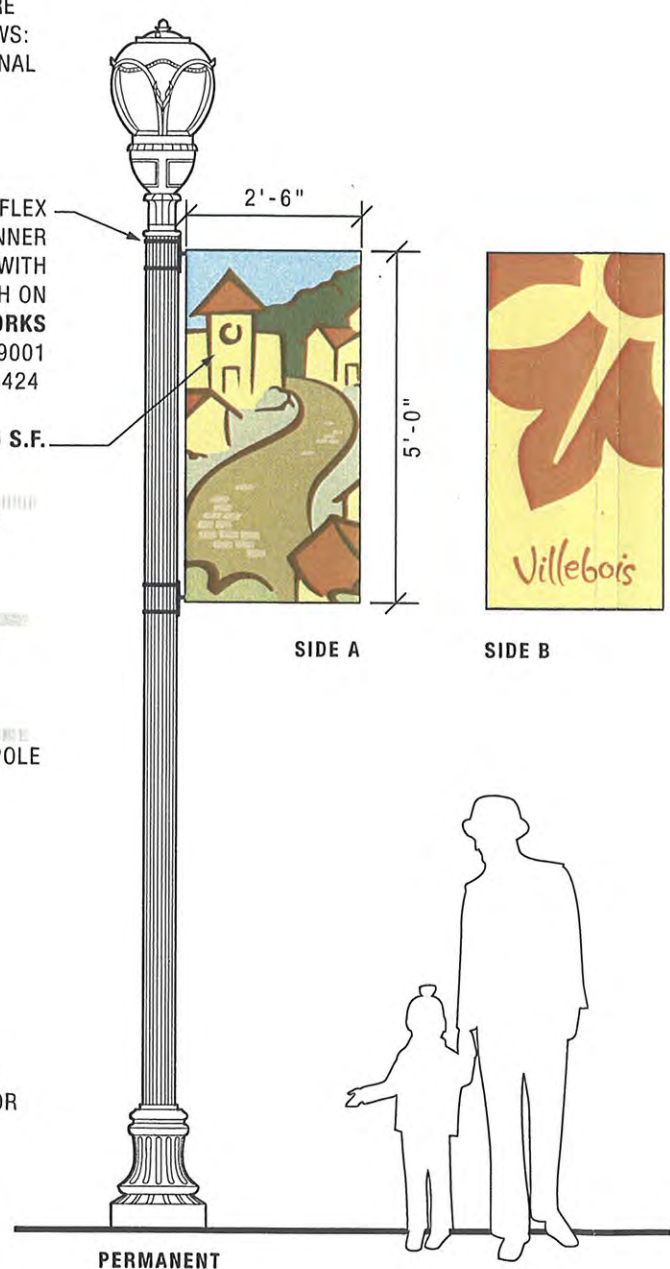
DOUBLE SIDED BANNER, 12.5 S.F.

120' o.c. SINGLE-HEAD POLES
BANNERS ONLY ON NORTH SIDE OF STREET, SIDEWALK SIDE

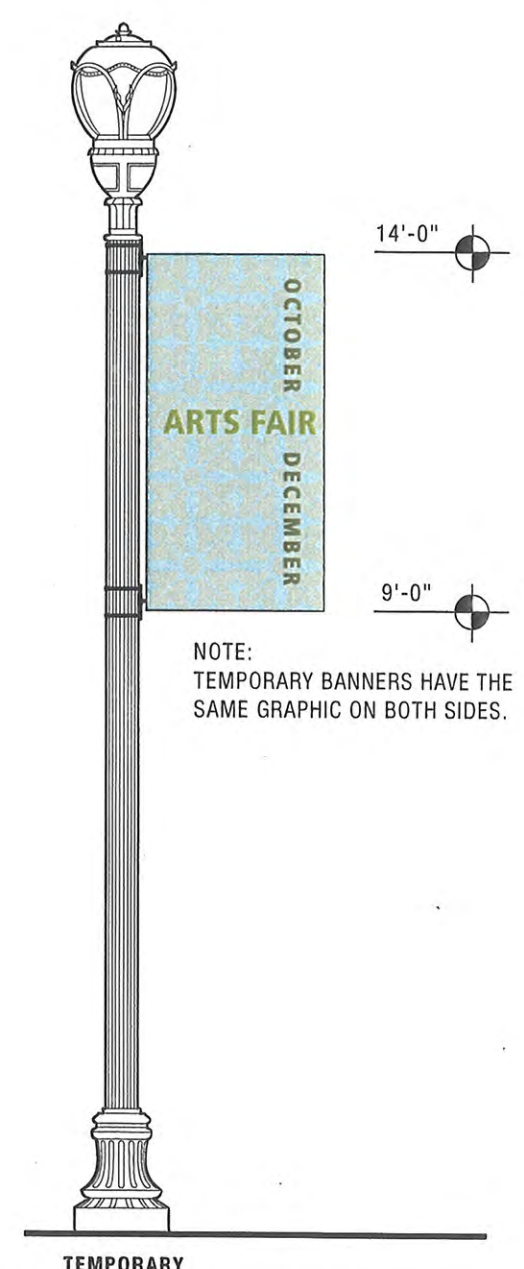
50-65' o.c. SINGLE-HEAD POLES
BANNERS ONLY ON NORTH SIDE OF STREET, SIDEWALK SIDE

120' o.c. DOUBLE-HEAD POLES
BANNERS PLACED ON THE NORTH SIDE OF POLE

NOTE: LAYOUT SHOWN IS BASED ON THE "LIGHTING MASTER PLAN DIAGRAM" IN THE APPROVED COMMUNITY ELEMENTS BOOK FOR EACH SAP.



2 DETAIL / Site Identity Banner (12.5 S.F.)
3/8" = 1'-0"



3 DETAIL / Seasonal and Event Banner
3/8" = 1'-0"

NOTE: TEMPORARY BANNERS HAVE THE SAME GRAPHIC ON BOTH SIDES.

LOCATION

Placed along primary vehicular/pedestrian corridors. Refer to site plan G3.0 for final locations.

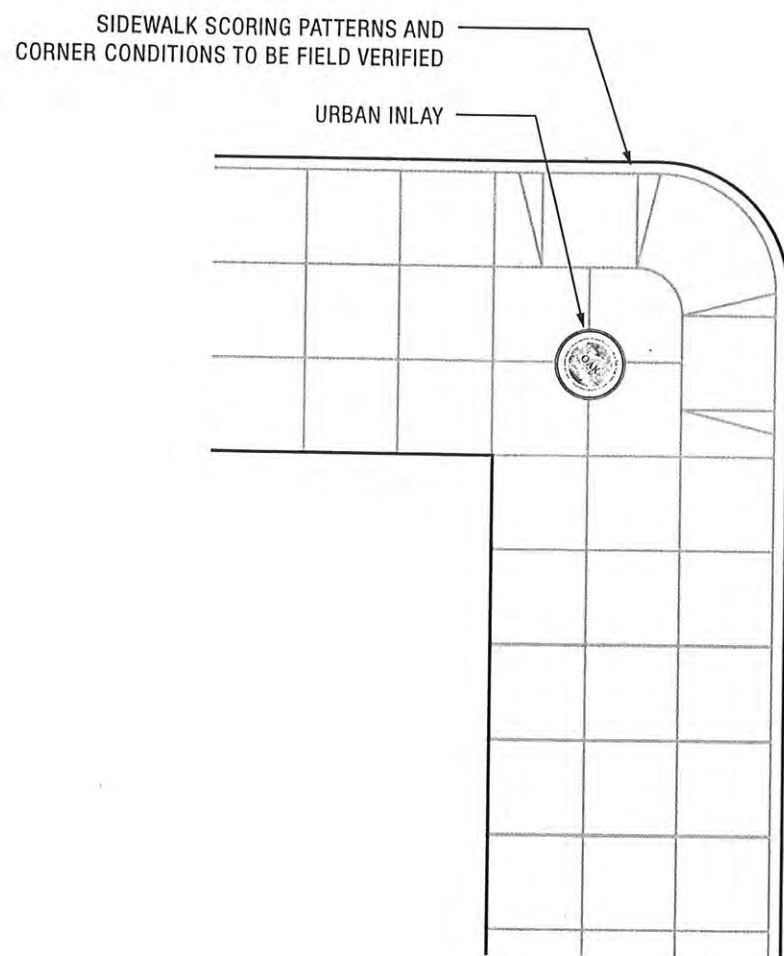
APPLICATION

Temporary/permanent banners that reinforce the graphic expression of the history, regionalism and community's future. Banners introduce a graphic language into the urban context, allow for seasonal and event driven change. A rhythm of the graphic thoughts and metaphorical imagery will guide the visitor/resident along their path.

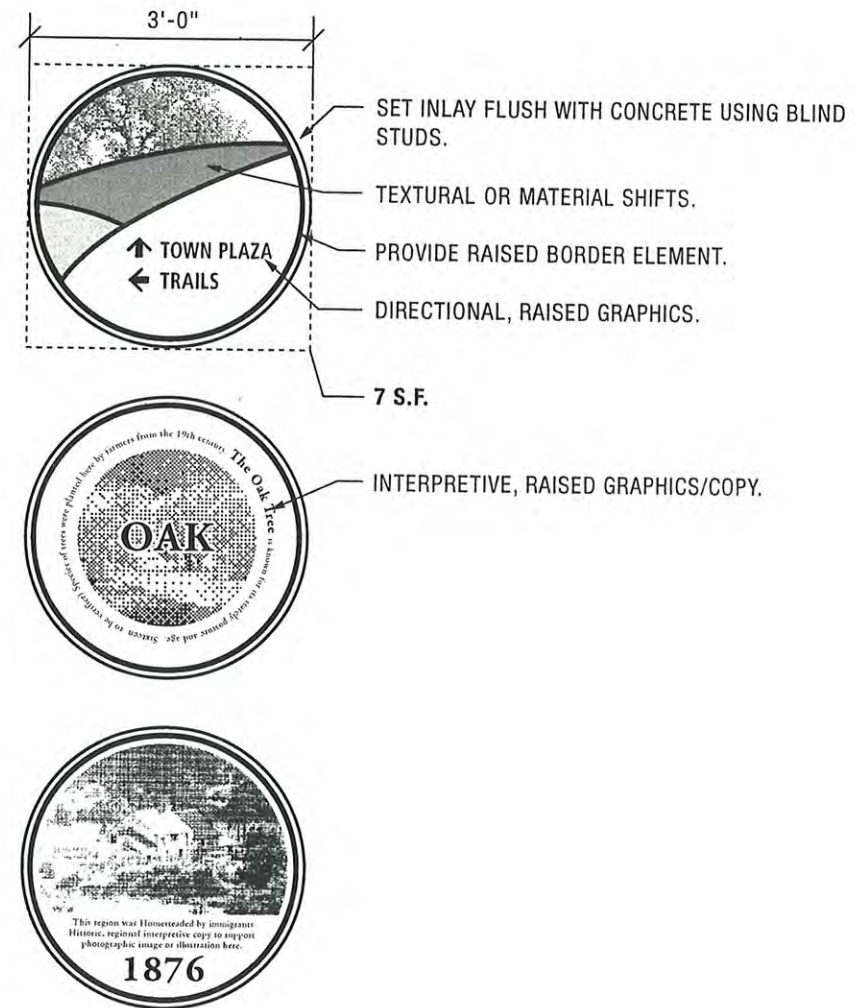
DESCRIPTION

Digital printed, double-sided, exterior grade banner fabric with ultra-violet inks attach to Villebois standard light poles with "KBW" fiberglass arms flex with windgusts and keep banners tensioned top and bottom. Maximum banner area of 13 square feet each.





1 PLAN / Urban Inlay
NTS



2 PLAN DETAIL / Urban Inlay (9 S.F.)
NTS

LOCATION

Inlaid into hardscape along major pedestrian pathways in the village center. Located in urban areas only. Can be isolated or occur as a series.

APPLICATION

To reinforce the village's identity and allow for a sense of discovery by residents and visitors. Ground mounted graphic inlays would not impair sight lines to retail and other urban fixtures. The inlays would communicate historical/regional and directional information.

DESCRIPTION

Cast relief, etched metal or sandblasted graphics in stone provide vandal resistant graphics. All materials are to have a natural finish. Multiple materials provide color and textural shifts. Final thickness is determined by selected materials i.e. bronze, stone, etc.



IJK
Rainwater Management Book
(No Amendments)

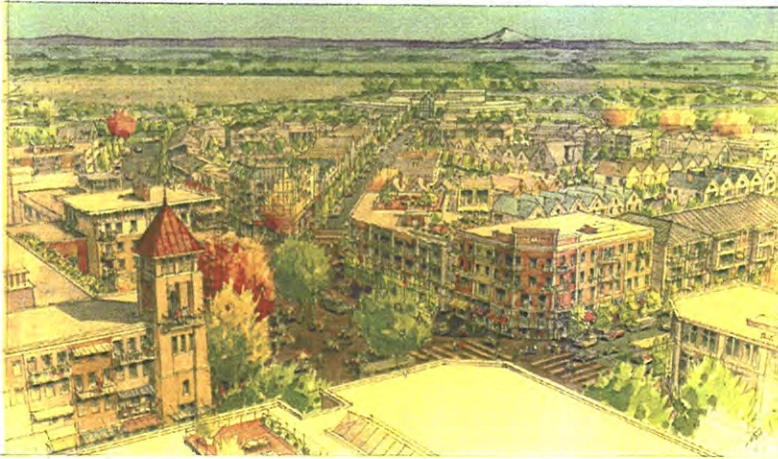


Villebois

VILLEBOIS
SPECIFIC AREA PLAN - NORTH
Vol. VI: RAINWATER MANAGEMENT
PROGRAM

Otak, Incorporated
Civil Engineers, Planners and Landscape Architects
Fletcher Farr Ayotte
Architects
Iverson Associates
Architecture

August 28, 2007



Villebois Village Center - Bird's Eye View

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CHAPTER 1 - INTRODUCTION

Rainwater Management Program:

A plan of action designed to benefit the local and regional watershed by mimicking natural drainage systems.

Why Manage Rainwater?

The *Rainwater Management Program* was developed to create systems within Villebois that closely resemble natural hydrological processes to better preserve the natural environment. Conventional standards for stormwater management require rain falling on impervious streets, buildings and parking areas be drained to catch basins and pipes, which then convey stormwater to a swale or pond at the low end of a project, before releasing stormwater into more pipes or directly into waterways. Often, this approach can overburden the receiving water bodies with large volumes of polluted water released during a short time period, causing erosion and damage to the aquatic environment and watershed.

On an undeveloped site, trees, plants and grasses intercept rainwater. Rainwater that doesn't stay on vegetation eventually returns to the atmosphere through evaporation or goes directly into the ground (See page 4, Landscape Hydrological Cycle). Once in the ground, water will be transpired by the vegetation through photosynthesis and will either seep slowly into aquifers deep below the surface or into the shallow water table that flows horizontally to stream banks.

The *Rainwater Management Program* is intended to manage rainwater through systems and programs that encourage the natural processes of evaporation, transpiration and infiltration. Infiltration allows rainwater to be filtered by soils and naturally regulates the rate water enters the stream system. Thus, the *Rainwater Management Program* will improve water quality and quantity control more than a conventional stormwater system would, by continuing to allow rainwater, vegetation and soils to perform together as they naturally do before development occurs.

The *Rainwater Management Program* is a significant component to the creation of a community that is environmentally, socially and economically sustainable. This Program will help foster connections between Village residents and their surrounding natural environment through the integration of urban form and natural site features. The *Rainwater Management Program* will provide diversity in the range of ways that it may be implemented and is designed to further the goals, policies and implementation measures of

the *Villebois Village Master Plan* and the code requirements of the Village zone.

How to Use this Book

The remainder of this book is divided into two Chapters. Chapter 2 outlines the goals, policies and implementation measures of the *Rainwater Management Program*. Chapter 3 defines the rainwater system that provides the physical framework of the *Rainwater Management Program*. Chapter 3 is broken into two sections. The first section explains the Rainwater Management Components purpose, followed by detailed descriptions of each Rainwater Management Component. The second section provides the reader with several completed sizing exercises that demonstrate how to size Rainwater System Components considering site characteristics, land use and mitigation requirements.



Bioretention Cell, OMSI, City of Portland

Photo: BES



Landscape Filter and Vegetated Swale
Portland, Oregon
Photo: BES



Rainwater "Detention Fountain"
Germany
Photo: DA



Vegetative Filter at BES Water Quality Lab, City of Portland

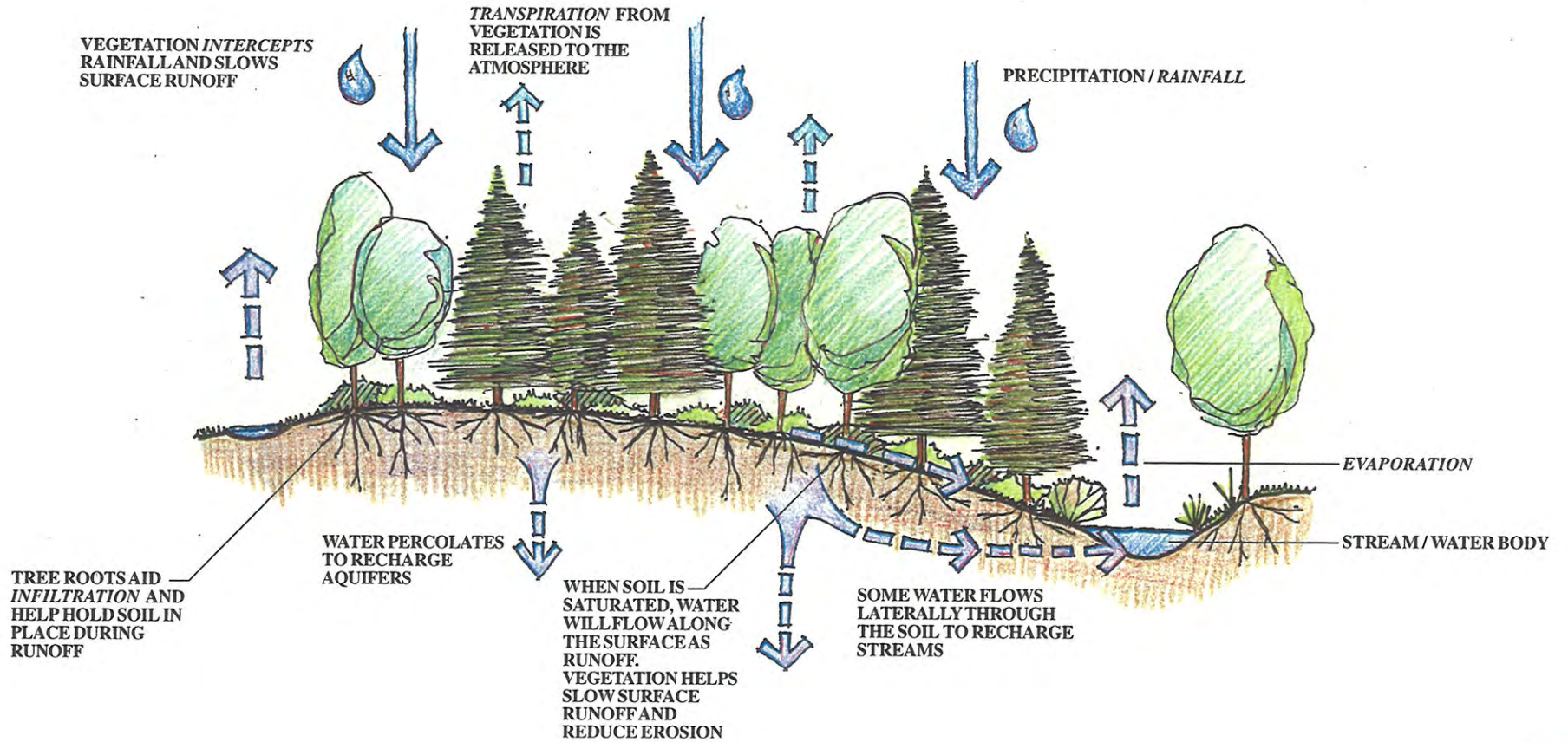
Photo: BES



Bioretention Pond, Washington Co. Oregon

Photo: AEI





CHAPTER 2 – RAINWATER MANAGEMENT PROGRAM

Rainwater Management:

A program that reduces increased runoff from impervious areas during a "drizzle" storm event.

Stormwater Management:

A component of the City of Wilsonville Stormwater Master Plan that manages the 2-100 year storm event.

Goal

To contribute to the building of a sustainable community that imitates the natural drainage cycle to the benefit of the local and regional watershed.

Policies

The *Rainwater Management Program* is designed to manage rainfall from the "drizzle" that is often experienced in the Portland Metro area at pre-development levels. The drizzle is defined as a storm event that precipitates a half-inch of rain (or less) in a 24-hour period. Storm events that exceed the Rainwater System capacity will be managed by the Stormwater System, which is the more conventional system of pipes, catch basins, area drains and detention ponds designed to meet the jurisdictional stormwater design requirements for the 2 to 100 year storm events. The rainwater system will be very active managing rainwater, as 90% of all storm events that pass through the area precipitate less than a half-inch in a 24-hour period.

The policies to help achieve the goal are:

1. The Rainwater System shall model natural drainage processes and strive to minimize the development impact on the hydrological cycle in order to achieve the following.
 - a. Increase the duration rainwater spends on site;
 - b. Improve water quality by increasing contact between rainwater and vegetation/soils; and
 - c. Uniformly disperse runoff throughout the site in small, integrated stormwater controls by using Rainwater Management Components to create multifunctional landscapes.
2. The impact of development on the natural hydrological cycle shall be mitigated by following the *Six Basic Hydrological Techniques* (Prince George's County Maryland):
 - a. Reduce impervious surfaces;
 - b. Disconnect impervious surfaces;

- c. Preserve and protect environmental and existing features;
- d. Maximize runoff time of concentration;
- e. Mitigate impervious areas; and
- f. Locate impervious areas on poor soil types.

3. Rainwater Management shall complement the unique characteristics of each sub-watershed to the greatest extent possible.
4. Landscape areas shall be utilized to manage runoff from impervious areas by maximizing natural processes that increase evaporation, by ponding water in small shallow pools, and use amended soils and vegetation to increase transpiration and improve infiltration.
5. Rainwater Management shall be used to help attenuate the flow of runoff, reduce runoff volume, remove pollution and provide for adequate conveyance for the design storm.
6. Rainwater Management shall be integrated into public areas (i.e., parks and open space areas, public street rights-of-way) to achieve a "visible" system for managing rainwater.
7. Rainwater Management shall be used in areas that will not compromise the health, safety and welfare of the public.
8. A range of choices and opportunities shall provide flexibility in the tools and techniques used to implement the *Rainwater Management Program*.
9. An education program shall be developed to educate Village residents, project builders and maintenance personnel about the Rainwater System, to promote Villebois' goals of environmental stewardship and sustainability, and ensure long-term success of the *Rainwater Management Program*.
10. Rainwater Management shall be designed to provide water quality and quantity control by maximizing the natural hydrological process.

Implementation Measures

Part of the Preliminary Development Plan submittal requires that all Rainwater Management Plans comply with the following Implementation Measures:

1. Manage the 1/2-inch, 24-hour rainfall event at pre-development levels.

2. Mitigate impervious area from private lots on either private or public property.
3. Mitigate impervious area from all public areas within public areas (i.e., parks and open space areas, public street rights-of-way).
4. Removal of 70% of Total Suspended Solids (TSS) for the 1/2 inch, 24-hour storm event for all development areas shall be consistent with or exceed Federal or State standards.
5. Removal of 65% of Phosphorous for the 1/4 inch, 24-hour storm event for all development areas shall be consistent with or exceed Federal or State standards.
6. Require addition of compost-amended topsoil in all areas to be landscaped to help detain runoff, reduce irrigation and fertilizer needs, and create a sustainable, low maintenance landscape.
7. Private lots to receive 4" of compost-amended topsoil, this shall be considered a Best Management Practice, satisfying Rainwater Management Program requirements for private lots.
8. Preliminary Development Plans and Final Development Plans shall include a Rainwater Management Plan demonstrating compliance with the appropriate Rainwater Management Program. The Development Review Board shall approve the Rainwater Management Plan.
9. A planting plan, showing proposed plant size, species (species to be selected from Plant List in this manual or the Community Elements Plan) and spacing for each Rainwater Management Component, shall be submitted for approval as part of the required Rainwater Management Plan submitted with the Preliminary Development Plan.
10. Education and funding mechanism (*Insert*)
11. Maintenance Program (*Insert*)

CHAPTER 3- RAINWATER MANAGEMENT COMPONENTS

The Rainwater Management Components are the physical framework of the Rainwater Management Program. Selecting and sizing the appropriate Rainwater Management Components using the Sizing Table in this manual will implement the goals and policies of this program. The first section of this chapter will describe in detail each Rainwater Management Component. The second section will describe the process of selecting and sizing from the thirteen Rainwater Management Components and includes the Sizing Table form used for sizing Rainwater Management Components. Each RMC is assigned a sizing factor based on the components ability to mitigate runoff.

“The magnitude of hydrological changes (increase in volume, frequency, and rate of discharge) are amplified as natural storage is lost, the amount of impervious surface is increased, the time water spends on site is decreased, and the degree of hydraulic connection is increased” - Low Impact Development Design Strategies – An Integrated Design Approach

Rainwater System

The *Rainwater System* is a combination of using the policy measures during the design processes and choosing the appropriate Rainwater Management Component(s) to mitigate the impervious areas created by site development. The Rainwater Management Components replicate the freely available processes that occur in a natural landscape with trees, shrubs, and groundcover that has undisturbed soils such as a forested upland. When rain falls on such a landscape several processes occur (See page 4, Landscape Hydrological Cycle):

First, leaves and branches intercept rainfall. Studies have shown that evergreen trees such as Douglas Firs, can intercept up to 50% of a half-inch rainfall event. As the rain makes its way to the soil, it may pool in small depressions and soak into the ground where roots help aid in further infiltration and also cycle (transpire) some of the water up the roots and out to the leaves. Some rainfall will also evaporate from whatever surface it falls on. Once the vegetation and soil cannot retain more rainfall, the water slowly finds its way to the ground water where it will seep into the aquifers deep below the surface or move into a shallow water table and flow underground to a stream or spring or flow over the surface. Rainwater Management Components can replicate this natural hydrological control process.

It is envisioned that many landscape areas such as parks, landscape medians, gardens, commercial landscapes, parking islands and even rooftops will be used to manage rainfall by incorporating the *Six Basic Hydrological Techniques* and Rainwater Management Components into their design. These landscapes will

be truly multifunctional, serving their original design intent while providing hydrologic control from runoff generated by impervious surfaces.

Amended soils are a significant part of the Rainwater Management Component. Almost every Rainwater Management Component requires various types of soil amendments. Composted-amended soil is required in all landscape areas for all land use types. These soils will increase the developed site’s ability to retain runoff and create a soil profile that is healthier, reducing the need for fertilizers and herbicides. Protected open space (SROZ) shall not receive amended soils. No grading or filling is allowed within the SROZ. No Rainwater Management Component or amended soil shall be placed within the dripline or root zone of existing trees unless approved by an arborist.

By using Rainwater Management Components, Villebois will create an environment designed to respond to and benefit from rainfall and waters natural movement through the land, ultimately protecting the surrounding streams and watershed from added pollution and runoff due to site development.

The subsequent descriptions of the Rainwater Management Components are design guidelines for Villebois’ Rainwater Program. Final Rainwater Management Component selection and design shall be reviewed and approved by a registered Civil Engineer as part of the Rainwater Management Plan prepared with each Preliminary Development Plan and Final Development Plan.



Detention Pool and Bio-swale in Park, Germany
Photo: DA



Permeable Pavers and Bioretention Cell Photo: DA Germany



Bioretention Cell Seattle, Washington

Photo: Seattle PUD



1. BIORETENTION

Concept

Bioretention is a water quality and quantity Rainwater Management Component that mimics a natural upland system of detaining runoff in the soil and using biological, chemical and physical properties of plants and microbes from soils to remove pollutants from stormwater runoff. This concept is also inherent in other Rainwater Components in this document that have plants and soil as primary components. Plants help store water to infiltrate and transpire runoff.

Runoff to the bioretention facility should be pretreated, removing sediment by filtering runoff through (sheet-flow) a *Landscape Filter*, pond, *Grassy Swale* or approved mechanical devices to settle sediments prior to conveying runoff to the facility. If space is limited, energy dissipators such as rock or stone may be used at point sources to reduce velocity and spread flow. Runoff is filtered through an engineered soil medium of 50% sand, 20% composted leaves, 30% topsoil. When the medium is saturated, water will pond on the surface. The facility soil medium may vary in depth from 30" to several feet. Poor native soil infiltration requires an underdrain to convey water to the next Rainwater Management Component or storm drain system.

Benefits

- Will work with point and non-point sources
- Flow Attenuation:* Secondary Benefit
- Runoff Volume Reduction:* Secondary Benefit
- Pollution Prevention:* N/A
- Pollution Removal:* Primary Benefit

Advantages

1. Flexible site integration, adds diversity to the landscape in a development
2. Creates a unique sense of place
3. Promotes sustainability
4. Creates habitat and improves air and water quality
5. Reduces thermal pollution
6. Works in conventional landscape areas

Limitations

1. Need available area
2. Not recommended for steep slopes

Design Criteria

1. Pretreatment for sedimentation control
2. Poned Area maximum recommended depth 6" in bioretention cells and up to 4' in bioretention ponds

3. Soil Medium min. depth 2.5' max. 4' without shoring
4. Cell length to be twice the width when possible for sheet-flow
5. Graded areas immediate to facility to be no greater than 3:1
6. Uniform inflow
7. Safe bypass path or overflow
8. Underdrain necessary where soils drain less than 0.5"/hr.
9. Check dams may be used for ponding
10. Cell needs to drain within 4-6 hours after storm; may stand longer during winter and spring
11. Install energy dissipators for point discharge and other areas where appropriate
12. Size underdrain to ensure proper drainage
13. Planting plan - suitable native and non-native plants in massings
14. Maximum velocity 2.5 feet per second
15. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. Highly adaptable to residential, commercial and industrial areas. Limited by steep slopes and areas with heavy foot traffic.

Components

Nine Major Components:

1. *Pretreatment Area* - Removes sediment
2. *Flow Entrance* - Via sheet flow through curb cuts or reduce flow at main entry
3. *Ponding Area* - Provides storage and evaporation
4. *Plant Material* - Bind nutrients, evapotranspiration, interception of rainwater, pathways for infiltration
5. *Organic layer* (Compost) - Bonding of heavy metals, protects bed and microorganisms. To contain organic matter 10% dry weight
6. *Soil Medium* - Plant growth, microbes break down organic compounds, pollution filter. 50% sand, 20% composted leaves, 30% topsoil.
7. *Gravel diaphragm* - Filter to separate soil from underdrain medium
8. *Underdrain and Outlet* - Alleviates drainage/flooding problems, establish anaerobic zone. Should discharge to common space, stream valley, drainage swale, or storm drain system.
9. *Surface Overflow* - Connect to overflow system



Rainwater Bioretention Cell, OMSI, Portland, Oregon
Photo: BES



Rainwater Bioretention Cell, Maryland
Photo: PGS



Rainwater Bioretention Cell, Street Edge Alternative, Seattle, Washington
Photo: AEJ



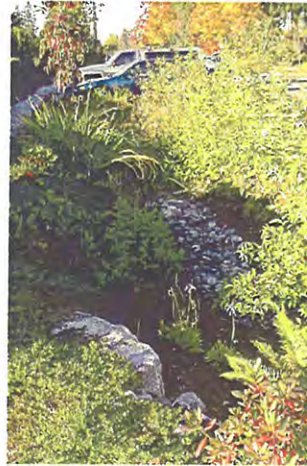
Villebois Rainwater Management Program

RAINWATER MANAGEMENT COMPONENT NO. 1 - BIORETENTION CELL

Plants - See Plant List

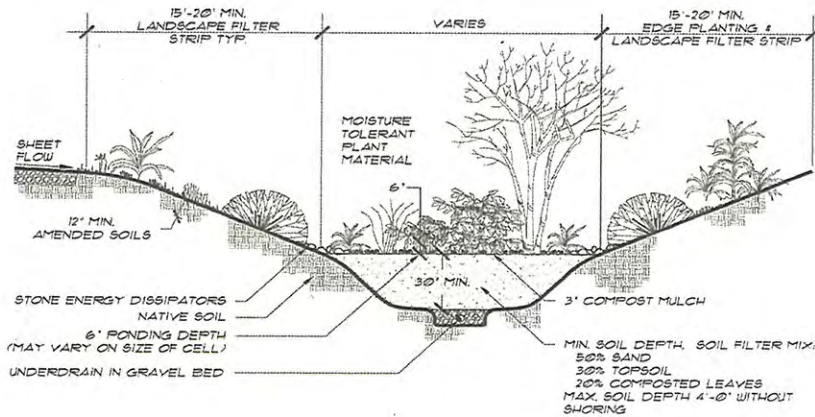
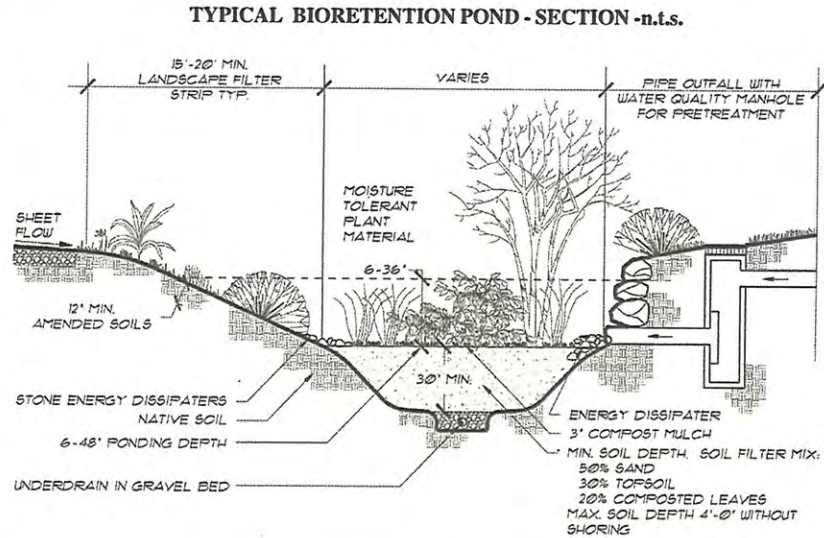
Maintenance

1. Low maintenance. Simple maintenance requirements for homeowners.
2. Visual inspection and weeding monthly
3. Check Ph balance once or twice a year; balance should be between 6.5 and 7.5
4. Re-mulch once a year with 3" of composted mulch
5. Replace and prune plants as necessary
6. No fertilizer should be applied to cell/pond or area that drains to it



Rainwater Bioretention Cell.
StreetEdge Alternative, Seattle,
Washington

Photo:AEI



TYPICAL BIORETENTION CELL - SECTION -n.t.s.



Rainwater Bioretention Cell.
Germany

Photo:DA



Villebois

2. LANDSCAPE FILTERS

Concept

Landscape Filters treat stormwater by slowing runoff (sheet-flow) and trapping sediment and pollution in soil and vegetation. Typically, native grasses that are allowed to mature provide more effective treatment than turf. Turf grass should be kept at a minimum height of 4" to maximize runoff contact. Trees and shrubs are typically incorporated into the landscape filter.

Landscape filters serve as excellent pretreatment for other Rainwater Management Components. Because it is important to maintain sheet flow, level spreaders may be necessary on some sites. Landscape filters should be 10' wide minimum.

Several Landscape Filters can be combined, incorporating several plant communities from meadow to forest. Conventional landscape areas are often places where Landscape Filter concepts can be incorporated. It is recommended projects take advantage of natural areas, as those areas may easily function as filters.

Benefits

Will work with non-point sources and point sources if flow-spreader is used

- Flow Attenuation:* Secondary Benefit
- Runoff Volume Reduction:* Secondary Benefit
- Pollution Prevention:* N/A
- Pollution Removal:* Secondary Benefit

Advantages

1. Traps sediments and pollutants
2. Works well in residential and park areas
3. May work as buffers and screens
4. Control peak flow rates
5. May function as pretreatment area
6. Usually already part of landscape
7. Works with all soil types
8. Habitat area

Limitations

1. Not good where there is excessive slope
2. Need adequate land
3. Need to maintain sheet flow
4. Need flow spreader with point sources

Design Criteria

1. 10' wide minimum
2. Length of strip to be adjacent to impervious area
3. Slopes to be 2 to 8%.
4. Top and toe to be flat as possible
5. Gravel trench between impervious and vegetative area may act as level spreader
6. Avoid concentrated flows
7. May incorporate berm at toe of slope to provide water quality treatment volumes by ponding runoff in shallow pools.
8. Bypass system may be necessary for larger storm to prevent damage to filter strip
9. Check dams made of rock, concrete, or brick at 5' intervals are required to slow flow
10. Do not place component within dripline or root zone of existing trees unless approved by an arborist
11. Positive drainage away from any structures shall be maintained

Locations

1. Roadside
2. Residential areas
3. Parks / Open Space
4. Commercial and Institutional

Components

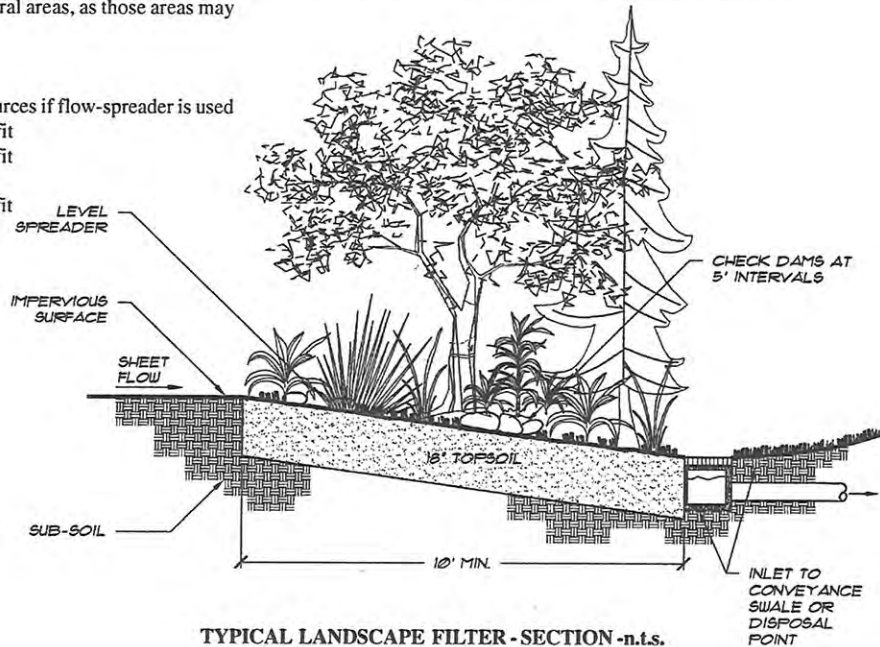
Four Major Components:

1. Level Spreader – 12" wide 24" deep gravel trench as needed
2. Uniform grades
3. 18" topsoil
4. Vegetation

Plants - See Plant List

Maintenance

1. Need scheduled maintenance for plants
2. May require reseeding as sediment accumulates
3. Mowing of grass dependent on grass mix (Native grasses recommended)
4. No fertilizer allowed
5. Annually re-mulch with 3" of composted mulch



TYPICAL LANDSCAPE FILTER - SECTION - n.t.s.



Landscape Filter
Portland, Oregon

Photo: BES



Landscape Filter
Portland, Oregon

Photo: AEI



3. RAINWATER GARDENS

Concept

Rainwater gardens are small vegetated holding ponds with shallow depressions of 6 to 18", often used for on-lot infiltration and detention and are good alternatives to *Bioretention Cells* for sites with steep slopes. They may also be used as temporary storage areas that allow for evaporation. Water usually enters via a *Landscape Filter* and settles into a planted shallow ponding area. Plants help the stored water to infiltrate and transpire runoff.

Rainwater gardens may also allow water to seep through a porous rock berm or check dam, attenuating peak runoff flows. Rainwater Gardens may be combined and tiered on steep slopes.

Benefits

Will work with point and non-point sources

<i>Flow Attenuation:</i>	Secondary Benefit
<i>Runoff Volume Reduction:</i>	Secondary Benefit
<i>Pollution Prevention:</i>	N/A
<i>Pollution Removal:</i>	Primary Benefit

Advantages

1. Delay runoff
2. Volume reduction
3. Habitat area

Limitations

1. Require adequate space
2. Ponding depth 18" max.

Design Criteria

1. Ponding Area – shallow depression of 6 to 18" maximum. Do not pond within the dripline of existing trees
2. Locate 10' from building foundations
3. Proper plant selection
4. Compacted earth to be ripped and amended with 18" of composted topsoil
5. Annually re-mulch with 3" of composted mulch
6. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. Residential areas
2. Roadway shoulders
3. Parking lot planter islands
4. Open space areas, Parks
5. Commercial / Industrial areas
6. Landscape Medians
7. Steep slopes

Components

Four Major Components:

1. Vegetative Filter
2. Ponding Area
3. Rock wall or Berm (either may be built to weep)
4. 12-18" of amended soil

Plants - See Plant List

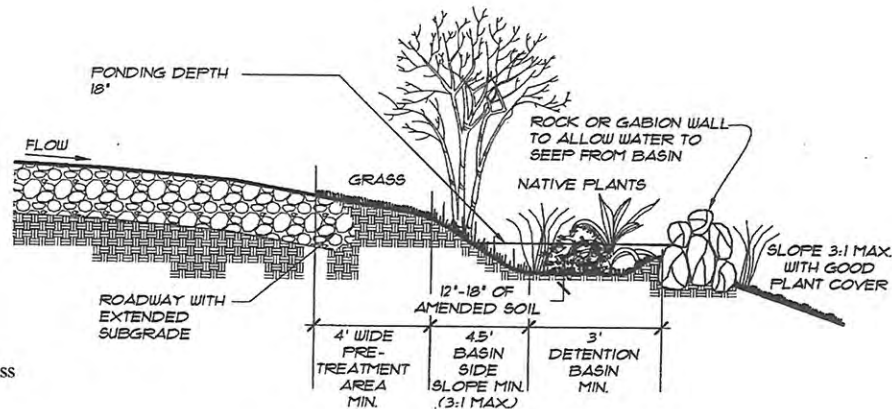
Maintenance

1. Regular plant/garden maintenance



Rainwater Garden
Portland, Oregon

Photo: BES



TYPICAL RAINWATER GARDEN - SECTION -n.t.s.



Rainwater Garden
Portland, Oregon

Photo: BES

4. RAINWATER PLANTER BOX

Concept

The *Rainwater Planter Box* detains and filters rainwater, providing flow and pollution control. The system is appropriate in high density areas and can be constructed above or below ground and next to buildings. Excellent component for treating runoff from roofs. A pretreatment basin is necessary for runoff from areas that have suspended sediment.

This system is similar to a bioretention cell, though usually smaller and the boxes are often made of concrete or other impervious material.

Benefits

Will work with point and non-point sources

Flow Attenuation: Primary Benefit

Runoff Volume Reduction: Secondary Benefit

Pollution Prevention: N/A

Pollution Removal: Primary Benefit

Advantages

1. Delay runoff
2. Volume reduction
3. Used in small drainages <10 acres
4. Adaptable to most sites at or above grade
5. Take little space
6. Work on steep sites
7. Excellent Total Suspended Solids removal
8. No minimum shape or length
9. Good for high density areas and adjacent to buildings

Limitations

1. Requires pretreatment unless runoff is from a roof
2. One of the more expensive components

Design Criteria

1. Pretreatment area as necessary
2. Drawdown time of 24 hours
3. Need 12" freeboard
4. Overflow control
5. Growing medium
6. Gravel bed
7. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. High density areas – around building foundations
2. Impervious runoff – parking lots
3. Parking lot planter islands
4. Courtyards, parks, plazas

Components

Eight Major Components:

1. Pretreatment area
2. Inlet structure (down spout) or sheet flow
3. Treatment Box – concrete or impermeable liner 30 mils
4. Filter Medium – 50% sand, 20% composted leaves, 30% topsoil at 18 to 24"
5. Underdrain - perforated pipe
6. Overflow Pipe or weep holes
7. Plantings
8. Collector manifold and lateral underdrains (for large filters)

Plants - See Plant List

Maintenance

1. Inspect every 6 months
2. Sedimentation removal as necessary
3. Trash and debris removal
4. Plant maintenance



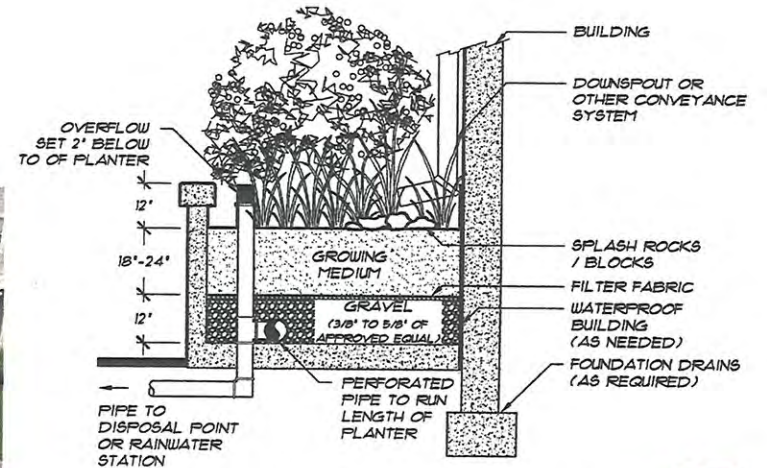
Stormwater Planter
Portland, Oregon

Photo: BES



Stormwater Planter / Infiltration Garden
Portland, Oregon

Photo: BES



TYPICAL RAINWATER PLANTER BOX SECTION

-n.t.s.



5. GREENROOFS

Concept

Green roofs (also known as eco-roofs) provide stormwater attenuation and volume reduction, by capturing rainwater and processing it through several layers that mimic the hydrological processes found in nature. Two green roof categories exist: intensive (complicated and heavier) and extensive (simple and lighter).

The intensive roof is often associated with roof gardens where trees, shrubs and other vegetation are accommodated by various soil depths, which require structural reinforcement, drainage systems, and waterproofing material. This roof also may accommodate human activity.

Extensive roofs consist of thin layers of vegetation (usually succulents; sedums), soil, and the required drainage systems and waterproofing material. Extensive green roofs may be retrofitted to existing buildings without structural improvements to the roof.

Green roofs are very effective in capturing and controlling one-year storms thereby reducing cumulative runoff by 20-100%. In summer months, greenroofs retain most of their runoff.

Benefits

- Flow Attenuation:* Primary Benefit
- Runoff Volume Reduction:* Secondary Benefit
- Pollution Prevention:* N/A
- Pollution Removal:* Primary Benefit

Advantages

1. Reduce and delay runoff via detention and evapotranspiration
2. Protect roof's waterproof membrane from UV light (increase life span up to 2 times that of conventional roof)
3. Reduce heat island effect
4. Absorb sound
5. Reduce impervious surface
6. Provides aesthetic and seasonal benefits
7. Filter and bind air pollutants
8. Attractive
9. Improve CO2 levels
10. Utilizes what is conventionally a dead zone and large contributor to storm runoff
11. Insulate buildings in summer and winter

Limitations

1. More expensive than conventional roofs
2. Special erosion control measures for sloped roofs
3. Requires some maintenance
4. Maximum roof slope 30 degrees
5. Minimum roof slope 1%

Design Criteria

1. Consider plant exposure and roof orientation
2. Waterproofing – EPDM, asphalt, torch down
3. Geosynthetic filter – filter mat
4. Moisture Retention – moisture retention system recommended for steep roofs
5. Drainage layer – allows for water to flow into next system
6. Soil –90% mineral / 10% organic material pH balanced for roofs with succulents (Sedums)
7. Plants – Sedums, wildflowers, and grasses
8. Weight-Varies w/ soil mix. Approximately 5 lbs.per S.F. when dry with 3" of soil
9. Weight-Varies w/ soil mix. Approximately 17 lbs.per S.F. when wet with 3" of soil
10. Saturated infiltration capacity is approx. 3.5" per hour
11. Negligible runoff for storm events with <0.6" of rainfall in a 24-hour period when roof is dry prior to storm event
12. Maximum roof slope 30 degrees
13. Minimum roof slope 1%
14. Structural consultation required for existing building retrofits

Locations

1. Roofs, from residential to industrial

Components

Eight Major Components:

1. Vegetation
2. Engineered Soil 2-4"
3. Geosynthetic filter (Optional)
4. Drainage System
5. Moisture retention (Optional , for sloped roofs.)
6. Root Barrier (Optional)
7. Waterproof membrane
8. Roof Surface/Structure

Maintenance

Some weeding may be necessary the first two years
Organic fertilizer may be required every two years



Greenroof
Germany

Photo: BES



Greenroof
Malmo, Sweden

Photo: AEI



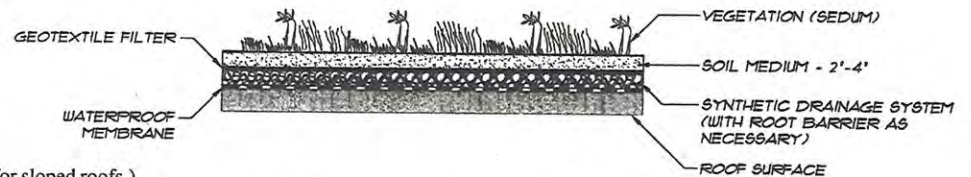
Greenroof
Sweden

Photo:
VegTech



Greenroof
Portland, Oregon

Photo: BES



TYPICAL EXTENSIVE GREENROOF - SECTION -n.t.s.



6 and 7. GRASSY SWALE/ VEGETATIVE SWALE

Concept

Grassy and vegetated swales are open channels that are a primary conveyance component of the Rainwater System that also treat and attenuate runoff. The bottom of the swales shall be excavated and filled with 18” of compost amended topsoil. Runoff may be held and treated in pools created by check dams. Swales may also be hybrids of a bioretention cell and swale, such as in landscape medians in parking lots.

Grassy swales can act as lawn or meadow extensions in natural and residential areas and are easily incorporated into roadway systems and landscapes.

Benefits

Will work with point and non-point sources

Flow Attenuation: Secondary Benefit

Runoff Volume Reduction: Little/None

Pollution Prevention: N/A

Pollution Removal: Primary Benefit

Advantages

1. Traps sediments and pollutants
2. Peak discharge control
3. Good for road and highway runoff
4. Native grasses promote low maintenance
5. Flow resistance
6. Works with any soil type
7. Often part of a rainwater system linking other Rainwater Management Components

Limitations

1. Slope 0.5-5% w/out check dams
2. Slope 5-9% w/ check dams

Design Criteria

1. Recommend forebay/micropool to settle suspended solids. Checkdams should be built to prevent scouring at slopes > 3%
2. Checkdams to be concrete, brick or stone
3. Amended soils to be 18” sand/soil mixture
4. Install underdrain beneath soil layer, as needed
5. Native grass species to be used for grassy swales
6. Shape Trapezoidal or parabolic

7. Slopes

Side slope to be 2.5:1 maximum, or flatter
 longitudinal slopes: 0.5-5% without checkdams
 5-9% w/ check dams

8. For water quality, swales need to maintain runoff for 9 minutes of residence time
9. Storage depth 18” max.
10. Recommended max. velocity < 0.9 feet per second
11. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. Roadside
2. Residential and Commercial Areas
3. Parks / Open Space

Components

Four Major Components:

1. Checkdam(s) for slopes greater than 5% – Impervious material 4-6” high and width of swale
2. Liner required within 10’ of building
3. 18” Topsoil
4. Vegetation- Native trees, shrubs, and grasses

Plants - See Plant List

Maintenance

1. Need scheduled maintenance
2. Remove trash and debris.
3. Mowing (Grassy Swales Only)
 Turf grass needs to remain at 4” high min.
 Mow native grasses once a year after grass has reseeded



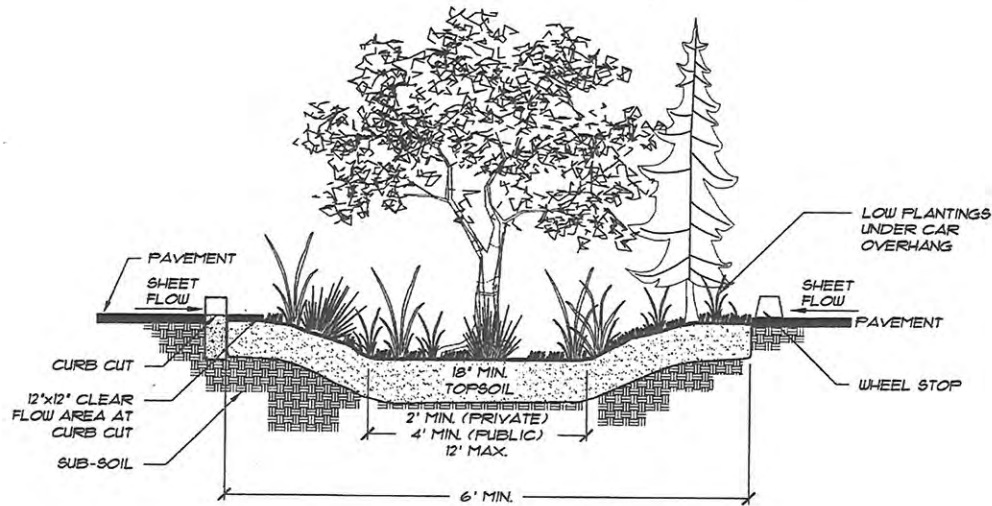
*Vegetative Swale
 Washington Co., Oregon
 Photo: AEI*



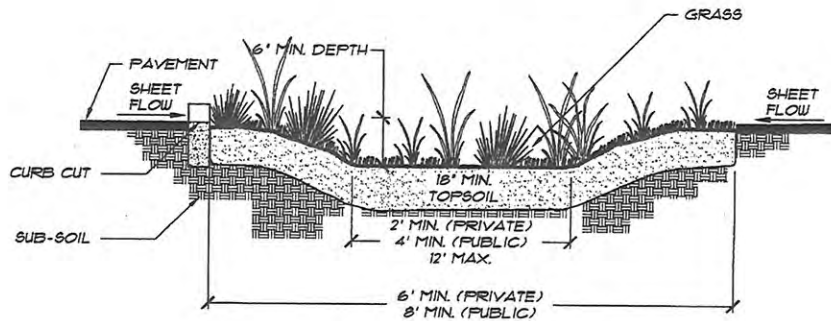
*Vegetative Swale
 Portland, Oregon*

Photo: BES





TYPICAL VEGETATIVE SWALE - SECTION -n.t.s.



TYPICAL GRASSY SWALE - SECTION -n.t.s.



Vegetative Swale w/ Forebay
Washington Co., Oregon
Photo: AEI



Vegetative Swale with Check Dams
Washington Co., Oregon
Photo: AEI



8 and 9. DECIDUOUS AND EVERGREEN TREES / REFORESTATION

Concept

Planting (native) trees and shrubs increases infiltration and provides hydrological benefits such as evapotranspiration, transpiration, interception and improved infiltration. Conifers may hold <0.5-inches of rainfall in the tree canopy. Compared to conventional landscapes, pasturelands, grasslands, and woods are reported to manage runoff the best.

Trees also provide shade, cooling runoff and limit heat gain from impervious surfaces. As the urban forest matures, the rainwater management system functions will improve and capacity will increase. The following apply to trees that wish to be used for mitigation purposes according to the Sizing Table.

Benefits

<i>Flow Attenuation:</i>	Primary Benefit
<i>Runoff Volume Reduction:</i>	Primary Benefit
<i>Pollution Prevention:</i>	N/A
<i>Pollution Removal:</i>	Primary Benefit

Advantages

1. Intercepts precipitation
2. Evapotranspiration
3. Promotes infiltration
4. Improves topsoil
5. Provides shade
6. Improves Air and Water Quality

Limitations

1. Available land

Design Criteria

1. Deciduous and Evergreen trees need to be planted no closer than 5' to impervious areas and no further than 10' from impervious areas to qualify as a Rainwater Management Component mitigation measure
2. All trees to be protected for life of development
3. When trees die, they shall be replaced within 6 months.
4. Deciduous Trees to be a min. size of 1.5-inch caliper at Diameter at Breast Height (DBH) for private lots
5. In commercial and park areas, trees to be 2-inch caliper at DBH
6. In restoration areas, trees to be 24-36" tall and protected with browsing protection to prevent disturbance from animals and humans as necessary during establishment period

7. Evergreen trees to be a min. of 6-feet tall for private and public areas
8. Existing trees > 6-inch caliper at DBH may receive credit based on half of S.F. of existing tree canopy
9. Tree Types: See Plant List

Locations

1. Open space area
2. Riparian zones
3. Rainwater Management Components
4. Parks
5. Private Lots
6. Rights-of-way

Components

Three Major Components:

1. Trees
2. Tree protection
3. Soil

Maintenance

1. General weeding and clearing first 3 to 5 years



*Reforestation
Tumwater, Washington*

Photo: City of Tumwater



*Existing Urban Forest
Portland, Oregon*

Photo: BES



10. PERMEABLE PAVERS / TURF PAVERS

Concept

Permeable and turf pavers have openings for gravel or grass that allow stormwater to infiltrate thereby reducing runoff. Paving options vary from plastic modules, pre-cast concrete, to poured-in-place concrete. Pavers support vehicle and pedestrian traffic, though areas with heavy use may not allow grass to grow well.

Turf pavers may be filled with gravel or soil and/or seeded with a grass mix.

Benefits

Will work with non-point sources

- Flow Attenuation: Secondary Benefit
- Runoff Volume Reduction: Primary Benefit
- Pollution Prevention: N/A
- Pollution Removal: N/A

Advantages

1. Delay runoff
2. Possible volume reduction
3. Can be combined with solid pavers
4. May detain runoff in engineered subgrade

Limitations

1. Turf pavers not recommended for high-traffic areas
2. Soils will limit infiltration

Design Criteria

1. Poor draining subsoils may require slit drains; perforated pipe spaced 3'-5' apart (manifolds)
2. Aggregate base will vary depending on sub-grade from 8-24"
3. Geotextile - Filter Fabric
4. Subgrade can be designed to detain runoff, depth varies based on surface area and desired detention capacity
5. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. Overflow parking areas
2. Roadside right-of-ways
3. Emergency and delivery access lanes
4. Driveways
5. Alleys

Components

Five Major Components:

1. Pavers
2. Subgrade
3. Drainage pipe
4. Soil mix or gravel
5. Seed

Maintenance

1. General mowing varies with seed mix from bi-monthly to bi-annually
2. Seeding and gravel replacement for pavers varies



Turf Pavers
Portland, Oregon

Photo: BES



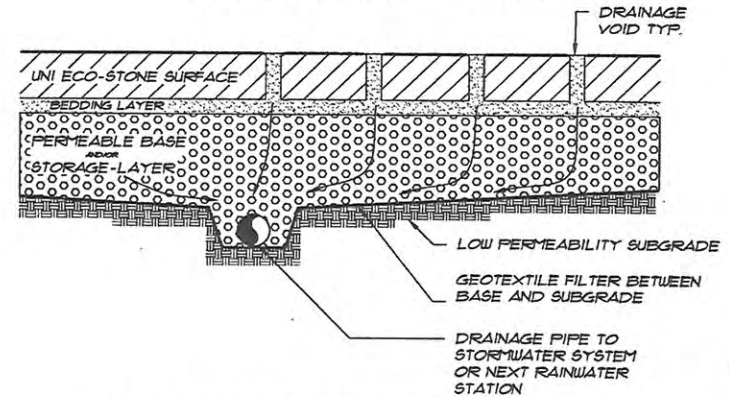
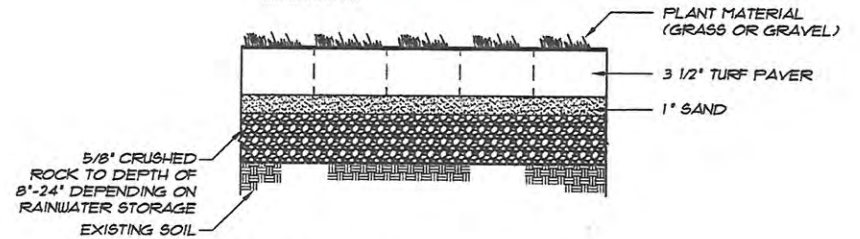
Permeable Pavers
USA

Photo: BES



Permeable Pavers
Malmo, Sweden

Photo: AEI



11. POROUS PAVEMENT

Concept

Porous concrete and asphalt reduce runoff, by allowing water to pass through small openings in the surface. Stormwater storage may take place in the sub-grade of either system.

Porous concrete has an average void space of 17-21% allowing rapid infiltration into the sub-grade.

Benefits

<i>Flow Attenuation:</i>	Primary Benefit
<i>Runoff Volume Reduction:</i>	N/A
<i>Pollution Prevention:</i>	N/A
<i>Pollution Removal:</i>	Secondary Benefit

Advantages

1. Runoff storage to reduce peak runoff rates
2. Filter pollutants
3. Decomposition of petrochemicals by anaerobic soils

Limitations

1. Monolithic porous pavement may under certain conditions tend to seal
2. Need good sub-grade and or underdrain
3. May require underdrain where infiltration is <0.5"

Design Criteria

1. Increase sub-grade for detention as needed
2. Do not allow runoff from adjacent areas
3. Max. slope 5%
4. Do not place component within dripline or root zone of existing trees unless approved by an arborist

Locations

1. Low traffic roads
2. Overflow parking areas
3. Walkways and paths
4. Pullouts
5. Driveways
6. Perimeter parking
7. Residential and access roads

Components

Four Major Components:

1. Concrete
2. Asphalt
3. Good sub-grade
4. Underdrain

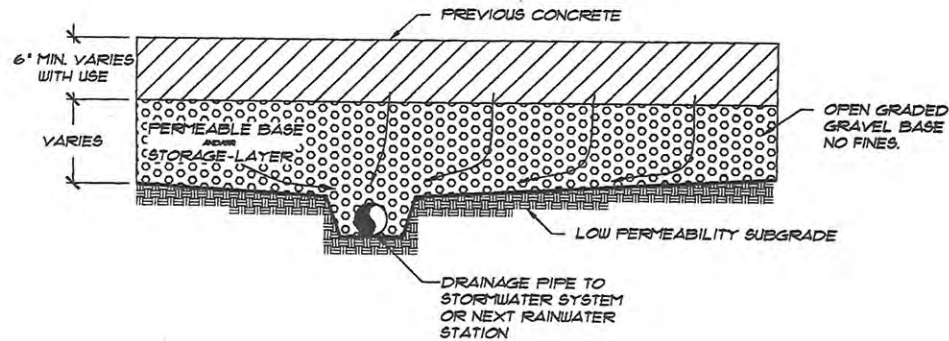
Maintenance

1. Remove organic litter to prevent porous areas from clogging
2. Bi-annually vacuum and pressure wash area to keep voids clear



Porous Concrete USA

Photo: BES



TYPICAL POROUS CONCRETE - SECTION - n.t.s.



12. SOIL AMENDMENTS

Concept

Compost-amended soil is a primary concept for almost all of the Rainwater Management Components, as amended soils or "Healthy Soils" improve the soil's ability to manage rainwater. A healthy soil environment has several important benefits, including rainwater storage, filtering sediments, and decomposition of pollutants by microorganisms.

Good soil conditions also limit the need for irrigation and fertilizers and provide optimal growing conditions for plants. These conditions thereby increase plants capacity for infiltration, rainfall interception and evapotranspiration.

Benefits

Will work with point and non-point sources

- Flow Attenuation:* Primary Benefit
- Runoff Volume Reduction:* Primary Benefit
- Pollution Prevention:* N/A
- Pollution Removal:* Primary Benefit

Advantages

1. Retains runoff
2. Improves water quality
3. Traps sediments and pollutants
4. Minimizes runoff and erosion
5. Provides healthy growing conditions for plants
6. Detains runoff
7. Improves environment for microorganisms
8. Reduces need for pesticides and fertilizers
9. Improves poor soil conditions

Limitations

1. Need to create amended soil
2. Soil amendments need to be specific to existing soil type
3. Amendment costs
4. Soils should not have excessive clay fines

Design Criteria

1. Retain as much undisturbed native topsoil as possible
2. In areas requiring grading, remove and stockpile top 8" of native soil in designated areas

3. Topsoil to be screened meeting the following sieve gradations;
 - 1/2" sieve, passing at 100%
 - 1/4" sieve, passing at 95-100%
 - #10 sieve, passing at 90-100%

4. Topsoil to be amended at 2 units topsoil to 1 unit Metro 'certified yard compost'. Compost-amended soil to be blended on site to maintain soil quality and consistency when possible
5. Final amended topsoil depth after settling to be 6" for plant beds and 6" for turf/lawn areas on all public property and 4" on private lots
6. Planting beds to be mulched with 3" of compost in addition to soil amendment
7. No point discharge is allowed. All point discharge needs to be directed through a flow spreader
8. Fertilizer to amended soil areas, if any, to be applied to lawn areas no more than once a year between September and November with a natural/synthetic blend
9. Avoid stratified layers. Subsoils should be scarified to at least 4 inches with first layer of topsoil to be incorporated into subsoil by tilling.
10. All landscape areas to receive amended soils to have positive drainage unless specified otherwise
11. Do not place amended soil within dripline or root zone of existing trees unless approved by an arborist
12. Protected open space (Significant Resource Overlay Zone) shall not receive amended soils.

Locations

All landscape areas where native soil has been stripped or disturbed shall receive amended soils. This includes open space areas, R.O.W., parking medians, commercial landscapes, private residential lots, and rainwater facilities. Outside dripline of existing trees.

Components

Two Major Components:

1. Existing Topsoil or Imported Topsoil
2. Compost

Maintenance

1. Soil should be inspected for debris and tested for pH balance
2. All areas to receive soil during construction to be protected from compaction and erosion
3. Debris from plant material should be left in place. This will break down and provide slow release nutrients limiting the need for fertilizers and pesticides
4. Use mulching mowers for lawn maintenance



*Rainwater Bio-retention Cell, with Amended Soils
Street Edge Alternative, Seattle, Washington*

Photo: AEI



*Bio-retention Cell with Amended Soils
Prince George's Sound, Maryland*

Photo: PGS



*Bio-retention Cell with Amended Soils
Prince George's Sound, Maryland
Photo: PGS*

13. INFILTRATION TRENCH

Concept

An infiltration trench is lined with filter fabric and filled with clean crushed rock to allow for storage of runoff and provide an opportunity for water to infiltrate the surrounding soils. The surface may be open or planted with grass. A longer and deeper trench provides greater runoff volume storage.

Benefits

Will work with point and non-point sources

- Flow Attenuation:* Primary Benefit
- Runoff Volume Reduction:* Secondary Benefit
- Pollution Prevention:* N/A
- Pollution Removal:* Secondary Benefit

Advantages

1. Retains runoff
2. Provides opportunity for infiltration
3. May be concealed underground
4. Detains runoff

Limitations

1. Not recommended for slopes steeper than 20%
2. Soil amendments need to be specific to existing soil type
3. Need adequate area
4. Deep trenches may need shoring
5. Need overflow control and connection to Stormwater System

Design Criteria

1. Trench shall be located no closer than 10' from a building
2. Drain material to be clean 1-2.5" stone or crushed rock
3. Topsoil to be 6" minimum. No topsoil required if receiving sheet flow from landscape filter.
4. Drain pipe to be 4" perforated pipe.
5. Mandatory overflow connection to Stormwater System
6. Trench to be lined with filter fabric prior to rock placement.
7. Pipe slope 1% minimum
8. Do not place component within dripline or root zone of existing trees unless approved by an arborist

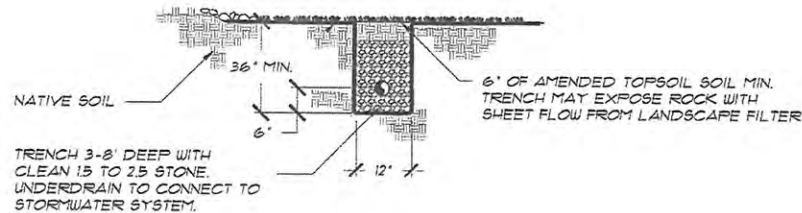
Locations

Ten feet minimum setback from buildings

Components

Major Components:

1. Existing Soil
2. Filter Fabric
3. Rock
4. Drain Pipe



INFILTRATION TRENCH - SECTION -n.t.s.

CISTERNS AND RAIN BARRELS

Note: Rainwater Barrels and Cisterns are currently not part of the Sizing Table as a Rainwater Management Component.

Concept

Rainwater Barrels and Cisterns attenuate stormwater runoff from rooftops by capturing rainwater in above or below ground storage systems. Rain barrels have an open valve that allows stored water to be released slowly and may be connected to other Rainwater Management Component

Cisterns usually store runoff for irrigation, and other gray water uses. Stored water should be protected from mosquitoes and debris.

Benefits

Will work with point sources

- Flow Attenuation: Primary Benefit
- Runoff Volume Reduction: Secondary Benefit
- Pollution Prevention: N/A
- Pollution Removal: N/A

Advantages

1. Delay runoff
2. Possible volume reduction with water use
3. Mitigate peak flow from rooftop
4. Water re-use

Limitations

1. Design to prevent mosquitoes
2. Recommend min. capacity of 1000 gallons for cisterns
3. Available space

Design Criteria

1. Incorporate into architecture
2. Prevent child access
3. Design to prevent clogging
4. Select next Rainwater Management Component

Locations

1. Above ground or below adjacent to building

Components

Four Major Components:

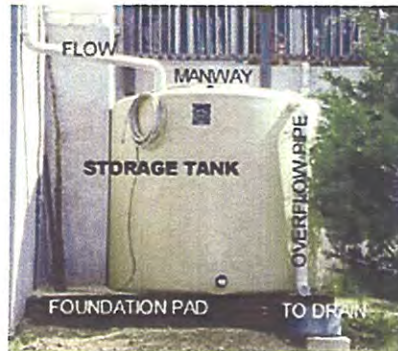
1. Barrel/Cistern
2. Debris Screen
3. Valve
4. Discharge Area

Maintenance

1. Clean barrel once a year



Rainwater Barrel
Portland, Oregon
Photo: BES



Rainwater Barrel
Portland, Oregon

Photo: BES



Cistern
Germany

Photo: DA

Sizing Table Instructions

The Sizing Table is used to help select and calculate the size of a Rainwater Management Component in order to mitigate site impervious area.

1. Enter *Total Impervious Area to be Mitigated* in Box 'A'.
2. Select *Rainwater System Component* and enter the square feet from the site's impervious area that each *Rainwater System Component* will mitigate under the *Mitigated Site Impervious Area* column.
3. Calculate *Rainwater System Component Surface Area* by multiplying the *Mitigated Site Impervious Area* by the *Sizing Factor* for each selected *Rainwater System Component*.
4. Enter total for all *Mitigated Site Impervious Area* in Box 'B' and then subtract Box 'A' from Box 'B' and enter total in Box 'C'.
5. The total for Box 'C' must equal zero.

Total Impervious Area to be Mitigated **Box 'A' - Square Feet (SF)**

Rainwater System Component	Mitigated Site Impervious Area	Sizing Factor	Rainwater System Component Surface Area
1. <i>Bioretention Cell</i>	_____ sf x	0.03	_____ sf
2. <i>Landscape Filter</i>	_____ sf x	0.10	_____ sf
3. <i>Rainwater Garden</i>	_____ sf x	0.06	_____ sf
4. <i>Rainwater Planter Box</i>	_____ sf x	0.03	_____ sf
5. <i>Greenroofs</i>	_____ sf x	1	_____ sf
6. <i>Vegetative Swale</i>	_____ sf x	0.06	_____ sf
7. <i>Grassy Swale</i>	_____ sf x	0.07	_____ sf
8. <i>Deciduous Tree*</i>	_____ sf x	0.01	_____ trees
9. <i>Evergreen Trees*</i>	_____ sf x	0.005	_____ trees
10. <i>Permeable/Turf Pavers</i>	_____ sf x	1	_____ sf
11. <i>Porous Pavement</i>	_____ sf x	1	_____ sf
12. <i>Soil Amendments</i>	_____ sf x	0.45	_____ sf
13. <i>Infiltration Trench</i>	_____ sf x	0.10	_____ sf

Mitigated Site Impervious Area **Box 'B' - SF** *One Deciduous Tree per 100 SF of Impervious
 *One Evergreen Tree per 200 SF of Impervious

Box 'A' - Box 'B'
Should Equal 0 for Box 'C' = **Box 'C' - SF**

Operations and Maintenance (Insert)



APPENDIX



NATIVE PLANTS

TREES

- Abies grandis* — Grand Fir
- Acer circinatum* — Vine Maple
- Acer macrophyllum* — Bigleaf Maple
- Alnus rubra* — Red Alder
- Amelanchier alnifolia* — Western Serviceberry
- Cornus nuttallii* — Pacific Dogwood
- Corylus cornuta* — Western Hazelnut
- Crataegus douglasii* — Douglas Hawthorne
- Fraxinus latifolia* — Oregon Ash
- Pinus ponderosa* — Ponderosa Pine
- Pseudotsuga menziesii* — Douglas Fir
- Quercus garryana* — Oregon Oak
- Sambucus racemosa* — Red Elderberry
- Sequoiadendron giganteum* — Giant Sequoia
- Thuja plicata* — Western Red Cedar
- Tsuga heterophylla* — Western Hemlock

SHRUBS

- Berberis nervosa* — Cascade Oregon Grape
- Cornus sericea* — Red Osier Dogwood
- Gaultheria shallon* — Salal
- Holodiscus discolor* — Ocean Spray
- Lonicera involucrata* — Black Twinberry
- Mahonia aquifolium* — Oregon Grape
- Mahonia aquifolium 'Compacta'* — Compact Oregon Grape
- Mahonia repens* — Creeping Mahonia
- Oemleria cerasiformis* — Indian Plum
- Philadelphus lewisii* — Mock Orange
- Physocarpus opulifolius* — Pacific Ninebark
- Rhododendron macrophyllum* — Pacific Rhododendron
- Ribes sanguineum* — Red Flowering Currant
- Rosa nutkana* — Nootka Rose
- Rosa rugosa var.* — Rugosa Rose varieties
- Sambucus spp.* — Elderberry

- Spiraea douglasii* — Douglas Spirea
- Symphoricarpos albus* — Common Strawberry
- Taxus brevifolia* — Pacific Yew
- Vaccinium ovatum* — Evergreen Huckleberry

GROUNDCOVER, FERNS, HERBS

- Anemone oregona* — Oregon Windflower
- Aquilegia formosa* — Red Columbine
- Arctostaphylos uva-ursi 'Vancouver Jade'* — Vancouver Jade Kinnickinnick
- Arctostaphylos uva-ursi 'Emerald Carpet'* — Kinnickinnick
- Blechnum spicant* — Deer Fern
- Calypso bulbosa* — Fairyslippers
- Camassia quamash* — Camas
- Claytonia lanceolata* — Western Spring Beauty
- Corydalis scouleri* — Western Corydalis
- Cornus canadensis* — Bunchberry
- Delphinium bicolor* — Montana Larkspur
- Dicentra formosa* — Wild Bleeding Heart
- Dodecatheon pulchellum* — Shooting Star
- Eriophyllum lanatum* — Oregon Sunshine
- Erythronium oregonum* — Fawn Lily
- Fragaria virginia var. platypetala* — Broad Petal Strawberry
- Fritillaria lanceolata* — Checker Lily
- Helianthus annuus* — Common Sunflower
- Iris tenax* — Oregon Iris
- Linnaea borealis* — Twin Flower
- Lupinus sulphureus* — Sulphur Lupine
- Mimulus species* — Monkey Flower
- Oxalis oregona* — Redwood Sorrel
- Polystichum munitum* — Western Swordfern
- Pteridium aquilinum* — Bracken Fern
- Rhus spectabilis* — Salmonberry
- Rubus parviflorus* — Thimbleberry
- Smilacina racemosa* — False Solomon Seal
- Tellima grandiflora* — Fringecup
- Thalictrum occidentale* — Western Meadowrue

- Tiarella trifoliata* — Foam Flower
- Trillium ovatum* — Western Trillium
- Vancouveria hexandra* — Inside Out Flower
- Viola glabella* — Stream Violet

BIOSWALE PLANTINGS

POND MARSH / SWALE BOTTOM PLANT COMMUNITY

GROUNDLAYER

- Alisma plantago-aquatica* — Water Plantain
- Beckmannia syzigachne* — American Sloughgrass
- Bromus carinatus* — California Bromegrass
- Commensia quamash* — Common Camas
- Carex obnupta* — Slough Sedge
- Deschampsia caespitosa* — Tufted Hairgrass
- Eleocharis ovata* — Ovate Spike Rush
- Eleocharis palustris* — Common Spike Rush
- Elymus glaucus* — Blue Wildrye
- Festuca rubra v. rubra* — Native Red Fescue
- Iris tenax* — Oregon Iris
- Juncus effusus* — Soft Rush
- Juncus ensifolius* — Dagger Leaf Rush
- Lysichiton americanum* — Skunk Cabbage
- Regreen* — Wheat Cover Crop
- Sagittaria latifolia* — Wapato Duck Potato
- Scirpus acutus* — Hardstem Bulrush
- Scirpus microcarpus* — Small Fruited Bullrush

UNDERSTORY

- Spiraea douglasii* — Douglas Spirea
- Cornus stolonifera* — Redtwig Dogwood

SHRUB / PLANT COMMUNITY

GROUNDLAYER

- Deschampsia caespitosa* — Tufted Hairgrass
- Festuca rubra v. rubra* — Native Red Fescue

UNDERSTORY

- Cornus stolonifera* — Redtwig Dogwood
- Rosa nutkana* — Nootka Rose
- Salix lasiandra* — Pacific Willow
- Salix piperi* — Piper Willow
- Salix scouleriana* — Scouler's Willow
- Salix sitchensis* — Sitka Willow
- Spiraea douglasii* — Douglas Spirea

PROHIBITED PLANT SPECIES

- Cirsium arvense* — Canadian Thistle
- Convolvulus spp* — Morning Glory
- Cytisus scoparius* — Scotch Broom
- Dipsacus sylvestris* — Common Teasel
- Festuca arundinaceae* — Tall Fescue
- Hedera helix* — English Ivy
- Holcus canatus* — Velvet Grass
- Lolium spp.* — Rye Grasses
- Lotus corniculatus* — Bird's Foot Trefoil
- Lythrium salicaria* — Purple Loose Strife
- Melilotus spp.* — Sweet Clover
- Myriophyllum spicatum* — Eurasian Milfoil
- Phalaris arundinaceae* — Reed Canary Grass
- Rubus discolor* — Himalayan Blackberry
- Solanum spp.* — Nightshade
- Trifolium spp.* — Clovers



Rainwater Management Program Glossary

Bioretention: On-lot retention of storm water through the use of vegetated depressions engineered to collect, store, and infiltrate runoff.*

Buffer: A vegetated zone adjacent to a stream, wetland, or shoreline where development is restricted or controlled to minimize the effects of development.*

Design storm: A rainfall event of specific size, intensity, and return frequency (e.g., the 1-year storm) that is used to calculate runoff volume and peak discharge rate.*

Detention: The temporary storage of storm water to control discharge rates, allow for infiltration, and improve water quality.*

Erosion: The process of soil detachment and movement by the forces of water.*

Filter Strips: Bands of closely-growing vegetation, usually grass, planted between pollution sources and downstream receiving water bodies.*

Greenway: A linear open space; a corridor composed of natural vegetation. Greenways can be used to create connected networks of open space that include traditional parks and natural areas.*

Groundwater: Water stored underground in the pore spaces between soil particles or rock fractures.*

Habitat: An area or type of area that supports plant or animal life*.

Hydrology: The science dealing with the waters of the earth, their distribution on the surface and underground, and the cycle involving evaporation, precipitation, flow to the seas, etc.*

Impervious Area: A hard surface area (e.g., parking lot or rooftop) that prevents or retards the entry of water into the soil, thus causing water to run off the surface in greater quantities and at an increased rate of flow.*

Infiltration: The downward movement of water from the land surface into the soil.*

Level Spreader: An outlet designed to convert concentrated runoff to sheet flow and disperse it uniformly across a slope to prevent erosion.*

Low-Impact Development: The integration of site ecological and environmental goal and requirements into all phases of urban planning and design from the individual residential lot level to the entire watershed.*

Mitigation: To lessen impact; to reduce the impact of runoff from impervious areas.*

Multifunctional Landscape: A landscape area that is designed to provide several functions i.e., habitat area, screening, and hydrological control.*

Nonpoint Source Pollution: Water pollution caused by rainfall or snowmelt moving both over and through the ground and carrying with it a variety of pollutants associated with human land uses. A nonpoint source is any source of water pollution that does not meet the legal definition of point source in section 502(14) of the Federal Clean Water Act.*

Open Space: Land set aside for public or private use within a development that is not built upon.*

Permeable: Soil or other material that allows the infiltration or passage of water or other liquids.*

Point Source Discharge: A pipe, ditch, channel, tunnel, or any other direct means from which runoff may leave a site.

Rainwater System: The physical framework of the Rainwater Management Program.

Rainwater Management Component: A landscape element that mitigates runoff from impervious areas by mimicking the landscapes natural hydrological control process.

Rain Barrels: Barrels designed to collect and store rooftop runoff.*

Riparian Area: Vegetated ecosystems along a water body through which energy, materials, and water pass. Riparian areas characteristically have a high water table and are subject to periodic flooding.*

Runoff: Water from rain, melted snow, or irrigation that flows over the land surface.*

Site Fingerprinting: Development approach that places development away from environmentally sensitive areas (wetlands, steep slopes, etc.), future open spaces, tree save areas, future restoration areas, and temporary and permanent vegetative forest buffer zones. Ground disturbance is confined to areas where structures, roads, and rights-of-way will exist after construction is complete.*

Sizing Table: Method used to size Rainwater Management Components.

Stormwater System: Conventional system of catch basins, pipes, and drains used to convey and manage stormwater runoff per the requirements of local jurisdictions.

Swale: An open drainage channel designed to convey and detain or infiltrate storm water runoff.

Watershed: The topographic boundary within which water drains into a particular river, stream, wetland, or body of water.*

* Definitions from: *Low Impact Development Design Strategies – An Integrated Approach*

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III
Compliance with SAP North
Conditions of Approval

***NARRATIVE OF COMPLIANCE
WITH CONDITIONS OF APPROVAL
Specific Area Plan - North (SAP North)***

**Compliance with Conditions of Approval
for Case File DB07-0054
Specific Area Plan - North**

PLANNING DIVISION CONDITIONS

Request A: DB07-0054 Specific Area Plan - North

PDA 1. A SAP amendment to the Architectural Pattern Book and Community Elements Book must be made prior to approval of the preliminary development plan for the school site. See Finding A28.

Response: *This condition is no longer applicable because the school site has been moved to SAP East.*

PDA 1. The applicant/owner must demonstrate coordination with the City and West Linn/Wilsonville School District and supply a more refined conceptual site plan for the school site at the time of application for Area 2 of SAP-North. The site plan must include at a minimum Community Park 1 as identified in the Villebois Village Technical Appendix or a refinement as necessary. See Finding A35.

Response: *This condition is no longer applicable because the school site has been moved to SAP East.*

PDA3. The applicant/owner shall submit a more detailed site plan of Neighborhood Park 5, Fir Park, with the submission of SAP-North, Area 2. The plan must demonstrate the relationship of those areas of the park within SAP-North and those areas of the park with SAP-East. See FindingA29.

Response: *This condition was addressed in the application for PDP 3 East (Case File Nos. DB12-0042, DB12-0043) and FDP 3E (Case File No. DB12-0048).*

PDA4. The applicant/owner shall submit a more detailed site plan of Pocket Park 9, and linear greens 15 and 16, with the submittal for SAP-North, Area 2. The plan shall include proposed uses and community elements. Pursuant to the Villebois Village Technical Appendix, Fir Park and the Villebois Greenway shall preserve an existing oak tree as well as provide creative play, benches and a pathway. See Finding A31.

Response: *This condition was addressed in the application for PDP 3 East, approved 11/19/12 (Case File Nos. DB12-0042, DB12-0043) and FDP 3E (Case File No. DB12-0048).*

PDA5. The Pocket Park within the block defined by Monte Carlo Avenue, Barber Street, Surrey Street in PDP5-S and Lausanne Street must include a creative play structure, such as large boulders, consistent with the Villebois Village Technical Appendix. See Finding A33.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11. (Case File No. DB11-0024).*

PDA6. As a part of the Area 2 submittal package, and pursuant to Figure 7 of the Villebois Village Master Plan, the applicant must provide a minor pathway that bisects Regional Park 4 creating a walkway from Grimaldi Street to Ravenna Loop. See Finding A42.

Response: *This condition was addressed in the application for PDP 2N (Case File No. DB13-0020).*

PDA7. The applicant/owner must submit a more detailed Tree Preservation Plan and Tree Removal Permit, as necessary, with Preliminary Development Plan-1 (PDP-1N). In addition, the applicant must provide an arborist report consistent with Section 4.610.30(.02)C. See Finding A44.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11 (Case File No. DB11-0024) and FDP 1N (Case File No. DB11-0027).*

PDA8. The applicant/owner must submit a Landscape Plan with the Preliminary Development Plan-1 (PDP-1N). Consistent with the policies and objectives of the Villebois Village Master Plan, the plan must place emphasis on large shade trees within Regional Park 3 and the pocket park such as oaks, elms and ash. See Finding A64.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11 (Case File No. DB11-0024) and FDP 1N (Case File No. DB11-0027).*

PDA9. Prior to Development Review Board approval of Preliminary Development Plan 1 of Area 1, SAP-North, the applicant/owner shall submit a parks plan to the Parks Board for review and approval. Parks Plan must be consistent with the Villebois Village Technical Appendix or the appropriate refinement requested. See Finding A61.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11 (Case File No. DB11-0024) and FDP 1N (Case File No. DB11-0027).*

PDA10. The applicant/owner must provide an Arborist Report and more detailed tree inventory with the submittal of Area 2. See Finding A63.

Response: *This condition was met for the PDP 2N area with the PDP 2N application, approved 6/10/13 (Case File No. DB13-0020). A *Tree Preservation Plan and Arborist Report* is included with the SAP North Amendment for Phase 3. This condition will also be addressed with future phases as they are proposed.*

PDA11. The applicant/owner must submit a lighting plan for PDP1-N. The lighting plan must be consistent with Appendix H of the Villebois Village Master Plan. See Finding A68.

Response: *This condition was addressed in the application for PDP 1N, approved 8/22/11. (Case File No. DB11-0024).*

PDA12. The applicant/owner must submit a revised lighting plan for PDP1-N. Lighting on Grimaldi Street shall be moved from the north to the south side of the street to reduce impact on the Upland Forest. See Finding A68.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11. (Case File No. DB11-0024). Grimaldi Street is now called Palermo Street.*

PDA13. Area 2 of SAP-North shall include provisions, i.e. a structure, for storage of seasonal activity equipment in Regional Park 5. See Finding A70.

Response: *This condition will be addressed in a future Regional Park 5 development application, which will be included in a future phase.*

PDA14. Proposed street tree plantings for Salzburg and San Remo are not consistent with the approved plantings for a primary residential street, but rather a Secondary Residential Street. Street trees for Salzburg and San Remo shall be amended in the subsequent PDP1-N application to include street trees consistent with Primary Residential Streets. See Finding A133.

Response: *This condition was addressed in the application for PDP 1N, approved 8/25/11. (Case File No. DB11-0024).*

PDA15. Page G7.0 of the Master Signage and Wayfinding Plan includes a reference to Site Plan G3.0. Site Plan G3.0 shall be labeled or inserted accordingly. See Finding A142.

Response: *The site plan referenced in PDA 15 is included on page G7.0 in the Master Signage and Wayfinding Plan.*

PDA16. The submitted Community Elements Book shall be revised to include street lighting on those portions of the right-of-way opposite the Upland Forest. See Finding A152.

Response: *This condition was addressed in the plans for PDP 2N for the south and west sides of the forest, approved 6/10/13 (Case File No. BD13-0020), and is further addressed in the plans for PDP 3N for the north side of the forest.*

PDA17. The Land use Patterns, Lot Diagram, Small Lot Subsection of the Architectural Pattern Book shall be amended to require that lots be a minimum of 70 feet in depth for single-family dwellings with an accessory dwelling unit. See Finding A154.

Response: *This condition is reflected in the City's Development Code under V-Village Zone, section 4.125(.14)(1)(b).*

PDA18. An application for Area 2 of SAP-North is required, to proceed with the furtherance and platting of subsequent Preliminary Development Plans/phases in Area 2. See Finding A168.

Response: *PDP 2N for SAP Phase 2 was approved on 6/10/13 (Case File No. DB13-0020). A SAP North Amendment has been submitted to add information for Phase 3, reflect Phase 1 and Phase 2 approvals, and identify future Phase areas.*

PDA19. Upon submittal of Area 2 of SAP-North, the applicant shall provide a revised total unit count for Villebois and a request for a refinement to density, if applicable. See Finding A183.

Response: *PDP 2N was approved on 6/10/13 (Case File No. DB13-0020) and included a refinement for density as needed. The SAP North Amendment (see page 8 of the Intro Narrative in Notebook Section IA) provides a current total unit count table for Villebois reflecting approved counts for Phase 1 and Phase 2, proposed counts for Phase 3, and unit counts for the Future Phases of SAP North, as anticipated by Master Plan Figure 1.*

PDA20. An application for a comprehensive plan map amendment and zone change to Village (V) zone shall be submitted prior to development within Area 1 and concurrent with an application for PDP1-N. See Finding A188.

Response: *A comprehensive plan map amendment was approved 6/2/03 (Case File No. 02PC07C) resulting in Ordinance No. 555 designating a zone change to 'Residential-Village' for all of Villebois. Each subsequent PDP will include a request for zone change to Village (V) zone. PDP 1N, approved 8/25/11, included a zone change to Village (V) zone. PDP 2N also included a zone change to Village (V) zone (Case File No. DB13-0023, adopted as Ordinance No. 720). A concurrent application for PDP 3N includes an annexation application and a zone change application to apply the V zone to Phase 3.*

PDA21. The Architectural Pattern Book shall be revised to include requirements for site plans submitted for building permit review. All site plans shall include at a minimum site coverage calculations, easements, utilities and street trees.

Response: *The Architectural Pattern Book was amended on 1/28/13 to include small cottages (Case File No. DB12-0067).*

BUILDING DIVISION CONDITIONS

Request A: DB07-0054 Specific Area Plan - North

BDA1. **CONDITION.** LOTS SHALL BE GRADED so that all sheet drainage drains to the street and/or alley unless the City approves an alternate drainage design.

Response: *Compliance with this condition is demonstrated for each construction phase.*

BDA2. **ADVISORY. TREE SELECTION.** The Fire Code requires that required fire apparatus access roads have an unobstructed vertical clearance of 13'6". (Oregon Fire Code 503.2.1) This should be taken into account when choosing street trees that may encroach into this space as they mature.

Response: *Compliance with this condition is demonstrated for each construction phase.*

BDA3. **ADVISORY. FIRE HYDRANT CLEARANCES.** Hydrants shall be placed at least two feet from the driving surface unless specific approval is otherwise given by the City. A three-foot radius circle measured from the circumference of the hydrant shall constitute a clear working area. Streetlights, transformers, pole signs, mailboxes, trees or other plantings, and all other similar items shall not encroach into this area. (Grass or other low growing ground cover that does not constitute an inherent trip hazard is excepted) When placing landscaping, the mature size of plant material shall be taken into account.

Response: *Compliance with this condition is demonstrated for each construction phase.*

BDA4. **ADVISORY. STRUCTURE IDENTIFICATION.** New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. (505.1) Where buildings are not readily visible from the fire department access roadway marquee or other signage acceptable to the fire marshal shall be located as required for building location.

Response: *This condition is not applicable to SAP or PDP applications and will be addressed during a later construction phase.*

ENGINEERING DIVISION CONDITIONS
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Request A: DB07-0054 SAP-North (Area 1 of SAP-North)

Note: PFA 1 through PFA 30 have been addressed with the construction plans for each Phase of PDP 1N. Both Phases have already been built. Compliance with these conditions is addressed as applicable to the subject site.

PFA1. All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards, except as noted herein.

PFA2. To lessen the impact of the proposed project on the downstream storm drain system, and adjacent properties, project run-off from the site shall be detained and limited to the difference between a developed 25-year storm and an undeveloped 25-year storm. The detention and outfall facilities shall

be designed and constructed in conformance with the Public Works Standards.

PFA3. A storm water analysis prepared by a Registered Professional Engineer shall be submitted for review and approval by the City to address appropriate pipe and detention facility sizing as well as pond locations and temporary routing strategy. The analysis shall be prepared utilizing the appropriate values in the Storm Water Master Plan. For example, in the application materials, the predeveloped time of concentration calculation for all basins uses a Mannings "n" value of 0.13 (used for Range in natural condition). This is not applicable for the existing condition for calculating the time of concentration. Therefore, the analysis shall be prepared using an "n" value of 0.15, in accordance with the Stormwater Master Plan. Also, all curve numbers shall comply with Table 2-2a, SCS Technical Release #55:

- A) SCS Curve #80 for open space and landscape areas
- B) SCS Curve #94 for commercial areas
- C) SCS Curve #98 for impervious surface areas (roadways)
- D) SCS Curve #90 for residential development, 1/8 acre or less (townhouses)
- E) SCS Curve #83 for residential development, 1/4 acre.

See Finding A85.

PFA4. The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.

PFA5. Sidewalks, pedestrian linkages, and street crossings shall be in compliance with the ADA Accessibility Guidelines (ADAAG), as amended in 2002, or the 2005 Draft Public Rights-of-Way Accessibility Guidelines for areas not fully addressed in the ADAAG standards, as determined by the City Engineer.

PFA6. Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.

PFA7. Applicant shall provide a minimum 6-foot Public Utility Easement on lot and tract frontages to all public right-of-ways.

PFA8. The properties are subject to a Development Agreement between the City of Wilsonville, the Urban Renewal Agency, Villebois LLC, and State of Oregon Department of Administration Services, signed and executed on the 24th day of May 2004. The applicant shall work in cooperation with the City and other Villebois developers to establish a fair and equitable manner of project phasing, as required in this Development Agreement, and alignment of infrastructure between SAP North and SAP Central. See Finding A5 and A9.

- PFA9.** If eligible, the City will provide System Development Charge credits and/or funding in conformance with the Development Agreement and associated finance plan.
- PFA10.** Access to Grahams Ferry Road shall be limited to the proposed Barber Street access point. Applicant shall provide a left turn pocket on Barber Street at this intersection. Eliminate on-street parking along this area with the left turn lane.
- PFA11.** Applicant shall be responsible for design and construction of half street improvements for streets split between SAP North and SAP Central.
- PFA12.** City policy is to not rename streets having a continuing characteristic. The name Grimaldi Street shall be eliminated in favor of Palermo Street; Salzburg Lane shall be eliminated in favor of San Remo Street.
- PFA13.** Amalfi Lane is not on the approved Villebois Street Name list dated 07/19/05. This street will need to be renamed using the approved list or applicant shall receive approval of the name from Costa Pacific Communities.
- PFA14.** Street cross sections shall be in conformance to the Villebois Master Plan (adopted May 15, 2006). From material submitted, it appears that street type K2 is a new submittal showing a 10-ft left turn lane, City Standards are for 14-foot turn lanes. From material submitted, it appears that street type L1 is a new submittal showing a 10-foot swale on one side; street shall be constructed with a standard curb and gutter and not a vertical curb. From material submitted, it appears that street type M has eliminated the planting strip; approved design shows a 6-foot planting strip between curb and sidewalk. From material submitted, it appears that street type P is misnamed and incorrect; this section corresponds to street type A, travel lanes shall be 12-foot wide, median shall be 14-foot wide.
- PFA15.** Pathway cross sections shall be in conformance to the Villebois Master Plan (adopted May 15, 2006). From material submitted, it appears that pathway type R is misnamed and incorrect; this section corresponds to Minor Pathway type Q and shall be 8 feet wide, paved. From material submitted, it appears that pathway types Q and S are misnamed; the Major Pathway corresponds to type P and the Nature Trail to type R.
- PFA16.** All new franchise utility lines shall be installed underground, any existing overhead franchise utility lines within the project area or immediately adjacent to roadways (i.e. along SW Grahams Ferry Road) shall also be relocated underground. The applicant shall be responsible for and make all necessary arrangements with the serving utility to provide underground service(s).
- PFA17.** Water main lines shall be installed on the south and east sides of the streets and/or alleys; sanitary sewer lines shall be installed on the north and west sides of the streets and/or alleys; storm sewer lines shall be installed near street center lines.

PFA18. All storm, sanitary, and water main lines shall be extended to future phases located north and east of the project as per the Villebois Village Master Plan.

PFA19. Install waterline improvements in conformance with the City's Water Master Plan and as necessary to supply adequate fire flows during phased construction. The applicant shall also "loop" proposed waterlines by connecting to the existing City waterlines where applicable.

Currently, city staff is verifying capacity needs for the area. Results are not yet available. Should the analysis indicate the need to adjust the following waterline sizing and/or alignment, modified conditions will be provided. At a minimum, the applicant shall provide an 18" ductile iron pipe (DIP) waterline within the SW Barber Street right-of-way from SW Costa Circle West to SW Grahams Ferry Road; a 12" DIP waterline within the SW Grahams Ferry Road right-of-way south from SW Barber Street and connecting to the planned waterline as shown in the SAP South PDP 4 approved plans; an 18" DIP waterline within the SW Grahams Ferry Road right-of-way north from SW Barber Street. All interior public streets shall have looped minimum 8" DIP waterline improvements with connections to the 18" main in SW Barber, as shown on material submitted.

PFA20. The proposed water system shall be designed by a Registered Professional Engineer to provide, at a minimum, 1,500 gpm flow with 20 psi residual pressure with the City's Water Treatment Plant off-line. Water modeling information to be provided to the City showing that adequate fire flows are being met shall take into account water demands from the previously approved housing units in Villebois SAP South PDP 1, PDP 2, PDP 3, PDP 4, and PDP 5, SAP Central PDP 1 and PDP 2, and SAP East PDP 1.

PFA21. Install waste water collection system improvements in conformance with the availability of capacity within the existing system and the City's Waste Water Collection System Master Plan. Sanitary sewer capacity analysis shall be based on the appropriate values as reflected in the Waste Water Collection System Master Plan.

PFA22. Applicant shall provide a sanitary sewer system that will provide sanitary service (gravity system) to land located up to 500 feet west of Grahams Ferry Road, or as approved by City Engineer.

PFA23. Applicant shall obtain a Stormwater easement from property owners west of Grahams Ferry Road for the land impacted by storm pipeline construction and/or release of stormwater from the on-site storm detention pond(s).

PFA24. Storm water analysis reports for just SAP North Area 1 for the Mill Creek and Arrowhead Creek basins shall be required to be submitted for approval with the PDP submittal for this site.

- PFA25. The City of Wilsonville TSP states that minor collector roads (Barber Street) operate at 25 - 35 miles per hour. Therefore, the design characteristics of the proposed minor collectors shall reflect a minimum 30 mph design speed.
- PFA26. Intersecting roadway and intersecting alley centerlines shall match.
- PFA27. The applicant shall provide two perpendicular directional pedestrian ramps at intersection curb returns.
- PFA28. Major trail crossings shall coincide with intersections, as mid-block crossings are not encouraged.
- PFA29. Sidewalks shall be located so that minimal impact occurs to existing trees planned to be preserved.
- PFA30. If public or franchise services are to be located in alleyways, a minimum 27-foot 26-foot wide easement shall be provided. Where utility clusters are located, additional easement area may be required.
- PFA31. Advisory: a transportation review update memo will be required with the SAP North Area 2 submittal. See Issue #2.

Response: *This condition was addressed for Phase 2 of SAP North with PDP 2N approval. A Traffic Analysis is included in Notebook Section IID of the SAP North Amendment. Additional traffic studies will be provided with future phases of SAP North.*

- PFA32. Advisory: The Villebois Master Plan shows a single residential street connection between Firenze Street and Barcelona Street. From material submitted this connection has been split by the offset streets Iceland Avenue and Bond Avenue. These two streets shall be aligned as one street.

Response: *The subject streets are included within the Phase 3 area and are addressed as a Master Plan refinement in the Supporting Compliance Report for SAP North (see page 39 of the Supporting Compliance Report).*

- PFA33. Advisory: from material submitted, it appears that many public utility connections are to non-existent lines in SAP South PDP 5 and SAP Central PDP 2; this infrastructure shall need to be constructed prior to or concurrently with construction of SAP North PDP 1.

Response: *PDP 1N has been built and the utility connections referenced in PFA 33 have been installed.*

- PFA34. Advisory: Crete Street, Bond Avenue and Nouveau Avenue are not on the approved Villebois Street Name list dated 07/19/05. These streets will need to be renamed using the approved list or applicant shall receive approval of the names from Costa Pacific Communities.

Response: *The street previously identified as 'Bond Avenue' is proposed to be named 'Rome Avenue' in Phase 3. The SAP Drawings submitted for the SAP North*

Amendment (see Notebook Section IIB) reflect the street alignment within future phases approved with 2013 SAP refinements (DB13-0020 et al). The names 'Crete Street' and 'Nouveau Avenue' are not included.

PFA35. Advisory: in future SAP North submittals, Firenze Street shall be terminated at Capri Street, eliminating the intersection with Tooze/Boeckman Road.

Response: *The PDP 2N plan refinements included the change noted in this condition.*

PFA36. Advisory: in future SAP North submittals, Firenze Street shall be extended to intersect with Grahams Ferry Road, per the Villebois Master Plan and DKS Associates traffic analysis. Oslo Lane shall be terminated at Belfast Lane, eliminating the intersection with Grahams Ferry Road.

Response: *The subject area is included in Phase 3 of SAP North and is addressed as a Master Plan refinement in the SAP North Amendment.*

Depending on property acquisition east of the school site, Firenze Street, east from Ravenna Loop, may need to align with Geneva Loop. That section of Geneva Loop located between Ravenna Loop and Orleans Avenue may need to be redesigned. Orleans Avenue may need to shift to the west.

Firenze Street east of Orleans may need to be renamed and the street would start at a T-intersection with Orleans Avenue.

Response: The areas referenced above will be addressed with submittals for future phases.

PFA37. Community Elements Book (Vol. V) Page 3: The proposed street light luminaire listed in the Community Elements Book (Hadco S8867C) is not a fixture that will be maintained by Portland General Electric. A street light luminaire that is similar in type and style that will be maintained by PGE is the Hadco S8867E. Please modify the street light luminaire in the Community Elements Book to the Hadco S8867E.

Response: *Street light plans for each construction Phase will be in compliance with the latest City standards.*

PFA38. Community Elements Book (Vol. V) Page 11: Location of mail box kiosks shall be coordinated between applicant, Wilsonville Postmaster, and the City of Wilsonville and agreed upon. Proposed locations of kiosk may need to be adjusted to meet vision clearance requirements at street and/or alley intersections. In previous discussions between the developers, the City, and the U.S. Postal Service, it was agreed to use a standard sized 48-unit mail kiosk structure and to provide two designated parking stalls (one handicap accessible and one limited time) at each proposed mail kiosk

Response: *Each construction Phase will be coordinated with the Postmaster for final placement of mail boxes.*

PFA39. Rainwater components shall be in compliance with the State of Oregon Department of Environmental Quality (DEQ).

Response: *Compliance with this condition is demonstrated with each construction phase.*

PFA40. Rainwater facilities may be located within the public right-of-way upon approval of the City Engineer. The Stormwater Maintenance Covenant & Access Easement shall specify that the rainwater and stormwater facilities shall be privately maintained by the developer; maintenance shall transfer to the respective homeowners association when it is formed.

Response: *Compliance with this condition is demonstrated with each construction phase.*

PFA41. That the combined water depth from storm water detention, rainwater detention and water features (if used) shall not exceed four feet for the 25-year storm in all detention/retention basins.

Response: *Compliance with this condition is demonstrated with each construction phase.*

PFA42. The applicant shall submit a stormwater/rainwater management plan that complies with the Villebois Village Master Plan as revised on May 15, 2006.

Response: *This condition was addressed for PDP 1N (2011 approval) and PDP 2N (2013 approval). It has been included with the SAP North Amendment (see Notebook Section IIC) to add information for Phase 3 and will be addressed with each future phase.*

NATURAL RESOURCES CONDITIONS

REQUEST A: DB07-0054 SAP-North (Area 1 of SAP-North), Rainwater Management Program

NRA 1 through NRA 17 have been addressed in the application for PDP 1N, approved 8/25/11. (Case File No. DB11-0024).

NRA1. The applicant shall submit a detailed operations and maintenance manual for the rainwater management components that has been reviewed and approved by city staff before 50% of the units are occupied in Phase 1 (Area 1), SAP North.

NRA2. For Rainwater Management Component No. 1 (Bioretention Cell and Pond) revise the wording in Design Criteria No. 7 to state: "Safe bypass path or overflow to public storm drainage system."

NRA3. For Rainwater Management Component No. 6 and 7 (Grassy and Vegetative Swales) revise the wording in Design Criteria No. 7 to state: "Side slope to be 2.5 4:1 maximum, or flatter in treatment area."

- NRA4.** For Rainwater Management Component No. 10 (Permeable Pavers/Turf) add the following requirement to the “Limitations” section: “Permeable pavers proposed for public streets or publicly maintained areas shall be subject to approval by the City Engineer”.
- NRA5.** For Rainwater Management Component No. 10 (Permeable Pavers/Turf) add the following requirement to the “Maintenance” section: “Do not pressure wash. Remove loose debris with blower, vacuum, rake or similar tool.”
- NRA6.** For Rainwater Management Component No. 11 (Porous Concrete) add the following requirement to the “Maintenance” section: “Do not pressure wash. Remove loose debris with blower, vacuum, rake or similar tool.”
- NRA7.** For Rainwater Management Component No. 12 (Soil Amendments) revise the wording in Design Criteria No. 8 to state: Fertilizer to Amended soil areas and planting beds in public areas if any, to be applied in lawn/turf areas shall be fertilized according to the Oregon Association of Nurserymen’s Integrated Pest Management Program.
- NRA8.** Provide a setback from buildings at 1:1 slope from bottom of building footing to bottom of Rainwater Management Component. This requirement applies to Rainwater Management Components 1, 2, 3, 6 and 7.
- NRA9.** Provide 18” of compost-amended topsoil for the Rainwater Management Components. This requirement applies to Rainwater Management Components 2, 3, 6 and 7.
- NRA10.** Pursuant to the City of Wilsonville Public Works Standards, access should be provided for the entire perimeter of the rainwater management components. At a minimum, at least one access shall be provided for maintenance and inspection.
- NRA11.** All Rainwater Management Components and associated infrastructure located in public areas shall be designed to the Public Works Standards. Rainwater Management Components in private areas shall comply with the plumbing code.
- NRA12.** Plantings in Rainwater Management Components located in public areas shall comply with the Public Works Standards. Plantings in Rainwater Management Components located in private areas shall comply with the Plant List in the Rainwater Management Program or Community Elements Plan.
- NRA13.** The rainwater management components shall comply with the requirements of the Oregon DEQ UIC (Underground Injection Control) Program.
- NRA14.** A vegetative swale shall be substituted for the proposed grassy swale along Grimaldi Street. The vegetative swale will provide a more compatible mix of plant species adjacent to the Significant Resource Overlay Zone.

- NRA15. Profiles and plan views of the proposed water quality treatment facilities shall be submitted. These profiles and plan views shall include, if applicable, plant species and placement, elevations, slopes, outlet, and other information consistent with requirements of the Public Works Standards, including but not limited to:
- a. Policy 9.3.4 (Shading of Waterbodies); and
 - b. Policy 9.4.1 (Landscaping in conjunction with stormwater facilities).
- NRA16. Pursuant to the Public Works Standards, access should be provided for the entire perimeter of the water quality treatment and quantity control facilities. At a minimum, at least one access shall be provided for maintenance and inspection.
- NRA17. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities and proposed facilities (e.g. DEQ NPDES #1200-C permit).

**Compliance with Conditions of Approval
for Case File SI07-0001
SRIR Class III, Area I**

REQUEST B: SI07-0001 SRIR Class III, Area I

PLANNING DIVISION CONDITIONS

PDB 1. Future application for Area 2 of SAP-North shall include an updated Significant Resource Impact Report specific to Area 2. Calculation and mitigation of the encroachment within Area 1 shall be included in that request. See Finding B2.

Response: *A Significant Resource Impact Report (SRIR) for OS-2 was approved with PDP 2N. An addendum to the Significant Resource Impact Report for updated impacts in Phase 3 is provided with the SAP North Amendment (see Notebook Section IIF of the SAP North Amendment).*

NATURAL RESOURCES CONDITIONS

NRB1. The applicant shall provide an updated SRIR that addresses any relevant changes associated with the revisions to Area 2. The review and approval of the SRIR shall be completed with the land use approval of Area 2.

Response: *A Significant Resource Impact Report (SRIR) for OS-2 was approved with PDP 2N. An addendum to the Significant Resource Impact Report for updated impacts in Phase 3 is provided with the SAP North Amendment (see Notebook Section IIF of the SAP North Amendment).*

NRB2. Pursuant to Section 4.139.04, the applicant shall demonstrate proposed exempt development (i.e. Grimaldi Street ROW and swale impacts) within the 25-foot Impact Area and the Significant Resource Overlay Zone has been designed to avoid, minimize and mitigate impact to the significant natural resources.

Response: *A Significant Resource Impact Report (SRIR) for impacts and mitigation within OS-2 was approved with PDP 2N. An addendum to the Significant Resource Impact Report for updated impacts in Phase 3 is provided with the SAP North Amendment (see Notebook Section IIF of the SAP North Amendment). The SRIR Addendum also demonstrates conformance with mitigation approved with PDP 2N.*

NRB3. All landscaping, including herbicides used to eradicate noxious weeds and existing vegetation, in the SROZ shall be reviewed and approved by the Natural Resources Program Manager. Native plants are required for landscaping in the SROZ.

Response: *Landscaping has been approved for PDP 1N and PDP 2N. For Phase 3, native plants will be used for any landscaping within the SROZ and all landscaping will be approved by the Natural Resources Program Manager. Future phases will be required to demonstrate compliance with this standard.*

NRB4. Prior to any site grading or ground disturbance, the applicant is required to delineate the boundary of the SROZ. Six-foot (6') tall cyclone fences with metal posts pounded into the ground at 6'-8' centers shall be used to protect the significant natural resource area where development encroaches into the 25-foot Impact Area and Significant Resource Overlay Zone.

Response: *Verification of the SROZ boundary was completed with PDP 2N. No changes to the SROZ boundary are proposed with the SAP North Amendment. Significant natural resource areas where development encroaches into the 25-ft. impact area and SROZ will be protected in compliance with NRB4.*

NRB5. The following shall be addressed with the land use submittal for Area 2: the Significant Resource Overlay Zone (SROZ) depicted for the upland forest wildlife habitat shall be identified in a conservation easement. The applicant shall record the conservation easement with Clackamas Court Clerk's office. The conservation easement shall include language prohibiting any disturbance of natural vegetation without first obtaining approval from the City Planning Division and the Natural Resources Program Manager. The conservation easement shall be reviewed by the City Attorney prior to recording.

Response: *The majority of Open Space 2 (upland forest preserve) is within Phase 2. The upland forest preserve is retained within open space tracts. A Conservation Easement for open space tracts that include the upland forest preserve area within Phase 2 was recorded in Clackamas County Records Document No. 2014-006795.*

SPECIFIC AREA PLAN - NORTH

VILLEBOIS

CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
 109 E. 13TH ST.
 VANCOUVER, WA 98660
 [P] 503-221-1920
 CONTACT: FRED GAST

VILLEBOIS, LLC
 1022 SW SALMON ST., SUITE 450
 PORTLAND, OR 97205
 [P] 503-222-4053
 CONTACT: WAYNE REMBOLD

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Stret
 Tigard, OR 97223
 [P] 503-941-9484
 CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Street
 TIGARD, OR 97223
 [P] 503-941-9484
 CONTACT: JESSIE KING, PE

SURVEYOR:

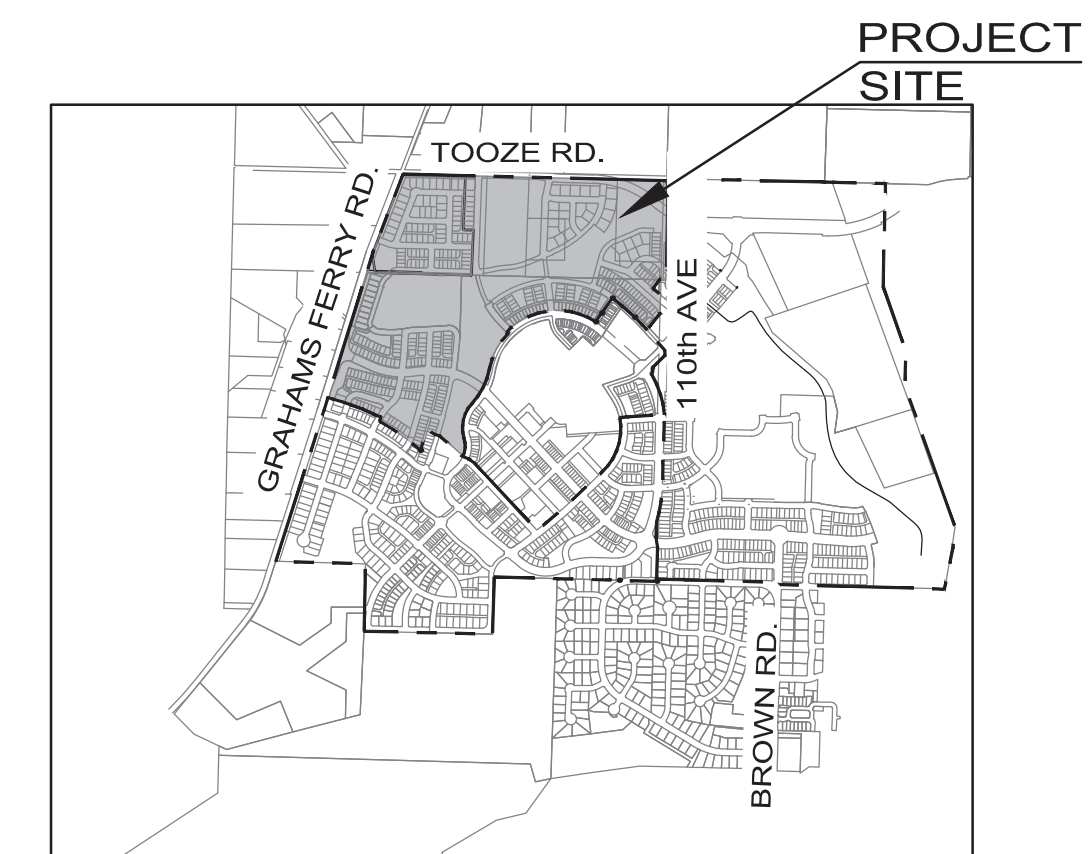
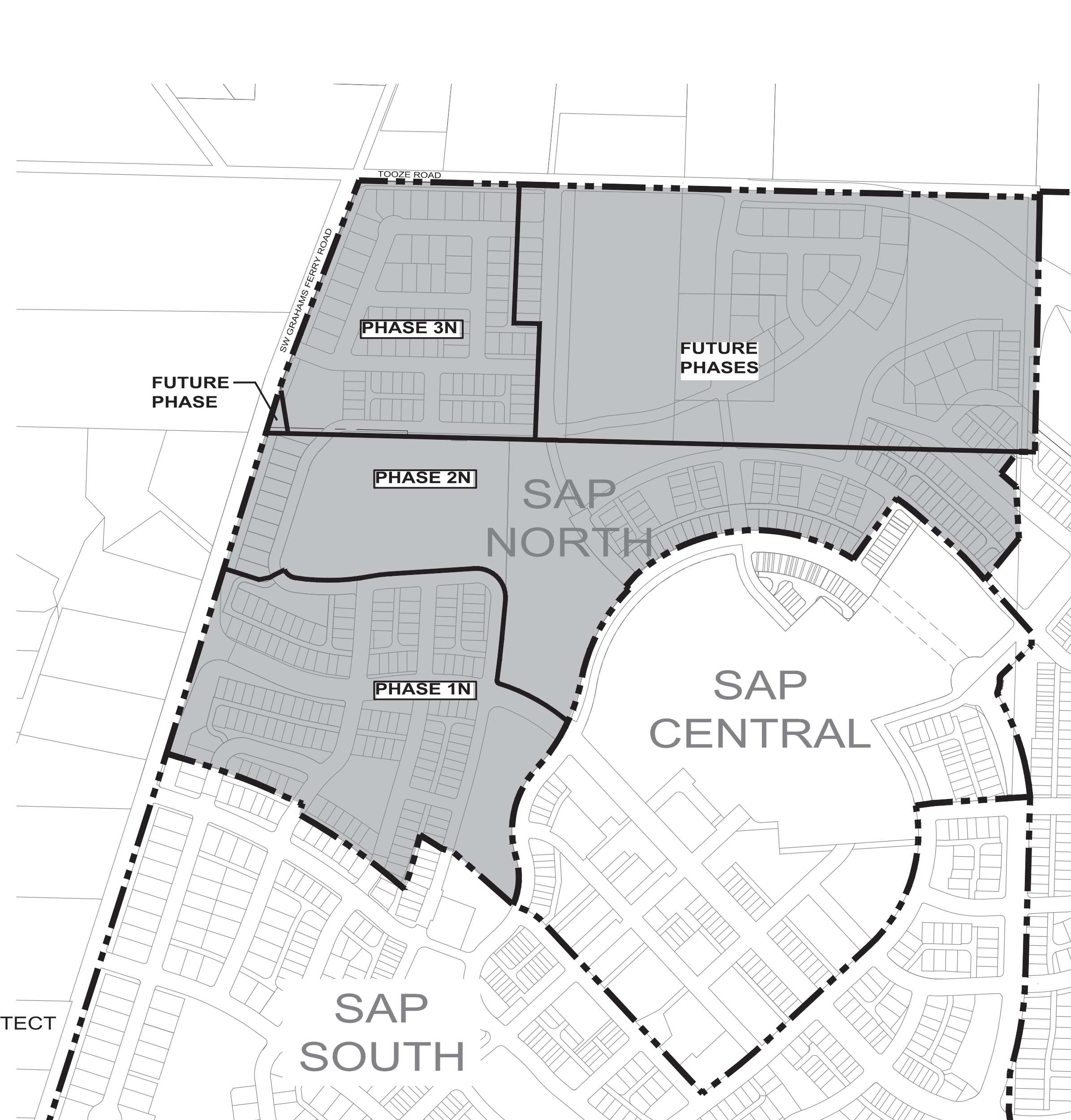
PACIFIC COMMUNITY DESIGN, INC
 12564 SW Main Street
 TIGARD, OR 97223
 [P] 503-941-9484
 CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

OTTEN LANDSCAPE ARCHITECTS, INC.
 3933 SW KELLY AVE, SUITE B
 PORTLAND, OR 97239
 [P] 503-972-0311
 CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
 15575 SW SEQUOIA PARKWAY, SUITE 100
 PORTLAND, OR 97224
 [P] 503-968-8787
 CONTACT: CRAIG WARE, PE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

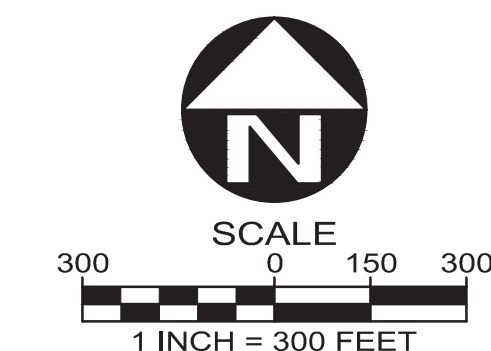
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- 2 PHASING PLAN
- 3 EXISTING CONDITIONS
- 4 AERIAL PHOTOGRAPH
- 5 LAND USE KEY
- 6 LAND USE PLAN
- 7 CIRCULATION PLAN
- 8 STREET SECTIONS
- 9 PARK/OPEN SPACE/PATHWAYS PLAN
- 10 SROZ PLAN
- 11 STREET TREE PLAN
- 12 TREE PRESERVATION PLAN
- 13 GRADING PLAN
- 14 UTILITY PLAN



POLYGON NW COMPANY

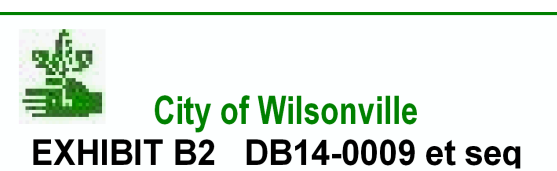


OTTEN LANDSCAPE ARCHITECTS, INC
 GEODESIGN, INC

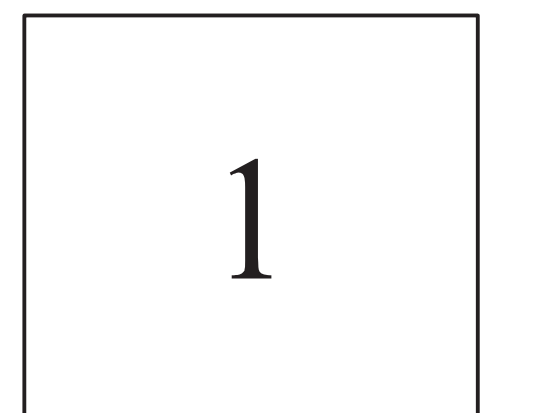
SAP NORTH
 VILLEBOIS

Specific
 Area Plan

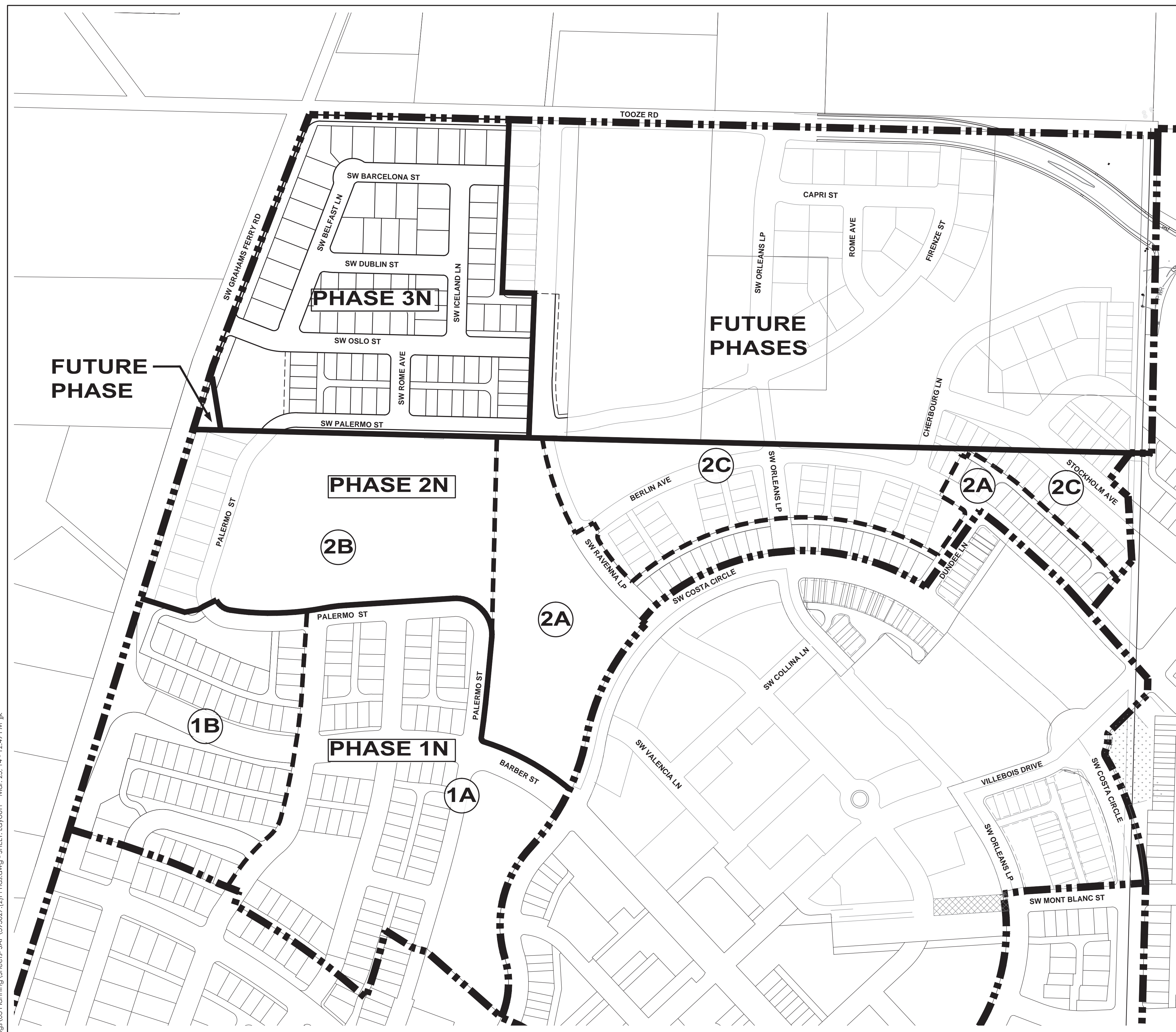
Cover Sheet



DATE 3/25/14



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LEGEND:

- S.A.P. LINE
- S.A.P. PHASE LINE
- - - P.D.P. CONSTRUCTION PHASE LINE
- S.A.P. PHASE NUMBER
- P.D.P. CONSTRUCTION PHASE NUMBER

PHASE 1N

○ 1A

PHASE 1N
 APPROVED 08/25/11
 DB11-0024 (PDP MODIFICATION)
 DB11-0025
 (SAP MODIFICATIONS & REFINEMENTS)

PHASE 2N
 APPROVED 06/11/13
 DB13-0020 (PDP)
 DB11-0025
 (SAP MODIFICATIONS & REFINEMENTS)

PHASE 3N
 PROPOSED
 DB14-0011 (PDP)
 DB14-0012 & DB14-0013
 (SAP MODIFICATIONS, REFINEMENTS & AMDNEMENTS)

FUTURE PHASES
 TO BE DETERMINED

SCALE
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 1 INCH = 150 FEET



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC
 GEODESIGN, INC

SAP NORTH
 VILLEBOIS

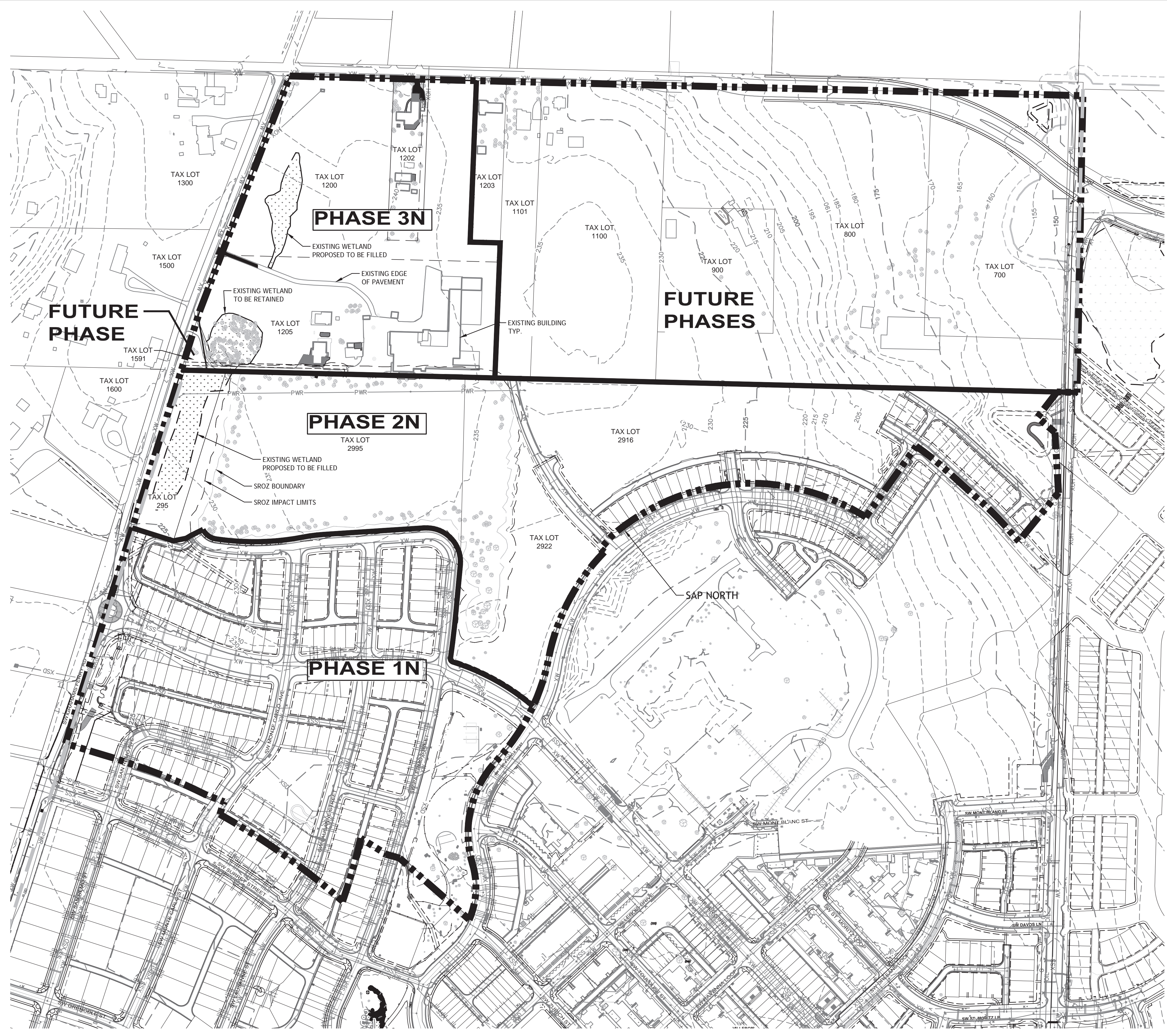
Specific
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Phasing
 Plan

DATE 3/25/14

2

TAX MAP REFERENCE:
 TOWNSHIP 3 SOUTH, RANGE 1 WEST,
 SECTION 15, W.M., WILSONVILLE
 OREGON.



Villebois



POLYGON NW COMPANY



PACIFIC COMMUNITY DESIGN
 OTTEN LANDSCAPE ARCHITECTS, INC.
 GEODESIGN, INC.

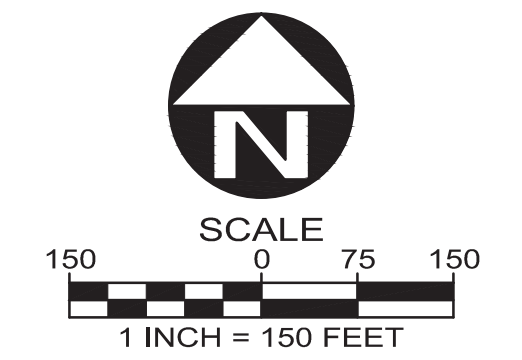
**SAP NORTH
 VILLEBOIS**

**Specific
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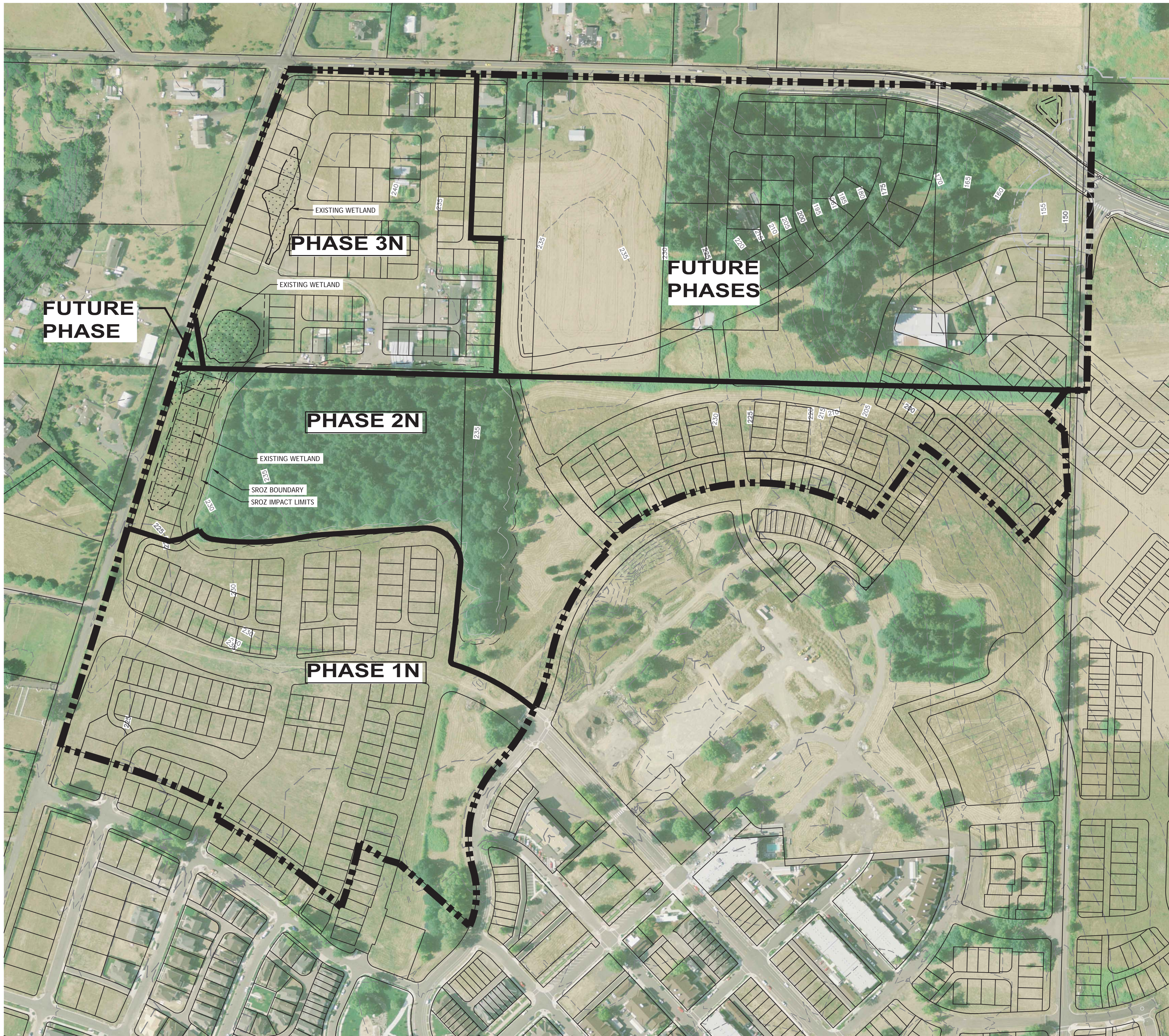
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DATE 3/25/14

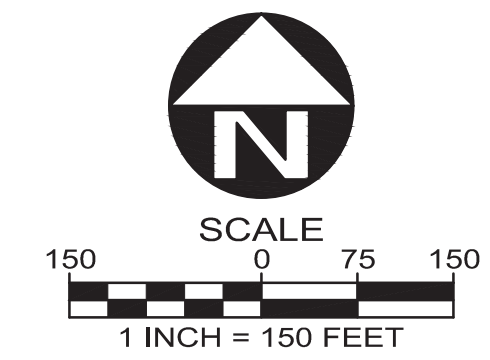
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OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

SAP NORTH
VILLEBOIS




Specific
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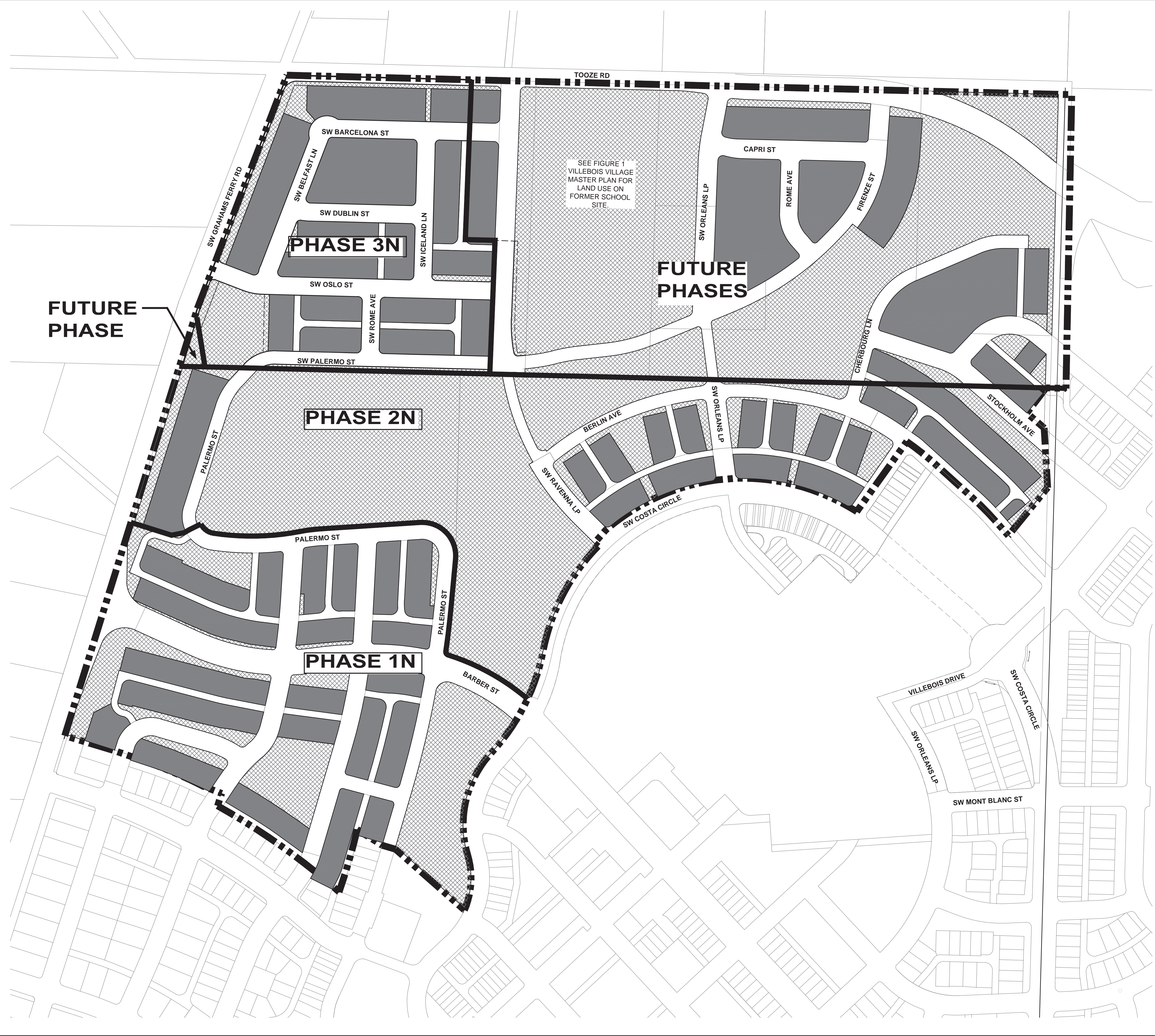
Aerial
Photograph

DATE 3/25/14

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LEGEND:

-  RESIDENTIAL
-  PARK/OPEN SPACE
-  PUBLIC ROADS, PRIVATE ALLEYS



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GEODESIGN, INC

SAP NORTH VILLEBOIS

Specific Area Plan

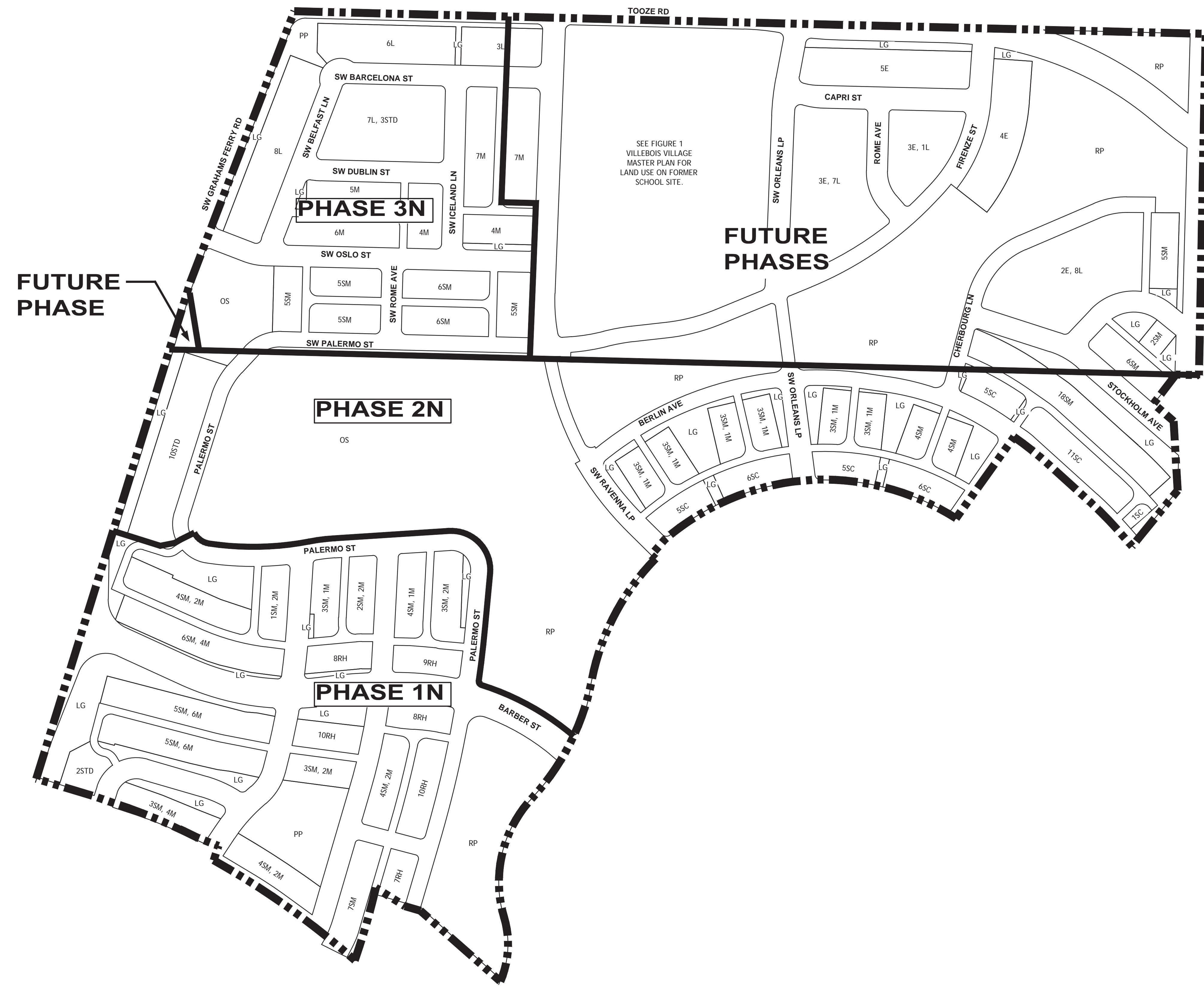
Land Use Key

DATE 3/25/14

SCALE
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1 INCH = 150 FEET

5

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LEGEND:

---	SAP SOUTH BOUNDARY
RH	ROW HOME LOTS
SC	COTTAGE LOTS
SM	SMALL LOTS
STD	STANDARD LOTS
M	MEDIUM LOTS
L	LARGE LOTS
E	ESTATE LOTS
OS	OPEN SPACE
PARK	PARK SPACE
RP	REGIONAL PARK
PP	POCKET PARK
LG	LINEAR GREEN
OS	OPEN SPACE



Villebois



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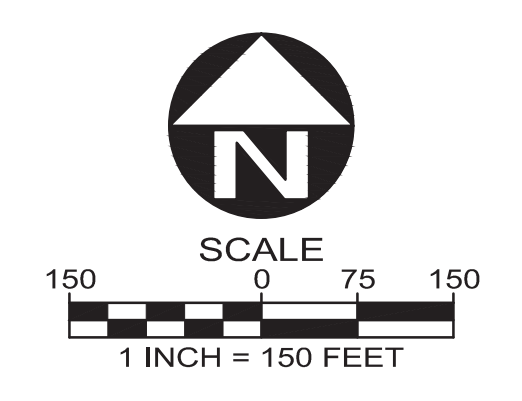
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

SAP NORTH
VILLEBOIS

Specific
Area Plan

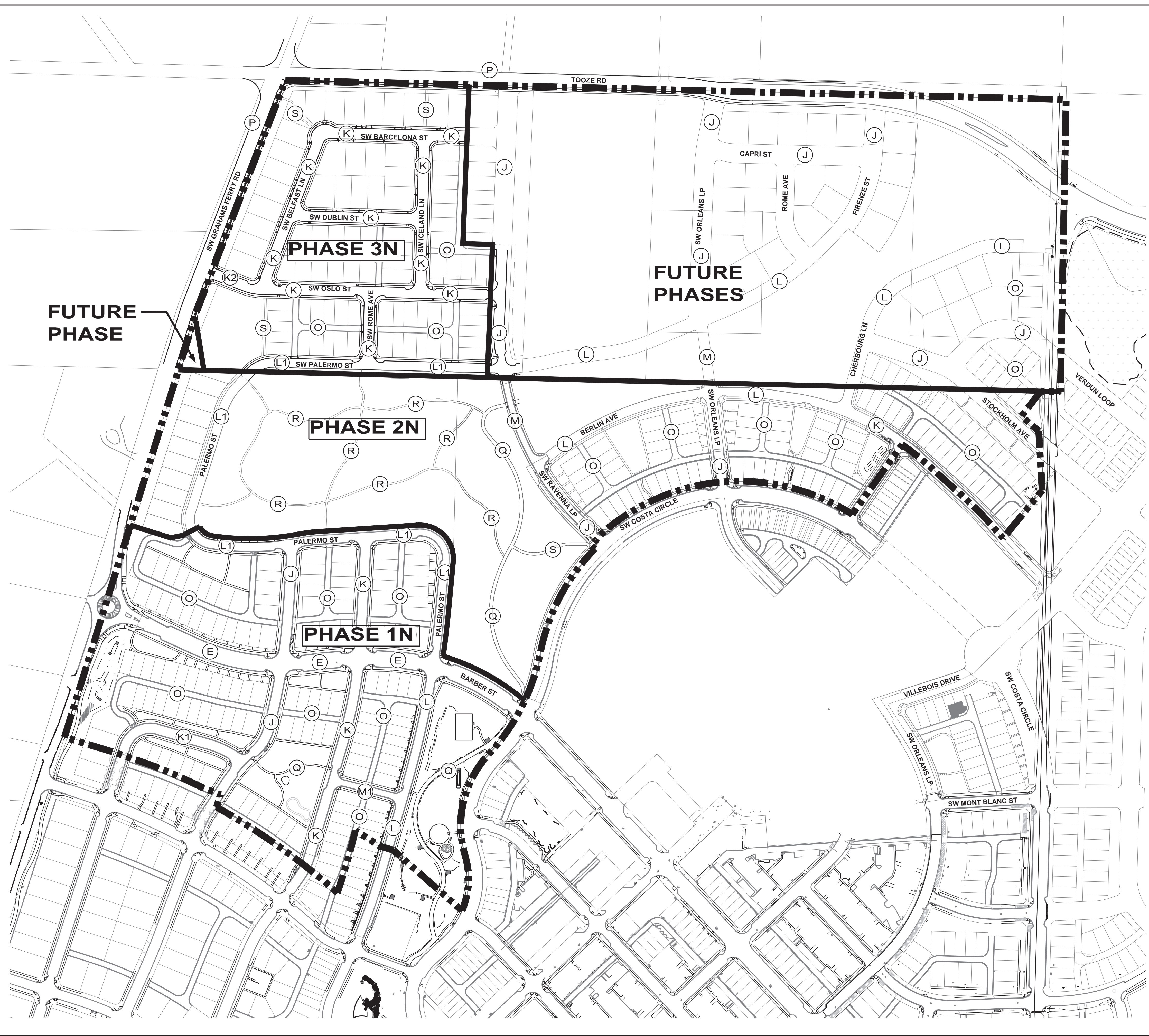
Land Use
Plan

DATE 3/25/14



6

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LEGEND:

(L) ROAD SECTION TYPE
SEE SHEET 8 FOR DETAILS

--- SAP NORTH



Villebois



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GEODESIGN, INC

SAP NORTH
VILLEBOIS

Specific
Area Plan

Circulation
Plan

DATE 3/25/14



SCALE
0 75 150
1 INCH = 150 FEET

7



Villebois



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GEODESIGN, INC

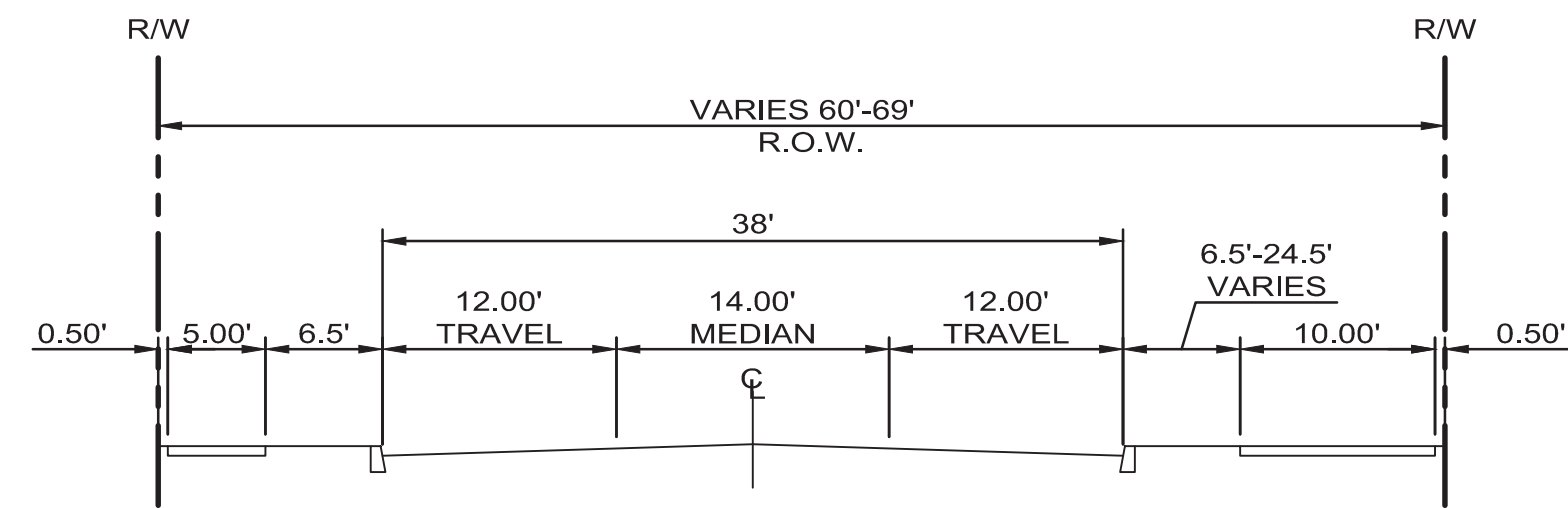
SAP NORTH
VILLEBOIS

Specific
Area Plan

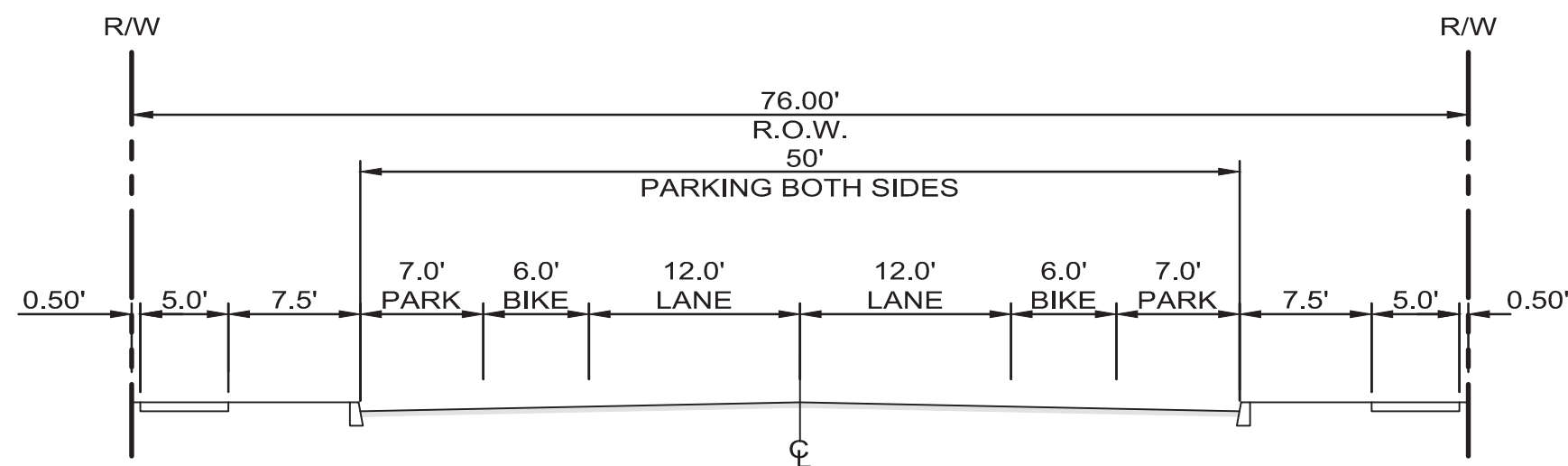
Street
Sections

DATE 3/25/14

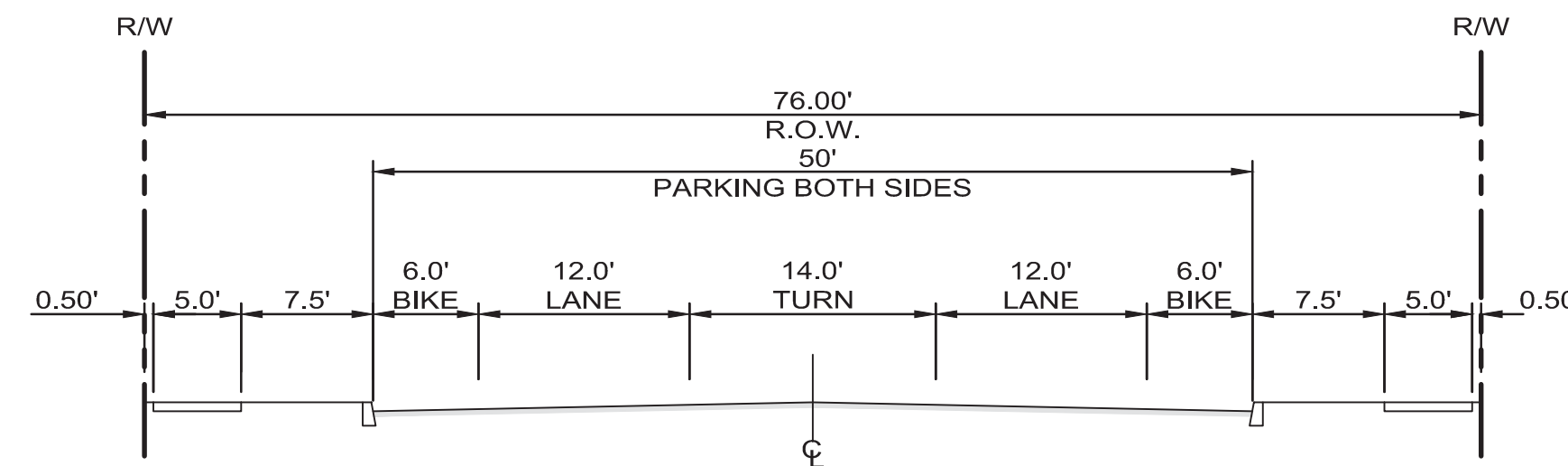
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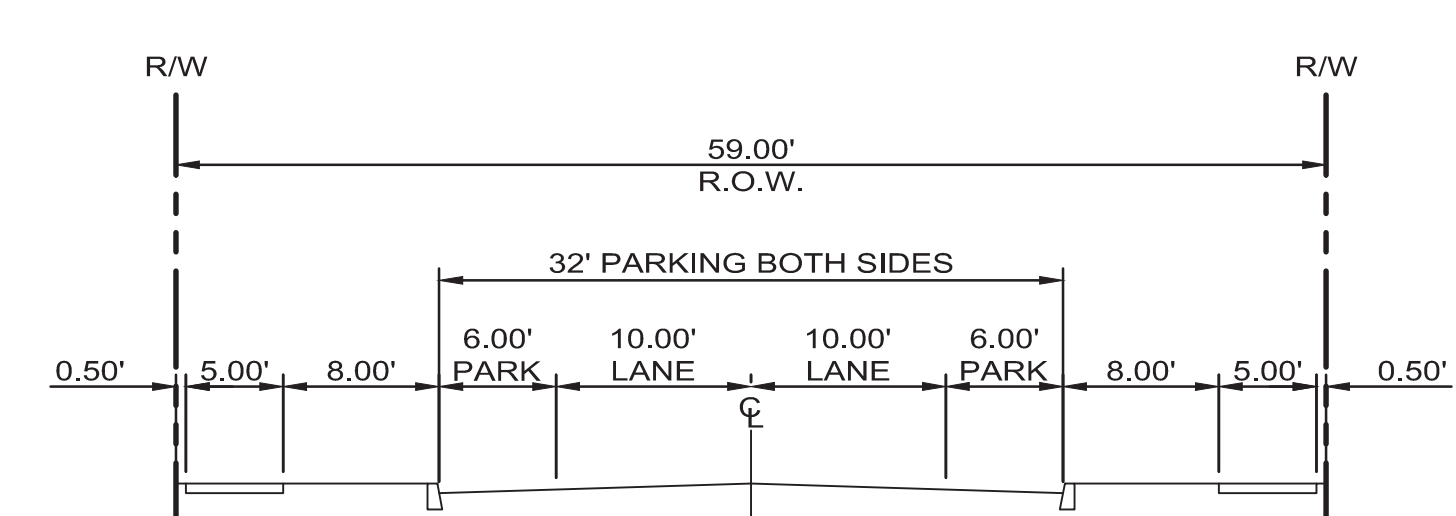
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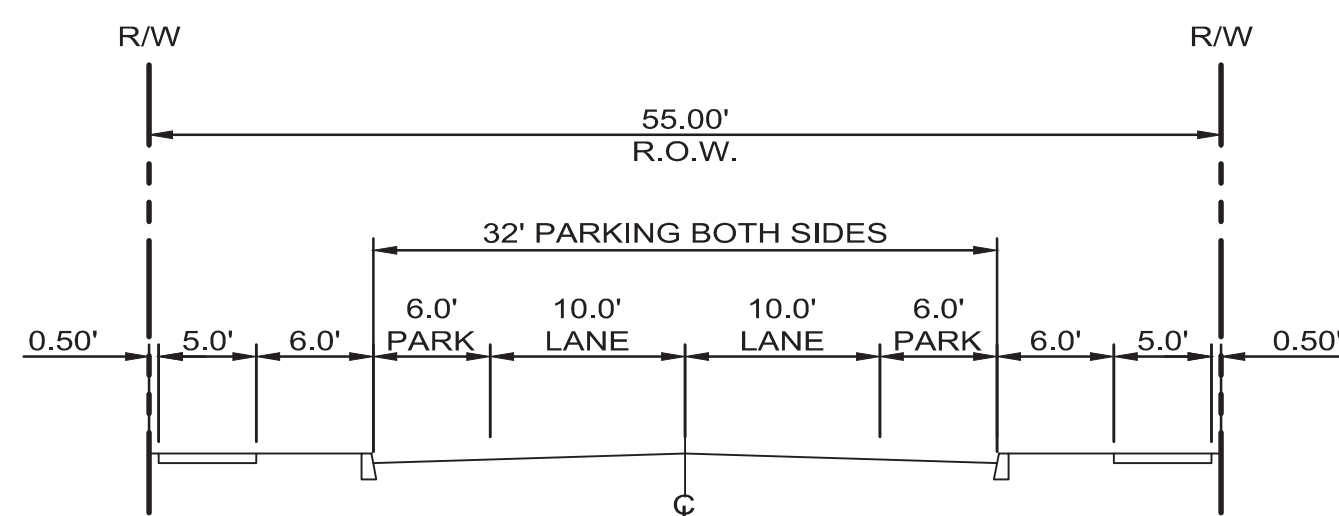
(E) MINOR COLLECTOR
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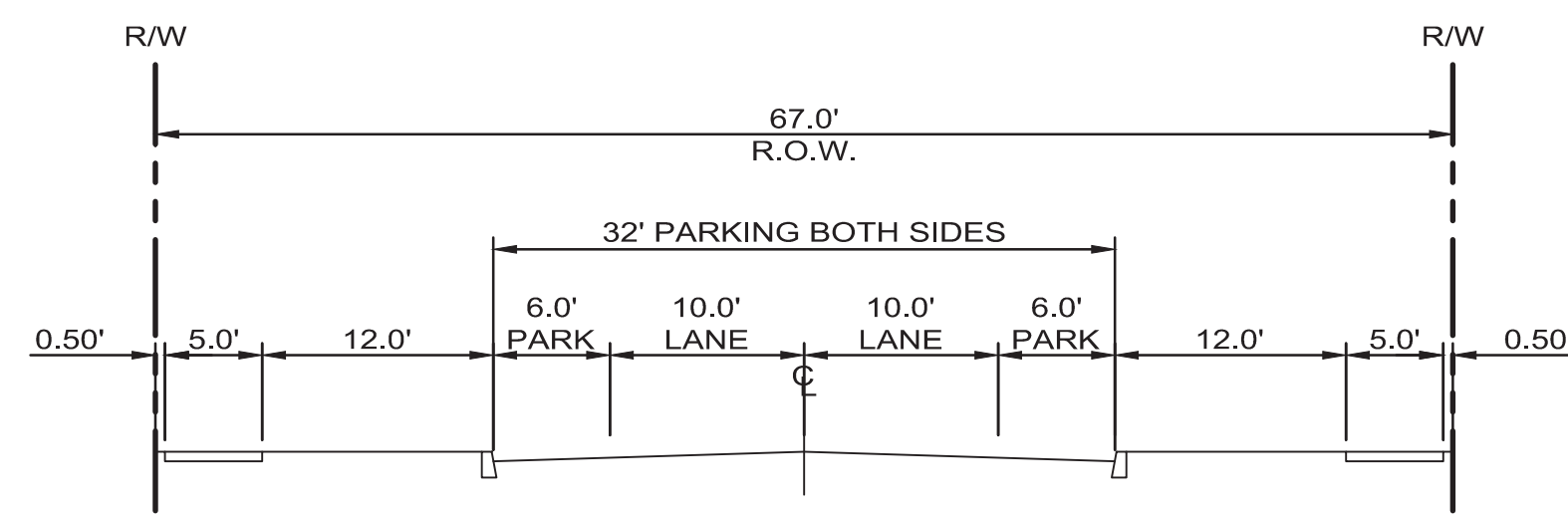
(E1) MINOR COLLECTOR W/LEFT TURN POCKET
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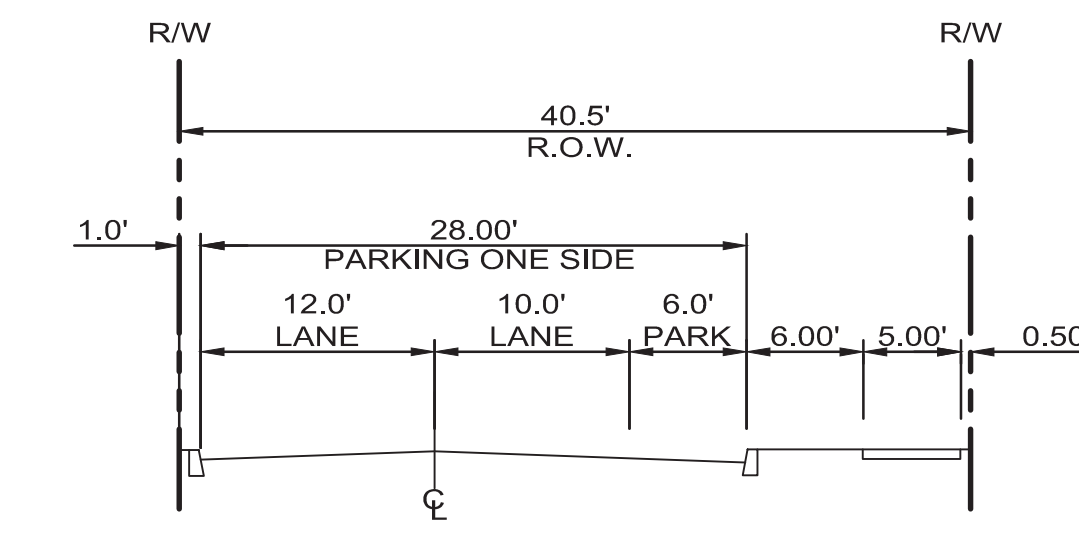
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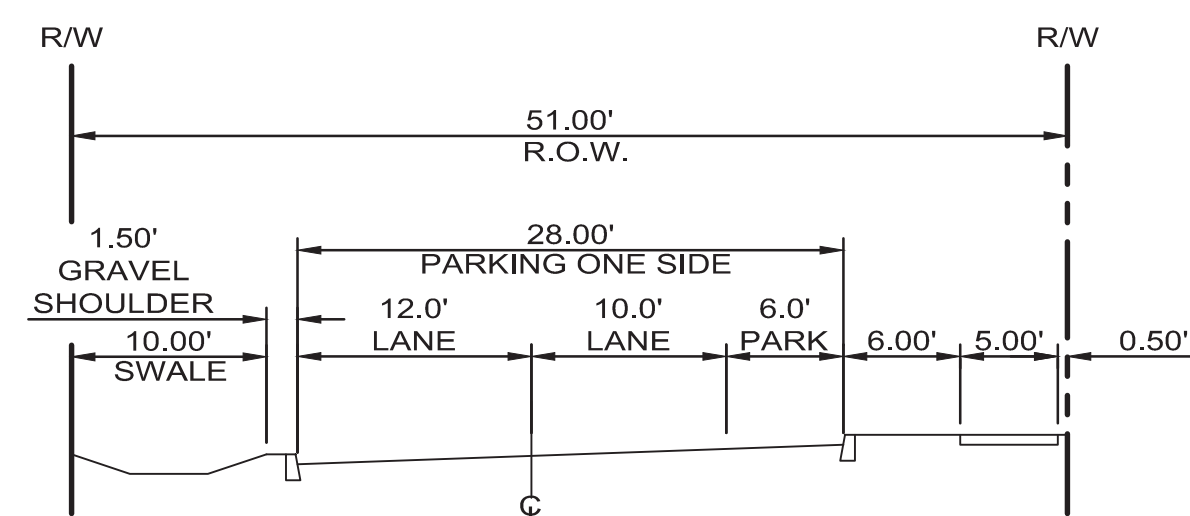
(K) RESIDENTIAL-MINIMUM
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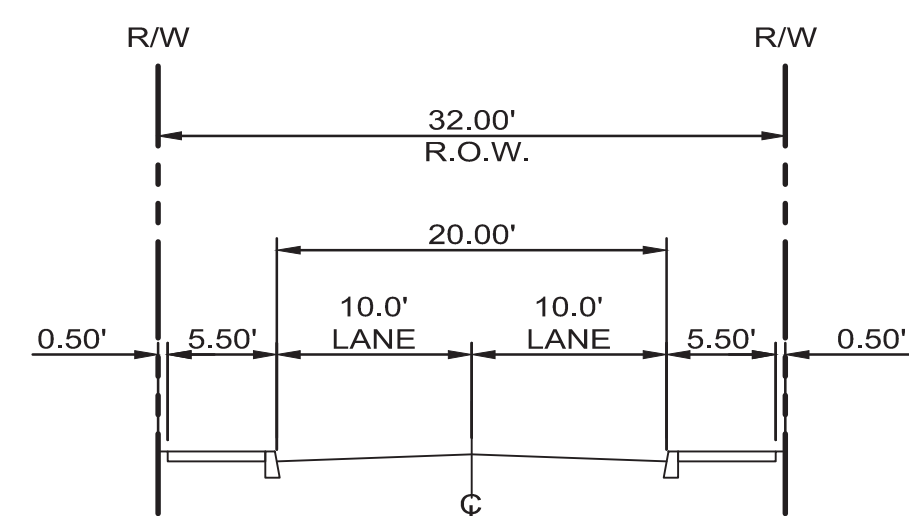
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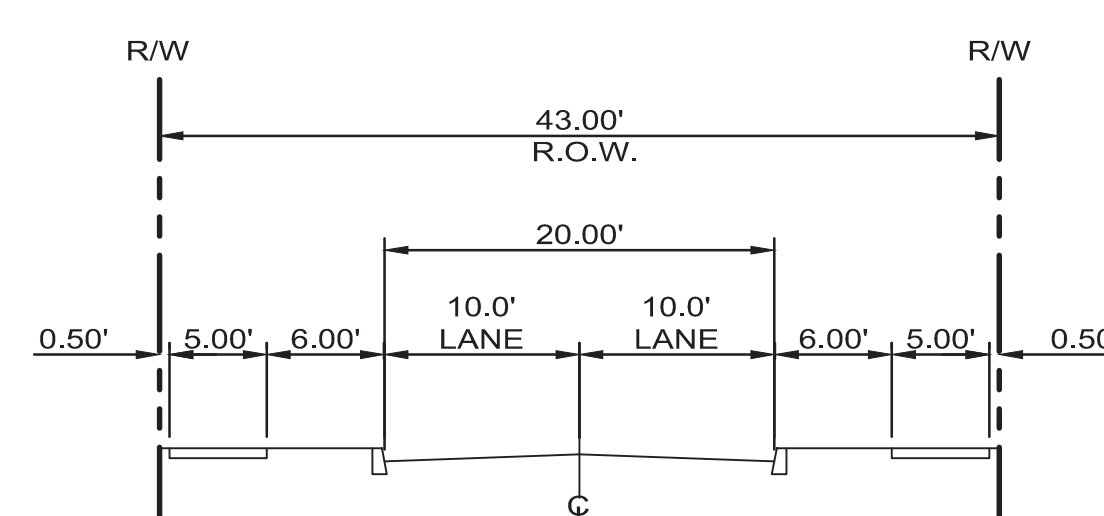
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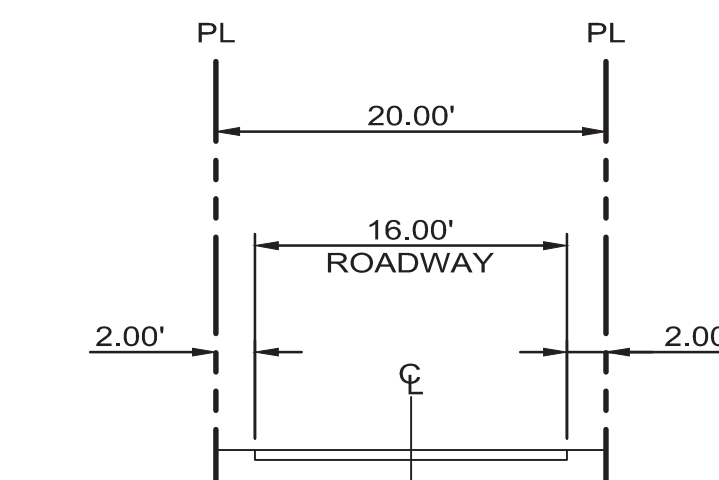
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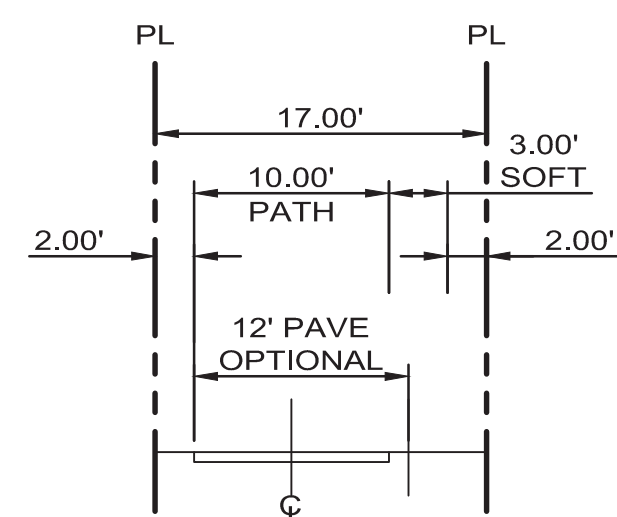
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PARKING
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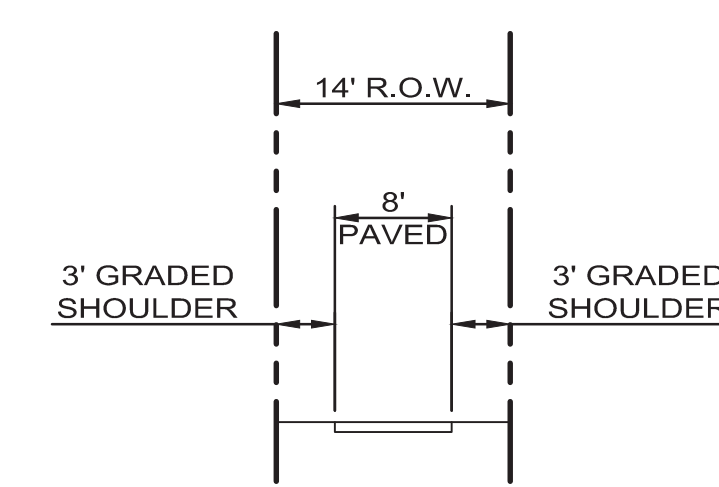
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PARKING
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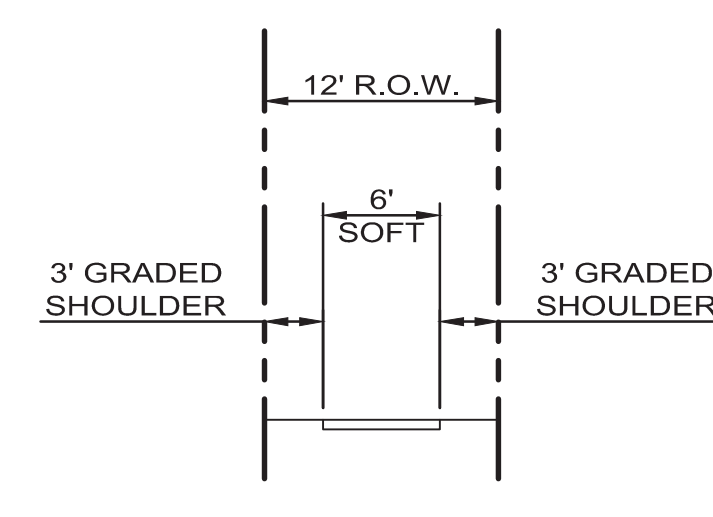
(O) PRIVATE LANE
NTS



(Q) MAJOR PATHWAY
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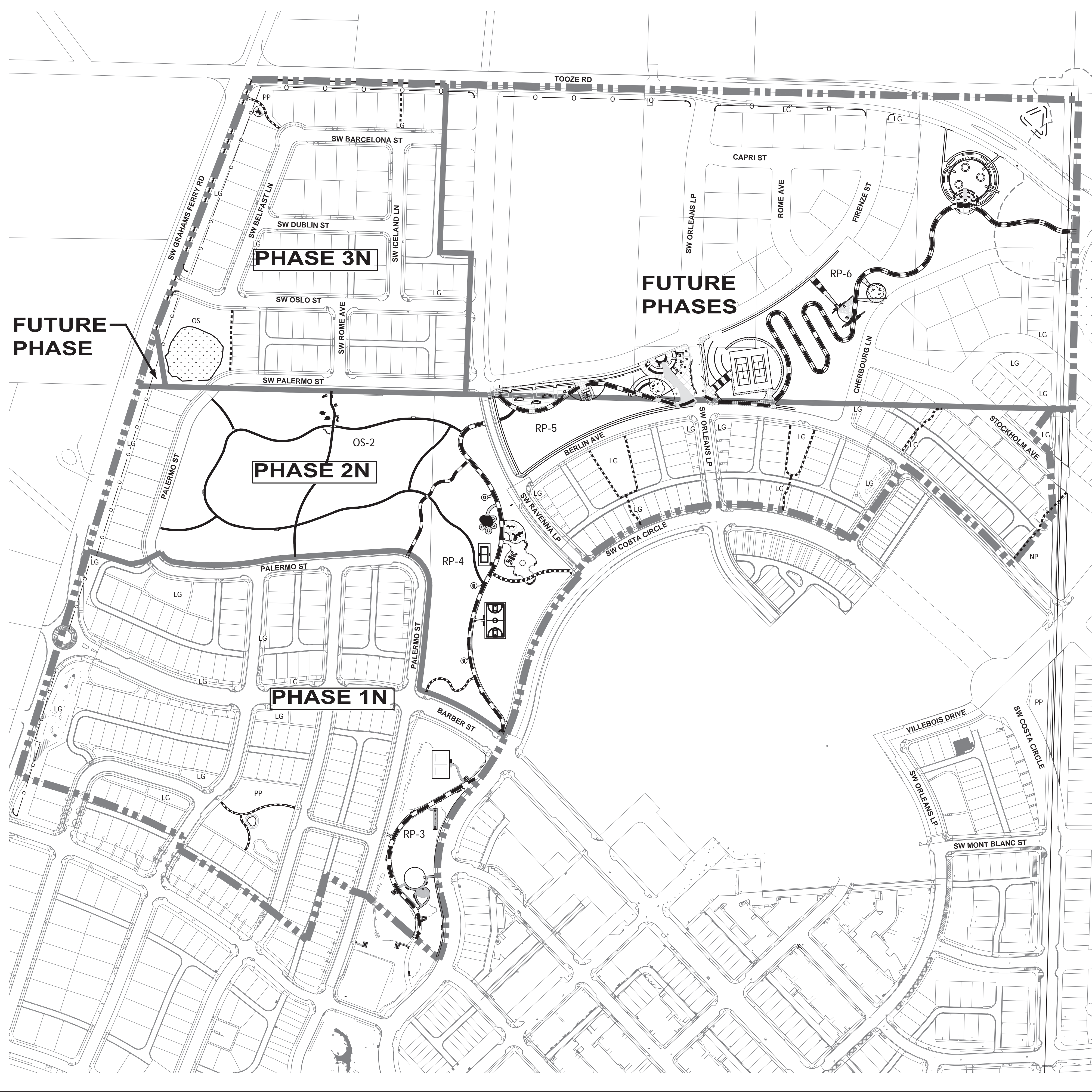
(S) MINOR PATHWAY
NTS



(R) NATURE PATHWAY
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LEGEND:

- MAJOR PATHWAYS
- MINOR PATHWAYS
- NATURE TRAILS

RP-3
 Within SAP North, Regional Park component 3 includes a child play structure, a creative play area, a volleyball court, a large lawn area (200'x140'), benches, picnic tables, and may have stormwater / rainwater features.

RP-4 (6.14 acres)
 Regional Park component 4 is contiguous to the Upland Forest Preserve (OS-2). The Villebois Loop Trail traverses the park. This park includes a creative play area, a basketball court, a multipurpose sport court, and a large lawn area (160'x300'). In addition, the park includes a shelter with a barbeque, benches, picnic tables, a drinking fountain, and may have stormwater / rainwater features.

RP-5 (2.24 acres)
 Regional Park component 5 is located south of the approximately 10-acre City-owned parcel. Planning for the park includes a neighborhood commons area with a skate plaza, a transit stop, restrooms, picnic tables, benches, a barbeque, shelter, play structure, an overlook view to Mt. Hood, a drinking fountain, water feature, a lawn area (100'x500'), and may include a stormwater/ rainwater feature.

RP-6 (5.93 acres)
 Regional Park component 6 preserves several large groves of trees while also providing active and passive recreation opportunities. The park includes a two tennis court facility, a child play structure, a dog park, picnic tables, benches, a minor water feature and may include stormwater/rainwater features.

OS-2: Upland Forest Preserve (10.60 acres)
 This site is dominated by a large grove of conifer with some deciduous trees mixed in. The Villebois plan advocates removal of invasive species within this area (any work or impacts within the upland forest area shall comply with SROZ regulations). The forest is contiguous with the Villebois Greenway and the Villebois Loop Trail's Tonquin segment. Smaller soft-surface nature trails will meander through the forest and link neighborhoods on either side. This second-growth forest ecosystem will act as a habitat patch, valuable to small mammals, invertebrates and birds. Along the nature trails two benches for wildlife viewing and quiet contemplation will complement the undeveloped nature of this open space. Picnic tables, and a child play structure will provide recreation opportunities while complementing the existing site features.

Pocket Parks (PP)
 Small open spaces, or pocket parks, will be interspersed throughout the Villebois community. These spaces will incorporate important existing trees and provide recreational opportunities for residents. These open spaces will provide areas for community use that are convenient while helping to serve as a buffer between adjoining uses.

Linear Greens (LG)
 Linear Greens are small park areas that provide connectivity among parks and through blocks. Linear Greens include trails.

Nature Trails - Soft-surface trails within natural open spaces.

Minor Pathways - Pedestrian and bicycle connections between neighborhoods, traversing parks and linear greens.

Major Pathways - The Tonquin Trail, the Villebois Loop Trail, and the Coffee Lake-Wood Trail



POLYGON NW COMPANY



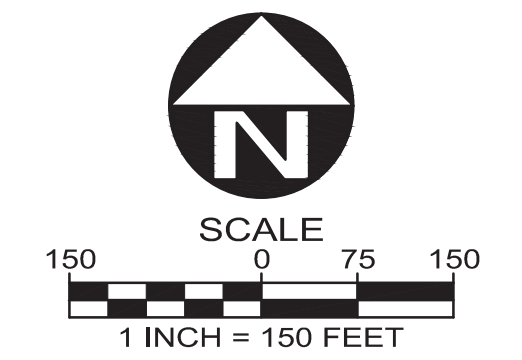
OTTEN LANDSCAPE ARCHITECTS, INC
 GEODESIGN, INC

SAP NORTH VILLEBOIS

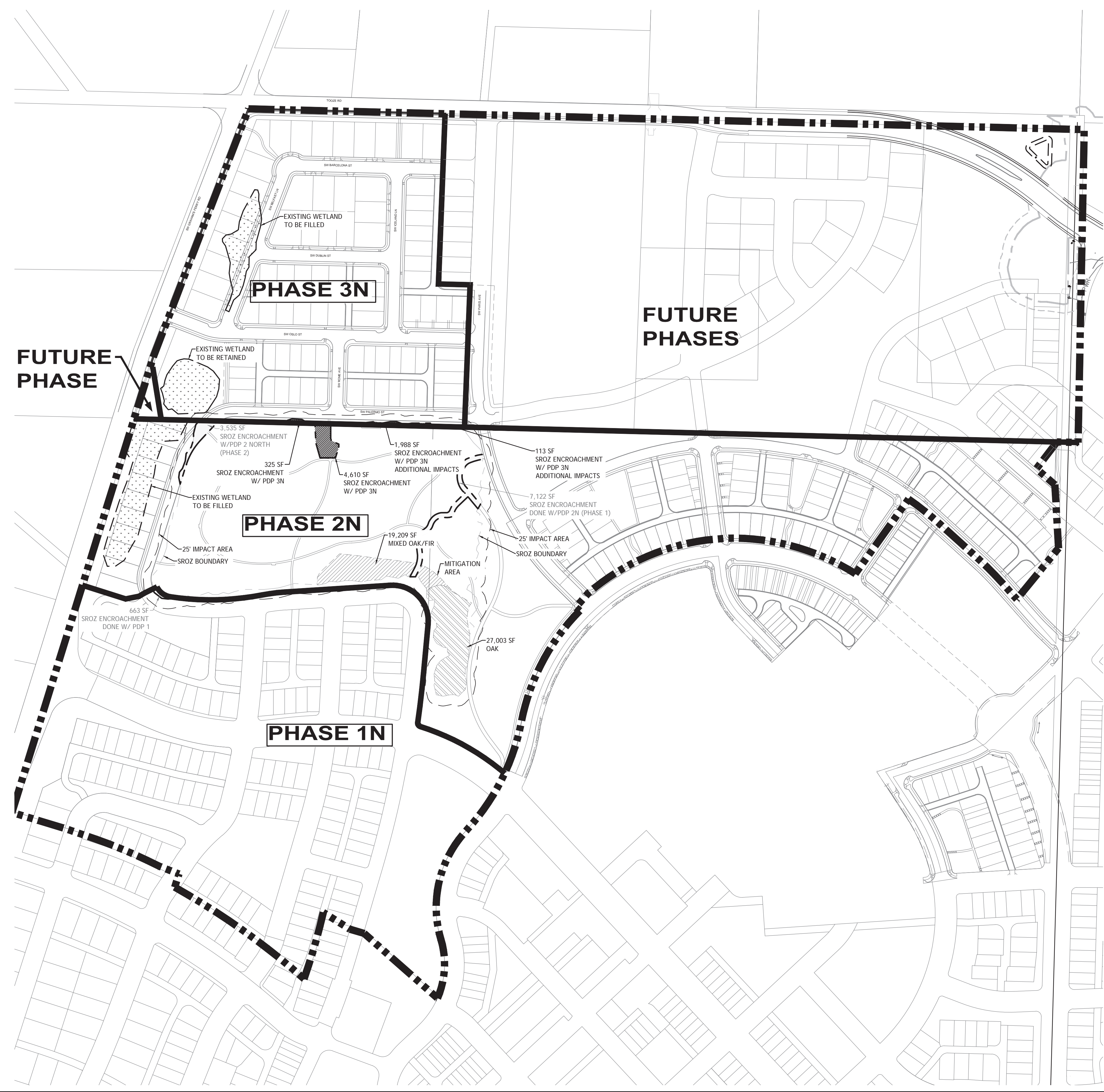
Specific Area Plan

Park / Open Space / Pathways Plan

DATE 3/25/14



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SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



Villebois



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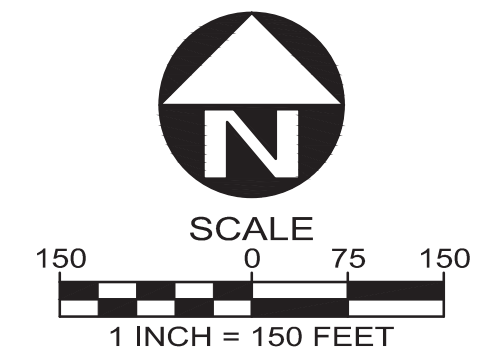
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GEODESIGN, INC

SAP NORTH VILLEBOIS

Specific Area Plan

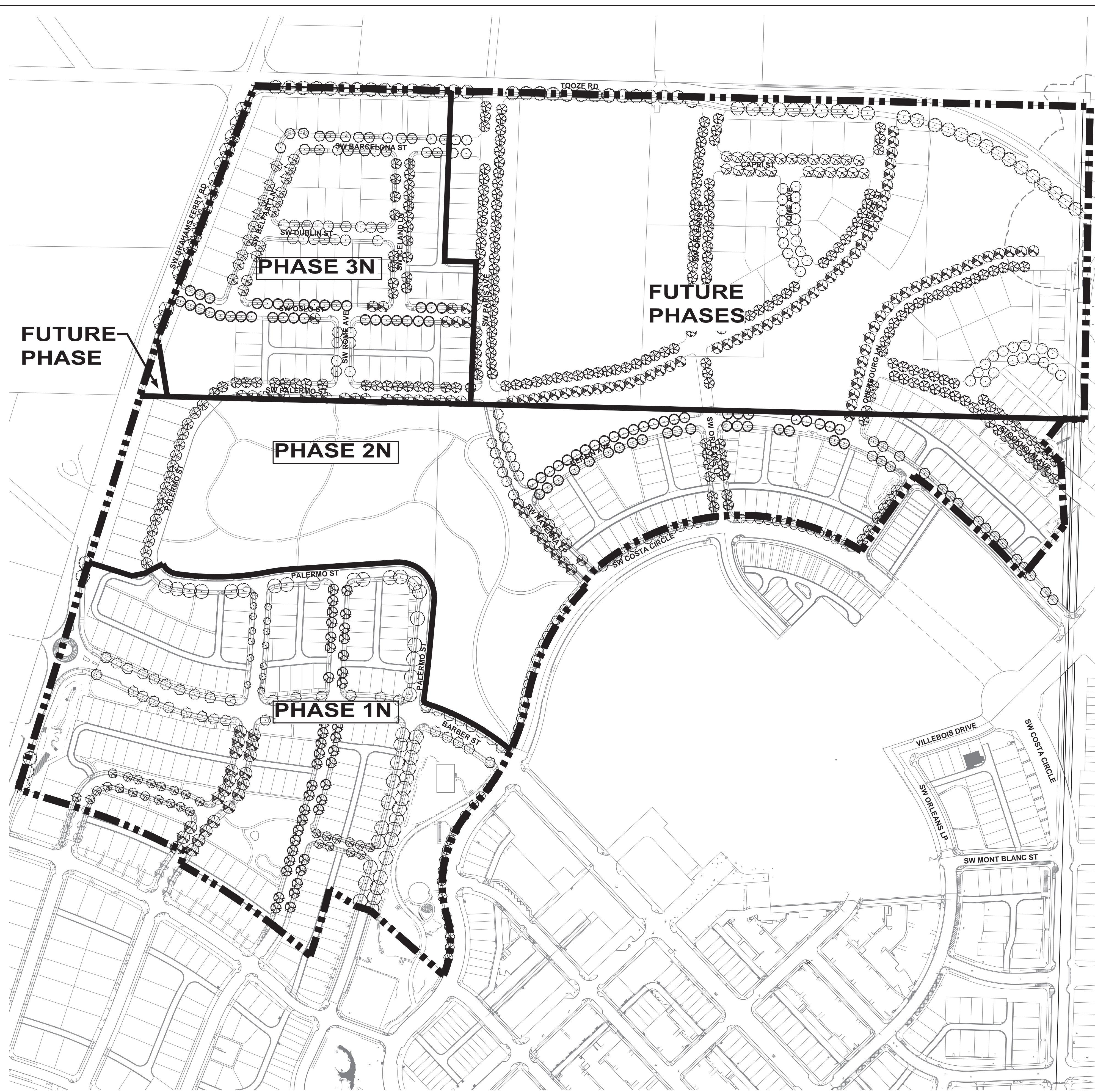
SROZ Plan

DATE 3/25/14



10

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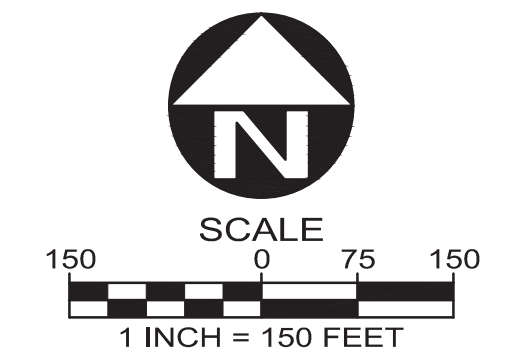


STREET TREE LEGEND- PHASE 1			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	QUERCUS ALBA White Oak	2" cal.	30' o.c.
	LIRIODENDRON TULIPIFERA Tulip Tree	2" cal.	30' o.c.
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	TILIA x EUCHLORA Crimean Linden	2" cal.	30' o.c.
	ACER RUBRUM "RED SUNSET" Red Sunset Maple	2" cal.	30' o.c.
	ZELKOVA SERR. "VILLAGE GREEN" Tulip Tree	2 1/2" cal.	35' o.c.
	CORNUS FLORIDA Flowering Dogwood	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2 1/2" cal.	40' o.c.

STREET TREE LEGEND- PHASE 2			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII "AUTUMN BLAZE" Autumn Blaze Maple	2" cal.	30' o.c.
	CLADRASTIS KENTUKEA Yellowwood	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	LIRIODENDRON TULIPIFERA Tulip Tree	2 1/2" cal.	25' o.c.
	QUERCUS ALBA White Oak	2" cal.	30' o.c.
	TILIA x EUCHLORA Crimean Linden	2" cal.	30' o.c.
	QUERCUS ALBA White Oak	2" cal.	30' o.c.

STREET TREE LEGEND- PHASE 3			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLATANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA "GREEN VASE" Green Vase Zelkova	2" cal.	30' o.c.

STREET TREE LEGEND- FUTURE PHASES			
SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
	ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLATANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA "GREEN VASE" Green Vase Zelkova	2" cal.	30' o.c.



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

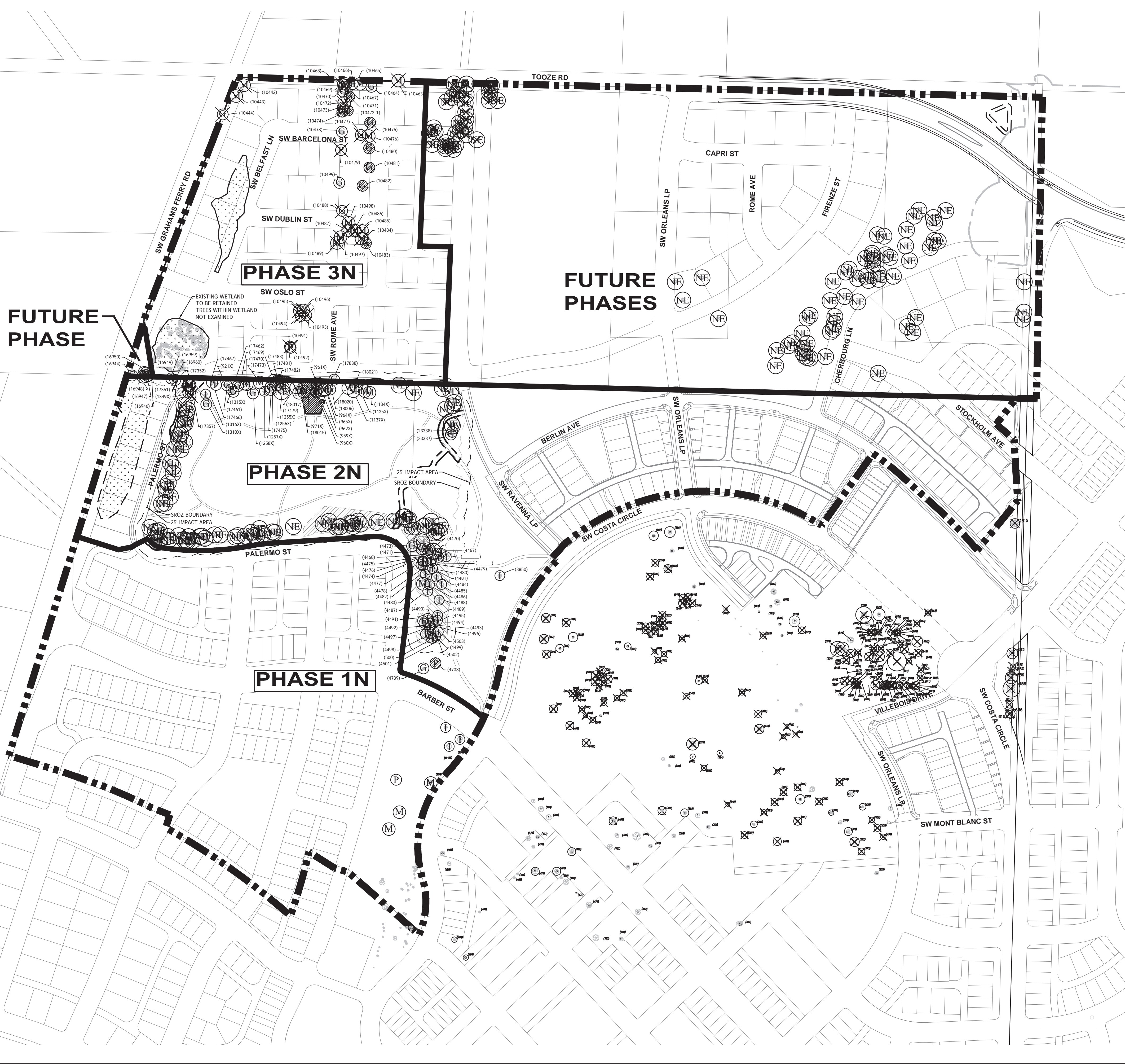
SAP NORTH VILLEBOIS

Specific Area Plan

Street Tree Plan

DATE 3/25/14

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LEGEND:	
I	IMPORTANT
G	GOOD
M	MODERATE
P	POOR
NE	NOT EXAMINED
(Circle with dot)	EXISTING TREES TO REMAIN
(Circle with diagonal lines)	EXISTING TREES LIKELY TO BE REMOVED
(Circle with X)	EXISTING TREES TO BE REMOVED
(Hatched area)	SROZ ENCROACHMENT AREA
(Dotted area)	CREATED SROZ AREA
(Dashed line)	SROZ BOUNDARY LINE



Villebois



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PACIFIC COMMUNITY DESIGN

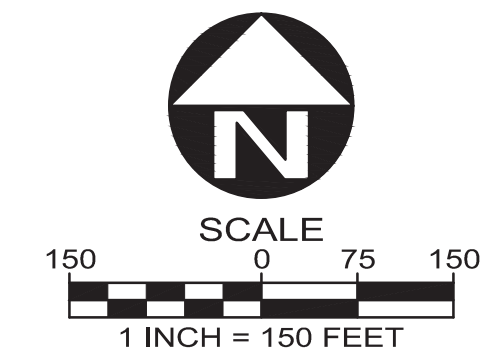
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GEODESIGN, INC.

SAP NORTH VILLEBOIS

Specific Area Plan

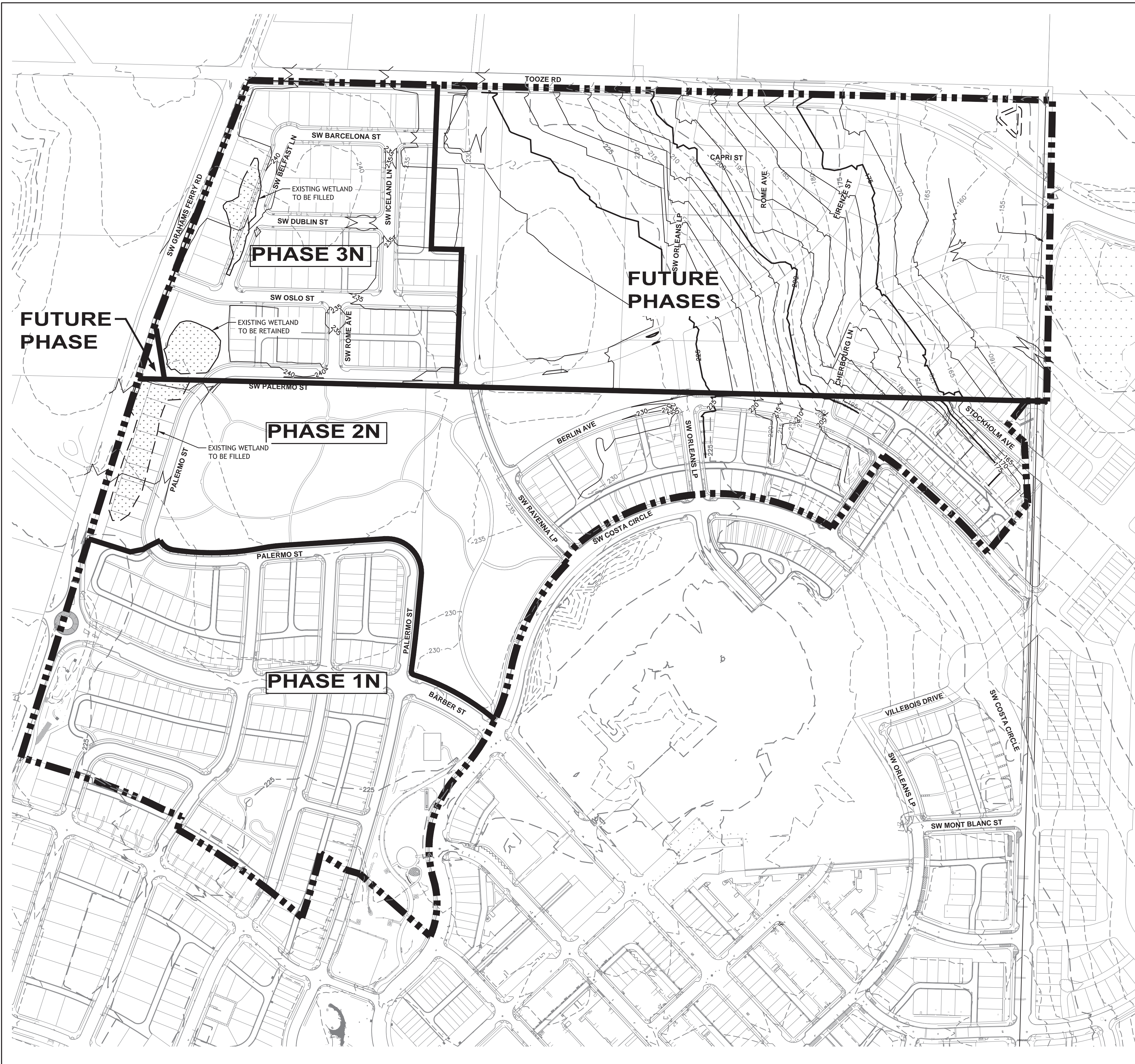
Tree Preservation Plan

DATE 3/25/14



12

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LEGEND:

- - - 175	- - - EX 5-FT CONTOUR
- - - 200	- - - EX 25-FT CONTOUR
- - - 175	- - - PROPOSED 5-FT CONTOUR
- - - 200	- - - PROPOSED 25-FT CONTOUR
— — —	SPECIFIC AREA PLAN BOUNDARY



Villebois



POLYGON NW COMPANY



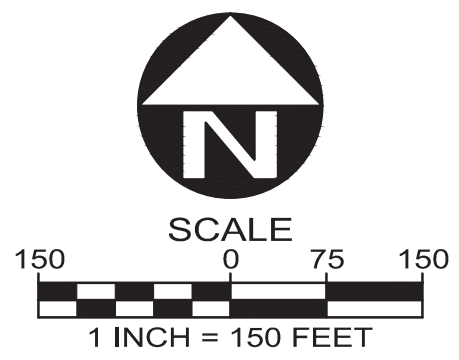
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GEODESIGN, INC

SAP NORTH
VILLEBOIS

Specific
Area Plan

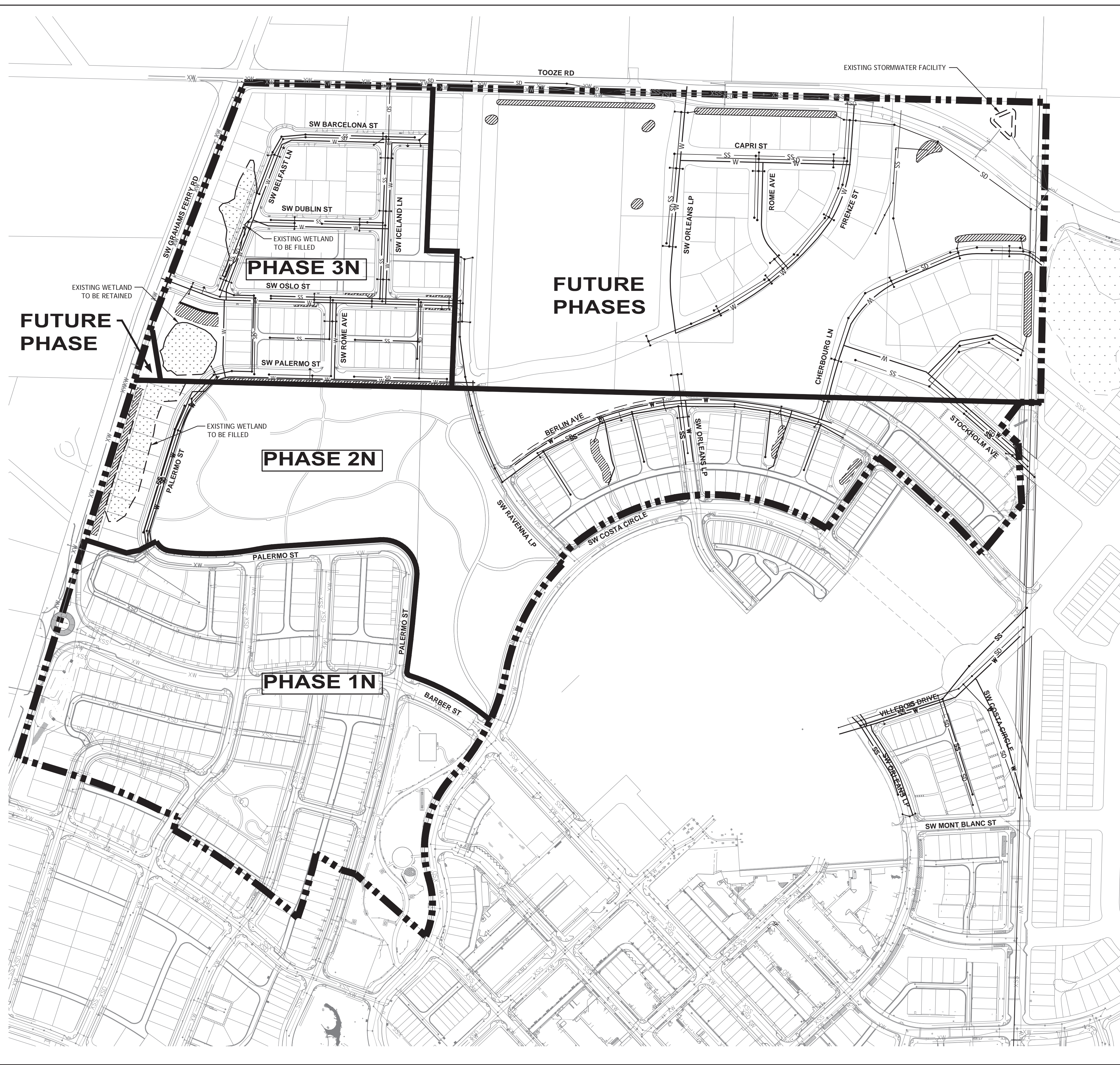
Grading
Plan

DATE 3/25/14



13

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LEGEND:

- XSD — EXISTING STORM
- XSS — EXISTING SANITARY
- XW — EXISTING WATER
- SD — PROPOSED STORM
- SS — PROPOSED SANITARY GRAVITY MAIN
- W — PROPOSED WATER
- — PROPOSED STORM MANHOLE
- ⊙ — PROPOSED SEWER MANHOLE
- ▨ — BIORETENTION



Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

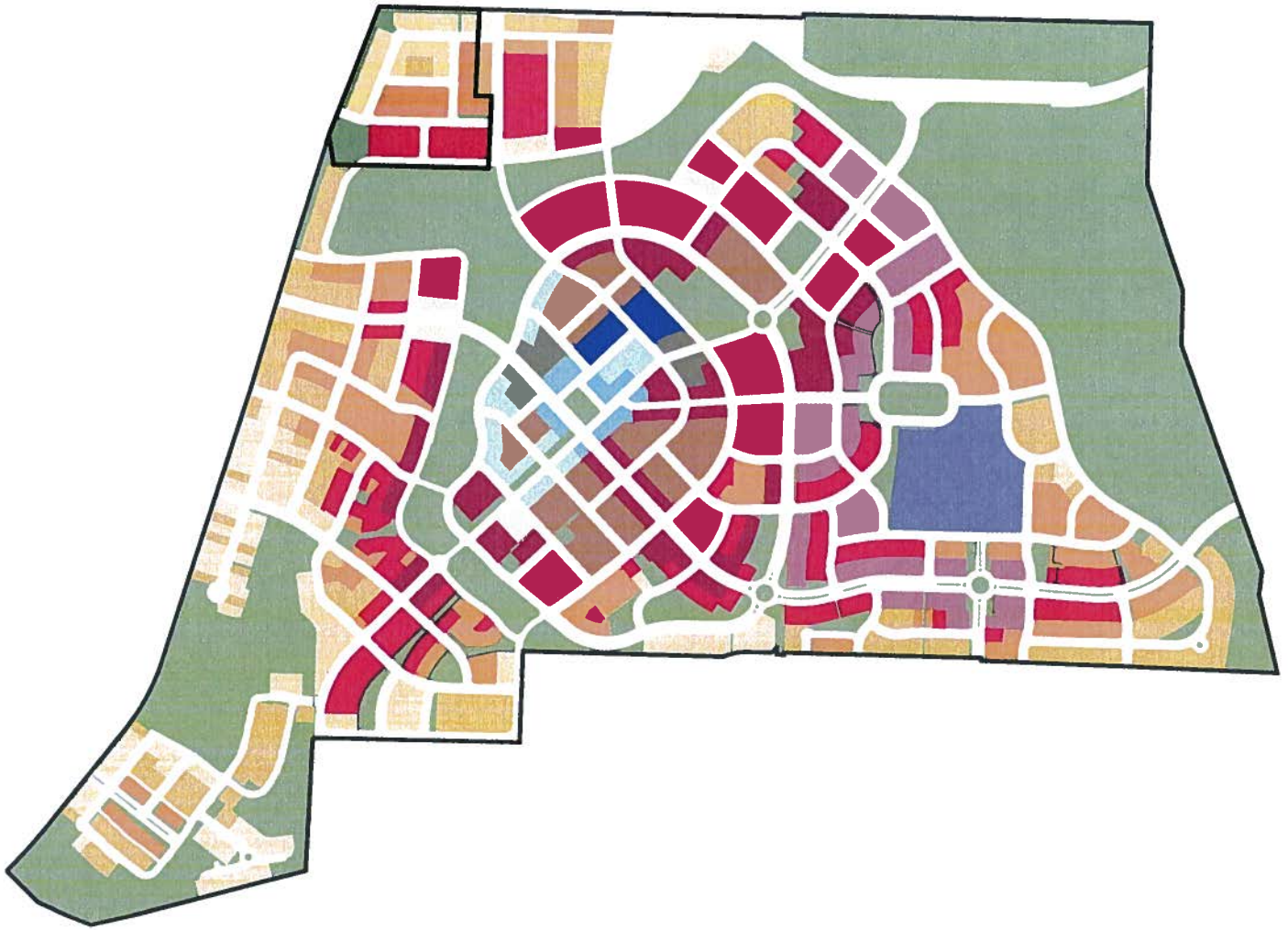
SAP NORTH VILLEBOIS

Specific Area Plan

Utility Plan

DATE 3/25/14

SCALE
0 75 150
1 INCH = 150 FEET



PDP 3 North

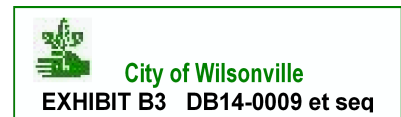
“Calais at Villebois”

Annexation, Preliminary Development Plan, Tentative Plat,
Zone Change, Tree Removal Plan, & Final Development Plan

Submitted to City of Wilsonville, Oregon

January 31, 2014

POLYGON  NORTHWEST COMPANY



**TABLE OF CONTENTS
FOR
PDP 3 - NORTH**

SECTION I)	GENERAL INFORMATION <ul style="list-style-type: none">IA) INTRODUCTORY NARRATIVEIB) FORM/OWNERSHIP DOCUMENTATIONIC) FEE CALCULATION/COPY OF CHECKSID) MAILING LIST
SECTION II)	ANNEXATION <ul style="list-style-type: none">IIA) SUPPORTING COMPLIANCE REPORTIIB) COPY OF PETITION & OWNERSHIP/ELECTOR INFOIIC) LEGAL DESCRIPTION & SKETCH
SECTION III)	PRELIMINARY DEVELOPMENT PLAN <ul style="list-style-type: none">IIIA) SUPPORTING COMPLIANCE REPORTIIIB) REDUCED DRAWINGSIIIC) UTILITY AND DRAINAGE REPORTSIIID) TRAFFIC ANALYSISIIIE) TREE REPORTIIIF) CONCEPTUAL ELEVATIONSIIIG) SRIR ADDENDUM & WETLAND DELINEATION REPORT
SECTION IV)	TENTATIVE PLAT <ul style="list-style-type: none">IVA) SUPPORTING COMPLIANCE REPORTIVB) TENTATIVE PLATIVC) DRAFT CC&R'SIVD) COPY OF CERTIFICATION OF ASSESSMENTS & LIENSIVE) SUBDIVISION NAME APPROVAL
SECTION V)	ZONE CHANGE <ul style="list-style-type: none">VA) SUPPORTING COMPLIANCE REPORTVB) ZONE CHANGE MAPVC) LEGAL DESCRIPTION & SKETCH
SECTION VI)	TREE REMOVAL PLAN <ul style="list-style-type: none">VIA) SUPPORTING COMPLIANCE REPORTVIB) TREE REPORTVIC) TREE PRESERVATION PLAN
SECTION VII)	FINAL DEVELOPMENT PLAN <ul style="list-style-type: none">VIIA) SUPPORTING COMPLIANCE REPORTVII B) REDUCED DRAWINGSVII C) SAMPLE MAILBOX ELEVATIONS

Section I

General Information

IA
Introductory Narrative

**INTRODUCTORY NARRATIVE
PDP 3 NORTH**

**INCLUDING: ANNEXATION, PRELIMINARY DEVELOPMENT PLAN, TENTATIVE PLAT,
ZONE CHANGE AND FINAL DEVELOPMENT PLAN**

SECTION IA

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I. GENERAL INFORMATION

Applicant:

Polygon Northwest Company
109 E. 13th Avenue
Vancouver, WA 98660
Tel: 503.221.1920
Fax: 360.693.4442
Contact: Fred Gast

Property Owners:

Villebois, LLC
1022 SW Salmon Street, Ste 450
Portland, Oregon 97205
Contact: Wayne Rembold
(Tax Lots 1200 & 1205)

Charles & Carolyn Taber
11800 SW Tooze Road
Wilsonville, Oregon 97070
(Tax Lots 1202)

Design Team:

Primary Contact:

Stacy Connery
Pacific Community Design, Inc.
Tel: 503.941.9484
Fax: 503.941.9485
Email: stacy@pacific-community.com

Process Planner/Civil
Engineer/Surveyor:

Pacific Community Design, Inc.
12564 SW Main Street
Tigard, Oregon 97223
Tel: 503.941.9484
Fax: 503.941.9485
Contact: Stacy Connery, AICP
Jim Lange, PE
Patrick Espinosa, PE
Travis Jansen, PLS/PE

Landscape Architect:

Otten Landscape Architects, Inc.
3933 SW Kelly Ave., Suite B
Portland, Oregon 97239
Tel: 503.972.0311
Contact: Janet Otten, ASLA
Kristina Durant

Arborist: **Morgan Holen & Associates, LLC**
3 Monroe Parkway, Suite P 220
Lake Oswego, Oregon 97035
Tel: 971.409.9354
Contact: **Morgan Holen**

Environmental Consultant: **SWCA**
1220 SW Morrison Street, Ste. 700
Portland, OR 97205
Tel: (503) 224-0333
Contact: **Stacy Benjamin**

Site and Proposal Information:

Site: TL 1200, 1202 & 1205, Map 3 1W 15

(Note: Additional area within Tax Lot 2995 is included with FPD)

Size: 15.16 acres

Comprehensive Plan Designation: Residential - Village (R-V)

Existing Zoning: Clackamas County Rural Residential Farm Forest 5-Acre (RRFF-5)

Proposed Zoning: Village (V)

Specific Area Plan: SAP - North

Proposal: Annexation
Preliminary Development Plan
Tentative Plat
Zone Change to Village (V)
Tree Removal Plan
Final Development Plan (includes Child Play area deferred with PDP 2N)

Unit Count: 84 dwelling units

Net Residential Density: 9.72 units/net acre

Project Name: "Calais at Villebois"

II. REQUEST

This is an application for PDP 3 North. A concurrent amendment to SAP North has been submitted, which addresses phasing and the addition of information for Phase 3. This PDP application is submitted in conformance with SAP North, as amended to include Phase 3.

This request includes six (6) applications for Phase 3 of Specific Area Plan - North as follows:

- Annexation - Notebook Section II
- Preliminary Development Plan (PDP 3N) - Notebook Section III
- Tentative Plat (PDP 3N) - Notebook Section IV
- Zone Change to Village (V) for PDP 3N area - Notebook Section V
- Tree Removal Plan for PDP 3N area - Notebook Section VI
- Final Development Plan for PDP 3N area - Notebook Section VII

The applications are arranged in the order that approval should be granted based upon provisions in the development code. Each application is placed in a separate section within the Notebook labeled Sections II through VII respectively, with all supporting documentation needed for that application placed in the appropriate subsection.

The attached Supporting Compliance Reports (see Sections IIA, IIIA, IVA, VA, VIA, and VIIA), in conjunction with the attached plan sheets and other exhibits, demonstrate compliance with the applicable review criteria.

III. PROPOSED ANNEXATION & ZONE CHANGE

The subject site is a part of Villebois Village and is intended to be developed under the guidance of the *Villebois Village Master Plan* and the Village zone. The site must be annexed in order for that to occur. The site is currently within Clackamas County and has a zoning designation of Rural Residential Farm Forest 5-Acre (RRFF-5). The Applicant proposes annexation of the subject site to the City of Wilsonville, recognizing that approvals requested with this application are contingent upon approval of city annexation.

The site has a comprehensive plan designation of Residential-Village. The Village (V) zone is the intended district for Residential-Village areas. Therefore, a concurrent Zone Change application to apply the Village zone to the subject site is provided in Notebook Section V.

IV. PDP 3N

Phase 3 of Specific Area Plan North (also known as PDP 3N) is approximately 15.16 gross acres in size. PDP 3N proposes 84 single family homes, 2.03 acres of open space areas, and associated infrastructure improvements.

LAND USES

PDP 3N proposes 84 lots, including 32 Small lots, 26 Mediums, 3 Standard lots, and 23 Large lots. The proposed distribution in units provides for a mix of unit types within

blocks that is compatible with adjacent land uses. Table A below lists the residential units broken down by development phase for all of SAP North. PDP 1 North and PDP 2 North have each been approved. PDP 1N has been constructed and PDP 2N is in the first phase of construction.

Table A: Unit Counts, Specific Area Plan - North

Product Type	PDP 1N	PDP 2N	PDP 3N	Future Phases	Total
Estate	0	0	0	22	22
Large	0	0	23	20	43
Standard	2	10	3	5	20
Medium	30	6	26	27	89
Small	98	37	32	47	214
Small Cottage	12	37	0	0	49
Row House	0	0	0	0	0
Nbhd Apartment	0	0	0	10	10
Total	142	90	84	131	447

As previously mentioned, a concurrent application has been submitted to amend SAP North, which amends the boundary of Phase 3 and adds information for Phase 3. PDP 3N is submitted in conformance with the concurrent amendment to SAP North.

PARKS & OPEN SPACE

The *Villebois Village Master Plan* and SAP North show a narrow portion of OS-2 and associated SROZ area along the southern property line. OS-2 is intended to preserve a large forested area while providing soft surface nature trails meandering through the forest and linking adjacent neighborhoods, benches for wildlife viewing and quiet contemplation, and a child play structure as site amenities. PDP 3N provides the portion of OS-2 within an open space tract along the southern site edge. In addition, the child play area, nature trails, and benches within OS-2 will be provided with PDP 3N. Phase 3 of SAP North, per the concurrent SAP North Amendment, shows a pocket park in the northwest site corner, including a play structure, lawn area, and pathway to the intersection of Grahams Ferry Road and Tooze Road; an open space area in the southwestern site corner that retains an existing treed wetland; and various linear greens/landscape tracts throughout the site. PDP 3N is submitted in conformance with the proposed SAP North Amendment; therefore, PDP 3N is consistent with the parks and open spaces within SAP North.

UTILITIES

Sanitary Sewer

The sanitary sewer system for Phase 3N is shown on *Sheet 6 - Composite Utility Plan* in Section IIIB of this Notebook. The sanitary sewer will be a gravity system that will discharge to the existing sanitary sewer line within SW Berlin Avenue in Tonquin Woods

No. 4 and Tonquin Woods No. 5, located to the south, and ultimately discharge to the main within SW 110th Avenue to the east. Sanitary sewer service can be adequately provided to this area in compliance with the *Villebois Village Master Plan*, as demonstrated in the attached Sanitary Sewer Capacity Memorandum (see Notebook Section IIIC).

Water

The proposed water system for Phase 3N is shown on *Sheet 6 - Composite Utility Plan* (see Notebook Section IIIB). The proposed public water system will consist of 8" diameter pipes and will connect to existing water lines within Grahams Ferry Road and Tooze Road. The system will be looped throughout the development to maximize flows. Water service can adequately be provided to this area in compliance with the *Villebois Village Master Plan* and the City's Water System Master Plan.

Stormwater

Stormwater runoff will be collected by a series of catch basins leading to an underground piping system. The system will connect to two locations. The majority of the proposed site drains to existing storm lines within SW Tooze Road to a regional stormwater facility, within the Coffee Creek Basin. The southwest portion of the site is within the Mill Creek Basin and will drain to a rainwater management facility and then to a regional stormwater facility. A Water Quality and Detention Analysis (see Notebook Section IIIC), demonstrates that the proposed system will provide adequate sizing and treatment. Water quality and detention areas are shown on *Sheet 5 - Grading Plan* (see Notebook Section IIIB). Stormwater pipes area shown on *Sheet 6 - Composite Utility Plan* (see Notebook Section IIIB).

Rainwater

A Rainwater Management Plan is included with the Supporting Utility Reports in Notebook Section IIIC. Rainwater management within PDP 3N will be provided through street trees and bio-retention cells located in landscape tracts, planter strips in rights-of-way, and around the retained wetland, as shown within the attached plans (see Notebook Section IIIB) and described in the PDP Compliance Report (see Notebook Section IIIA).

CIRCULATION

The transportation infrastructure proposed for PDP 3N will provide convenient neighborhood circulation. *Sheet 7 - Circulation Plan & Street Sections* (see Notebook Section IIIB) illustrates the circulation system within this Preliminary Development Plan area.

FDP (INCLUDES OS-2 CHILD PLAY AREA IN PDP 2N)

A Final Development Plan (FDP) for parks and landscaping in PDP 3N is included with this submittal in Notebook Section VII. PDP 3N includes a narrow portion of OS-2 along the southern site edge, a retained wetland within an open space tract in the southwestern site corner, a pocket park in the northwestern site corner, and various linear greens/landscape tracts along the site entrance and throughout the development.

Native shrub and groundcover, medium ornamental shrubs, lawn area, and conifer trees are included within the open space tract in the southwestern site corner, outside of the retained wetland. The pocket park includes a small lawn area and ornamental plantings.

PDP 2N included the majority of OS-2 in a large open space tract. However, amenities along the northern edge of the property, including the child play area and seating were deferred until such a time when public access and visibility are created through development of the subject property. Therefore, the FDP for PDP 3N also includes detailed plans for the portion of OS-2 within PDP 2N, illustrating the provision of seating and a child play area.

V. PROPOSAL SUMMARY & CONCLUSION

This Introductory Narrative, in conjunction with the referenced sections, describes the proposed Annexation, Preliminary Development Plan including SAP North refinements and phasing amendment, Tentative Plat, Zone Change, Tree Removal Plan, and Final Development Plan. The Supporting Compliance Reports located in Sections II through VI, respectively, support these requests for approval of the subject applications and demonstrate compliance with the applicable standards of the Wilsonville Planning and Land Development Ordinance.

IB

Form/Ownership
Documentation

CITY OF WILSONVILLE

29799 SW Town Center Loop East
Wilsonville, OR 97070
Phone: 503.682.4960
Fax: 503.682.7025

Web: www.ci.wilsonville.or.us

Pre-Application meeting date:

Planning Division Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

TO BE COMPLETED BY APPLICANT:

Please PRINT legibly

Applicant:

Polygon Northwest Company

Address: 109 E. 13th Street, Vancouver, WA 98660

Phone: 503-314-0807

Fax: 360-693-4442

E-mail: fred.gast@polygonhomes.com

Authorized Representative:

Pacific Community Design (Stacy Connery)

Address: 12564 SW Main Street, Tigard, OR 97223

Phone: 503-941-9484

Fax: 503-941-9485

E-mail: stacy@pacific-community.com

Property Owner:

Tax Lot 1202: Charles & Carolyn Taber

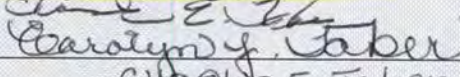
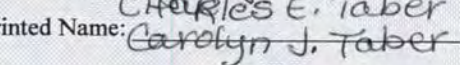
Address: 11800 SW Tooze Road, Wilsonville, OR 97070

Phone:

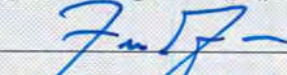
Fax:

E-mail:

Property Owner's Signature:


Printed Name: Charles E. Taber Date: 1/30/14

Printed Name: Carolyn J. Taber

Applicant's Signature (if different from Property Owner):


Printed Name: Fred Gast Date: 1/30/14

Site Location and Description:

Project Address if Available: n/a Suite/Unit

Project Location: Villebois SAP North

Tax Map #(s): 3 1 W15 Tax Lot #(s): 1200, 1202 & 1205 County: Washington Clackamas

Request: Annexation of subject properties from Clackamas County to the City; Preliminary Development Plan (PDP 3N)

Tentative Plat, Tree Removal Plan, Zone Change, and Final Development Plan (FDP)

Project Type: Class I Class II Class III

Residential Commercial Industrial Other (describe below)

Application Type:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> Annexation | <input type="checkbox"/> Appeal | <input type="checkbox"/> Comp Plan Map Amend | <input type="checkbox"/> Conditional Use |
| <input type="checkbox"/> Final Plat | <input type="checkbox"/> Major Partition | <input type="checkbox"/> Minor Partition | <input type="checkbox"/> Parks Plan Review |
| <input type="checkbox"/> Plan Amendment | <input type="checkbox"/> Planned Development | <input checked="" type="checkbox"/> Preliminary Plat | <input type="checkbox"/> Request to Modify Conditions |
| <input type="checkbox"/> Request for Special Meeting | <input type="checkbox"/> Request for Time Extension | <input type="checkbox"/> Signs | <input type="checkbox"/> Site Design Review |
| <input type="checkbox"/> SROZ/SRIR Review | <input type="checkbox"/> Staff Interpretation | <input type="checkbox"/> Stage I Master Plan | <input type="checkbox"/> Stage II Final Plan |
| <input checked="" type="checkbox"/> Type C Tree Removal Plan | <input type="checkbox"/> Tree Removal Permit (B or C) | <input type="checkbox"/> Temporary Use | <input type="checkbox"/> Variance |
| <input type="checkbox"/> Villebois SAP | <input checked="" type="checkbox"/> Villebois PDP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Waiver |
| <input checked="" type="checkbox"/> Zone Map Amendment | <input checked="" type="checkbox"/> Other Villebois FDP | | |

CITY OF WILSONVILLE

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Please PRINT legibly

Applicant:

Polygon Northwest Company

Address: 109 E. 13th Street, Vancouver, WA 98660

Phone: 503-314-0807

Fax: 360-693-4442

E-mail: fred.gast@polygonhomes.com

Authorized Representative:

Pacific Community Design (Stacy Connery)

Address: 12564 SW Main Street, Tigard, OR 97223

Phone: 503-941-9484

Fax: 503-941-9485

E-mail: stacy@pacific-community.com

Property Owner:

Tax Lot 1200 and 1205: Villebois, LLC

Address: 1022 SW Salmon Street, Suite 450, Portland, OR 97205

Phone: 503-222-7258

Fax: 503-222-4053


E-mail:

Property Owner's Signature:

VILLEBOIS LLC
By: 

Printed Name: WYNNE REIBOLD Date: 1-30-14

Applicant's Signature (if different from Property Owner):


Printed Name: Fred Gast Date: 1/30/14

Site Location and Description:

Project Address if Available: n/a Suite/Unit

Project Location: Villebois SAP North

Tax Map #(s): 3 1 W15 Tax Lot #(s): 1200, 1202 & 1205 County: Washington Clackamas

Request: Annexation of subject properties from Clackamas County to the City; Preliminary Development Plan (PDP 3N)
Tentative Plat, Tree Removal Plan, Zone Change, and Final Development Plan (FDP)

Project Type: Class I Class II Class III

Residential Commercial Industrial Other (describe below)

Application Type:

- | | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> Annexation | <input type="checkbox"/> Appeal | <input type="checkbox"/> Comp Plan Map Amend | <input type="checkbox"/> Conditional Use |
| <input type="checkbox"/> Final Plat | <input type="checkbox"/> Major Partition | <input type="checkbox"/> Minor Partition | <input type="checkbox"/> Parks Plan Review |
| <input type="checkbox"/> Plan Amendment | <input type="checkbox"/> Planned Development | <input checked="" type="checkbox"/> Preliminary Plat | <input type="checkbox"/> Request to Modify Conditions |
| <input type="checkbox"/> Request for Special Meeting | <input type="checkbox"/> Request for Time Extension | <input type="checkbox"/> Signs | <input type="checkbox"/> Site Design Review |
| <input type="checkbox"/> SROZ/SRIR Review | <input type="checkbox"/> Staff Interpretation | <input type="checkbox"/> Stage I Master Plan | <input type="checkbox"/> Stage II Final Plan |
| <input checked="" type="checkbox"/> Type C Tree Removal Plan | <input type="checkbox"/> Tree Removal Permit (B or C) | <input type="checkbox"/> Temporary Use | <input type="checkbox"/> Variance |
| <input type="checkbox"/> Villebois SAP | <input checked="" type="checkbox"/> Villebois PDP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Waiver |
| <input checked="" type="checkbox"/> Zone Map Amendment | <input checked="" type="checkbox"/> Other Villebois FDP | | |

CITY OF WILSONVILLE

29799 SW Town Center Loop East
Wilsonville, OR 97070
Phone: 503.682.4960
Fax: 503.682.7025
Web: www.ci.wilsonville.or.us
Pre-Application meeting date:

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TO BE COMPLETED BY APPLICANT:

Please PRINT legibly

Applicant:

Polygon Northwest Company

Address: 109 E. 13th Street, Vancouver, WA 98660

Phone: 503-314-0807

Fax: 360-693-4442

E-mail: fred.gast@polygonhomes.com

Property Owner:

Polygon at Villebois III LLC

Address: same as above

Phone: _____

Fax: _____

E-mail: _____

Authorized Representative:

Pacific Community Design (Stacy Connery)

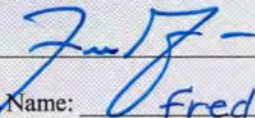
Address: 12564 SW Main Street, Tigard, OR 97223

Phone: 503-941-9484

Fax: 503-941-9485

E-mail: stacy@pacific-community.com

Property Owner's Signature:


Printed Name: Fred Gast Date: 1-26-14

Applicant's Signature (if different from Property Owner):

Printed Name: _____ Date: _____

Site Location and Description:

Project Address if Available: n/a Suite/Unit _____

Project Location: Villebois SAP North

Tax Map #(s): 3 1 W15 Tax Lot #(s): 2995 County: Washington Clackamas

Request: Final Development Plan for Open Space 2 areas within PDP 2N

Project Type: Class I Class II Class III

Residential Commercial Industrial Other (describe below)

Application Type:

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Annexation | <input type="checkbox"/> Appeal | <input type="checkbox"/> Comp Plan Map Amend | <input type="checkbox"/> Conditional Use |
| <input type="checkbox"/> Final Plat | <input type="checkbox"/> Major Partition | <input type="checkbox"/> Minor Partition | <input type="checkbox"/> Parks Plan Review |
| <input type="checkbox"/> Plan Amendment | <input type="checkbox"/> Planned Development | <input type="checkbox"/> Preliminary Plat | <input type="checkbox"/> Request to Modify Conditions |
| <input type="checkbox"/> Request for Special Meeting | <input type="checkbox"/> Request for Time Extension | <input type="checkbox"/> Signs | <input type="checkbox"/> Site Design Review |
| <input type="checkbox"/> SROZ/SRIR Review | <input type="checkbox"/> Staff Interpretation | <input type="checkbox"/> Stage I Master Plan | <input type="checkbox"/> Stage II Final Plan |
| <input type="checkbox"/> Type C Tree Removal Plan | <input type="checkbox"/> Tree Removal Permit (B or C) | <input type="checkbox"/> Temporary Use | <input type="checkbox"/> Variance |
| <input type="checkbox"/> Villebois SAP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Villebois PDP | <input type="checkbox"/> Waiver |
| <input type="checkbox"/> Zone Map Amendment | <input checked="" type="checkbox"/> Other Villebois FDP | | |

26
10
11
22



Clackamas County Official Records
Sherry Hall, County Clerk

2007-047567



\$36.00

01108634200700475670030035

05/31/2007 02:43:33 PM

D-D Cnt=1 Str=10 LESLIE
\$15.00 \$11.00 \$10.00

After recording return to:
~~XXXXXXXX~~ Rembold Co.
~~XXXXXXXXXXXXXXXXXXXX~~ 1022 SW Salmon ST. #450
~~XXXXXXXXXXXXXXXXXXXX~~ Portland, OR 97205

Until a change is requested, all tax statements shall be sent
to the following address: same as above.
~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~

LAWYERS TITLE INS. CORP. 89g005370

STATUTORY WARRANTY DEED

Steven E. Rumpf, Trustee of the Steven E. Rumpf Revocable Living Trust dated March 9, 2001 and Geraldine Rumpf, Trustee of the Geraldine Rumpf Revocable Living Trust dated March 9, 2001, Grantor, conveys and warrants to Villebols LLC, an Oregon limited liability company, Grantee, the following described real property free of encumbrances except as specifically set forth herein:

SEE ATTACHED EXHIBIT "A"

Tax Account No. 00812491 & 00812534 & 01555178

This property is free of encumbrances, EXCEPT:
SEE EXHIBIT ~~XXXXXXXXXXXXXXXXXXXX~~ 'B' with exceptions
The true consideration for this conveyance is \$2,080,000.00

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY UNDER ORS 197.352. THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930 AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 197.352.

Dated: 30th day of May, 2007

St. E. Rumpf Trustee
Steven E. Rumpf, Trustee

Geraldine Rumpf TRUSTEE
Geraldine Rumpf, Trustee

STATE OF OREGON
COUNTY OF Clackamas

The foregoing instrument was acknowledged before me this 30 day of May, 2007 by Steven E. Rumpf, Trustee and Geraldine Rumpf, Trustee.

Michelle L. Williams
Notary Public State of Oregon
My commission expires: 5/7/10



Order No. 89g005370

"EXHIBIT A"

A parcel of land located in Section 15, Township 3 South, Range 1 West, Willamette Meridian and in the Samuel B. Franklin D.L.C. No. 50, Clackamas County, Oregon and being more particularly described as follows:

Beginning at a point on the West line of Parcel 2, Partition Plat No. 1994-182, Clackamas County Plat Records, which bears North $88^{\circ}34'07''$ West, 479.76 feet and South $02^{\circ}14'35''$ West 504.00 feet from the North one-quarter corner of said Section 15, being the most Southerly Northeast corner of the property described in deed Document No. 93-31319, Clackamas County Deed Records; THENCE continuing along the West line of said Partition Plat and East line of said Deed Document, South $02^{\circ}14'35''$ West, 404.94 feet to a point on the North line of the property described as Parcel I in Deed Document No. 99-111865 Clackamas County Deed Records; THENCE along said North line, North $88^{\circ}34'09''$ West 861.99 feet to the Southeast corner of the land described as Parcel II in Deed Document No. 2000-050326; THENCE along the East line of said Deed, North $09^{\circ}19'56''$ West, 166.07 feet to a point on the Easterly right-of-way line of S.W. Graham's Ferry Road (County Road No. 13*); (*being 30.00 feet Easterly at right angle measure from the centerline of said road) THENCE along said right-of-way line North $17^{\circ}14'33''$ East, 16.42 feet to an angle point; THENCE continuing along said right-of-way line North $21^{\circ}00'24''$ East, 753.43 feet to the intersection of the East line of S.W. Graham's Ferry Road and the South line of S.W. Tooze Road (Brown Road, County Road No. 355*) (*being 20.00 feet Southerly at right angle measure from the centerline of said road); THENCE along the South line of said Tooze Road, South $88^{\circ}34'07''$ East, 310.68 feet to the Northwest corner of the land described in Deed Document No. 73-30403; THENCE along the West line of said Deed South $02^{\circ}14'35''$ West, 415.00 feet to the Northwest corner of the land described in Deed Document No. 90-53950 Clackamas County Deed Records, THENCE along the North line of said land and its Easterly extension thereof South $88^{\circ}34'07''$ East, 104.99 feet to the Southeast corner of the land described in Deed Document No. 90-53949, Clackamas County Deed Records; THENCE continuing along said East line, North $02^{\circ}14'35''$ East, 415.00 feet to a point on the South right-of-way line of said Tooze Road; THENCE continuing along said South right-of-way line, South $88^{\circ}34'07''$ East, 142.88 feet to the Northwest corner of the land described in Deed Document No. 73-30518; THENCE along the West line of said land South $02^{\circ}14'35''$ West, 484.00 feet to the Southwest corner of said land; THENCE along the South line of said land, South $88^{\circ}34'07''$ East 90.00 feet to the point of beginning.

Exhibit 'B'

1. The rights of the public in and to that portion of the herein described property lying within the limits of roads and highways.
2. An easement created by instrument, including the terms and provisions thereof,
Recorded : December 4, 1978
As : 78-51839
In favor of : Portland General Electric Company, an Oregon corporation
For : Underground distribution line
Affects Parcel III
3. The herein described property is within, and subject to the regulations and restrictions of, the Wilsonville West Side Urban Renewal Plan Urban Renewal Area, as imposed by the City of by instrument,
Recorded : November 12, 2003
As : 2003-150344
And any amendments thereto.
4. Encroachment of fence and building overhang on subject property onto property adjacent to the South as disclosed by Boundary line agreement recorded July 28, 2006 as 2006-069031.
5. Encroachments as disclosed by survey,
Dated : September 5-9, 2003
Prepared by : Alpha Engineering Inc.
Project No. : 398-019
1) Encroachment : Fence
Affects : Westerly line of Parcel I & III; Southerly line of Parcel III;
Easterly line of Parcel III; Northerline line of Parcel I;
Northerly and Northeasterly lines of Parcel I
2) Encroachment : Building
Affects : Southerly line of Parcel III

2

1-355

KNOW ALL MEN BY THESE PRESENTS, That ROBERT L. NELSON and DIANE F. NELSON, husband and wife, hereinafter called the grantor, for the consideration hereinafter stated, to grantor paid by CHARLES E. TABER and CAROLYN J. TABER, husband and wife

hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the said grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Washington and State of Oregon, described as follows, to-wit:

A parcel of land situated in the Samuel B. Franklin D.L.C., described as follows:

Beginning at a point on the Southerly right-of-way of Brown Road which is South 20.00 feet and West 727.82 feet from the North one-quarter corner of said Section 15, T. 3 S., R. 1 W., of the W.M.; thence West on the Southerly right-of-way of said Brown Road 90.00 feet; thence South 484.00 feet; thence East 90.00 feet; thence North 484.00 feet to the point of beginning.

(IF SPACE INSUFFICIENT, CONTINUE DESCRIPTION ON REVERSE SIDE)

To Have and to Hold the same unto the said grantee and grantee's heirs, successors and assigns forever. And said grantor hereby covenants to and with said grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances

and that grantor will warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever, except those claiming under the above described encumbrances.

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$30,000.00. However, the actual consideration consists of or includes other property or value given or promised which is part of the consideration (indicate which).

In construing this deed and where the context so requires, the singular includes the plural. WITNESS grantor's hand this 20 day of Sept, 1973.

Robert L. Nelson
Diane F. Nelson

STATE OF OREGON, County of Washington, ss. September 20, 1973. Personally appeared the above named Robert L. Nelson and Diane F. Nelson and acknowledged the foregoing instrument to be their voluntary act and deed.

Before me: Lola B. Kinzie, Notary Public for Oregon, My commission expires 11-2-75

NOTE: The symbols between the symbols (C) if not applicable, should be deleted. See Chapter 462, Oregon Laws 1947, or amended by the 1967 Special Session.

WARRANTY DEED

NELSON

TO TABER

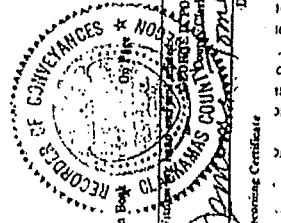
AFTER RECORDING RETURN TO

Pioneer National Title Insurance Co. P.O. Box 38 Beaverton, Oregon 97005 ATTN: Lola Kinzie

STATE OF OREGON, County of Clatsop

I, George D. Pappas, County Clerk, Ex-Officio Recorder of Conveyances and Ex-Officio Clerk of the Circuit Court of the State of Oregon, for the County of Clatsop, do hereby certify that the within instrument of writing was received for and recorded in the records of

DEED 1973 SEP 24 PM 4 28 of WAH County at 73 30403



73 30403

Recorded By Pioneer National Title Insurance Company

IC Fee Calculation

**Fee Calculation for Rumpf PDP Planning Application
(01/22/14)**

Application	Calculations	Fee
Villebois PDP	base fee - \$1920.00	\$1,920.00
	plus \$240/net acre (\$240 x 8.28)	\$1,987.20
	plus \$16/lot (\$16 x 84 lots)	\$1,344.00
	subtotal	\$5,251.20
<hr/>		
Zone Change (Quasi-judicial Map)	n/a	\$1,280.00
<hr/>		
Tentative Plat (Residential Subdivision)	base fee - \$1280	\$1,280.00
	plus \$240/net acre (\$240 x 8.28)	\$1,987.20
	plus \$16/lot (\$16 x 84 lots)	\$1,344.00
	subtotal	\$4,611.20
<hr/>		
Type C Tree Removal Plan (DRB Review)	n/a	\$560.00
<hr/>		
Villebois Final Development Plan (parks & open spaces only)	n/a	\$1,280.00
<hr/>		
TOTAL FEES DUE		\$12,982.40

**Submitted with Concurrent
SAP North Amendment
(3/26/14)**

Application	Calculations	Fee
Stage 1 - Villebois SAP Modification (SAP Amendment)	base fee - \$1280.00	on account
Stage 1 - Villebois SAP Modification (Refinements)	base fee - \$1280.00	on account
SRIR Review	base fee - \$1200.00	\$1,200.00
TOTAL FEES DUE		\$1,200.00

ID
Mailing List

31W10C 01900
Tonie Tollen
11681 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02000
Wilfrido Chavez Dominquez
11611 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02101
Dirk & Allison Anderson
11797 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02102
Michael Prigodich
27900 SW Grahams Ferry Rd
Sherwood, OR 97140

31W10C 02103
Sean & Kathleen McRae
11811 SW Tooze Rd
Wilsonville, OR 97070

31W10C 02800
Cynthia Satterlund
12041 SW Tooze Rd
Sherwood, OR 97140

31W15 01100
City Of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

31W15 01200
Villebois LLC
1022 SW Salmon St #450
Portland, OR 97205

31W15 01202
Charles & Carolyn Taber
11800 SW Tooze Rd
Wilsonville, OR 97070

31W15 01203
Jay & Theresa Nims
11700 SW Tooze Rd
Wilsonville, OR 97070

31W15 01204
Dan Long
12020 SW Tooze Rd
Sherwood, OR 97140

31W15 01205
Villebois LLC
1022 SW Salmon St #450
Portland, OR 97205

31W15 01206
Richard & Shirley White
28101 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01300
Branch Gerald & Sheryl
28690 SW 35th Dr
Wilsonville, OR 97070

31W15 01500
Michelle Avolio
28303 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01501
James & Lisa Klienstuber
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01600
Bree Cuppoletti
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15BC00100
Charles & Patricia Holtz
28445 SW Grahams Ferry Rd
Wilsonville, OR 97070

31W15 01502
Neal Berg
Po Box 25472
Portland, OR 97298

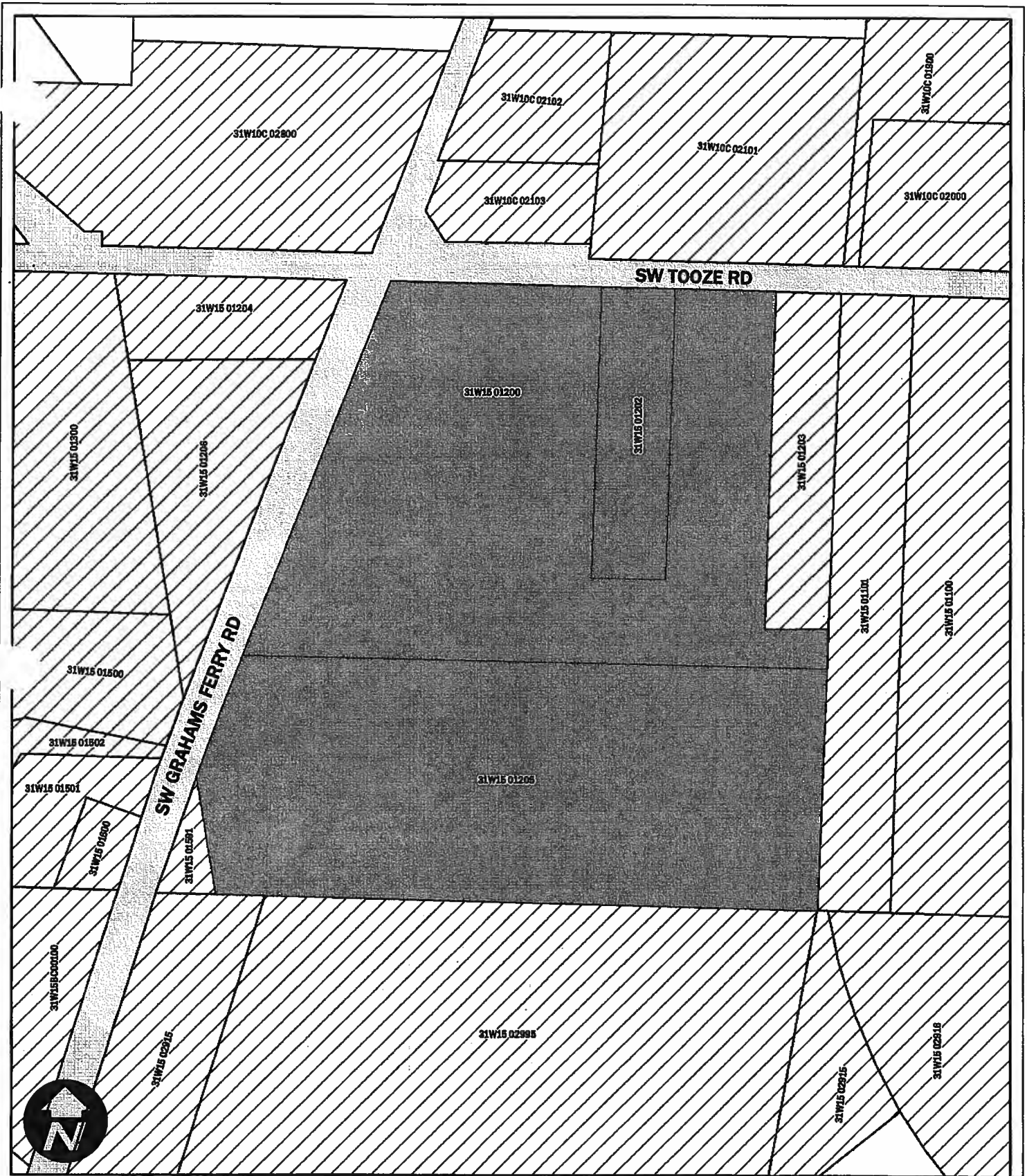
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City Of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

31W15 01591
Lisa Klienstuber
28333 SW Grahams Ferry Rd
Wilsonville, OR 97070



31W15 02915
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660

31W15 02995
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660

31W15 02916
Pnw Home Builders LLC
109 E 13th St #200
Vancouver, WA 98660



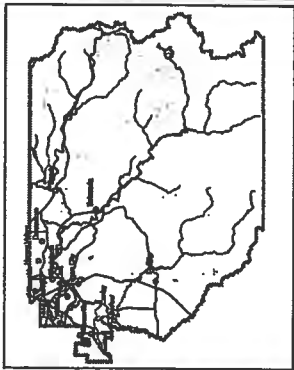
Public Notification Search

-  Subject
- Radius = 250'
-  Notification Parcels

Prepared by: Fidelity National Title
 Data: CoreLogic, Metro RLIS
 Date: 1/14/2014
 This information is reliable, but not guaranteed. It is not a survey.

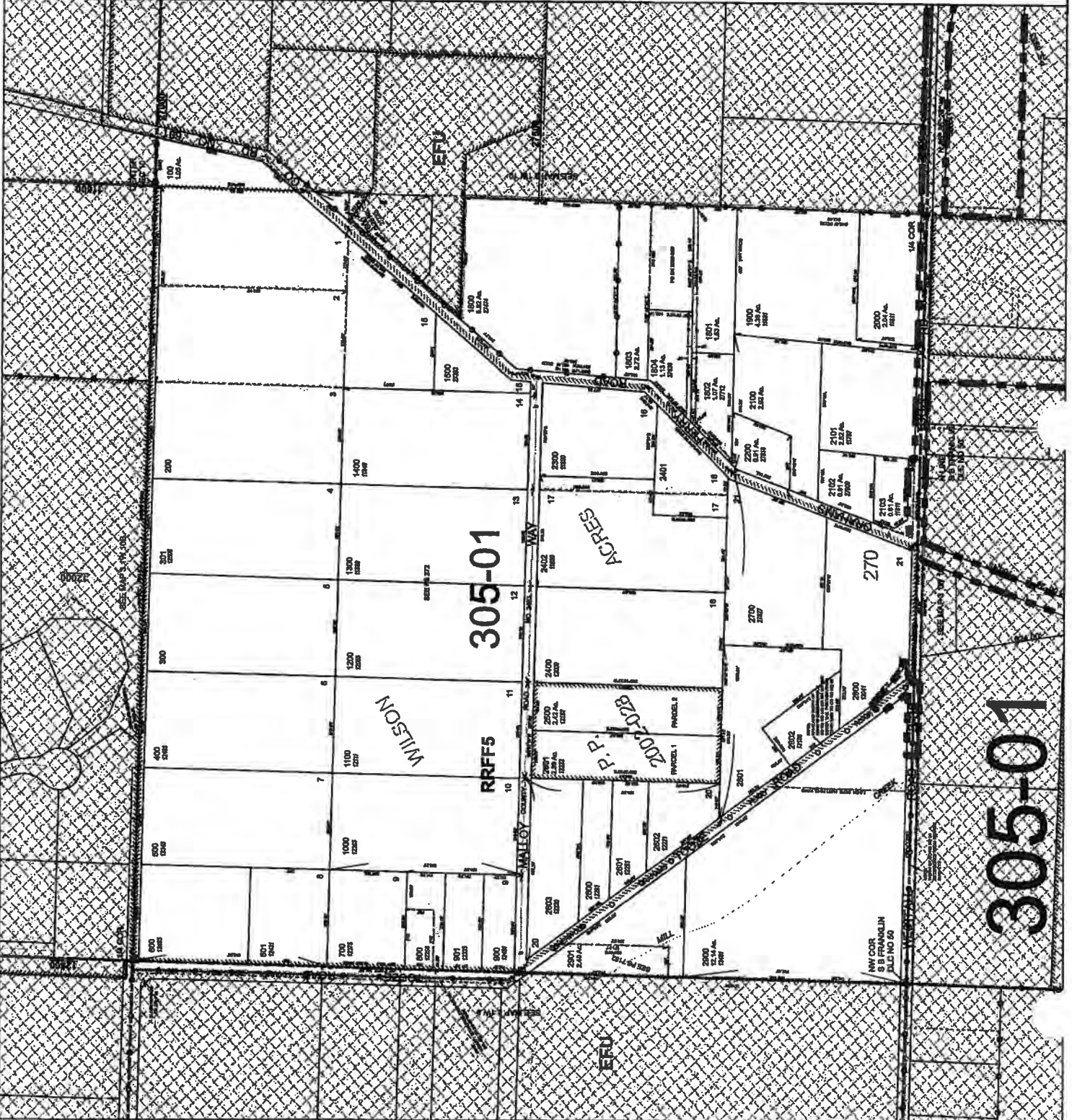
Cancelled Tracks
1970
1980
1990

- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Revised Contourline
- Transected Lines
- Map Index
- Water Lines
- Land Use Zoning
- Flood
- Water
- Corner
- Section Corner
- 1/16th Line
- Cont. Lot Line
- DLC Line
- Meander Line
- PLSS Section Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT
PURPOSES ONLY

1990/2000

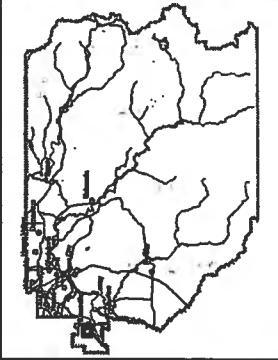


SECTION 15 T.3S. R.1, .M.
CLACKAMAS COUNTY 3 1 W 15
1" = 400'
WILSONVILLE

Cancelled Parcels

300	3000	3000
301	3001	3001
302	3002	3002
303	3003	3003
304	3004	3004
305	3005	3005
306	3006	3006
307	3007	3007
308	3008	3008
309	3009	3009
310	3010	3010
311	3011	3011
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400	3100	3100

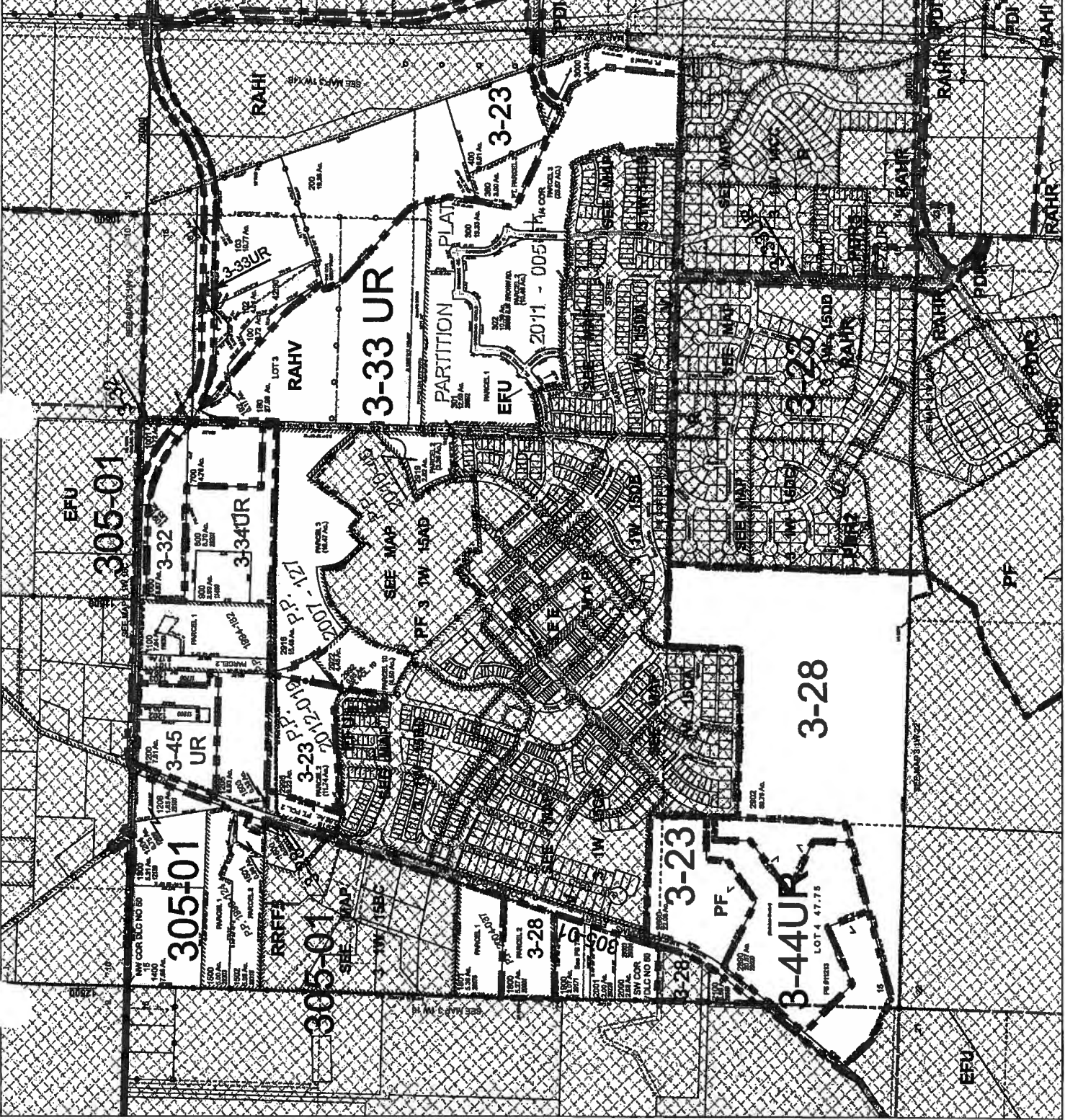
- Parcel Boundary
- Private Road ROW
- Historical Boundary
- Railroad Corridor
- Tax Parcel Lines
- Map Index
- Historical Lines
- Land Use Zoning
- Center
- Station Corner
- 1/4th Line
- Govt Lot Line
- DLC Line
- Municipal Line
- PLSB Station Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT PURPOSES ONLY

3 1 W 15
& INDEX
WILSONVILLE

03/20/2023

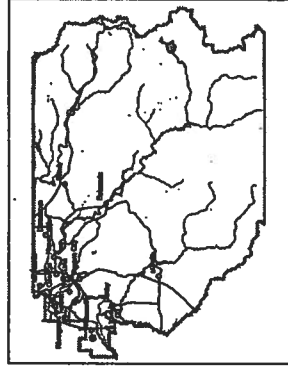


3 1 W 15 BC
 WILSONVILLE
 S.W.1/4 N.W.1/4 SEC.15 T.3S. R.1W. W.M.
 Clackamas County
 1" = 100'

D. L. C.
 SAMUEL B. FRANKLIN NO. 50

Cancelled Taxlots
 400
 700

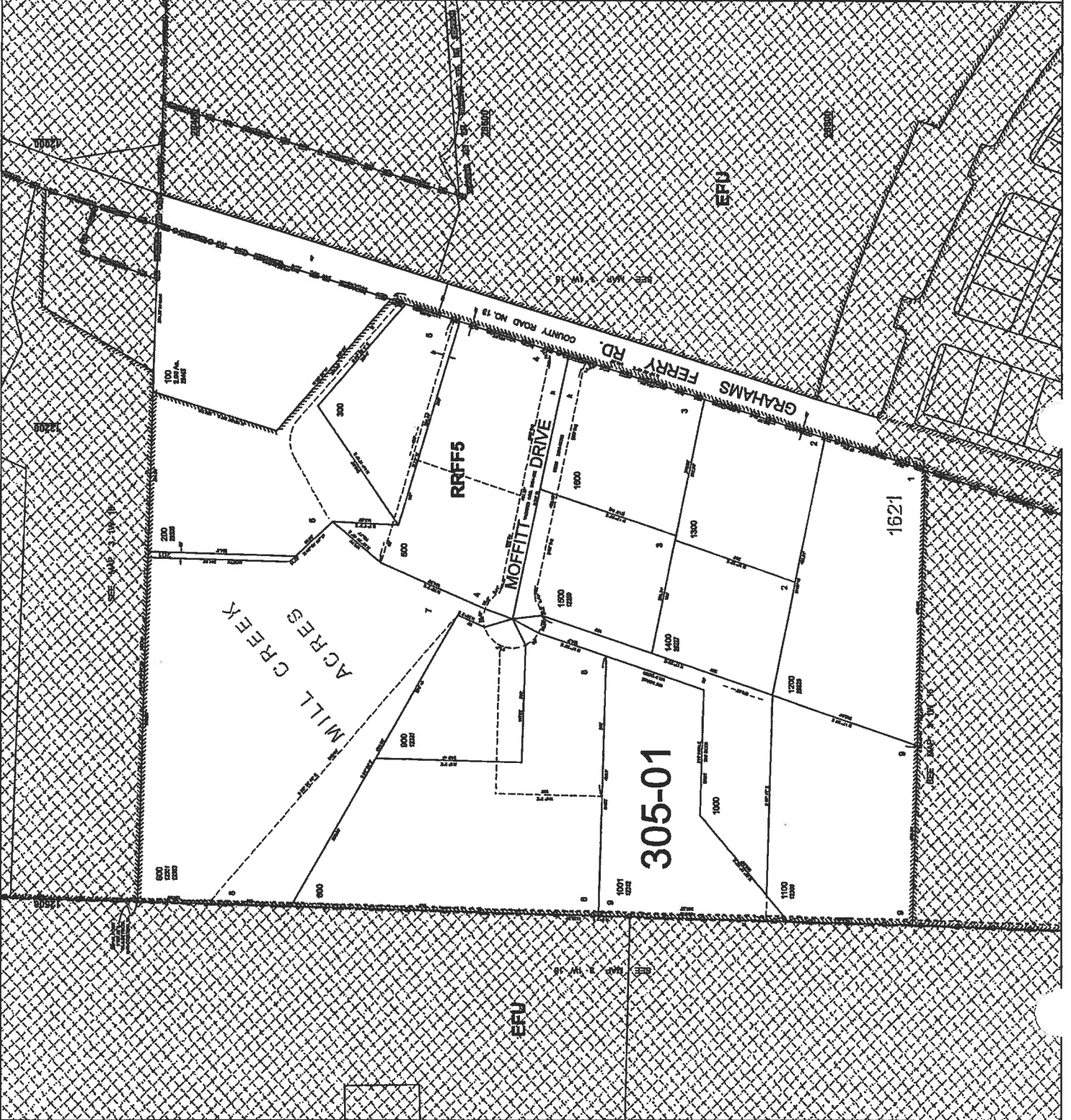
- Parcel Boundary
- - - Private Road ROW
- - - Historical Boundary
- - - Railroad Corridor/Right-of-Way
- ▨ Taxlot Lines
- - - Water Lines
- Land Use Zoning
- ▨ Pads
- ▨ Water
- Corner
- Section Corner
- HYHSH Line
- Best Use Line
- - - D.C. Line
- - - Member Line
- ⊙ PLSB Section Line
- ⊙ Historic Corridor 40'
- ⊙ Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT
 PURPOSES ONLY



3 1 W 15 BC
 WILSONVILLE





Fidelity National Financial, Inc.
Customer Service
900 SW 5th Ave, Mezzanine
Portland, OR 97204
tel: 503-796-6663 fax: 503-796-6631
csrequest@fnf.com

Tuesday, January 14, 2014

The enclosed radius search was created using data purchased from Core Logic and Metro. This data is derived from county tax records and is deemed reliable, but is not guaranteed. Fidelity National Title cannot be held liable for any additions, deletions, or errors in this search.

This research was completed on the date stated above.

Thank you.

Enclosures:

- **Data summary of parcels to be notified**
- **Map of subject parcel, radius, and parcels to be notified**
- **County assessor maps for parcels to be notified**
- **Labels**

1 -----: **Fidelity National Title Company Of Oregon / Clackamas (OR)** -----

Parcel #	: 00812491	Ref Parcel#	: 31W15 01200
Owner	: Villebois LLC	Document #	: 007-047567 Multi-Parcel
Site	: *no Site Address*	Sale Date	: 05/31/2007
Mail	: 1022 SW Salmon St #450 Portland Or 97205	Price	: \$2,080,000
Use	: 541 Agr,Farm Land,Improved,Unzoned	Market Total	: \$1,295,851
Improvement	: 300 Farm	Market Land	: \$1,208,881
Legal	: Section 15 Township 3S Range 1W Tax	Market Imps	: \$86,970
	: LOT 01200	12-13 Taxes	: \$1,853.27
	:	M-5 Rate	: 16.7205
	:	Bldg #	Of
Map Grid	:	Phone #	:
Bedrooms:	Baths:	Year Built:	BldgSF: LotSqFt: 331,492 Acres: 7.61

2 -----: **Fidelity National Title Company Of Oregon / Clackamas (OR)** -----

Parcel #	: 00812507	Ref Parcel#	: 31W15 01202
Owner	: Taber Charles E & Carolyn J	Document #	: 73-30403
Site	: 11800 SW Tooze Rd Wilsonville 97070	Sale Date	:
Mail	: 11800 SW Tooze Rd Wilsonville Or 97070	Price	:
Use	: 101 Res,Residential Land,Improved	Market Total	: \$316,259
Improvement	: 141 Sgl Family,R1-4,1-Story	Market Land	: \$175,799
Legal	: Section 15 Township 3S Range 1W Tax	Market Imps	: \$140,460
	: LOT 01202	12-13 Taxes	: \$4,273.36
	:	M-5 Rate	: 16.7205
	:	Bldg #	Of
Map Grid	: 715 B5	Phone #	:
Bedrooms: 3	Baths: 1.50	Year Built: 1971	BldgSF: 2,248 LotSqFt: 43,560 Acres: 1.00

3 -----: **Fidelity National Title Company Of Oregon / Clackamas (OR)** -----

Parcel #	: 00812534	Ref Parcel#	: 31W15 01205
Owner	: Villebois LLC	Document #	: 007-047567 Multi-Parcel
Site	: 28100 SW Grahams Ferry Rd Wilsonville 97070	Sale Date	: 05/31/2007
Mail	: 1022 SW Salmon St #450 Portland Or 97205	Price	: \$2,080,000
Use	: 541 Agr,Farm Land,Improved,Unzoned	Market Total	: \$1,332,175
Improvement	: 141 Sgl Family,R1-4,1-Story	Market Land	: \$1,102,895
Legal	: Section 15 Township 3S Range 1W Tax	Market Imps	: \$229,280
	: LOT 01205	12-13 Taxes	: \$5,048.19
	:	M-5 Rate	: 16.7205
	:	Bldg #	Of
Map Grid	: 715 B6	Phone #	:
Bedrooms: 3	Baths: 2.50	Year Built: 1978	BldgSF: 2,859 LotSqFt: 301,871 Acres: 6.93

Fidelity National Title Company Of Oregon / Clackamas (OR)

Ref Parcel #	Owner Name	Site Address	Phone #
N10C 01900	Tollen Tonle I Trustee	11681 SW Tooze Rd Wilsonville 97070	
31W10C 02000	Dominquez Wilfrido Chavez	11611 SW Tooze Rd Wilsonville 97070	
31W10C 02101	Anderson Dirk D & Allison B	11797 SW Tooze Rd Wilsonville 97070	
31W10C 02102	Prigodich Michael R	27900 SW Grahams Ferry Rd Sherwood	
31W10C 02103	McRae Sean G & Kathleen	11811 SW Tooze Rd Wilsonville 97070	
31W10C 02800	Satterlund Cynthia	12041 SW Tooze Rd Sherwood 97140	
31W15 01100	City of Wilsonville	11650 SW Tooze Rd Wilsonville 97070	971-224-2271
31W15 01200	Villebois LLC	*no Site Address*	
31W15 01202	Taber Charles E & Carolyn J	11800 SW Tooze Rd Wilsonville 97070	
31W15 01203	Nims Jay R & Theresa C	11700 SW Tooze Rd Wilsonville 97070	
31W15 01204	Long Dan J	12020 SW Tooze Rd Sherwood 97140	
31W15 01205	Villebois LLC	28100 SW Grahams Ferry Rd Wilsonville	
31W15 01206	White Richard L & Shirley L	28101 SW Grahams Ferry Rd Wilsonville	
31W15 01300	Branch Gerald I & Sheryl L	12150 SW Westfall Rd Sherwood 97140	
31W15 01500	Avolio Michelle J	28303 SW Grahams Ferry Rd Wilsonville	
31W15 01501	Kilenstuber James D/Lisa L	28333 SW Grahams Ferry Rd Wilsonville	
31W15 01600	Cuppoletti Bree R	28333 SW Grahams Ferry Rd Wilsonville	
31W15BC00100	Holtz Charles & Patricia	28445 SW Grahams Ferry Rd Wilsonville	
31W15 01502	Berg Neal S	28315 SW Grahams Ferry Rd Wilsonville	
31W15 01101	City of Wilsonville	*no Site Address*	971-224-2271
31W15 01591	Kilenstuber Lisa L	*no Site Address*	
31W15 02915	Pnw Home Builders LLC	*no Site Address*	
31W15 02995	Pnw Home Builders LLC	*no Site Address*	
31W15 02916	Pnw Home Builders LLC	*no Site Address*	

REFPARCEL	OWNER	OWNERFIRST	OWNERLAST	MAILADDRESS	MAILCITY	MAILSTATE	MAILZIP
31W10C 01900	Tonie Tollen	Tonie	Tollen	11681 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02000	Wilfrido Chavez Dominquez	Wilfrido Chavez	Dominquez	11611 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02101	Dirk & Allison Anderson	Dirk & Allison	Anderson	11797 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02102	Michael Prigodich	Michael	Prigodich	27900 SW Grahams Ferry Rd	Sherwood	OR	97140
31W10C 02103	Sean & Kathleen McRae	Sean & Kathleen	McRae	11811 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02800	Cynthia Satterlund	Cynthia	Satterlund	12041 SW Tooze Rd	Sherwood	OR	97140
31W15 01100	City Of Wilsonville	City Of Wilsonville		29799 SW Town Center Loop E	Wilsonville	OR	97070
31W15 01200	Villebois LLC	Villebois LLC		1022 SW Salmon St #450	Portland	OR	97205
31W15 01202	Charles & Carolyn Taber	Charles & Carolyn	Taber	11800 SW Tooze Rd	Wilsonville	OR	97070
31W15 01203	Jay & Theresa Nims	Jay & Theresa	Nims	11700 SW Tooze Rd	Wilsonville	OR	97070
31W15 01204	Dan Long	Dan	Long	12020 SW Tooze Rd	Sherwood	OR	97140
31W15 01205	Villebois LLC	Villebois LLC		1022 SW Salmon St #450	Portland	OR	97205
31W15 01206	Richard & Shirley White	Richard & Shirley	White	28101 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01300	Branch Gerald & Sheryl	Branch Gerald & Sheryl		28690 SW 35th Dr	Wilsonville	OR	97070
31W15 01500	Michelle Avolio	Michelle	Avolio	28303 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01501	James & Lisa Klienstuber	James & Lisa	Klienstuber	28333 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01600	Bree Cuppoletti	Bree	Cuppoletti	28333 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15BC00100	Charles & Patricia Holtz	Charles & Patricia	Holtz	28445 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01502	Neal Berg	Neal	Berg	Po Box 25472	Portland	OR	97298
31W15 01101	City Of Wilsonville	City Of Wilsonville		29799 SW Town Center Loop E	Wilsonville	OR	97070
31W15 01591	Lisa Klienstuber	Lisa	Klienstuber	28333 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 02915	Pnw Home Builders LLC	Pnw Home Builders LLC		109 E 13th St #200	Vancouver	WA	98660
31W15 02995	Pnw Home Builders LLC	Pnw Home Builders LLC		109 E 13th St #200	Vancouver	WA	98660
31W15 02916	Pnw Home Builders LLC	Pnw Home Builders LLC		109 E 13th St #200	Vancouver	WA	98660

REFPARCEL	SITEADDRESS	SITECITY	SITESTATE	SITEZIP
31W10C 01900	11681 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02000	11611 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02101	11797 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02102	27900 SW Grahams Ferry Rd	Sherwood	OR	97140
31W10C 02103	11811 SW Tooze Rd	Wilsonville	OR	97070
31W10C 02800	12041 SW Tooze Rd	Sherwood	OR	97140
31W15 01100	11650 SW Tooze Rd	Wilsonville	OR	97070
31W15 01200	*no Site Address*		OR	00000
31W15 01202	11800 SW Tooze Rd	Wilsonville	OR	97070
31W15 01203	11700 SW Tooze Rd	Wilsonville	OR	97070
31W15 01204	12020 SW Tooze Rd	Sherwood	OR	97140
31W15 01205	28100 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01206	28101 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01300	12150 SW Westfall Rd	Sherwood	OR	97140
31W15 01500	28303 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01501	28333 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01600	28333 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15BC00100	28445 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01502	28315 SW Grahams Ferry Rd	Wilsonville	OR	97070
31W15 01101	*no Site Address*		OR	00000
31W15 01591	*no Site Address*		OR	00000
31W15 02915	*no Site Address*		OR	00000
31W15 02995	*no Site Address*		OR	00000
31W15 02916	*no Site Address*		OR	00000

Section II

Annexation

IIA
Supporting Compliance Report

**SUPPORTING COMPLIANCE REPORT
ANNEXATION TO CITY OF WILSONVILLE**

TABLE OF CONTENTS

I. CITY OF WILSONVILLE COMPREHENSIVE PLAN.....	2
IMPLEMENTATION MEASURE 2.2.1.A.	2
IMPLEMENTATION MEASURE 2.2.1.E.....	2
IMPLEMENTATION MEASURE 4.1.6.A.....	3
IMPLEMENTATION MEASURE 4.1.6.C.....	3
II. CITY OF WILSONVILLE LAND DEVELOPMENT ORDINANCE.....	4
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SECTION 4.030 JURISDICTION AND POWERS OF PLANNING DIRECTOR AND COMMUNITY DEVELOPMENT DIRECTOR.....	4
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I. CITY OF WILSONVILLE COMPREHENSIVE PLAN

URBAN GROWTH MANAGEMENT - IMPLEMENTATION MEASURES

IMPLEMENTATION MEASURE 2.2.1.A.

Allow annexation when it is consistent with future planned public services and when a need is clearly demonstrated for immediate urban growth.

Response: The Comprehensive Plan states:

- *Figures provided by Metro in 1996 indicated that Wilsonville had more than three jobs for each housing unit within the City.*
- *Based on Metro's (1981) regional growth allocation statistics, Wilsonville's population was projected to grow to 15,600 by the year 2000. In the same time period, the City's economic growth was expected to generate a total of 14,400 jobs. Those projections proved to be surprisingly accurate. In fact, Wilsonville's population in 2000 approached the 15,600 figure, and the number of jobs exceeded the 14,400 figure.*

The *Villebois Village Master Plan* was created and approved to address the jobs-housing imbalance and population growth within the City of Wilsonville. The *Master Plan* shows single family residential land uses within the subject site. Therefore, as a portion of Villebois Village, the subject site addresses a demonstrated need for urban growth.

The Villebois Parks & Open Space Plan ensures adequate parks and open space opportunities, which include a range of experiences for residents and visitors. Chapter 4 of the *Villebois Village Master Plan* evaluates compliance of the planned sanitary sewer, storm drainage, and water systems with the City's Wastewater Collections System Master Plan, Stormwater Master Plan, and Water System Master Plan. Chapter 5 of the *Master Plan* analyzes compliance of the Villebois circulation system with the City's Transportation Systems Plan. The *Master Plan* includes implementation measures to ensure compliance with the City's public facility master plans and Transportation Systems Plan. Concurrent applications for a SAP North Amendment and for PDP 3N have been submitted. PDP 3N (see Notebook Section III) includes a *Preliminary Utility Plan* and *Circulation Plan*. PDP 3 North is consistent with the concurrent SAP North Amendment, as further described in the PDP 3N Compliance Report (see Notebook Section IIIB), and is therefore, generally consistent with the *Master Plan*. Therefore, the proposed annexation is generally consistent with future planned public services and the capacity of public facilities.

IMPLEMENTATION MEASURE 2.2.1.E

Changes in the City boundary will require adherence to the annexation procedures prescribed by State law and Metro standards. Amendments to the City limits shall be based on consideration of:

1. Orderly, economic provision of public facilities and services, i.e., primary urban services are available and adequate to serve additional

development or improvements are scheduled through the City's approved Capital Improvements Plan.

Response: The *Villebois Village Master Plan* set forth implementation measures to ensure the orderly and economic provision of public facilities and services for this area. Site development is proposed with a concurrent application for Preliminary Development Plan for Phase 3 of SAP - North (see Notebook Section III). Public facilities and services proposed with PDP 3 North are generally consistent with the *Villebois Village Master Plan* and the City's Finance Plan and Capital Improvements Plan. Therefore, adequate public facilities and services will be available within the subject area.

2. Availability of sufficient land for the various uses to insure choices in the marketplace for a 3 to 5 year period.

Response: The availability of sufficient land was demonstrated by the adoption of the *Villebois Village Master Plan*, which plans for the development of the 480-acre Villebois Village area. At the time of *Master Plan* approval, Villebois Village was found to have a wide range of residential choices. Annexation of the subject area to the City will allow development to occur that is consistent with the *Master Plan* and that provides the anticipated housing choices.

3. Statewide Planning Goals.

Response: Compliance with Statewide Planning Goals is addressed in Section V of this report.

4. Applicable Metro Plans;

Response: Compliance with Metro Code 3.09 is addressed in Section III of this report.

5. Encouragement of development within the City limits before conversion of urbanizable (UGB) areas.

Response: The site is located within the UGB, but is not currently within city limits. Annexation of the site is necessary to allow build out consistent with the *Villebois Village Master Plan*.

COMPACT URBAN DEVELOPMENT - IMPLEMENTATION MEASURES

IMPLEMENTATION MEASURE 4.1.6.A

Development in the "Residential-Village" Map area shall be directed by the Villebois Village Concept Plan (depicting the general character of proposed land uses, transportation, natural resources, public facilities, and infrastructure strategies), and subject to relevant Policies and Implementation Measures in the Comprehensive Plan; and implemented in accordance with the Villebois Village Master Plan, the "Village" Zone District, and any other provisions of the Wilsonville Planning and Land Development Ordinance that may be applicable.

IMPLEMENTATION MEASURE 4.1.6.C

The "Village" Zone District shall be applied in all areas that carry the Residential - Village Plan Map Designation.

Response: The subject site is included in the “Residential-Village” Comprehensive Plan Map Designation (Area B). This Implementation Measure establishes precedence for the “Village” Zone to be applied to the subject property area. An application for a Zone Map Amendment to apply the V Zone to the site has been included with a concurrent Preliminary Development Plan application for Phase 3 of SAP - North. The site must be brought into City limits before the V zone can be applied.

II. CITY OF WILSONVILLE LAND DEVELOPMENT ORDINANCE

SECTION 4.008 APPLICATION PROCEDURES - IN GENERAL

(.01) The general application procedures listed in Section 4.008 through 4.024 apply to all land use and development applications governed by Chapter 4 of the Wilsonville Code. These include applications for all of the following types of land use or development approvals:

K. Annexations, pursuant to Section 4.700

Response: The proposed land use action is an annexation. Compliance with Section 4.700 and other applicable sections of the City of Wilsonville Land Development Ordinance are addressed below.

SECTION 4.030 JURISDICTION AND POWERS OF PLANNING DIRECTOR AND COMMUNITY DEVELOPMENT DIRECTOR

(.01) Authority of Planning Director. The Planning Director shall have authority over the daily administration and enforcement of the provisions of this Chapter, including dealing with non-discretionary matters, and shall have specific authority as follows:

11. Determination, based upon consultation with the City Attorney, whether a given development application is quasi-judicial or legislative. Except, however, that the Planning Director may, in cases where there is any uncertainty as to the nature of the application, choose to process such determinations through the Class II procedures below.

Response: Daniel Pauly, Associate Planner, indicated during a phone conversation on September 26, 2013 that the proposed annexation is subject to a quasi-judicial process.

SECTION 4.031 AUTHORITY OF THE DEVELOPMENT REVIEW BOARD

(.01) As specified in Chapter 2 of the Wilsonville Code and except as specified herein, the Board shall have authority to act on the following types of applications:

K. Initial review of requests for quasi-judicial annexations to the City of Wilsonville.

(.02) Once an application is determined or deemed to be complete pursuant to Section 4.011, it shall be scheduled for public hearing before the Development Review Board. The City shall provide public notice of the hearing as specified in Section 4.012.

Response: The proposed annexation is subject to a quasi-judicial process. Therefore, it is subject to initial review before the Development Review Board.

SECTION 4.033 AUTHORITY OF CITY COUNCIL

(.01) Upon appeal, the City Council shall have final authority to act on all applications filed pursuant to Chapter 4 of the Wilsonville Code, with the exception of applications for expedited land divisions, as specified in Section 4.232. Additionally, the Council shall have final authority to interpret and enforce the procedures and standards set forth in this Chapter and shall have final decision-making authority on the following:

F. Review of requests for annexations to the City of Wilsonville.

Response: The Applicant understands that the City Council has the final authority to act on this request for annexation to the City of Wilsonville.

SECTION 4.700 PROCEDURES RELATING TO THE PROCESSING OF REQUESTS FOR ANNEXATION AND URBAN GROWTH BOUNDARY AMENDMENTS

(.01) The City of Wilsonville is located within the Portland Metropolitan Area, and is therefore subject to regional government requirements affecting changes to the city limits and changes to the Urban Growth Boundary (UGB) around Wilsonville. The City has the authority to annex properties as prescribed in State law, but the City's role in determining the UGB is primarily advisory to Metro, as provided in Oregon Revised Statutes. The following procedures will be used to aid the City Council in formulating recommendations to those regional entities. [Amended by Ordinance No. 538, 2/21/02.]

- A. Proponents of such changes shall provide the Planning Director with all necessary maps and written information to allow for review by city decision-makers. The Planning Director, after consultation with the City Attorney, will determine whether each given request is quasi-judicial or legislative in nature and will make the necessary arrangements for review based upon that determination.
- B. Written information submitted with each request shall include an analysis of the relationship between the proposal and the City's Comprehensive Plan, applicable statutes, as well as the Statewide Planning Goals and any officially adopted regional plan that may be applicable.
- C. The Planning Director shall review the information submitted by the proponents and will prepare a written report for the review of the City Council and the Planning Commission or Development Review Board. If the Director determines that the information submitted by the proponents does not adequately support the request, this shall be stated in the Director's staff report.
- D. If the Development Review Board, Planning Commission, or City Council determine that the information submitted by the proponents does not adequately support the request, the City Council may oppose the request to the regional entity having the final decision making authority.

- (.02) Each quasi-judicial request shall be reviewed by the Development Review Board, which shall make a recommendation to the City Council after concluding a public hearing on the proposal.
- (.03) Each legislative request shall be reviewed by the Planning Commission, which shall make a recommendation to the City Council after concluding a public hearing on the proposal.
- (.04) The City Council shall consider the information in the record of the Development Review Board or Planning Commission and shall, after concluding a public hearing on the request, determine the appropriate course of action. This course of action may be:
 - A. In the case of a proposed annexation to the City, select from the following as allowed by State law (ORS 222):
 - 1. Take no action;
 - 2. Declare the subject property, or some portion thereof, to be annexed;
 - 3. Set the matter for election of the voters residing within the affected territory; or
 - 4. Set the matter for election of City voters.
- (.05) The City Council may adopt a development agreement with owners of property that is proposed for annexation to the City, and such agreement may include an agreement to annex at a future date. A development agreement with an agreement to annex shall be subject to the same procedural requirement as other annexations in terms of staff report preparation, public review, and public hearings.

RESPONSE: The Applicant requests annexation of areas within the City's UGB. Annexation of contiguous property within the UGB is within the authority of the City of Wilsonville as prescribed by State Law. The proposed annexation is consistent with the Comprehensive Plan as the subject site has a Comprehensive Plan designation of Residential - Village and as demonstrated in Section I of this report. Additionally, the site is included in the *Villebois Village Master Plan*.

This report provides a written description of the request and demonstrates compliance with applicable criteria. The attached exhibits include a legal description and sketch, which depict the proposed annexation area. This report includes analysis demonstrating compliance with the City's Comprehensive Plan (Section I), City of Wilsonville Development Code (Section II), Metro Code Chapter 3.09 (Section III), ORS 222 (Section IV), and Statewide Planning Goals (Section V), as applicable to this request. City staff has determined that the proposed annexation is subject to a quasi-judicial review process. Therefore, it is subject to a public hearing before the DRB and City Council.

III. METRO CODE

CHAPTER 3.09 LOCAL GOVERNMENT BOUNDARY CHANGES

3.09.020 DEFINITIONS

- I. “Minor boundary change” means an annexation or withdrawal of territory to or from a city or district or from a county to a city. “Minor boundary change” also means an extra-territorial extension of water or sewer service by a city or a district. “Minor boundary change” does not mean withdrawal of territory from a district under ORS 222.520.

Response: Annexation is requested from territory within Clackamas County to the City of Wilsonville. Therefore, the proposed annexation is defined as a “minor boundary change” and Metro Code Chapter 3.09 applies to this request.

3.09.040 REQUIREMENTS FOR PETITIONS

- A. A petition for a boundary change must contain the following information:
 1. The jurisdiction of the reviewing entity to act on the petition;
 2. A map and legal description of the affected territory in the form prescribed by the reviewing entity;
 3. For minor boundary changes, the names and mailing addresses of all persons owning property and all electors within the affected territory as shown in the records of the tax assessor and county clerk; and
 4. For boundary changes under ORS 198.855(3), 198.857, 222.125 or 222.170, statements of consent to the annexation signed by the requisite number of owners or electors.
- B. A city, county and Metro may charge a fee to recover its reasonable costs to carry out its duties and responsibilities under this chapter.

Response: This application serves as the petition for a boundary change of city limits and requests approval by the City of Wilsonville. A legal description and sketch is attached in Notebook Section IIC. Notebook Section IIB includes property ownership and elector information, including names and mailing addresses. A copy of the signed petition (see Notebook Section IIB) demonstrates that all property owners and all of the electors within the territory proposed to be annexed have provided their consent in writing. Compliance with ORS 222.125 is addressed in Section IV of this report. In addition, a copy of the check for City annexation fee plus the Metro annexation fee is provided in Notebook Section IC.

3.09.050 HEARING AND DECISION REQUIREMENTS FOR DECISIONS OTHER THAN EXPEDITED DECISIONS

- A. The following requirements for hearings on petitions operate in addition to requirements for boundary changes in ORS Chapters 198, 221 and 222 and the reviewing entity's charter, ordinances or resolutions.

- B. Not later than 15 days prior to the date set for a hearing the reviewing entity shall make available to the public a report that addresses the criteria identified in subsection (D) and includes the following information:
 - 1. The extent to which urban services are available to serve the affected territory, including any extra territorial extensions of service;
 - 2. Whether the proposed boundary change will result from the withdrawal of the affected territory from the legal boundary of any necessary party;
 - 3. The proposed effective date of the boundary change.
- B. The person or entity proposing the boundary change has the burden to demonstrate that the proposed boundary change meets the applicable criteria.
- C. To approve a boundary change, the reviewing entity shall apply the criteria and consider the factors set forth in subsections (D) and (E) of Section 3.09.045.

Response: This report includes analysis demonstrating compliance with the City’s Comprehensive Plan (Section I), City of Wilsonville Development Code (Section II), Metro Code Chapter 3.09 (Section III), ORS 222 (Section IV), and Statewide Planning Goals (Section V), as applicable to this request. Compliance with subsections (D) and (E) of Section 3.09.045 is addressed below.

3.09.045 EXPEDITED DECISIONS

- A. The governing body of a city or Metro may use the process set forth in this section for minor boundary changes for which the petition is accompanied by the written consents of one hundred percent of property owners and at least fifty percent of the electors, if any, within the affected territory. No public hearing is required.

Response: The proposed annexation is subject to a quasi-judicial process, per phone conversation with Daniel Pauly on September 26, 2013. Quasi-judicial annexation applications are subject to public hearing before the Development Review Board and City Council. Therefore, an expedited decision is not applicable to this request. However, in accordance with Metro Code 3.09.050(C), the criteria and factors set forth in subsections (D) and (E) are applicable. Pursuant to Section 3.09.050(C), compliance with subsections (D) and (E) of Section 3.09.045 is addressed below.

- D. To approve a boundary change through an expedited process, the city shall:
 - 1. Find that the change is consistent with expressly applicable provisions in:
 - a. Any applicable urban service agreement adopted pursuant to ORS 195.065;
 - b. Any applicable annexation plan adopted pursuant to ORS 195.205;

- c. Any applicable cooperative planning agreement adopted pursuant to ORS 195.020(2) between the affected entity and a necessary party;

Response: There is not an applicable urban service agreement adopted pursuant to ORS 195.065, annexation plan adopted pursuant to ORS 195.205, or cooperative planning agreement adopted pursuant to 195.020(2).

- d. Any applicable public facility plan adopted pursuant to a statewide planning goal on public facilities and services;

Response: The *Villebois Village Master Plan* includes implementation measures to ensure compliance with the City's public facility master plans and the Transportation Systems Plan. Site development is proposed with a concurrent application for Preliminary Development Plan for Phase 3 of SAP - North (see Notebook Section III). Therefore, future development of the subject site will comply with public facility plans as applicable.

- e. Any applicable comprehensive plan;

Response: Compliance with the City's Comprehensive Plan is addressed in Section I of this report.

- f. Any applicable concept plan; and

The Villebois Village plan area, including the subject site, is designated as "Residential - Village" on the Comprehensive Plan Map. The V Zone District is applied to Residential - Village areas in implementation of the *Villebois Village Master Plan*. The proposed annexation is required before the V Zone can be applied to the site and prior to site development. A Zone Change application is submitted concurrently in Notebook Section V. An application for PDP 3 North is submitted concurrently (see Notebook Section III) and is consistent with the concurrent SAP North Amendment. Therefore, the proposed annexation is consistent with the *Master Plan*.

2. Consider whether a boundary change would:

- a. Promote the timely, orderly and economic provision of public facilities and services;
- b. Affect the quality and quantity of urban services; and
- c. Eliminate or avoid unnecessary duplication of facilities or services.

Response: The *Villebois Village Master Plan* includes implementation measures that require the provision of public facilities and services to be adequate, timely, orderly, economic, and not be unnecessarily duplicated. Currently, Specific Area Plan - North provides public services, including: transportation, rainwater management; water; sanitary sewer; fire and police services; recreation, parks and open spaces; education; and transit. Site development is proposed with a concurrent application for Preliminary Development Plan for Phase 3 of SAP - North (see Notebook Section III). Public facilities and services proposed with PDP 3 North are generally consistent with the *Villebois Village Master Plan*, the concurrent SAP - North Amendment, and the City's Finance Plan and Capital Improvements Plan. Therefore, the boundary change will comply with these standards.

- E. A city may not annex territory that lies outside the UGB, except it may annex a lot or parcel that lies partially within and partially outside the UGB.

Response: The subject site is territory located within the UGB. Therefore, the city may annex the territory in accordance with this Section.

IV. OREGON REVISED STATUTES

ORS 222.111 AUTHORITY AND PROCEDURE FOR ANNEXATION

- (1) When a proposal containing the terms of annexation is approved in the manner provided by the charter of the annexing city or by ORS 222.111 (Authority and procedure for annexation) to 222.180 (Effective date of annexation) or 222.840 (Short title) to 222.915 (Application of ORS 222.840 to 222.915), the boundaries of any city may be extended by the annexation of territory that is not within a city and that is contiguous to the city or separated from it only by a public right of way or a stream, bay, lake or other body of water. Such territory may lie either wholly or partially within or without the same county in which the city lies.

Response: The area of proposed annexation is within the UGB and is contiguous to the city. The subject property is entirely within Clackamas County. Therefore, the proposed city boundary includes territories that may be annexed per ORS 222.111.

- (2) A proposal for annexation of territory to a city may be initiated by the legislative body of the city, on its own motion, or by a petition to the legislative body of the city by owners of real property in the territory to be annexed.

Response: This proposal for annexation of territory to the City of Wilsonville has been initiated by owners of real property within the territory to be annexed. A copy of the application signed by property owners is provided in Notebook Section IB.

- (3) The proposal for annexation may provide that, during each of not more than 10 full fiscal years beginning with the first fiscal year after the annexation takes effect, the rate of taxation for city purposes on property in the annexed territory shall be at a specified ratio of the highest rate of taxation applicable that year for city purposes to other property in the city. The proposal may provide for the ratio to increase from fiscal year to fiscal year according to a schedule of increase specified in the proposal; but in no case shall the proposal provide for a rate of taxation for city purposes in the annexed territory which will exceed the highest rate of taxation applicable that year for city purposes to other property in the city. If the annexation takes place on the basis of a proposal providing for taxation at a ratio, the city may not tax property in the annexed territory at a rate other than the ratio which the proposal authorizes for that fiscal year.

Response: This standard is not applicable. During the pre-application conference or subsequent correspondence regarding this application, City staff has not indicated whether the provisions of this section apply to the proposed annexation.

- (4) When the territory to be annexed includes a part less than the entire area of a district named in ORS 222.510 (Annexation of entire district), the proposal for annexation may provide that if annexation of the territory occurs the part of the district annexed into the city is withdrawn from the district as of the effective date of the annexation. However, if the affected district is a district named in ORS 222.465 (Effective date of withdrawal from domestic water supply district, water control district or sanitary district), the effective date of the withdrawal of territory shall be determined as provided in ORS 222.465 (Effective date of withdrawal from domestic water supply district, water control district or sanitary district).

Response: The subject properties are not located within a domestic water supply district, water control district, or sanitary district, as named in ORS 222.510. Therefore, this Section does not apply.

- (5) The legislative body of the city shall submit, except when not required under ORS 222.120 (Procedure without election by city electors), 222.170 (Effect of consent to annexation by territory) and 222.840 (Short title) to 222.915 (Application of ORS 222.840 to 222.915) to do so, the proposal for annexation to the electors of the territory proposed for annexation and, except when permitted under ORS 222.120 (Procedure without election by city electors) or 222.840 (Short title) to 222.915 (Application of ORS 222.840 to 222.915) to dispense with submitting the proposal for annexation to the electors of the city, the legislative body of the city shall submit such proposal to the electors of the city. The proposal for annexation may be voted upon at a general election or at a special election to be held for that purpose.

Response: The proposed annexation is not subject to an election by electors as all owners of land and 100% of the electors within the territory proposed to be annexed have provided their consent in writing. A copy of the signed petition is provided in Notebook Section IIB. A copy of the application, signed by property owners, is provided in Notebook Section IB. Compliance with ORS 222.120 is addressed below.

ORS 222.120 PROCEDURE WITHOUT ELECTION BY CITY ELECTORS

- (1) Except when expressly required to do so by the city charter, the legislative body of a city is not required to submit a proposal for annexation of territory to the electors of the city for their approval or rejection.
- (2) When the legislative body of the city elects to dispense with submitting the question of the proposed annexation to the electors of the city, the legislative body of the city shall fix a day for a public hearing before the legislative body at which time the electors of the city may appear and be heard on the question of annexation.
- (3) The city legislative body shall cause notice of the hearing to be published once each week for two successive weeks prior to the day of hearing, in a newspaper of general circulation in the city, and shall

cause notices of the hearing to be posted in four public places in the city for a like period.

- (4) After the hearing, the city legislative body may, by an ordinance containing a legal description of the territory in question:
 - a. Declare that the territory is annexed to the city upon the condition that the majority of the votes cast in the territory is in favor of annexation;
 - b. Declare that the territory is annexed to the city where electors or landowners in the contiguous territory consented in writing to such annexation, as provided in ORS 222.125 (Annexation by consent of all owners of land and majority of electors) or 222.170 (Effect of consent to annexation by territory), prior to the public hearing held under subsection (2) of this section; or
 - c. Declare that the territory is annexed to the city where the Oregon Health Authority, prior to the public hearing held under subsection (1) of this section, has issued a finding that a danger to public health exists because of conditions within the territory as provided by ORS 222.840 (Short title) to 222.915 (Application of ORS 222.840 to 222.915).
- (5) If the territory described in the ordinance issued under subsection (4) of this section is a part less than the entire area of a district named in ORS 222.510 (Annexation of entire district), the ordinance may also declare that the territory is withdrawn from the district on the effective date of the annexation or on any subsequent date specified in the ordinance. However, if the affected district is a district named in ORS 222.465 (Effective date of withdrawal from domestic water supply district, water control district or sanitary district), the effective date of the withdrawal of territory shall be determined as provided in ORS 222.465 (Effective date of withdrawal from domestic water supply district, water control district or sanitary district).
- (6) The ordinance referred to in subsection (4) of this section is subject to referendum.
- (7) For the purpose of this section, ORS 222.125 (Annexation by consent of all owners of land and majority of electors) and 222.170 (Effect of consent to annexation by territory), owner or landowner means the legal owner of record or, where there is a recorded land contract which is in force, the purchaser thereunder. If there is a multiple ownership in a parcel of land each consenting owner shall be counted as a fraction to the same extent as the interest of the owner in the land bears in relation to the interest of the other owners and the same fraction shall be applied to the parcels land mass and assessed value for purposes of the consent petition. If a corporation owns land in territory proposed to be annexed, the corporation shall be considered the individual owner of that land.

Response: City Charter does not require an election for this request. Per Section 4.700 and correspondence with Planning Staff, the proposed annexation is subject to

a Class III quasi-judicial review process, which requires a public hearing before the DRB and public hearing(s) before the City Council.

As demonstrated below, this annexation request is submitted in compliance with ORS 222.125 (Annexation by consent of all owners of land and majority of electors). All owners of the land as well as 100% of the electors within the subject area have provided their consent in writing, as demonstrated by the attached petition (see Notebook Section IIB).

A legal description and sketch of the proposed annexation area is provided in Notebook Section IIC.

The territory proposed to be annexed to the City is not located within a sanitary district or water control or water supply district as named in ORS 222.465. Additionally, the site is not located within a part less than the entire area of a district named in ORS 222.510 (Annexation of entire district). Future development of the site will have access to City water, storm, sewer, and parks services. Therefore, ORS 222.465 and ORS 222.510 are not applicable.

ORS 222.125 ANNEXATION BY CONSENT OF ALL OWNERS OF LAND AND MAJORITY OF ELECTORS

The legislative body of a city need not call or hold an election in the city or in any contiguous territory proposed to be annexed or hold the hearing otherwise required under ORS 222.120 (Procedure without election by city electors) when all of the owners of land in that territory and not less than 50 percent of the electors, if any, residing in the territory consent in writing to the annexation of the land in the territory and file a statement of their consent with the legislative body. Upon receiving written consent to annexation by owners and electors under this section, the legislative body of the city, by resolution or ordinance, may set the final boundaries of the area to be annexed by a legal description and proclaim the annexation.

Response: All owners of the land, who are also 100% of the electors within the subject area, have provided their consent in writing, as demonstrated by the attached petition (see Notebook Section IIB). A copy of a legal description and sketch for the proposed annexation is provided in Notebook Section IIC.

V. OREGON STATEWIDE PLANNING GOALS

Goal 1: Citizen Involvement

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

Response: The City of Wilsonville has an established public notice and hearing process for quasi-judicial applications. Once this annexation request is accepted as complete, the City will begin this public notification and citizen involvement process. Therefore, this request is consistent with Goal 1.

Goal 2: Land Use Planning

To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual basis for such decisions and actions.

Response: The City of Wilsonville is currently in compliance with Goal 2 because it has an acknowledged Comprehensive Plan and regulations implementing that plan. Section III of this report demonstrates that the proposed amendment is in compliance with the goals and policies of the City of Wilsonville Comprehensive Plan, as applicable to the proposed annexation.

Goal 3: Agricultural Lands

To preserve and maintain agricultural lands.

Response: Agricultural land is defined in Goal 3 to exclude all land within an acknowledged urban growth boundary. The site is within an acknowledged urban growth boundary. Therefore, Goal 3 is not applicable to this request.

Goal 4: Forest Lands

To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.

Response: The subject site does not include any lands acknowledged as forest lands. Therefore, Goal 4 is not applicable to this request.

Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces

To protect natural resources and conserve scenic and historic areas and open spaces.

Response: The City of Wilsonville is already in compliance with Goal 5 as the required inventories and policy implementation occurred with adoption of the Significant Resource Overlay Zone. Villebois Village preserves SROZ areas with the provision of open space areas. In addition, development within Villebois Village is required to comply with SROZ standards. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan* and compliance with SROZ standards. Therefore, the proposed annexation is consistent with Goal 5.

Goal 6: Air, Water and Land Resources Quality

To maintain and improve the quality of the air, water and land resources of the state.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 6. Development within Villebois protects water and land resources by providing protection for areas of steep slopes and natural resources and by not encroaching into these areas. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan*. Therefore, the proposed annexation is consistent with Goal 6.

Goal 7: Areas Subject to Natural Hazards

To protect people and property from natural hazards.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 7. No development is located in areas identified as natural hazards within the subject site. Goal 7 is not applicable as no areas subject to natural hazards are included in the proposed annexation area.

Goal 8: Recreational Needs

To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

Response: The City's Comprehensive Plan has been acknowledged to be in compliance with Goal 8. The Destination Resort provisions of this Goal are not applicable to this request or to the City of Wilsonville. The *Villebois Village Master Plan* provides park and open spaces that total approximately 25% of the gross area of Villebois. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan*. Therefore, the proposed annexation is consistent with Goal 8.

Goal 9: Economic Development

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 9. Villebois Village was planned with land uses to be a complete community, including a mixed-use Village Center with residential, office, retail and/or employment uses, surrounded by at least 2,300 residential units. The concurrent application for PDP 3N (see Notebook Section III) demonstrates the provision of a mix of single-family residential dwellings within the subject site, which is generally consistent with the *Master Plan*. Therefore, the proposed annexation is consistent with Goal 5.

Goal 10: Housing

To provide for the housing needs of citizens of the state.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 10. The City is currently conducting a Housing Needs Analysis to meet Goal 10 Periodic Review requirements and to project housing needs over the next 20 years.

The *Villebois Village Master Plan* was created and approved to address the jobs-housing imbalance and growth within the City of Wilsonville. The *Master Plan* shows single family residential land uses within the site. The concurrent application for PDP 3N (see Notebook Section III) demonstrates the provision of a mix of single-family residential dwellings within the subject site that is generally consistent with the *Master Plan*. The proposed annexation will allow the site to develop with residential land uses, as directed by this Comprehensive Plan and land use policies. Therefore, this petition for annexation is consistent with Goal 10.

Goal 11: Public Facilities and Services

To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 11. The *Villebois Village Master Plan* includes implementation measures to ensure site development complies with the City's Wastewater Collections System Master Plan, Stormwater Master Plan, Water System Master Plan, and Transportation Systems Plan. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan*. Therefore, the proposed annexation is consistent with Goal 11.

Goal 12: Transportation

To provide and encourage a safe, convenient and economic transportation system.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 12. The *Villebois Village Master Plan* includes implementation measures related to transportation to ensure compliance with the City's Transportation Systems Plan. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan*. Therefore, the proposed annexation is consistent with Goal 12.

Goal 13: Energy Conservation

Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 13. The concurrent application for PDP 3N (see Notebook Section III) demonstrates general compliance with the *Master Plan* and development standards as applicable to energy conservation. Therefore, the proposed annexation is consistent with Goal 13.

Goal 14: Urbanization

To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Response: The City's Comprehensive Plan has been acknowledged as being in compliance with Goal 14. Section III of this report demonstrates that the proposed amendments are consistent with the applicable urbanization policies of the City of Wilsonville Comprehensive Plan. Therefore, the proposed annexation is consistent with Goal 14.

Goal 15 (Willamette River Greenway) is not applicable to this request as the site is not near the Willamette River. Goal 16 (Estuarine Resources), Goal 17 (Coastal Shorelands), and Goal 18 (Beaches and Dunes) are not applicable to this request as the site is not located near the coast or any of these coastal resource areas.

VI. PROPOSAL SUMMARY & CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable requirements of the City of Wilsonville Comprehensive Plan and Planning & Land Development Ordinance, Metro Code, ORS 222, and Statewide Planning Goals for the requested annexation. Therefore, the applicant requests approval of this petition.

IIB
Petition & Ownership/
Elector Info

PETITION SIGNERS

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

SIGNATURE	PRINTED NAME	I AM A: *			PROPERTY ADDRESS	PROPERTY DESCRIPTION			PRECINCT #	DATE
		PO	RV	OV		LOT #	1/4 SEC	T		
<i>Charles E. Taber</i>	Charles E. Taber			✓	11800 S.W. Toozee Pk. Wils. Gk.					1130114
<i>Carolyn J. Taber</i>	Carolyn J. Taber			✓	11800 S.W. Toozee Pk. Wils. Gk.					1130114
<i>WYNNE REAMOND</i>	WYNNE REAMOND				4022 SW SALMON					1-30-14

* PO = Property Owner
RV = Registered Voter
OV = Owner And Registered Voter

List of Owners & Electors within Proposed Annexation Area

Owners			
Tax Lot	Name	Site Address	Mailing Address
1200	Villebois LLC	NA	1022 SW Salmon St #450, Portland, OR 97205
1202	Charles E. Taber & Carolyn J. Taber	11800 SW Tooze Rd, Wilsonville, Oregon 97070	11800 SW Tooze Rd, Wilsonville, Oregon 97070
1205	Villebois LLC	28100 SW Grahams Ferry Rd, Wilsonville, Oregon 97070	1022 SW Salmon St #450, Portland, OR 97205

Electors			
Tax Lot	Name	Site Address	Mailing Address
1200	no voters	NA	1022 SW Salmon St #450, Portland, OR 97205
1202	Charles E. Taber & Carolyn J. Taber	11800 SW Tooze Rd, Wilsonville, Oregon 97070	11800 SW Tooze Rd, Wilsonville, Oregon 97070
1205	no active voters	28100 SW Grahams Ferry Rd, Wilsonville, Oregon 97070	1022 SW Salmon St #450, Portland, OR 97205

1967/50

KNOW ALL MEN BY THESE PRESENTS, That ROBERT L. NELSON and DIANE F. NELSON, hereinafter called the grantor, for the consideration hereinafter stated, to grantor paid by CHARLES E. TABER and CAROLYN J. TABER, husband and wife

does hereby grant, bargain, sell and convey unto the said grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Washington and State of Oregon, described as follows, to-wit:

A parcel of land situated in the Samuel B. Franklin D.L.C., described as follows:

Beginning at a point on the Southerly right-of-way of Brown Road which is South 20.00 feet and West 727.82 feet from the North one-quarter corner of said Section 15, T. 3 S., R. 1 W., of the W.M.; thence West on the Southerly right-of-way of said Brown Road 90.00 feet; thence South 484.00 feet; thence East 90.00 feet; thence North 484.00 feet to the point of beginning.

(IF SPACE INSUFFICIENT, CONTINUE DESCRIPTION ON REVERSE SIDE)

To Have and to Hold the same unto the said grantee and grantee's heirs, successors and assigns forever. And said grantor hereby covenants to and with said grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances

and that grantor will warrant and forever defend the above granted premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever, except those claiming under the above described encumbrances.

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$30,000.00. However, the actual consideration consists of or includes other property or value given or promised which is part of the consideration (indicate which) 0.

In construing this deed and where the context so requires, the singular includes the plural. WITNESS grantor's hand this 20 day of Sept, 1973.

Robert L. Nelson
Diane F. Nelson

STATE OF OREGON, County of Washington,) ss. September 20, 1973. Personally appeared the above named Robert L. Nelson and Diane F. Nelson and acknowledged the foregoing instrument to be their voluntary act and deed.

Before me: Lola B. Kinzie, Notary Public for Oregon, My commission expires 11-2-75.

NOTE: The symbol between the symbols Q, if not applicable, should be deleted. See Chapter 412, Oregon Laws 1967, as amended by the 1967 Special Session.

WARRANTY DEED

NELSON

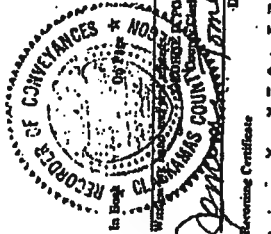
TABER

AFTER RECORDING RETURN TO Pioneer National Title Insurance Co. P.O. Box 38 Beaverton, Oregon 97005 ATTN: Lola Kinzie

STATE OF OREGON, County of Clatsop.

L. George D. Pappas, County Clerk, Ex-Officio Clerk of Probate and Ex-Officio Clerk of the County of Clatsop of the State of Oregon, for the within instrument of the hereby certified that the same has been duly recorded in the records of the County of Clatsop, Oregon, on this 24th day of September, 1973.

DEED 73 SEP 24 PM 4:28 73 30403



73 30403

26
10
11
22



Clackamas County Official Records
Sherry Hall, County Clerk

2007-047567

\$36.00

01108584200700475670030035

05/31/2007 02:43:33 PM

D-D Cnt=1 Stn=10 LESLIE
\$15.00 \$11.00 \$10.00

After recording return to:
~~XXXXXX~~ Rembold Co.
~~XXXXXX~~ 1022 SW Salmon ST. #450
~~XXXXXX~~ Portland, OR 97205

Until a change is requested, all tax statements shall be sent to the following address: same as above.
~~XXXXXX~~
~~XXXXXX~~
~~XXXXXX~~

LAWYERS TITLE INS. CORP. 89g005370

STATUTORY WARRANTY DEED

Steven E. Rumpf, Trustee of the Steven E. Rumpf Revocable Living Trust dated March 9, 2001 and Geraldine Rumpf, Trustee of the Geraldine Rumpf Revocable Living Trust dated March 9, 2001, Grantor, conveys and warrants to Villebois LLC, an Oregon limited liability company, Grantee, the following described real property free of encumbrances except as specifically set forth herein:

SEE ATTACHED EXHIBIT "A"

Tax Account No. 00812491 & 00812534 & 01555178

This property is free of encumbrances, EXCEPT:
 SEE EXHIBIT ~~XXXXXX~~ 'B' with exceptions
 The true consideration for this conveyance is \$2,080,000.00

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY UNDER ORS 197.352. THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930 AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 197.352.

Dated, 30th day of May, 2007

St. E. Rumpf Trustee
 Steven E. Rumpf, Trustee

Geraldine Rumpf TRUSTEE
 Geraldine Rumpf, Trustee

STATE OF OREGON
 COUNTY OF Clackamas

The foregoing instrument was acknowledged before me this 30 day of May, 2007 by Steven E. Rumpf, Trustee and Geraldine Rumpf, Trustee.

Michelle L Williams
 Notary Public State of Oregon
 My commission expires: 5/7/10



Order No. 89g005370

"EXHIBIT A"

A parcel of land located in Section 15, Township 3 South, Range 1 West, Willamette Meridian and in the Samuel B. Franklin D.L.C. No. 50, Clackamas County, Oregon and being more particularly described as follows:

Beginning at a point on the West line of Parcel 2, Partition Plat No. 1994-182, Clackamas County Plat Records, which bears North $88^{\circ}34'07''$ West, 479.76 feet and South $02^{\circ}14'35''$ West 504.00 feet from the North one-quarter corner of said Section 15, being the most Southerly Northeast corner of the property described in deed Document No. 93-31319, Clackamas County Deed Records; THENCE continuing along the West line of said Partition Plat and East line of said Deed Document, South $02^{\circ}14'35''$ West, 404.94 feet to a point on the North line of the property described as Parcel I in Deed Document No. 99-111865 Clackamas County Deed Records; THENCE along said North line, North $88^{\circ}34'09''$ West 861.99 feet to the Southeast corner of the land described as Parcel II in Deed Document No. 2000-050326; THENCE along the East line of said Deed, North $09^{\circ}19'56''$ West, 166.07 feet to a point on the Easterly right-of-way line of S.W. Graham's Ferry Road (County Road No. 13*); (*being 30.00 feet Easterly at right angle measure from the centerline of said road) THENCE along said right-of-way line North $17^{\circ}14'33''$ East, 16.42 feet to an angle point; THENCE continuing along said right-of-way line North $21^{\circ}00'24''$ East, 753.43 feet to the intersection of the East line of S.W. Graham's Ferry Road and the South line of S.W. Tooze Road (Brown Road, County Road No. 355*) (*being 20.00 feet Southerly at right angle measure from the centerline of said road); THENCE along the South line of said Tooze Road, South $88^{\circ}34'07''$ East, 310.68 feet to the Northwest corner of the land described in Deed Document No. 73-30403; THENCE along the West line of said Deed South $02^{\circ}14'35''$ West, 415.00 feet to the Northwest corner of the land described in Deed Document No. 90-53950 Clackamas County Deed Records, THENCE along the North line of said land and its Easterly extension thereof South $88^{\circ}34'07''$ East, 104.99 feet to the Southeast corner of the land described in Deed Document No. 90-53949, Clackamas County Deed Records; THENCE continuing along said East line, North $02^{\circ}14'35''$ East, 415.00 feet to a point on the South right-of-way line of said Tooze Road; THENCE continuing along said South right-of-way line, South $88^{\circ}34'07''$ East, 142.88 feet to the Northwest corner of the land described in Deed Document No. 73-30518; THENCE along the West line of said land South $02^{\circ}14'35''$ West, 484.00 feet to the Southwest corner of said land; THENCE along the South line of said land, South $88^{\circ}34'07''$ East 90.00 feet to the point of beginning.

Exhibit 'B'

1. **The rights of the public in and to that portion of the herein described property lying within the limits of roads and highways.**
2. **An easement created by instrument, including the terms and provisions thereof,**
Recorded : December 4, 1978
As : 78-51839
In favor of : Portland General Electric Company, an Oregon corporation
For : Underground distribution line
Affects Parcel III
3. **The herein described property is within, and subject to the regulations and restrictions of, the Wilsonville West Side Urban Renewal Plan Urban Renewal Area, as imposed by the City of by instrument,**
Recorded : November 12, 2003
As : 2003-150344
And any amendments thereto.
4. **Encroachment of fence and building overhang on subject property onto property adjacent to the South as disclosed by Boundary line agreement recorded July 28, 2006 as 2006-069031.**
5. **Encroachments as disclosed by survey,**
Dated : September 5-9, 2003
Prepared by : Alpha Engineering Inc.
Project No. : 398-019
1) Encroachment : Fence
Affects : Westerly line of Parcel I & III; Southerly line of Parcel III;
Easterly line of Parcel III; Northerly line of Parcel I;
Northerly and Northeasterly lines of Parcel I
2) Encroachment : Building
Affects : Southerly line of Parcel III

Amber Shasky-Bell

From: Thomas, Floyd [FloydT@co.clackamas.or.us]
Sent: Wednesday, January 15, 2014 2:15 PM
To: Amber Shasky-Bell
Subject: FW: Elector Information Request
Attachments: Wilsonville voters.pdf

Attached are the voters at the addresses below. Only the 2 Tabers are actually valid registered voters

Floyd Thomas
Clackamas County Elections
1710 Red Soils Ct. Ste 100
Oregon City OR 97045

ph 503-655-8510
Fax 503-655-8461

Voter ID	Name	Address
17845987	LLOYD, HEATHER C	11700 SW TOOZE RD, WILSONVILLE OR 97070
17710579	LLOYD, JOSEPH F	11700 SW TOOZE RD, WILSONVILLE OR 97070
100152646	LUND, ASHLEY MAY	11650 SW TOOZE RD, WILSONVILLE OR 97070
17798186	NIMS, JAY R	11700 SW TOOZE RD, WILSONVILLE OR 97070
17670693	NIMS, THERESA M	11700 SW TOOZE RD, WILSONVILLE OR 97070
X X 17869884	TABER, CAROLYN J	11800 SW TOOZE RD, WILSONVILLE OR 97070
17718519	TABER, CHARLES E	11800 SW TOOZE RD, WILSONVILLE OR 97070

Voter List

Print Screen Help

Voter List for Address Range

Voter ID	Name	Address
17766358	RUMPE, SHIRLEY A	28100 SW GRAHAMS FERRY RD, WILSONVILLE OR 97070
17750359	RUMPE, BRUCE D	28100 SW GRAHAMS FERRY RD, WILSONVILLE OR 97070

View Summary Select Voter Close

THESE 2 VOTERS ARE GRAYED OUT BECAUSE THEY HAVE BEEN CANCELLED FOR NON VOTING SINCE 2004. THEY MAY OR MAY NOT LIVE THERE BUT THEY ARE NOT CONSIDERED REGISTERED TO VOTE.

IIC
Legal Description
& Sketch



EXHIBIT "A"

January 20, 2014

LEGAL DESCRIPTION

Job No. 395-027

The land described in Document No. 2007-047567 and Document No. 73-30403, Clackamas County Deed Records, being in the Northwest Quarter of Section 15, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon, more particularly described as follows:

COMMENCING at the Northeast corner of Tract "DD" of plat of "Tonquin Woods at Villebois No. 4";

thence along the northerly plat line of said plat, North 88° 34'09" West, a distance of 37.22 feet to the POINT OF BEGINNING;

thence continuing along said northerly plat line, North 88° 34'09" West, a distance of 862.08 feet to the Southeast corner of the property described in Document No. 2000-050326;

thence along the northeasterly line of said property, North 09° 12'39" West, a distance of 166.59 feet to a point on the easterly right-of-way line of SW Grahams Ferry Road;

thence along said easterly right-of-way line, North 17° 14'42" East, a distance of 15.88 feet to an angle point;

thence continuing along said easterly right-of-way line, North 21° 00'47" East, a distance of 753.50 feet to a point on the southerly right-of-way line of SW Tooze Road;

thence along said southerly right-of-way line, South 88° 34'09" East, a distance of 558.80 feet to the Northwest corner of the property described in Document No. 73-30518;

thence along the westerly line of said property, South 02° 14'46" West, a distance of 483.82 feet to the Southwest property corner of said property;

thence along the southerly line of said property, South 88° 22'03" East, a distance of 89.82 feet to a point on the westerly line of Parcel 2, Partition Plat No. 1994-182;

thence along said westerly parcel line, South 02° 14'46" West, a distance of 404.88 feet to the POINT OF BEGINNING.

Containing 15.164 acres, more or less.

Basis of bearings being the plat of "Tonquin Woods at Villebois No. 4", Clackamas County Plat Records.

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JULY 9, 2002 TRAVIS C. JANSEN 57751

RENEWS: 6/30/2015

N:\proj\395-027\08 Drawings\06 Survey\Legals\395027.Rumpf Zone Change.dwg - SHEET: Legal Desc Jan. 20, 14 - 2:42 PM tcj

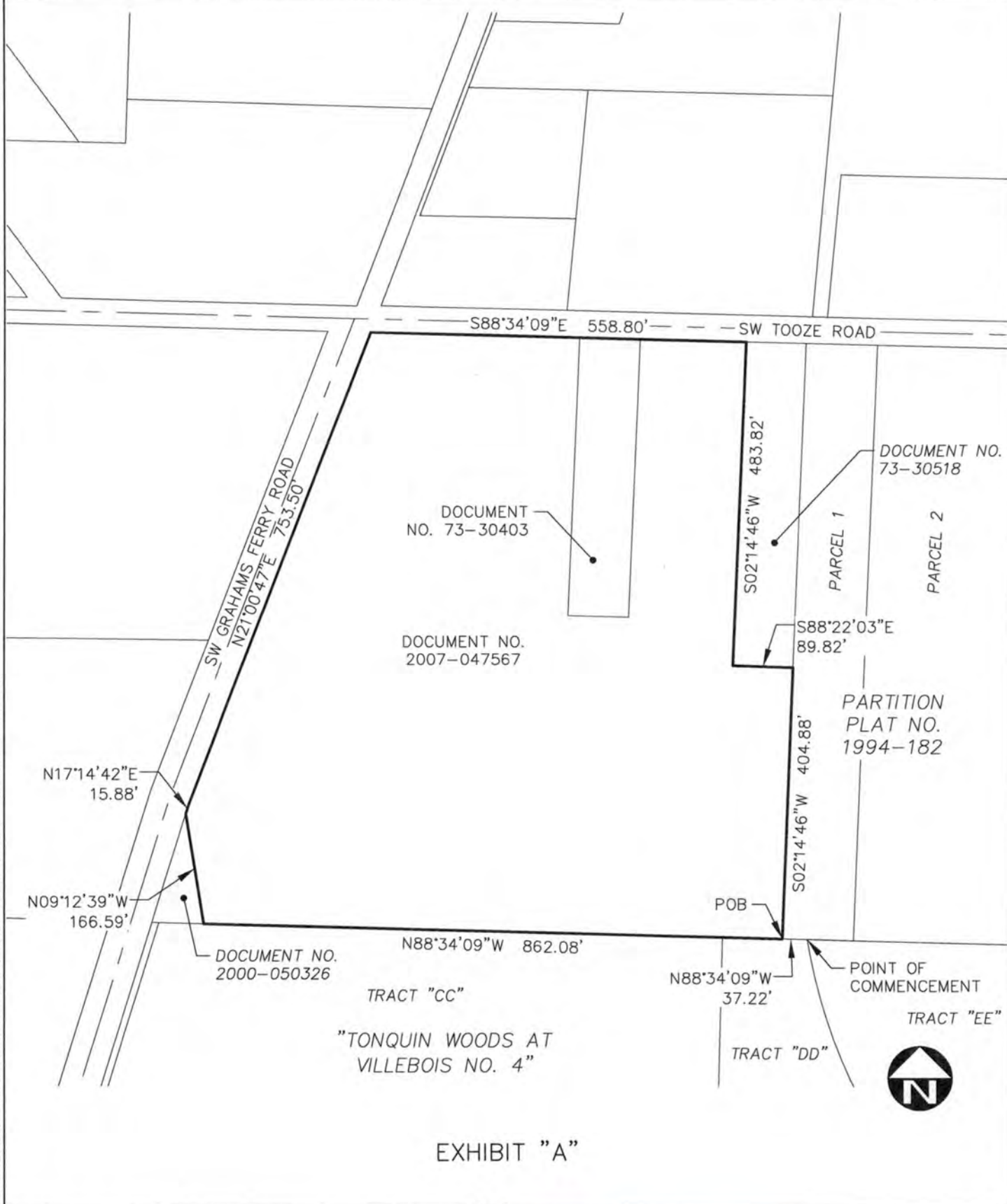


EXHIBIT "A"

DRAWN BY: CLL DATE: 1/20/14
 REVIEWED BY: TCJ DATE: 1/20/14
 PROJECT NO.: 395-027
 SCALE: 1"=200'
 PAGE 2 OF 2



12564 SW Main St
 Tigard, OR 97223
 [T] 503-941-9484
 [F] 503-941-9485

Section III

Preliminary Development Plan

IIIA
Supporting Compliance Report

**SUPPORTING COMPLIANCE REPORT
PRELIMINARY DEVELOPMENT PLAN 3 - NORTH**

SECTION IIIA

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I. WILSONVILLE PLANNING & LAND DEVELOPMENT ORDINANCE

SECTION 4.125 VILLAGE (V) ZONE

(.02) PERMITTED USES

Examples of principle uses that are typically permitted:

- A. Single Family Dwellings
- H. Non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar recreational and community uses owned and operated either publicly or by an owners association.

Response: This Preliminary Development Plan (PDP) application proposes to create 84 lots for development of detached single family dwellings, as well as numerous tracts for landscaping, parks, and open space areas. All proposed uses within the subject PDP are permitted pursuant to this section.

(.05) DEVELOPMENT STANDARDS APPLYING TO ALL DEVELOPMENTS IN THE VILLAGE ZONE

All development in this zone shall be subject to the V Zone and the applicable provisions of the Wilsonville Planning and Land Development Ordinance. If there is a conflict, then the standards of this section shall apply. The following standards shall apply to all development in the V zone:

- A. Block, Alley, Pedestrian and Bicycle Standards:
 - 1. Maximum Block Perimeter: 1,800 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent a block perimeter from meeting this standard.
 - 2. Maximum spacing between streets for local access: 530 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent street extensions from meeting this standard.
 - 3. If the maximum spacing for streets for local access exceeds 530 feet, intervening pedestrian and bicycle access shall be provided, with a maximum spacing of 330 feet from those local streets, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions from meeting this standard.

Response: Compliance with these standards has been demonstrated by the concurrent SAP North Amendment. PDP 3N is consistent with the information submitted for the concurrent SAP North Amendment.

- B. Access: All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer.

Response: All of the lots within the proposed PDP that have frontage on a public street and an alley will take vehicular access from an alley to a garage or parking area.

- C. Trailers, travel trailers, mobile coaches, or any altered variation thereof shall not be used for the purpose of conducting a trade or calling, or for storage of material, unless approved for such purpose as a temporary use.

Response: No trailers, travel trailers, mobile coaches, or such vehicles will be used for the purpose of conducting a trade or calling or for the storage of material unless approved as a temporary use.

D. Fences:

1. General Provisions:

- a. Fencing within the Village Zone shall be in compliance with the Master Fencing Program in the adopted Architectural Pattern Book for the appropriate SAP.
- b. When two or more properties with different setbacks abut, the property with the largest front yard setback requirement shall be used to determine the length and height of the shared side yard fence, as required by section 4.125 above.
- c. The development Review Board may, in their discretion, require such fencing as deemed necessary to promote and provide traffic safety, noise mitigation, and nuisance abatement, and the compatibility of different uses permitted on adjacent lots of the same zone and on adjacent lots of different zones.

2. Residential:

- a. The maximum height of any fence located in the required front yard of a residential development shall not exceed three (3) feet.
- b. Fences on residential lots shall not include chain link, barbed wire, razor wire, electrically charged wire, or be constructed of sheathing material such as plywood or flake board. Fences in residential areas that protect wetlands, or other sensitive areas, may be chain link.

Response: The SAP North Master Fencing Plan shows Enhanced Full View or Partial View Fence w/ Landscaping along Grahams Ferry Road and Tooze Road and a secondary site identifier at the site entrance on Grahams Ferry Road (at SW Oslo Street). Residential lot fencing will occur in compliance with the fencing specified for the specific lot type and style in accordance with the SAP North Master Fencing Plan. Residential lot fencing occurs when each home is constructed, details of which are provided with Building Permit review.

E. Recreational Area in Multi-Family Residential and Mixed Use Developments

Response: The proposed PDP includes lots for the development of single family residential homes; therefore this standard does not apply.

F. Fire Protection:

1. All structures shall include a rated fire suppression system (i.e., sprinklers), as approved by the Fire Marshal

Response: All of the homes within the proposed PDP area will include appropriate fire suppression systems. This will be verified with review of future building permit applications.

Table V-1 Development Standards

Response: The *Tentative Plat* (see Section IIIB in this Notebook) depicts proposed lot sizes and dimensions. All of the lots will be developed with single family detached dwelling units. All of the lots meet applicable requirements, as addressed below. No buildings are proposed with this application. Final compliance with these standards will be reviewed at building permit submittal.

Single-Family Dwellings

Minimum lot size: 2,250 square feet

Minimum lot width: 35 feet

Minimum lot depth: 50 feet

Response: All lots within the proposed tentative plat meet the minimum lot size requirement and meet the minimum lot width and depth specified for Small, Medium, Standard, and Large lots in the approved SAP North *Architectural Pattern Book*, with allowed variations for site features, such as road alignment or site topography.

Allowed variations are requested for Lots 8, 9, and 54, where road curvatures limit the width of lot frontage. Lot 8 has 58 feet of street frontage and Lot 9 has 44.3 feet of street frontage, resulting from the street corner knuckle effect on the front of these lots. However, lot width at the front building elevation will be at least 60 feet as future dwellings on these lots will be 50 feet in width with 5-foot minimum side yard setbacks. In addition, at the rear lot line, the width of these lots exceeds 60 feet. Lot 54 has approximately 56 of street frontage, as it is a corner lot located at the intersection of an angled street; SW Belfast Avenue is angled with a southwestern to northeastern orientation and intersects with SW Barcelona that has a west to east orientation. As a result, Lot 54 has a narrower lot width at the front lot line than the rear lot line (lot width at the rear is 91.6 feet wide). However, Lot 54 will have approximately 64 feet of distance between side lot lines at the front building elevation.

In addition, Small lots utilize the +/-32-40' typical lot width specified in the SAP North Pattern Book. Lots 38 and 39 are approximately 46 feet in width as they utilize the typical 10-foot street side yard in addition to the +/-32-40' typical lot width standard for Smalls, as shown in the SAP North Pattern Book.

(.07) GENERAL REGULATIONS - OFF-STREET PARKING, LOADING & BICYCLE PARKING

Except as required by Subsections (A) through (D), below, the requirements of Section 4.155 shall apply within the village zone.

A. General Provisions:

1. The provision and maintenance of off-street parking spaces is a continuing obligation of the property owner. The standards set forth herein shall be considered by the Development Review Board as minimum criteria.
2. The Board shall have the authority to grant variances or refinements to these standards in keeping with the purposes and objectives set forth in this zone.

Response: The applicant acknowledges that the provision and maintenance of off-street parking is the continuing obligation of the property owner. There are no variances or refinements to the standards of this section proposed with this application.

B. Minimum and Maximum Off-Street Parking Requirements:

1. Table V-2, Off-Street Parking Requirements, below, shall be used to determine the minimum and maximum parking standards for noted land uses. The number of required parking spaces shown in Table V-2 shall be determined by rounding to the nearest whole parking space...

Table V-2: Off-Street Parking Requirements

Category	Min. Vehicle Spaces	Max. Vehicle Spaces	Bicycle Short Term	Bicycle Long Term
Single Family Detached Dwelling Units	1.0 / DU	NR	NR	NR

Response: Each of the homes will provide a minimum of a two-car garage in compliance with this standard.

C. Minimum Off-Street Loading Requirements:

Response: The proposed PDP includes lots for development of single family homes; therefore no loading areas are required.

D. Bicycle Parking Requirements:

Response: The proposed PDP includes single family detached residential units. There is no bicycle parking requirement for these unit types, as noted in *Table V-2* above, therefore these standards do not apply.

(.08) OPEN SPACE

Open space shall be provided as follows:

- A. In all residential developments and in mixed-use developments where the majority of the developed square footage is to be in residential use, at least twenty-five percent (25%) of the area shall be open space, excluding street pavement and surface parking. In multi-phased developments, individual phases are not required to meet the 25% standard as long as an approved Specific Area Plan demonstrates that the overall development shall provide a minimum of 25% open space. Required front yard areas shall not be counted towards the required open space area. Required rear yard areas and other landscaped areas that are not within required front or side yards may be counted as part of the required open space.
- B. Open space area required by this Section may, at the discretion of the Development Review Board, be protected by a conservation easement or dedicated to the City, either rights in fee or easement, without altering the density or other development standards of the proposed development. Provided that, if the dedication is for public park purposes, the size and amount of the proposed dedication shall meet the criteria of the City of Wilsonville standards. The square footage of any land, whether dedicated or not, which is used for open space shall be deemed a part of the development site for the purpose of computing density or allowable lot coverage. See SROZ provisions, Section 4.139.10.
- C. The Development Review Board may specify the method of assuring the long-term protection and maintenance of open space and/or recreational areas. Where such protection or maintenance are the responsibility of a private party or homeowners' association, the City Attorney shall review and approve any pertinent bylaws, covenants, or agreements prior to recordation.

Response: The Parks *Master Plan* for Villebois states that there are 58.42 acres of parks and 101.31 acres of open space for a total of 159.73 acres within Villebois, approximately 33%. An amendment to SAP North to add information for Phase 3 has been submitted concurrently, which added a pocket park, open space area, and linear greens/landscape tracts, and increased the overall area of parks and open spaces as refinements to the *Master Plan*. The proposed PDP includes the same parks and open space areas shown in SAP North amendment for this area.

(.09) STREET & ACCESS IMPROVEMENT STANDARDS

- A. Except as noted below, the provisions of Section 4.177 apply within the Village zone:
 - 1. Generally:
 - a) All street alignment and access improvements shall conform to the Villebois Village Master Plan, or as refined in the Specific Area Plan, Preliminary

Development Plan, or Final Development Plan and the following standards:

Response: An amendment to SAP North to add information for Phase 3 has been submitted concurrently, which included minor refinements to the alignment and location of Iceland Lane, the location of planned access to/from SW Grahams Ferry Road, and the portion of Belfast Lane (Amsterdam Avenue) adjacent to the treed wetland in the southwestern site corner. The street alignments and access improvements within this PDP are consistent with the proposed refinements to the *Villebois Village Master Plan* submitted with the concurrent SAP North Amendment.

- i. All street improvements shall conform to the Public Works Standards and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.

Response: All street improvements within this PDP will comply with the applicable Public Works Standards. The street system within this PDP is designed to provide for the continuation of streets within Villebois and to adjoining properties or subdivisions according to the *Master Plan*. The street system is illustrated on the *Circulation Plan* (see Section IIIB of this Notebook).

- ii. All streets shall be developed with curbs, landscape strips, bikeways or pedestrian pathways, according to the Master Plan.

Response: All streets within this PDP will be developed with curbs, landscape strips, sidewalks, and bikeways or pedestrian pathways as depicted on the *Circulation Plan* (Section IIIB of this Notebook) and in accordance with the *Master Plan*.

2. Intersections of streets

- a) **Angles:** Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.
- b) **Intersections:** If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety (90) degrees shall require approval by the City Engineer after consultation with the Fire District.

Response: The plan sheets located in Section IIIB of this Notebook demonstrate that all proposed streets will intersect at angles consistent with the above standards.

- c) **Offsets:** Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:
 - i. 1000 ft. for major arterials
 - ii. 600 ft. for minor arterials

- iii. 100 ft. for major collector
- iv. 50 ft. for minor collector

Response: The plan sheets located in Section IIIB of this Notebook demonstrate that opposing intersections on public streets are offset, as appropriate, so that no danger to the traveling public is created.

d) **Curb Extensions:**

- i. Curb extensions at intersections shall be shown on the Specific Area Plans required in subsection 4.125(.18)(C) through (F) below, and shall:
 - Not obstruct bicycle lanes on collector streets.
 - Provide a minimum 20 foot wide clear distance between curb extensions all local residential street intersections shall have, shall meet minimum turning radius requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.

Response: Curb extensions are shown on the *Circulation Plan* (see Section IIIB). The attached drawings illustrate that all street intersections will have a minimum 20 foot wide clear distance between curb extensions on all local residential street intersections. No collector streets are located within PDP 3N

- 3. Street grades shall be a maximum of 6% on arterials and 8% for collector and local streets. Where topographic conditions dictate, grades in excess of 8%, but not more than 12%, may be permitted for short distances, as approved by the City Engineer, where topographic conditions or existing improvements warrant modification of these standards.

Response: The *Grading & Erosion Control Plan* located in Section IIIB, demonstrates that proposed streets can comply with this standard.

4. **Centerline Radius Street Curves:**

The minimum centerline radius street curves shall be as follows:

- a) Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by City Engineer.
- b) Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- c) Local streets: 75 feet

Response: The plan sheets in Notebook Section IIIB demonstrate that all streets will comply with the above standards.

5. Rights-of-way:

- a) See (.09) (A), above.

Response: Proposed rights-of-way are shown on the plan sheets located in Section IIIB of this Notebook. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of a final plat in accordance with Section 4.177.

6. Access drives.

- a) See (.09) (A), above.
b) 16 feet for two-way traffic.

Response: Access drives (alleys) will be paved at least 16-feet in width within a 20-foot tract, as shown on the *Circulation Plan*. In accordance with Section 4.177, all access drives will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions

7. Clear Vision Areas

- a) See (.09) (A), above.

Response: Clear vision areas will be provided and maintained in compliance with the Section 4.177.

8. Vertical clearance:

- a) See (.09) (A), above.

Response: Vertical clearance will be provided and maintained in compliance with the Section 4.177.

9. Interim Improvement Standard:

- a) See (.09) (A), above.

Response: An interim street section improvement will be provided on Grahams Ferry Road to create consistency with street improvements completed previously with phased development of SAP North and SAP South. Interim street section improvements are also planned on Tooze Road, to be provided by the City of Wilsonville.

(.10) SIDEWALK AND PATHWAY IMPROVEMENT STANDARDS

A. The provisions of Section 4.178 shall apply within the Village zone.

Response: All sidewalks and pathways within SAP North will be constructed in accordance with the standards of Section 4.178 and the *Villebois Village Master Plan*. Sidewalks and pathways are shown in the street cross-sections on the *Circulation Plan* (see Section IIIB of this notebook).

(.11) LANDSCAPING, SCREENING AND BUFFERING

- A. Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:
1. Streets in the Village zone shall be developed with street trees as described in the Community Elements Book.

Response: The *Street Tree/Lighting Plan* shows the street trees proposed within this PDP. The trees are in conformance with the Community Elements Book.

(.12) MASTER SIGNAGE AND WAYFINDING

Response: The site includes a 'secondary site identifier' at the site entrance (at SW Oslo Street) on Grahams Ferry Road. Signage within the subject area will comply with the SAP North Signage & Wayfinding Plan.

(.14) DESIGN STANDARDS APPLYING TO THE VILLAGE ZONE

- A. The following design standards implement the Design Principles found in (.13), above, and enumerate the architectural details and design requirements applicable to buildings and other features within the Village (V) zone. The Design Standards are based primarily on the features, types, and details of the residential traditions in the Northwest, but are not intended to mandate a particular style or fashion. All development within the Village zone shall incorporate the following:
1. Generally:
 - a. Flag lots are not permitted.

Response: No flag lots are proposed (see the *Tentative Plat* in Notebook Section IIIB).

- b. Dwellings on lots without alley access shall be at least 36 feet wide.

Response: As demonstrated by the Tentative Plat (see Notebook Section IIIB), all lots without alley access will have a lot width exceeding 36 feet.

- c. The minimum lot depth for a single-family dwelling with an accessory dwelling unit shall be 70 feet.

Response: None of the lots include accessory dwellings; therefore this standard does not apply.

- d. For Village Center lots facing two or more streets, two of the facades shall be subject to the minimum frontage width requirement. Where multiple buildings are located on one lot, the facades of all buildings shall be used to calculate the Minimum Building Frontage Width.

Response: The proposed PDP is not located in the Village Center; therefore this standard does not apply.

2. **Building and site design shall include:**
 - a. Proportions and massing of architectural elements consistent with those established in an approved Pattern Book or Village Center Design.
 - b. Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Pattern Book, Community Elements Book or approved Village Center Architectural Standards.
 - c. Protective overhangs or recesses at windows and doors.
 - d. Raised stoops, terraces or porches at single-family dwellings.
 - e. Exposed gutters, scuppers, and downspouts.
 - f. The protection of existing significant trees as identified in an approved Community Elements Book.
 - g. A landscape plan in compliance with Section (.11), above.
 - h. Building elevations of block complexes shall not repeat an elevation found on an adjacent block.
 - i. Building elevations of detached buildings shall not repeat an elevation found on buildings on adjacent lots.
 - j. A porch shall have no more than three walls.
 - k. A garage shall provide enclosure for the storage of no more than three vehicles.

Response: This application requests PDP approval for single family detached lots. No buildings are proposed at this time. Conformance with the Pattern Book and Community Elements Book will assure consistency with the Design Standards of subsection (.14). Subsequent Building Permit applications will review building and site design for consistency with the Pattern Book.

The *Street Tree/Lighting Plan* (see Notebook Section IIIB) shows the street trees proposed within this PDP in compliance with Section (.11), above. The trees have been selected in conformance with the Community Elements Book.

Protection of existing trees is shown on the *Tree Preservation Plan*, in accordance with the Community Elements Book. The *Street Tree/Lighting Plan* (see Section IIIB) depicts street trees along rights-of-way within the subject Preliminary Development Plan area. The *Street Tree/Lighting Plan* has been developed in conformance with the Community Elements Book and the applicable standards of Section 4.176.

3. **Lighting and site furnishings shall be in compliance with the approved Community Elements Book.**

Response: The FDP application in Section VII of the Notebook shows site furnishings within the parks. The *Street Tree/Lighting Plan* (see Section IIIB) shows proposed street trees and lighting for this Preliminary Development Plan. These plans illustrate

that lighting and site furnishings will be provided in compliance with the Community Elements Book.

4. **Building systems, as noted in Tables V-3 and V-4 (Permitted Materials and Configurations), below, shall comply with the materials, applications and configurations required therein.**

Response: The PDP does not propose any buildings. Subsequent Building Permit applications will review proposed buildings for consistency with the criteria of *Table V-3* and the *Architectural Pattern Book*.

(.18) VILLAGE ZONE DEVELOPMENT PERMIT PROCESS

- B. **Unique Features and Processes of the Village (V) Zone.** To be developed, there are three (3) phases of project approval. Some of these phases may be combined, but generally the approvals move from the conceptual stage through to detailed architectural, landscape and site plan review in stages. All development within the Village zone shall be subject to the following processes:

2. Preliminary Development Plan (PDP) approval by the Development Review Board, as set forth in Section 4.125(.18)(G) through (K) (Stage II equivalent), below. Following SAP approval, an applicant may file applications for Preliminary Development Plan approval (Stage II equivalent) for an approved phase in accordance with the approved SAP, and any conditions attached thereto. Land divisions may also be preliminarily approved at this stage. Except for land within the Central SAP or multi-family dwellings outside the Central SAP, application for a zone change and Final Development Plan (FDP) shall be made concurrently with an application for PDP approval. The SAP and PDP/FDP may be reviewed simultaneously when a common ownership exists.

Final Development (FDP) approval by the Development Review Board or the Planning Director, as set forth in Sections 4.125(.18)(L) through (P) (Site Design Review equivalent), below, may occur as a separate phase for lands in the Central SAP or multi-family dwellings outside the Central SAP.

Response: The Applicant is requesting approval of a Preliminary Development Plan (PDP). Compliance with Sections 4.125(.18)(G) through (K) is demonstrated in the following sections of this report. This PDP addresses Phase 3 of SAP North, as depicted in the concurrent SAP North Amendment.

A request for preliminary approval of a tentative subdivision plat is submitted concurrent with this PDP application (see Notebook Section IV). A request for a zone change to Village (V) zone is submitted concurrent with this PDP application (see Section V of this Notebook). In addition, a Final Development Plan is submitted concurrent with this PDP (see Section VII of this Notebook).

G. Preliminary Development Plan Approval Process:

1. An application for approval of a Preliminary Development Plan for a development in an approved SAP shall:

a) Be filed with the City Planning Division for the entire SAP, or when submission of the SAP in phases has been authorized by the Development Review Board, for a phase in the approved sequence.

Response: This PDP addresses Phase 3 of SAP North, as depicted by the concurrent SAP North Amendment.

b) Be made by the owner of all affected property or the owner's authorized agent; and.

Response: This application is made by Polygon Northwest Company, LLC. The application form, which has been signed by the property owners, can be found in Exhibit IB along with a copy of the vesting deeds.

c) Be filed on a form prescribed by the City Planning Division and filed with said division and accompanied by such fee as the City Council may prescribe by resolution; and.

Response: The appropriate application form and fee have been filed with this submittal. A copy of the form and fee are included in Sections IB and IC, respectively.

d) Set forth the professional coordinator and professional design team for the project; and.

Response: The professional coordinator and professional design team are set forth in the Introductory Narrative, located in Section IA of this Notebook.

e) State whether the development will include mixed land uses, and if so, what uses and in what proportions and locations.

Response: This PDP does not include mixed land uses. The proposed land uses are shown on the *Site/Land Use Plan*, in Section IIIB of this Notebook.

f) Include a preliminary land division (concurrently) per Section 4.400, as applicable.

Response: This application includes a request for preliminary land division approval. This request for approval of a Tentative Plat can be seen in Section IV of this Notebook. This section includes a Supporting Compliance Report, the proposed Tentative Plat, draft CC&R's, a copy of the certification of liens & assessments form, and the subdivision name approval from the County Surveyor's Office.

g) Include a concurrent application for a Zone Map Amendment (i.e., Zone Change) for the subject phase.

Response: This application includes a request for a zone map amendment to zone the subject Preliminary Development Plan area Village (V). This zone change request can be seen in Section V of this Notebook. This section includes a Supporting

Compliance Report, a Zone Change Map, and a legal description & sketch of the proposed zone change area.

2. The application for Preliminary Development Plan approval shall include conceptual and quantitatively accurate representations of the entire development sufficient to demonstrate conformance with the approved SAP and to judge the scope, size and impact of the development on the community and shall be accompanied by the following information:
 - a) A boundary survey or a certified boundary description by a surveyor licensed in the State of Oregon.
 - b) Topographic information sufficient to determine direction and percentage of slopes, drainage patterns, and in environmentally sensitive areas, (e.g., flood plain, wetlands, forested areas, steep slopes or adjacent to stream banks). Contour lines shall relate to North American Vertical Datum of 1988 and be at minimum intervals as follows:
 - i) One (1) foot contours for slopes of up to five percent (5%);
 - ii) Two (2) foot contours for slopes from six percent (6%) to twelve (12%);
 - iii) Five (5) foot contours for slopes from twelve percent (12%) to twenty percent (20%). These slopes shall be clearly identified, and
 - iv) Ten (10) foot contours for slopes exceeding twenty percent (20%).
 - c) The location of areas designated Significant Resource Overlay Zone (SROZ), and associated 25-foot Impact Areas, within the PDP and within 50 feet of the PDP boundary, as required by Section 4.139.

Response: A certified boundary description by a surveyor licensed in the State of Oregon is provided as the legal description and sketch for the zone map amendment (see Section VC of this Notebook). Topographic information and SROZ information in accordance with Sections 4.125(.18)G.2.b. & c. is shown on the *Existing Conditions*, located in Section IIB of this Notebook.

- d) A tabulation of the land area to be devoted to various uses, and a calculation of the average residential density per net acre.

Response: Following is a tabulation of land area devoted to the various uses and a calculation of net residential density:

Gross Acreage	15.16 Acres
Parks & Open Space	2.03 Acres
Public Streets	4.49 Acres
Lots and Alleys	8.64 Acres

Net Residential Density: 84 lots / 8.64 Acres = 9.72 units per net acre

- e) **The location, dimensions and names, as appropriate, of existing and platted streets and alleys on and within 50 feet of the perimeter of the PDP, together with the location of existing and planned easements, sidewalks, bike routes and bikeways, trails, and the location of other important features such as section lines, section corners, and City boundary lines. The plan shall also identify all trees 6 inches and greater d.b.h. on the project site only.**

Response: The above information is shown on the *Existing Conditions*, the *Tentative Plat*, and the *Circulation Plan*. The *Tree Preservation Plan* identifies all trees 6 inches and greater diameter at breast height (d.b.h.) within or adjacent to developed areas on the project site. Trees within the retained wetland have not been inventoried as they each will be preserved within an open space tract. Tree numbers are identified on the Tree Preservation Plan Sheets which correspond with the Tree Inventory in the Tree Report (see Section VIB). The plan sheets mentioned above can be found in Section IIIB of this Notebook.

- f) **Conceptual drawings, illustrations and building elevations for each of the listed housing products and typical non-residential and mixed-use buildings to be constructed within the Preliminary Development Plan boundary, as identified in the approved SAP, and where required, the approved Village Center Design.**

Response: The proposed PDP includes Small, Medium, Standard, and Large lot types, which are all detached single-family homes. Conceptual elevations for the homes are included in Section IIIF of this Notebook.

- g) **A composite utility plan illustrating existing and proposed water, sanitary sewer, and storm drainage facilities necessary to serve the SAP.**

Response: Proposed storm drainage facilities, and water and sanitary lines are shown on the *Composite Utility Plan* (see Section IIIB in this Notebook).

- h) **If it is proposed that the Preliminary Development Plan will be executed in Phases, the sequence thereof shall be provided.**

Response: The PDP is proposed to be executed in one phase.

- i) A commitment by the applicant to provide a performance bond or other acceptable security for the capital improvements required by the project.

Response: The applicant will provide a performance bond or other acceptable security for the capital improvements required by the project.

- j) At the applicant's expense, the City shall have a Traffic Impact Analysis prepared, as required by Section 4.030(.02)(B), to review the anticipated traffic impacts of the proposed development. This traffic report shall include an analysis of the impact of the SAP on the local street and road network, and shall specify the maximum projected average daily trips and maximum parking demand associated with buildout of the entire SAP, and it shall meet Subsection 4.140(.09)(J)(2).

Response: A copy of the Traffic Impact Analysis is provided in Section IIID of this Notebook.

H. PDP Application Submittal Requirements:

1. The Preliminary Development Plan shall conform with the approved Specific Area Plan, and shall include all information required by (.18)(D)(1) and (2), plus the following:
 - a) The location of water, sewerage and drainage facilities;
 - b) Conceptual building and landscape plans and elevations, sufficient to indicate the general character of the development;
 - c) The general type and location of signs;
 - d) Topographic information as set forth in Section 4.035;
 - e) A map indicating the types and locations of all proposed uses; and
 - f) A grading and erosion control plan illustrating existing and proposed contours as prescribed previously in this section.

Response: A concurrent SAP North Amendment has been submitted to add information for Phase 3. The proposed PDP 3N conforms to the concurrent SAP North Amendment. As demonstrated above, the PDP application includes all information required by 4.125(.18)(D)(1) and (2), as applicable to a PDP.

The *Existing Conditions* shows the existing site features, including topographic features. Proposed lots to be created for development are shown on the *Tentative Plat*. The *Grading and Erosion Control Plan* shows the location of drainage facilities, topographic information, and a grading and erosion control facilities. The *Composite Utility Plan* indicates the proposed location of water and sanitary sewer lines and drainage facilities. The *Site/Land Use Plan* indicates the types and locations of all

proposed uses in the Preliminary Development Plan. The plan sheets mentioned above can be found in Section IIIB of this Notebook.

Landscape plans for the park areas are located with the FDP application materials in Section VII of the Notebook. No signage is proposed or required within the subject area.

The proposed PDP includes Small, Medium, Standard, and Large lot types, which are all detached single-family homes. Conceptual elevations for the homes within the PDP will be provided for review by the City's Architectural consultant prior to building permit submittal and will be available prior to DRB hearing on this request. Future proposed homes will be designed to be consistent with the conceptual elevations in the *Architectural Pattern Book*.

2. In addition to this information, and unless waived by the City's Community Development Director as enabled by Section 4.008(.02))B), at the applicant's expense, the City shall have a Traffic Impact Analysis prepared, as required by Section 4.030(.02)(B), to review the anticipated traffic impacts of the proposed development. This traffic report shall include an analysis of the impact of the PDP on the local street and road network, and shall specify the maximum projected average daily trips and maximum parking demand associated with buildout of the entire PDP, and it shall meet Subsection 4.140(.09)(J)(2) for the full development of all five SAPs.

Response: A copy of the Traffic Impact Analysis is provided in Section IIID.

3. The Preliminary Development Plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the phase of development. However, approval of a Final Development Plan is a separate and more detailed review of proposed design features, subject to the standards of Section 4.125(.18)(L) through (P), and Section 4.400 through Section 4.450.

Response: The plan sheets for the proposed Preliminary Development Plan provide sufficient detail to show the ultimate operation and appearance of the subject phase of development. The FDP application for design of the included park areas within the PDP area is submitted concurrent with this application (see Notebook Section VII).

4. Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or for the creation of a non-profit homeowner's association, shall also be submitted.

Response: Copies of legal documents will be provided as appropriate and required by the Development Review Board.

I. PDP Approval Procedures

1. An application for PDP approval shall be reviewed using the following procedures:
 - a) Notice of a public hearing before the Development Review Board regarding a proposed PDP shall be made in accordance with the procedures contained in Section 4.012.
 - b) A public hearing shall be held on each such application as provided in Section 4.013.
 - c) After such hearing, the Development Review Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.

Response: In accordance with the procedures contained in Section 4.012, the City shall provide notice of a public hearing before the Development Review Board on the proposed Preliminary Development Plan. This report, in conjunction with all submitted information, demonstrates that the proposal conforms to the applicable permit criteria set forth in the City's Code.

J. PDP Refinements to Approved Specific Area Plan

1. In the process of reviewing a PDP for consistency with the approved Specific Area Plan, the Development Review Board may approve refinements, but not amendments, to the SAP. Refinements to the SAP may be approved by the Development Review Board as set forth in Section (.18)(J)(2), below.
 - a) Refinements to the SAP are defined as:
 - i. Changes to the street network or functional classification of streets that do not significantly reduce circulation system function or connectivity for vehicles, bicycles or pedestrians.

Response: An amendment to SAP North to add information for Phase 3 has been submitted concurrently. The proposed street network and the functional classification of streets is consistent with the concurrent SAP North Amendment.

- ii. Changes to the nature or location of parks types, trails or open space that do not significantly reduce function, usability, connectivity, or overall distribution or availability of these uses in the Preliminary Development Plan.

Response: An amendment to SAP North to add information for Phase 3 has been submitted concurrently. PDP 3N depicts parks, trails, and open space consistent with the concurrent SAP North Amendment.

- iii. Changes to the nature or location of utilities or storm water facilities that do not significantly reduce the service or function of the utility or facility.

Response: An amendment to SAP North to add information for Phase 3 has been submitted concurrently. PDP 3N shows utilities and stormwater facilities consistent with the concurrent SAP North Amendment.

- iv. Changes to the location or mix of land uses that do not significantly alter the overall distribution or availability of uses in the Preliminary Development Plan. For the purposes of this subsection, “land uses” or “uses” are defined in the aggregate, with specialty condos, mixed use condos, urban apartments, condos, village apartments, neighborhood apartments, row houses and small detached uses comprising a land use group and medium detached, standard detached, large and estate uses comprising another.
- v. A change in density that does not exceed ten percent, provided such density change has not already been approved as a refinement to the underlying SAP or PDP, and does not result in fewer than 2,300 dwelling units in the Village.

Response: An amendment to SAP North to add information for Phase 3 has been submitted concurrently. PDP 3N proposes land uses and density consistent with the concurrent SAP North Amendment.

- vi. Changes that are significant under the above definitions, but necessary to protect an important community resource or improve the function of collector or minor arterial roadways.

Response: This PDP does not include changes that meet the above definitions.

- 2. Refinements meeting the above definition may be approved by the DRB upon the demonstration and finding that:
 - a) The refinements will equally or better meet the conditions of the approved SAP, and the Goals, Policies and Implementation Measures of the Villebois Village Master Plan.

- b) The refinement will not result in significant detrimental impacts to the environment or natural or scenic resources of the PDP and Village area, and
- c) The refinement will not preclude an adjoining or subsequent PDP or SAP from development consistent with the approved SAP or Master Plan.

Response: As previously described in this report, a SAP Amendment has been submitted to add information for Phase 3. PDP 3N is consistent with the concurrent amendments to SAP North for Phase 3.

- 3. Amendments to the SAP, not including SAP amendments for phasing, must follow the same procedures applicable to adoption of the SAP itself. Amendments are defined as changes to elements of the SAP not constituting a refinement.
- 4. Amendments to the SAP for phasing will be processed as a Class II administrative review proposal.

Response: As previously described in this report, a SAP Amendment has been submitted to add information for Phase 3. PDP 3N is consistent with the concurrent amendments to SAP North for Phase 3.

K. PDP Approval Criteria

The Development Review Board may approve an application for a PDP only upon finding that the following approval criteria are met:

- 1. That the proposed PDP:
 - a. Is consistent with the standards identified in this section.

Response: This Supporting Compliance Report provides an explanation of how the proposed development is consistent with the standards of the Village zone.

- b. Complies with the applicable standards of the Planning and Land Development Ordinance, including Section 4.140(.09)(J)(1)-(3).

Response: This Supporting Compliance Report provides an explanation of how the proposed development is consistent with the applicable standards of the Planning and Land Development Ordinance. A description of how the proposed development complies with Section 4.140(.09)J.1-3 is included in the subsequent pages of this report.

- c. Is consistent with the approved Specific Area Plan in which it is located.

Response: A SAP North Amendment has been submitted concurrent with PDP 3N. The proposed Preliminary Development Plan is consistent with Specific Area Plan - North Amendment, as demonstrated by the plan sheets located in Section IIIB and as described in this report.

- d. Is consistent with the approved Pattern Book and, where required, the approved Village Center Architectural Standards

Response: No buildings are proposed with this Preliminary Development Plan. Subsequent Building Permit applications for residential buildings in this Preliminary Development Plan will document compliance with the *Architectural Pattern Book*. However, proposed lots are sized to accommodate proposed uses in a manner consistent with *Table V-1* and the *Architectural Pattern Book*.

COMMUNITY ELEMENTS BOOK

Lighting Master Plan

Response: This PDP application includes plans for street lighting within PDP 3 North as illustrated on the *Street Tree/Lighting Plan* (see Notebook Section IIIB). The proposed lighting is consistent with the Community Elements Book.

Curb Extensions

Response: As shown on the *Tentative Plat* (see Notebook Section IIIB), curb extensions are proposed at a number of intersections in the PDP area. The location of these curb extensions is consistent with the Curb Extension Concept Plan Diagram in the Community Elements Book.

Street Tree Master Plan

Response: As shown on the *Street Tree/Lighting Plan* (see Notebook Section IIIB), street trees proposed along the streets in the PDP area are consistent with the respective designated street tree lists.

Site Furnishings

Response: No site furnishings are proposed with this PDP application; however, the concurrent FDP application for the proposed park and linear greens includes details regarding site furnishings in these areas (see Section VII of this Notebook).

Play Structures

Response: No play structures are proposed with this PDP application; however, the concurrent FDP application (see Section VII of this Notebook) includes details regarding the parks and open space areas within PDP 3N.

Tree Protection

Response: The Tree Protection component of the Community Elements Book for SAP - North (page 18) describes the goal, policies, and implementation measures that were used to promote the protection of existing trees in the design of the PDP area. A *Tree Preservation Plan* has been prepared for this PDP, consistent with Implementation Measures 1 and 2 of the Tree Protection component of the *Community Elements Book*. The *Tree Preservation Plan* shows the trees that are proposed for preservation. The *Tree Preservation Plan* was based on a Tree Report prepared by Morgan E. Holen, a certified arborist (see Section VI of this notebook).

Plant List

Response: The *Community Elements Book* approved with SAP - North contains a Plant List (pages 19-21) of non-native and native trees, shrubs, and groundcovers, ferns, herbs, vines, perennials, grasses, and bulbs for species to plant throughout Villebois. Within the rights-of-way in this PDP, only street trees and rainwater components are proposed. Additional landscaping details are provided with the FDP application which is submitted concurrent with this PDP (see Section VII of this Notebook).

MASTER SIGNAGE AND WAYFINDING PLAN

Response: The SAP North *Signage & Wayfinding Plan* shows a Secondary Site Identifier at the street entrance from Grahams Ferry Road (at SW Oslo Street). The Secondary Site Identifier is provided with PDP 3N, as shown on the attached plans (see Notebook Section IIIB).

RAINWATER PROGRAM

Response: A Rainwater Management Plan is included with the supporting utility reports located in Section IIIC of this Notebook. Rainwater will be treated as shown on the *Composite Utility Plan* (see Notebook Section IIIB). The rainwater components will be detailed within subsequent construction drawings. Proposed rainwater management is consistent with the rainwater program for SAP North, as described in this report and as demonstrated in the attached Rainwater Management Plan (see Notebook Section IIIC).

3. If the PDP is to be phased, that the phasing schedule is reasonable and does not exceed two years between commencement of development of the first, and completion of the last phase, unless otherwise authorized by the Development Review Board.

Response: The PDP is proposed to be executed in one phase.

4. Parks within each PDP or PDP phase shall be constructed prior to occupancy of 50% of the dwelling units in the PDP or PDP phase, unless weather or special circumstances prohibit completion, in which case bonding for the improvements shall be permitted.

Response: The parks within PDP 3 North will be completed prior to occupancy of 50% of the housing units, as required. Bonding will be provided if special circumstances prohibit completion.

5. In the Central SAP, parks shall be constructed within each PDP as provided above, and that pro-rata portion of the estimated cost of Central SAP parks not within the PDP, calculated on a dwelling unit basis, shall be bonded or otherwise secured to the satisfaction of the city.

Response: The proposed PDP is within SAP North and is not within the Central SAP Area, therefore this standard does not apply.

6. The Development Review Board may require modifications to the PDP, or otherwise impose such conditions as it may deem necessary to ensure conformance with the approved SAP, the *Villebois Village Master Plan*, and compliance with applicable requirements and standards of the Planning and Land Development Ordinance, and the standards of this section.

Response: This report demonstrates that the proposed Preliminary Development Plan is in conformance with the Specific Area Plan - North Amendment, and thus, the *Villebois Village Master Plan* as well as the applicable requirements and standards of the Planning and Land Development Ordinance.

SECTION 4.139 SIGNIFICANT RESOURCE OVERLAY ZONE (SROZ) ORDINANCE

Response: A SRIR was submitted and approved with PDP 2N for the proposed SROZ impacts. This application includes a SRIR Addendum (see Notebook Section IIIG), which verifies previously approved areas and includes information for two (2) additional impact areas. As demonstrated in the SRIR Addendum, the total amount of SROZ impacts remains in compliance with the SROZ standards and approved mitigation areas. The SRIR Addendum has been provided with the concurrent SAP North Amendment. PDP 3N remains consistent with the *SROZ Plan* in the SAP North Amendment.

SECTION 4.140 PLANNED DEVELOPMENT REGULATIONS

(.09) FINAL APPROVAL (STAGE TWO)

J. A planned development permit may be granted by the Development Review Board only if it is found that the development conforms to all the following criteria, as well as to the Planned Development Regulations in Section 4.140:

1. The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.

Response: This Supporting Compliance Report demonstrates that the location, design, size, and uses proposed with the PDP are both separately and as a whole consistent with SAP North, and thus the *Villebois Village Master Plan*, the City's Comprehensive Plan designation of Residential - Village for the area, and the City's Planning and Land Development Ordinance.

2. That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City's adopted Capital Improvement Program, for

which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5.

Response: A copy of the Traffic Impact Analysis is attached in Section IIID of this Notebook.

- a. In determining levels of Service D, the City shall hire a traffic engineer at the applicant's expense who shall prepare a written report containing the following minimum information for consideration by the Development Review Board:
 - i. An estimate of the amount of traffic generated by the proposed development, the likely routes of travel of the estimated generated traffic, and the source(s) of information of the estimate of the traffic generated and the likely routes of travel; (Amended by Ord 561, adopted 12/15/03.)
 - ii. What impact the estimate generated traffic will have on existing level of service including traffic generated by (1) the development itself, (2) all existing developments, (3) Stage II developments approved but not yet built, and (4) all developments that have vested traffic generation rights under section 4.140(.10), through the most probable used intersection(s), including state and county intersections, at the time of peak level of traffic. This analysis shall be conducted for each direction of travel if backup from other intersections will interfere with intersection operations. (Amended by Ord 561, adopted 12/15/03.).

Response: A copy of the Traffic Impact Analysis is attached in Section IIID of this Notebook.

- b. The following are exempt from meeting the Level of Service D criteria standard:
 - i. A planned development or expansion thereof which generates three (3) new p.m. peak hour traffic trips or less;
 - ii. A planned development or expansion thereof which provides an essential governmental service.

Response: This PDP does not request an exemption from meeting the Level of Service D; therefore this criterion does not apply to this project.

- c. Traffic generated by development exempted under this subsection on or after Ordinance No. 463 was enacted shall not be counted in determining levels of service for any future applicant. (Added by Ord 561, adopted 12/15/03.)

Response: A copy of the Traffic Impact Analysis is attached in Section IIID of this Notebook.

- d. Exemptions under 'b' of this subsection shall not exempt the development or expansion from payment of system development charges or other applicable regulations. (Added by Ord 561, adopted 12/15/03.)

Response: The subject PDP is not exempt from subsection 'b' and the system development charges will be provided as required.

- e. In no case will development be permitted that creates an aggregate level of traffic at LOS "F". (Added by Ord 561, adopted 12/15/03.)

Response: A copy of the Traffic Impact Analysis is attached in Section IIID of this Notebook.

- 3. That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.

Response: This Supporting Compliance Report, the Utility and Drainage Reports (see Section IIIC of this notebook) and the plan sheets (see *Composite Utility Plan* in Section IIIB) show that the future residents of PDP 3 North will be adequately served by the planned facilities and services.

SECTION 4.171 GENERAL REGULATIONS - PROTECTION OF NATURAL FEATURES & OTHER RESOURCES

(.02) General Terrain Preparation

- A. All developments shall be planned designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant land forms.
- B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code, all development shall be planned, designed, constructed and maintained so as to:
 - 1. Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.
 - 2. Avoid substantial probabilities of: (1) accelerated erosion; (2) pollution, contamination or siltation of lakes, rivers,

streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.

3. Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.

Response: The plan sheets located in Section IIIB demonstrate that the subject Preliminary Development Plan is designed with maximum regard to natural terrain features and topography. The subject PDP does not contain hillside or flood plain areas. The *Grading and Erosion Control Plan* shows proposed grading within the subject area and the *Tree Preservation Plan* shows proposed tree preservation.

All subsequent grading, filling and excavating will be done in accordance with the Uniform Building Code. Disturbance of soils and removal of trees and other native vegetation will be limited to the extent necessary to construct the proposed development. Construction will occur in a manner that avoids substantial probabilities of accelerated erosion; pollution, contamination or siltation of lakes, rivers, streams and wetlands; damage to vegetation; and injury to wildlife and fish habitats.

(.03) Hillsides: All developments proposed on slopes greater than 25% shall be limited to the extent that:

Response: The subject Preliminary Development Plan does not include any areas of slopes in excess of 25%. Therefore, this standard does not apply to this application.

(.04) Trees and Wooded Areas.

- A. All developments shall be planned, designed, constructed and maintained so that:
 1. Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.
 2. Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.
 3. Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.
- B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:
 1. Avoiding disturbance of the roots by grading and/or compacting activity.
 2. Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.

3. Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.
4. Requiring, if necessary, a special maintenance, management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.

Response: The *Tree Preservation Plan*, located in Section IIIB, depicts existing trees within the subject area and identifies trees to be retained and to be removed. This application includes a request for approval of a Type “C” Tree Removal Plan, which can be found in Section VI of this Notebook.

Section VI includes the Tree Report prepared by Morgan Holen addressing existing trees and development impacts within the subject area, a tree inventory and tree mitigation details. Trees within the retained wetland have not been inventoried and are preserved. The information contained in Section VI demonstrates that the subject Preliminary Development Plan is designed to incorporate trees with a diameter at breast height of six inches or greater into the plan where feasible. In addition, existing trees rated “Good” have been retained to the extent feasible within the area addressed by this PDP. No trees rated “Important” are located on site. Trees that are retained, as identified in the *Tree Preservation Plan*, will be protected during site preparation and construction in accordance with City Public Works design specifications and Section 4.171(.04).

(.05) High Voltage Power line Easements and Rights of Way and Petroleum Pipeline Easements:

- A. Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights of way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights of way and petroleum pipeline easement shall be carefully reviewed.
- B. Any proposed non-residential development within high voltage powerline easements and rights of way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right of way ownership.

Response: This Preliminary Development Plan does not contain any high voltage powerline or petroleum pipeline easements or rights of way.

(.06) Hazards to Safety: Purpose:

- A. To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.
- B. To protect lives and property from damage due to soil hazards.
- C. To protect lives and property from forest and brush fires.
- D. To avoid financial loss resulting from development in hazard areas.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety.

(.07) Standards for Earth Movement Hazard Areas:

- A. No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety. No earth movement hazard areas have been identified within the subject PDP area.

(.08) Standards for Soil Hazard Areas:

- A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
- B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulleting and accompanying maps. Approved site-specific soil studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Response: Development of the subject area will occur in a manner that minimizes potential hazards to safety. No soil hazard areas have been identified within the subject area.

(.09) Historic Protection: Purpose:

- A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.

Response: A Historic/ Cultural Resource Inventory has been provided with the concurrent SAP North amendment.

SECTION 4.172 FLOOD PLAIN REGULATIONS

Response: The subject PDP does not include any flood plain areas.

SECTION 4.176 LANDSCAPING, SCREENING & BUFFERING

Response: Landscaping will be provided in accordance with the standards in Section 4.176. The *Street Tree/Lighting Plan* depicts street trees along rights-of-way within the subject Preliminary Development Plan area. The plan has been developed in conformance with the Community Elements Book and the applicable standards of Section 4.176. Landscaping in the park areas will be reviewed with the concurrent FDP application in Section VII of this Notebook.

SECTION 4.177 STREET IMPROVEMENT STANDARDS

Response: The rights-of-way proposed within the subject PDP are shown on the plan sheets in Section IIIB. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with the final plat.

The plan sheets located in Section IIIB demonstrate that all proposed access drives (alleys) within the PDP area will have a minimum improvement width of 16 feet and will provide two-way travel. All access drives will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions.

Clear vision areas will be maintained in accordance with the standards of Subsection 4.177(.01)(I). Vertical clearance will be maintained over all streets and access drives in accordance with Subsection 4.177(.01)(J).

SECTION 4.178 SIDEWALK & PATHWAY STANDARDS

(.01) Sidewalks. All sidewalks shall be concrete and a minimum of five (5) feet in width, except where the walk is adjacent to commercial storefronts. In such cases, they shall be increased to a minimum of ten (10) feet in width.

(.02) Pathways

A. Bicycle facilities shall be provided using a bicycle lane as the preferred facility design. The other facility designs listed will only be used if the bike lane standard cannot be constructed due to physical or financial constraints. The alternative standards are listed in order of preference.

1. Bike lane. This design includes 12-foot minimum travel lanes for autos and paved shoulders, 5-6 feet wide for bikes, that are striped and marked as bicycle lanes. This shall be the basic standard applied to bike lanes on all arterial and collector streets in the City, with the exception of minor residential collectors with less than 1,500 (existing or anticipated) vehicle trips per day.

Response: The PDP plan sheets located in Section IIIB (see the *Circulation Plan*) depict cross-sections of the proposed sidewalks and pathways in compliance with the above standards and the concurrent Specific Area Plan - North Amendment.

SECTION 4.610.40 TYPE C PERMIT

A request for approval of the Tree Removal Plan for PDP 3 North can be found in Section VI of this Notebook.

II. PROPOSAL SUMMARY & CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable requirements of the Village Zone and other applicable requirements of the City of Wilsonville Planning & Land Development Ordinance for the requested Preliminary

Development Plan. Therefore, the applicant requests approval of this application. Concurrent applications for Annexation, Tentative Plat, Zone Change, Tree Removal Plan, and Final Development Plan are included in this notebook as Sections II, IV, V, VI, and VII, respectively, pursuant to City requirements.

IIIB
Reduced Drawings

PHASE 3 NORTH VILLEBOIS PRELIMINARY DEVELOPMENT PLAN

TL 1200, 1202 & 1205, TOWNSHIP 3 SOUTH, RANGE 1 WEST, SECTION 15 W.M.
CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
109 E. 13TH ST.
VANCOUVER, WA 98660
[P] 503-221-1920
CONTACT: FRED GAST

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
Tigard, OR 97223
[P] 503-941-9484
CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: JESSIE KING, PE

SURVEYOR:

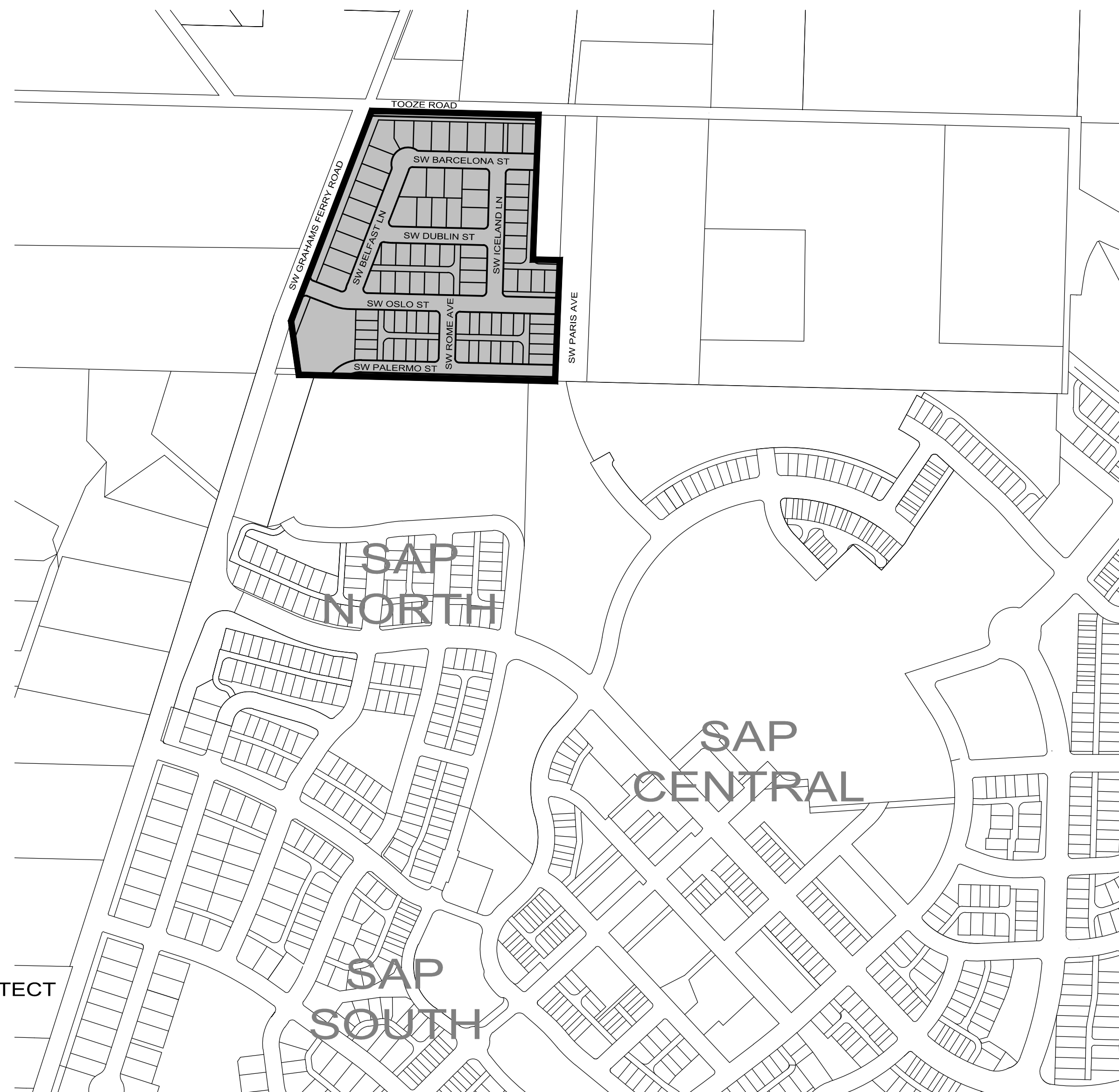
PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

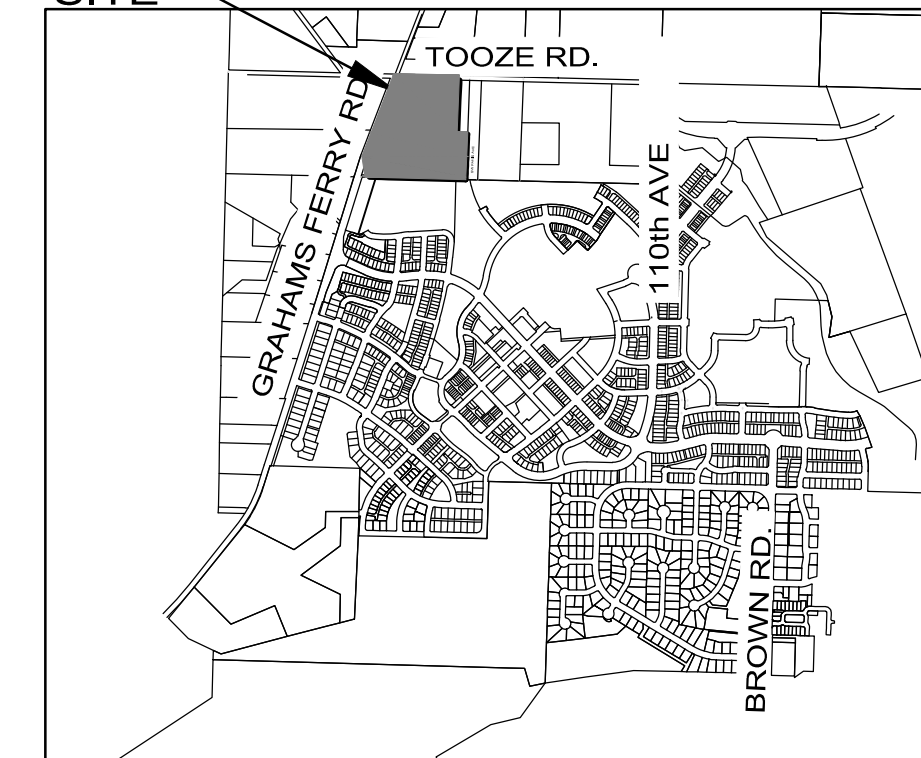
OTTEN LANDSCAPE ARCHITECTS, INC.
3933 SW KELLY AVE, SUITE B
PORTLAND, OR 97239
[P] 503-972-0311
CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
15575 SW SEQUOIA PARKWAY, SUITE 100
PORTLAND, OR 97224
[P] 503-968-8787
CONTACT: CRAIG WARE, PE



PROJECT SITE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

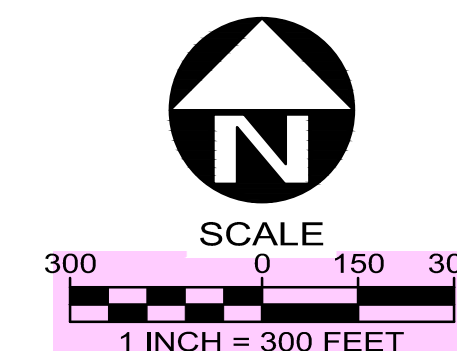
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- 2 EXISTING CONDITIONS
- 3 AERIAL PHOTOGRAPH
- 4 PRELIMINARY PLAT
- 5 GRADING PLAN
- 6 COMPOSITE UTILITY PLAN
- 7 CIRCULATION PLAN & STREET SECTIONS
- 8 SITE/LAND USE PLAN
- 9 TYPICAL LOT PLANS
- 10 TREE PRESERVATION PLAN
- 11 STREET TREE PLAN
- 12 SROZ PLAN



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N
VILLEBOIS

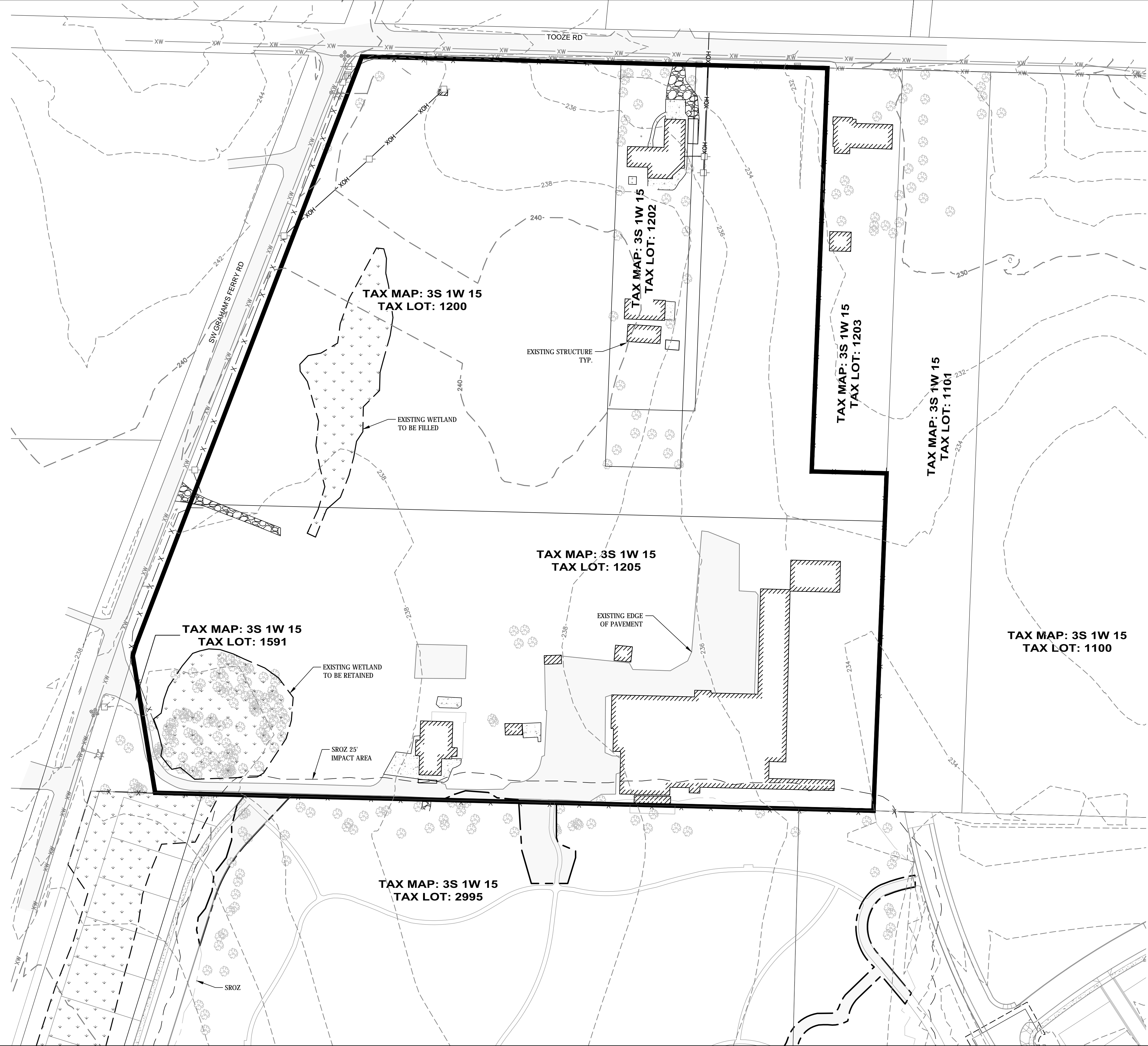
Preliminary
Development Plan

Cover Sheet

DATE 1/31/14

1

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LEGEND

---	EASEMENT LINES
---	EXISTING RIGHT-OF-WAY
---	EXISTING CENTERLINE
---	EXISTING PROPERTY LINE
---	EXISTING BOUNDARY LINE
---	EXISTING SIDEWALK
---	EX 1-FOOT CONTOURS
---	EX 5-FOOT CONTOURS
---	EX SANITARY SEWER
---	EX SANITARY DRAIN
---	EX STORM DRAIN
---	EX WATER LINE
---	EX GAS LINE
---	EX BURIED POWER LINE
---	EX OVERHEAD POWER LINE
---	EX CABLE TV LINE
---	EX TELEPHONE LINE
---	EX SANITARY MANHOLE
---	EX SANITARY CLEANOUT
---	EX STORM MANHOLE
---	EX AREA DRAIN
---	EX CURB INLET
---	EX STORM CLEANOUT
---	EX FIRE HYDRANT
---	EX WATER METER
---	EX WATER VALVE
---	EX BLOW-OFF
---	EX AIR RELEASE VALVE
---	EX GAS VALVE
---	EX CABLE RISER
---	EX TELEPHONE RISER
---	EX LIGHT POLE
---	EXISTING FENCE
---	EX TREES



Villebois



POLYGON NW COMPANY



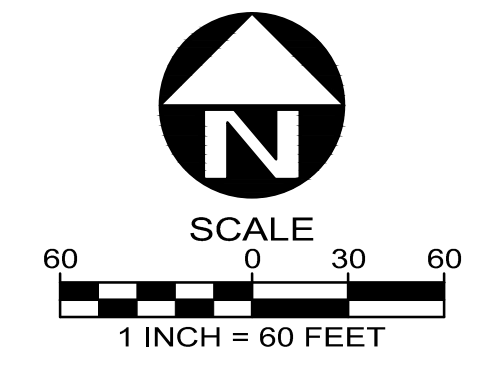
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GEODESIGN, INC.

PDP 3N
VILLEBOIS

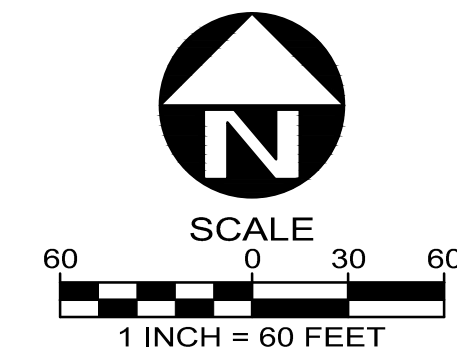
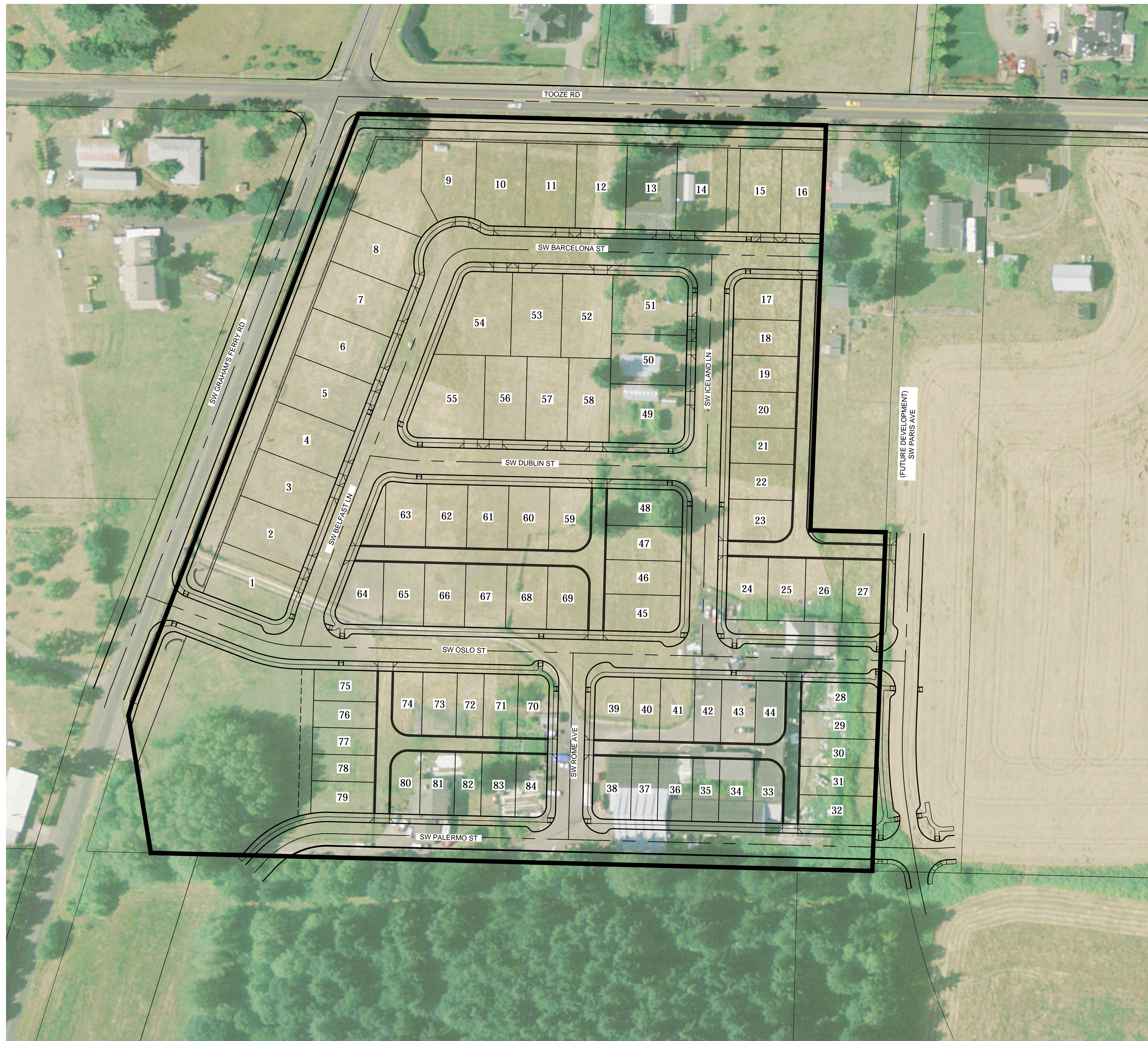
Preliminary
Development Plan

Existing
Conditions

DATE 1/31/14



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Villebois



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GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Plan

Aerial
Photograph

DATE 1/31/14

3

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LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK



POLYGON NW COMPANY



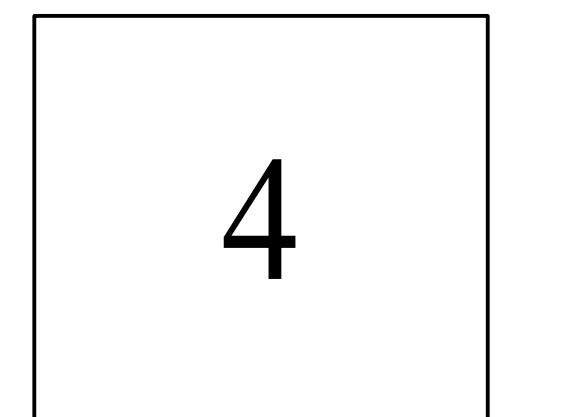
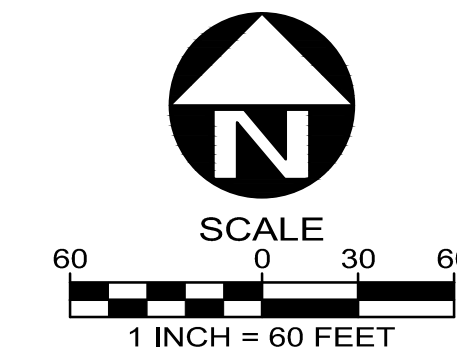
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GEODESIGN, INC

**PDP 3N
VILLEBOIS**

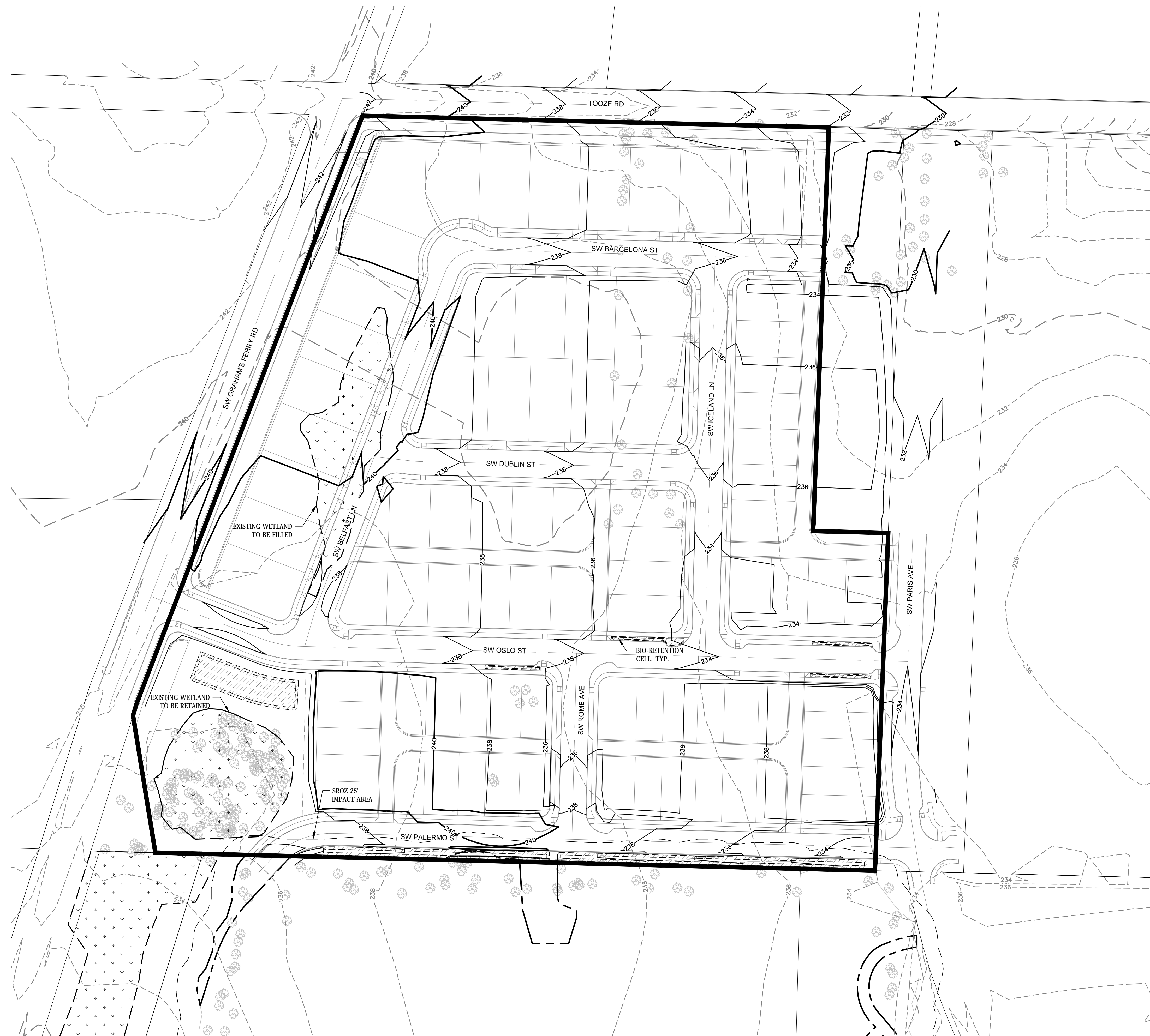
**Preliminary
Development Plan**

**Preliminary
Plat**

DATE 1/31/14

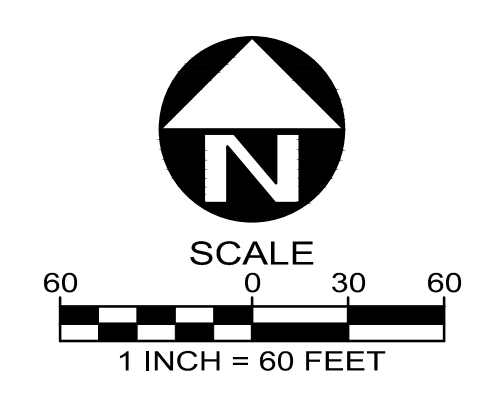


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LEGEND:

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— 200 —	FUTURE 10-FT CONTOUR
— 224 —	PROPOSED 2-FT CONTOUR
— 230 —	PROPOSED 10-FT CONTOUR



Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N
VILLEBOIS

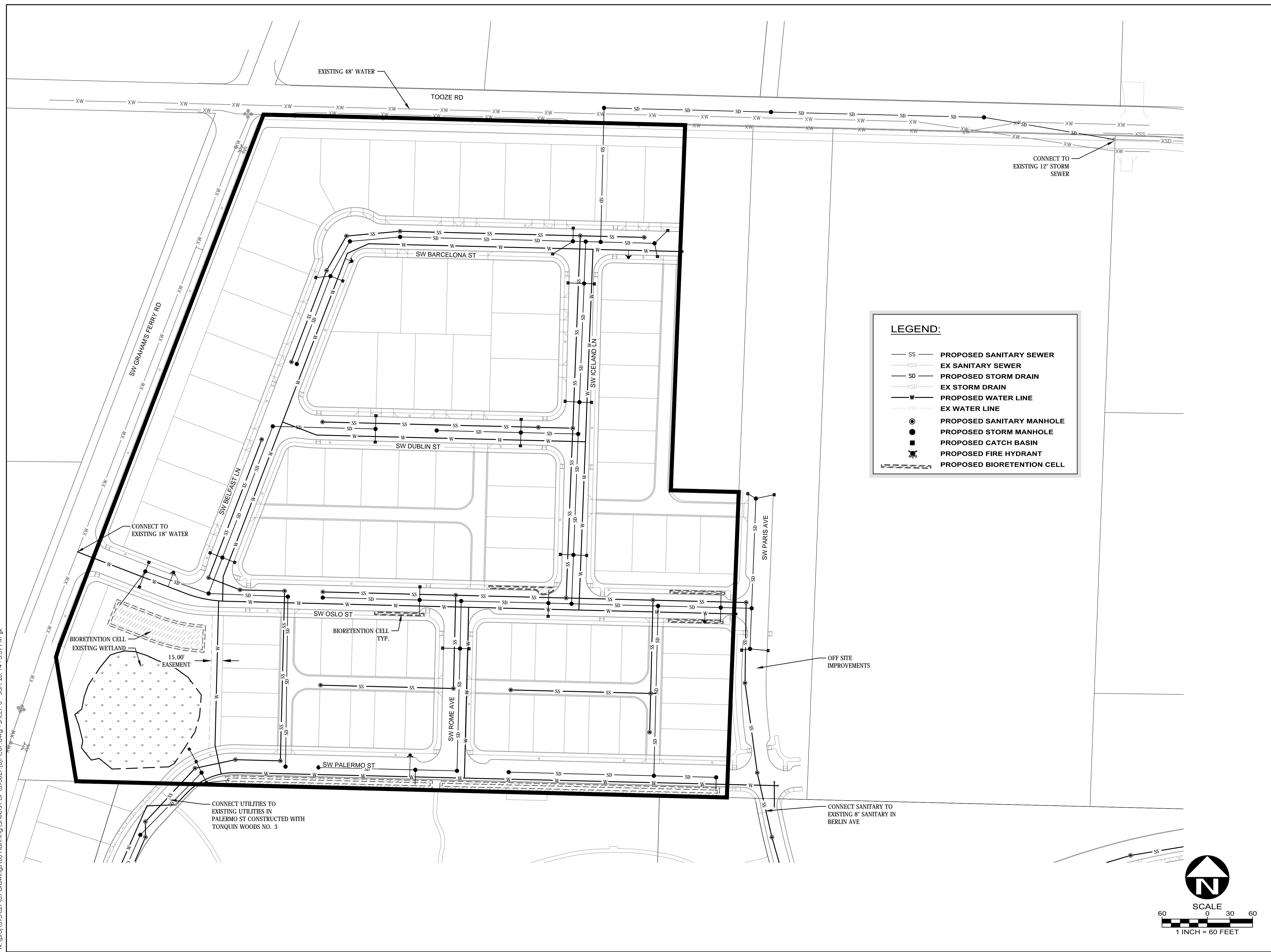
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Grading
Plan

DATE 1/31/14

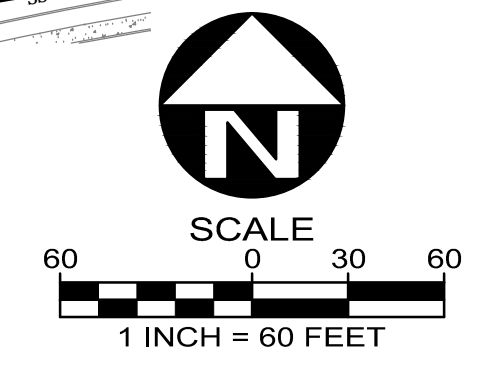
5

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LEGEND:

- SS — PROPOSED SANITARY SEWER
- XSS — EX SANITARY SEWER
- SD — PROPOSED STORM DRAIN
- XSD — EX STORM DRAIN
- W — PROPOSED WATER LINE
- XW — EX WATER LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- ⚡ PROPOSED FIRE HYDRANT
- ▨ PROPOSED BIORETENTION CELL



POLYGON NW COMPANY



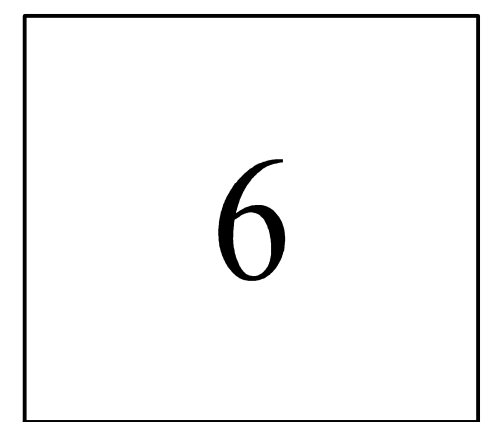
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GEODESIGN, INC

PDP 3N
VILLEBOIS

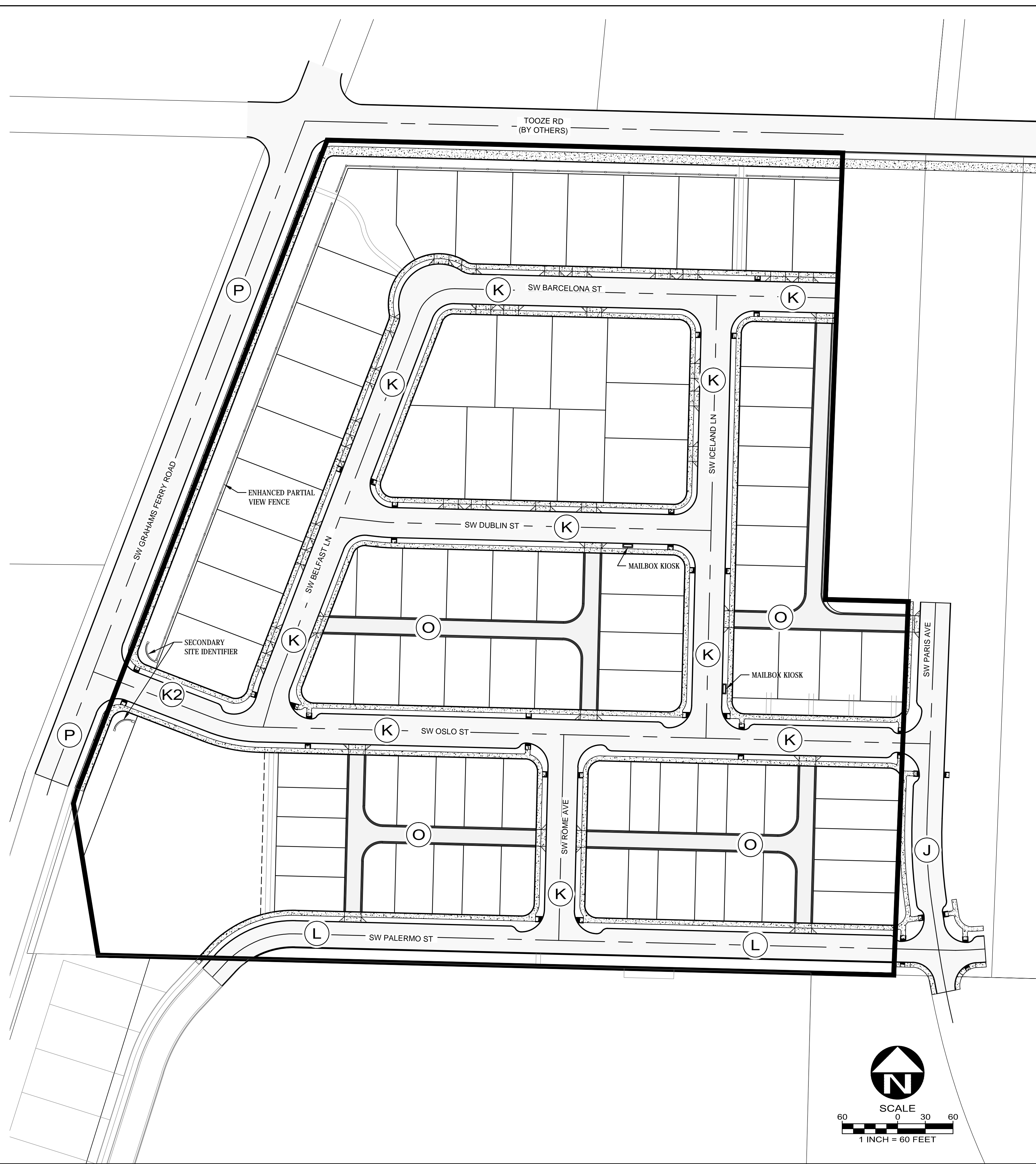
Preliminary
Development Plan

Composite
Utility
Plan

DATE 1/31/14



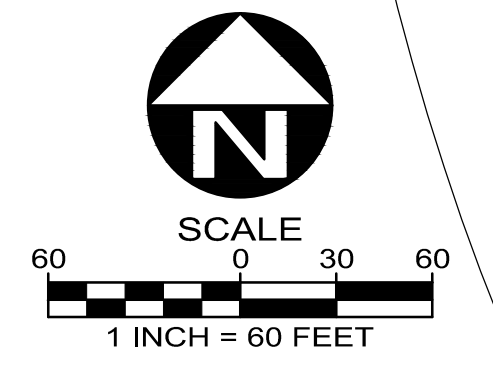
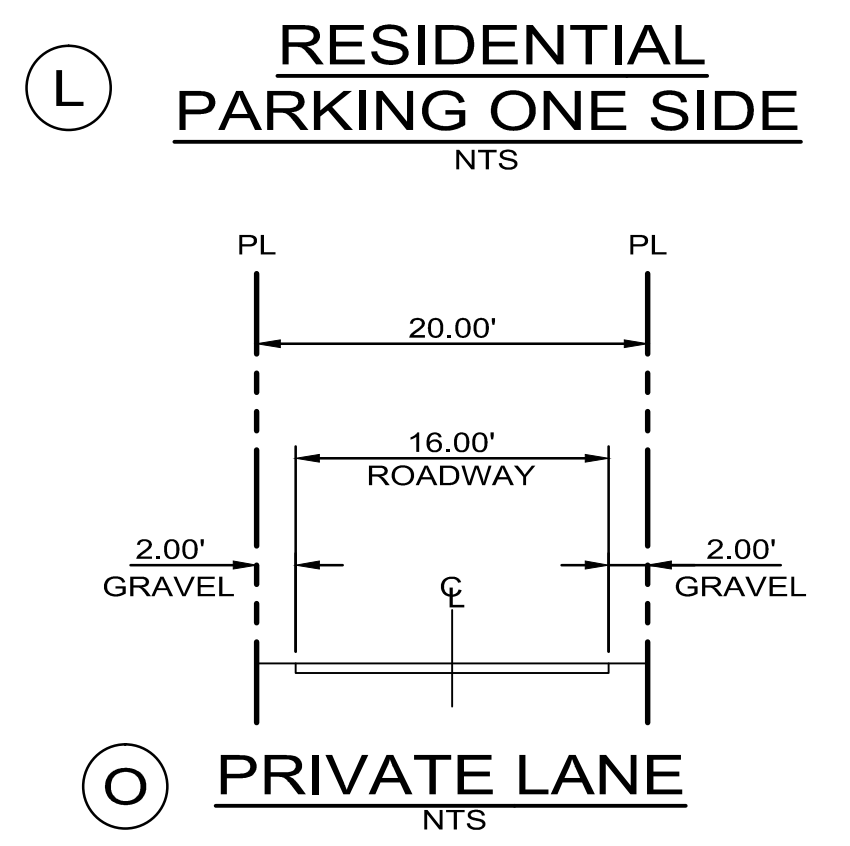
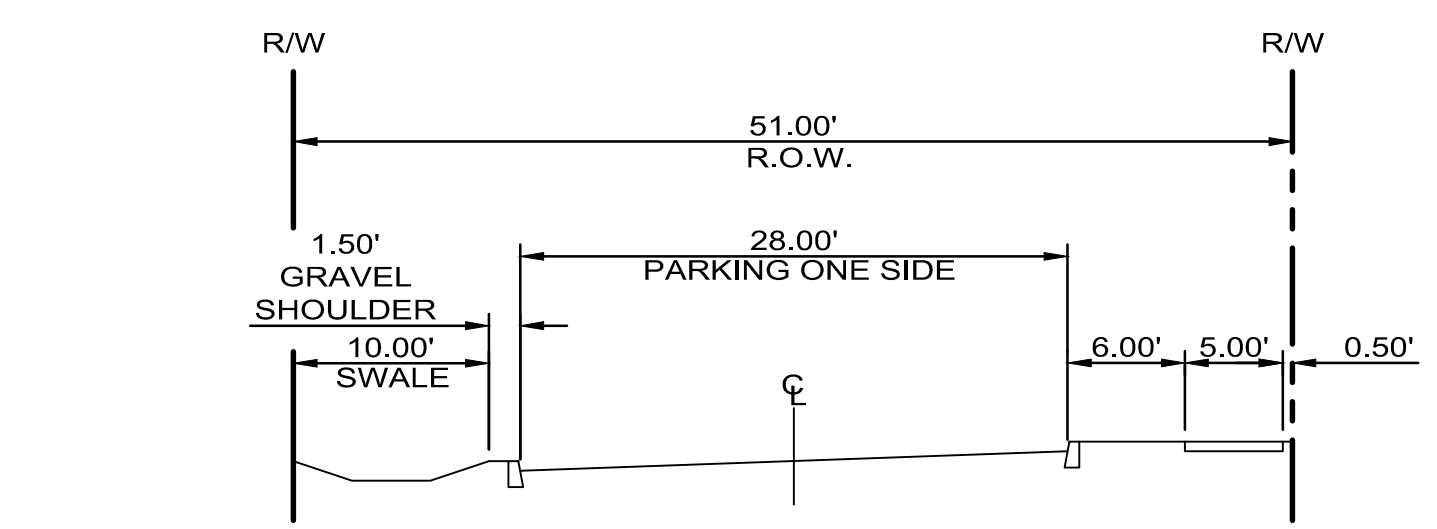
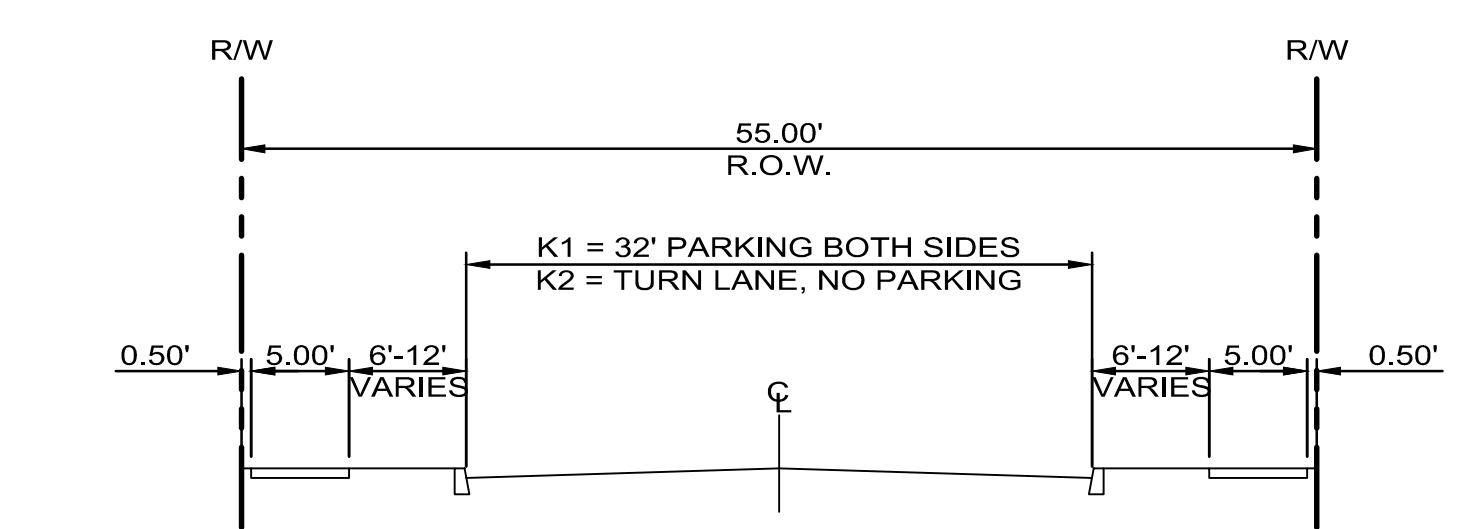
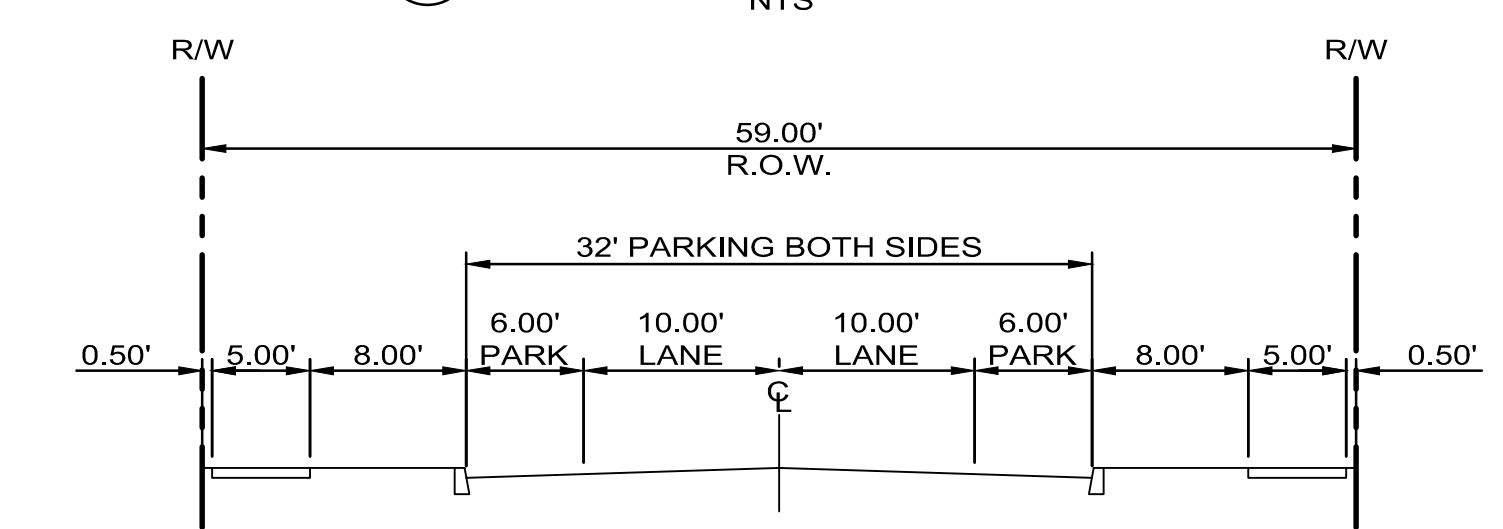
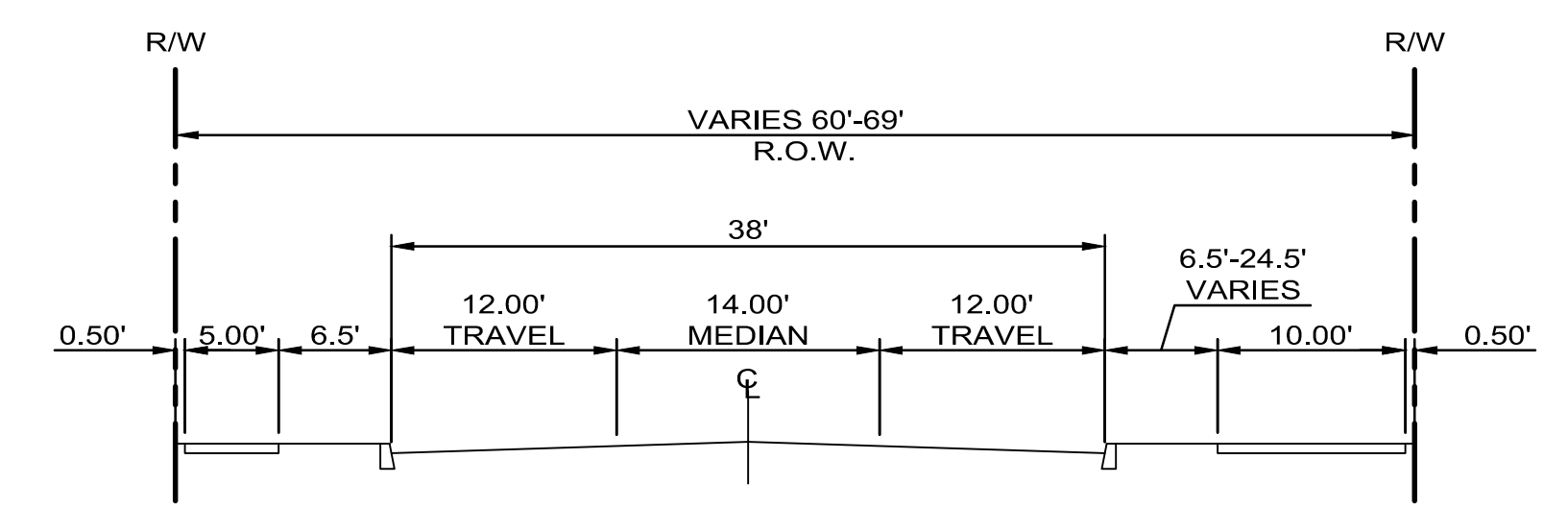
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LEGEND:

(P) ROAD SECTION TYPE
SEE THIS SHEET FOR DETAILS

— PROJECT BOUNDARY LINE



POLYGON NW COMPANY

Pacific Community Design

OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

Preliminary
Development Plan

Circulation
Plan &
Street Sections

DATE 1/31/14

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LEGEND:

SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK

LOT COUNT:

32	SMALL LOTS
26	MEDIUM LOTS
3	STANDARD LOTS
23	LARGE LOTS
84	TOTAL

LAND AREA TABLE:

TOTAL AREA:	15.16 AC
PUBLIC STREETS:	4.49 AC
OPEN SPACE / PARK AREAS:	2.03 AC
LOTS & ALLEYS:	8.64 AC
AVG. DENSITY PER NET ACRE:	9.72 UNITS / AC
84 / 8.64 =	

FOR TYPICAL LOT PLANS
SEE SHEET 9.



Villebois



POLYGON NW COMPANY



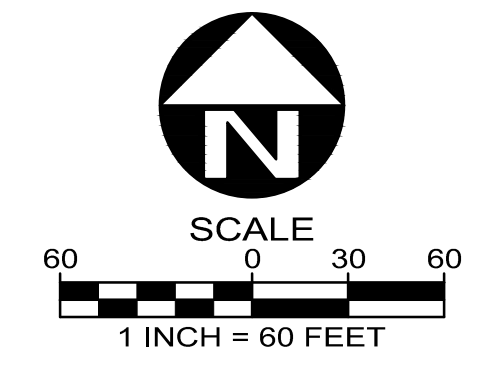
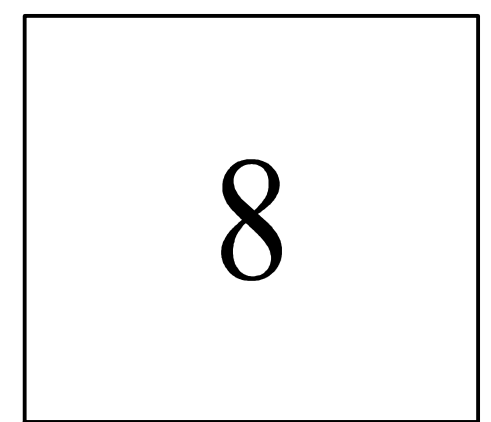
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GEODESIGN, INC.

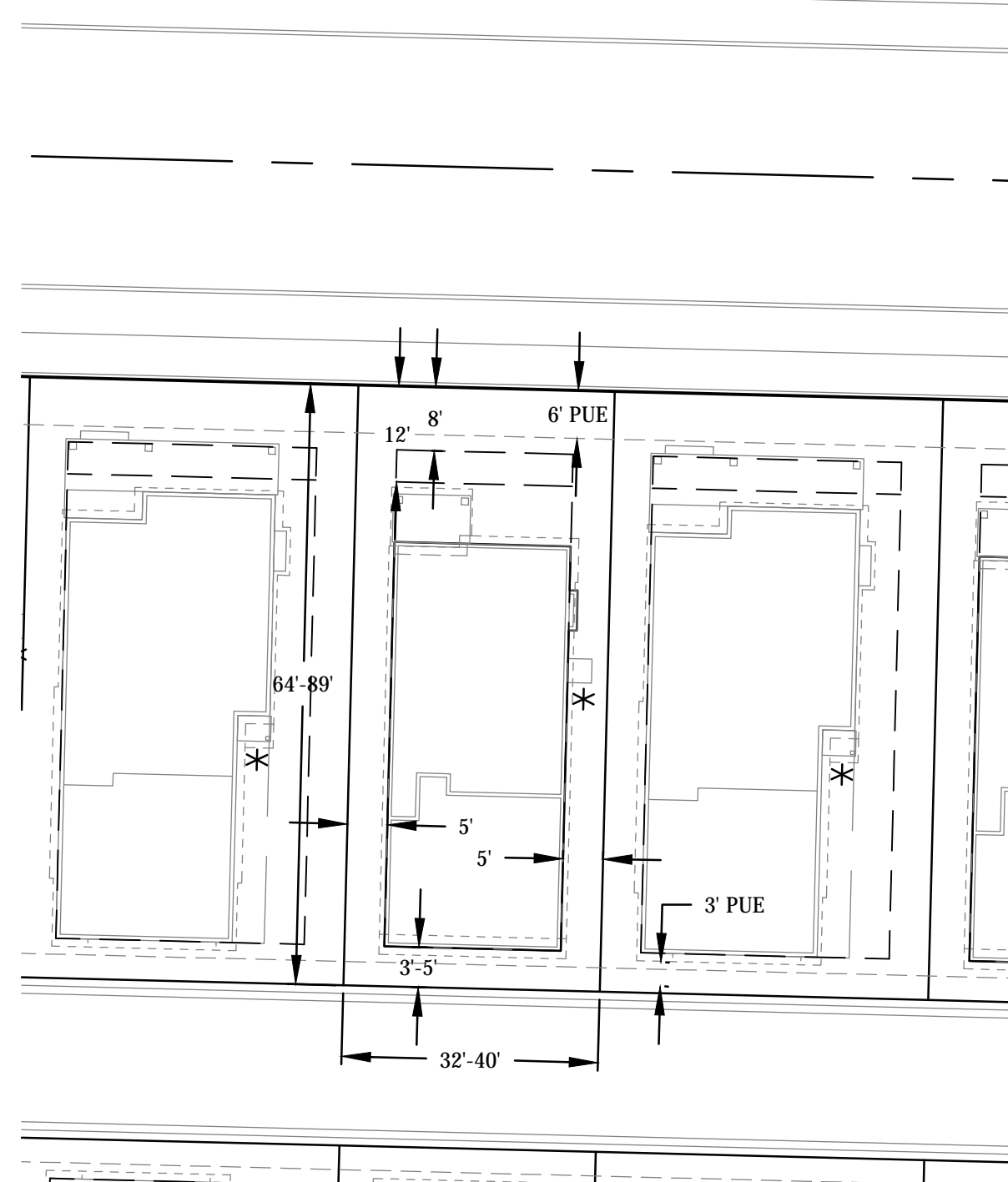
PDP 3N
VILLEBOIS

Preliminary
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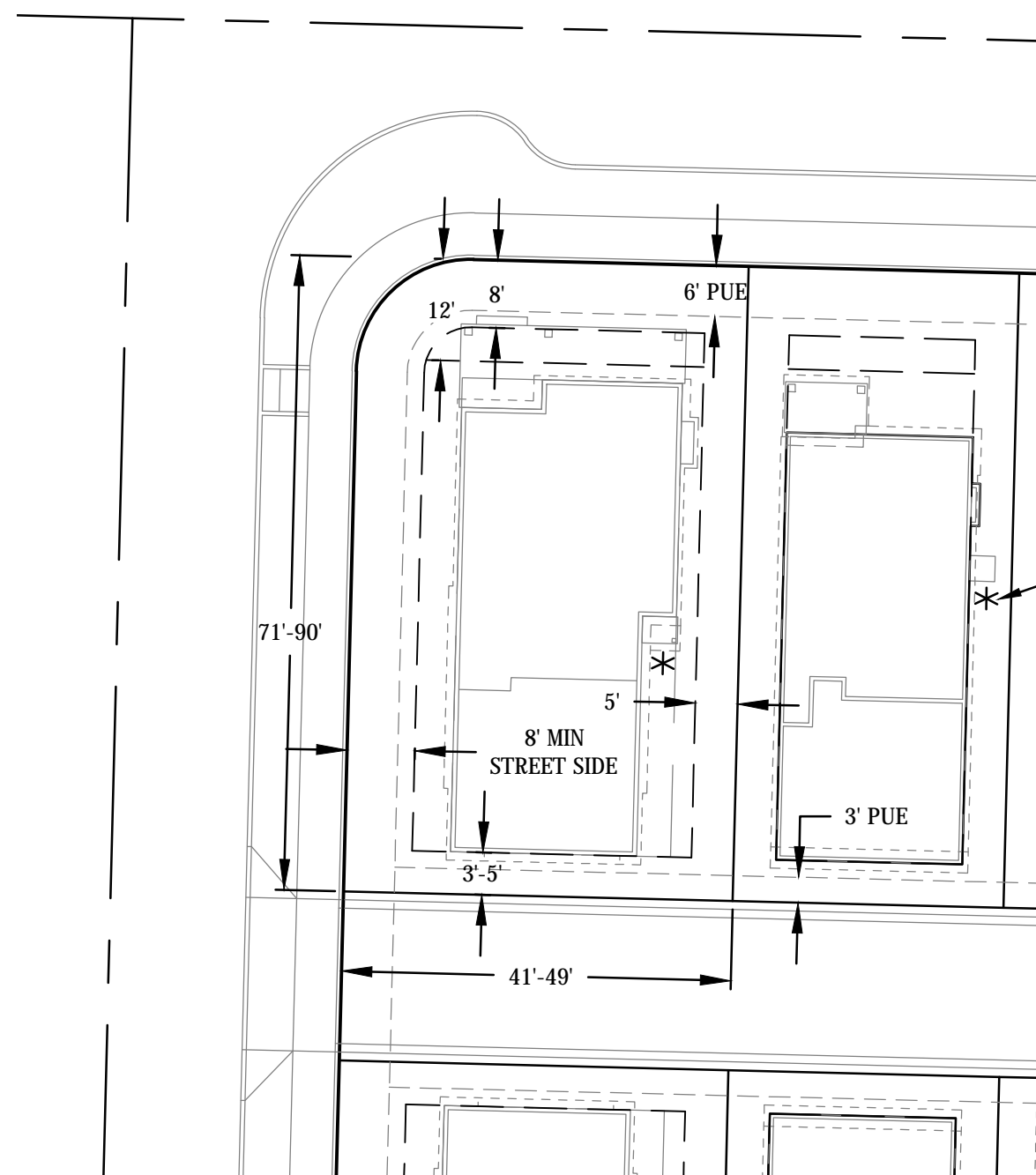
Site/Land Use
Plan

DATE 1/31/14



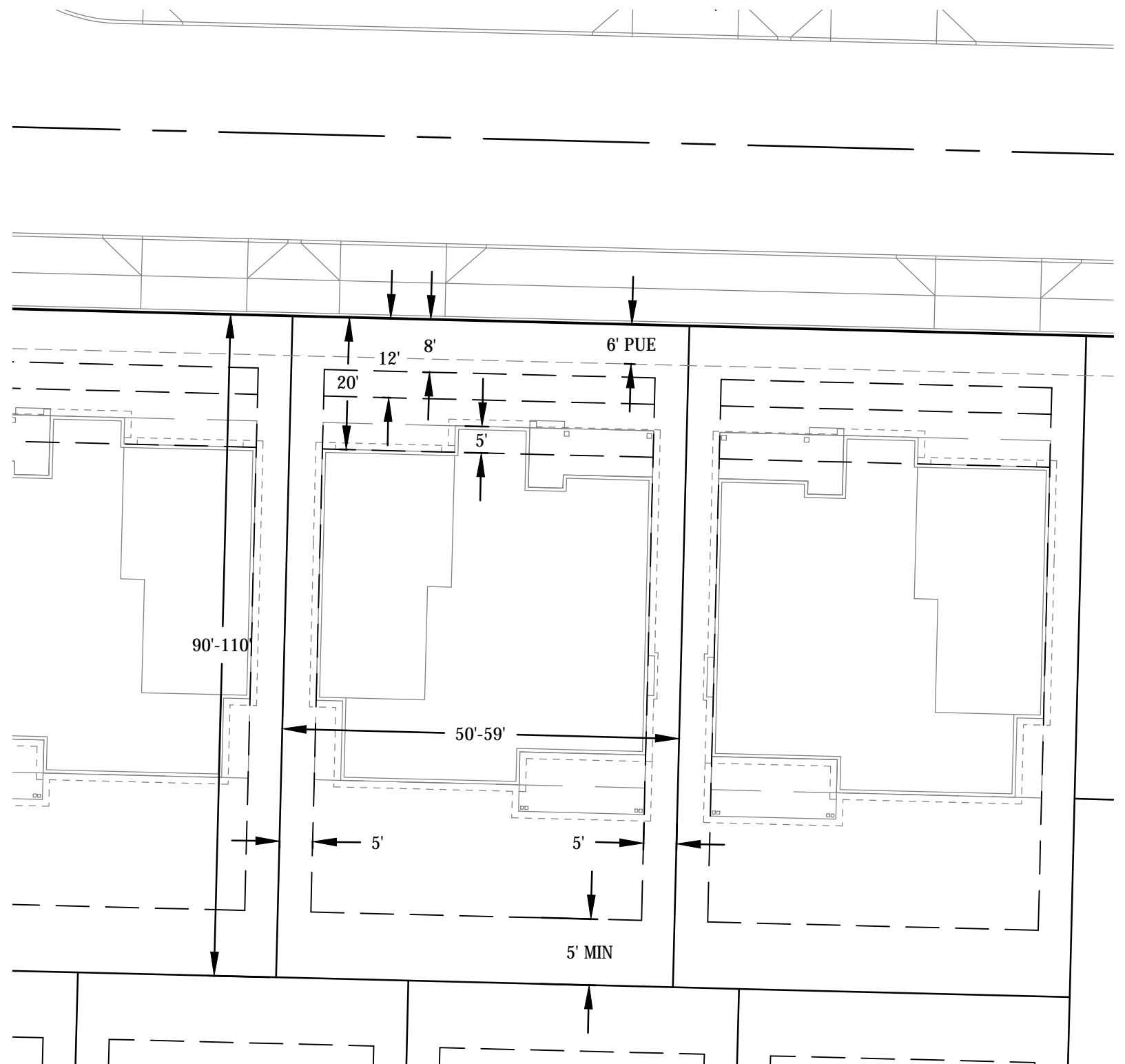


SMALL LOT
SCALE: 1"=20'

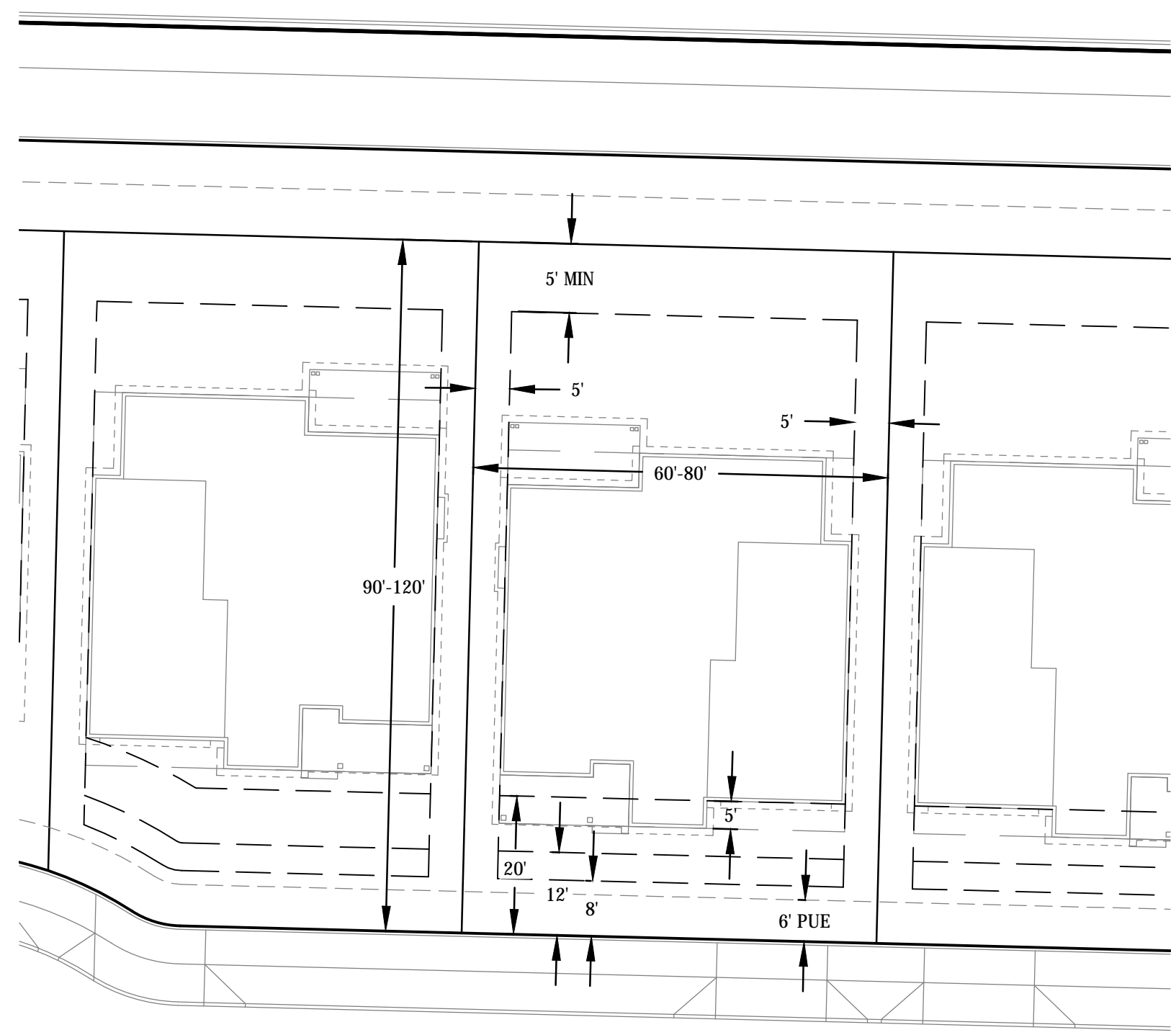


MEDIUM LOT
SCALE: 1"=20'

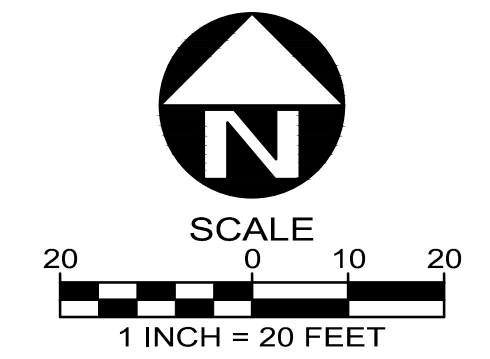
ASTERISK DENOTES
ACTIVE SIDE OF HOUSE
TYP.



STANDARD LOT
SCALE: 1"=20'



LARGE LOT
SCALE: 1"=20'



Villebois



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GEODESIGN, INC

PDP 3N
VILLEBOIS

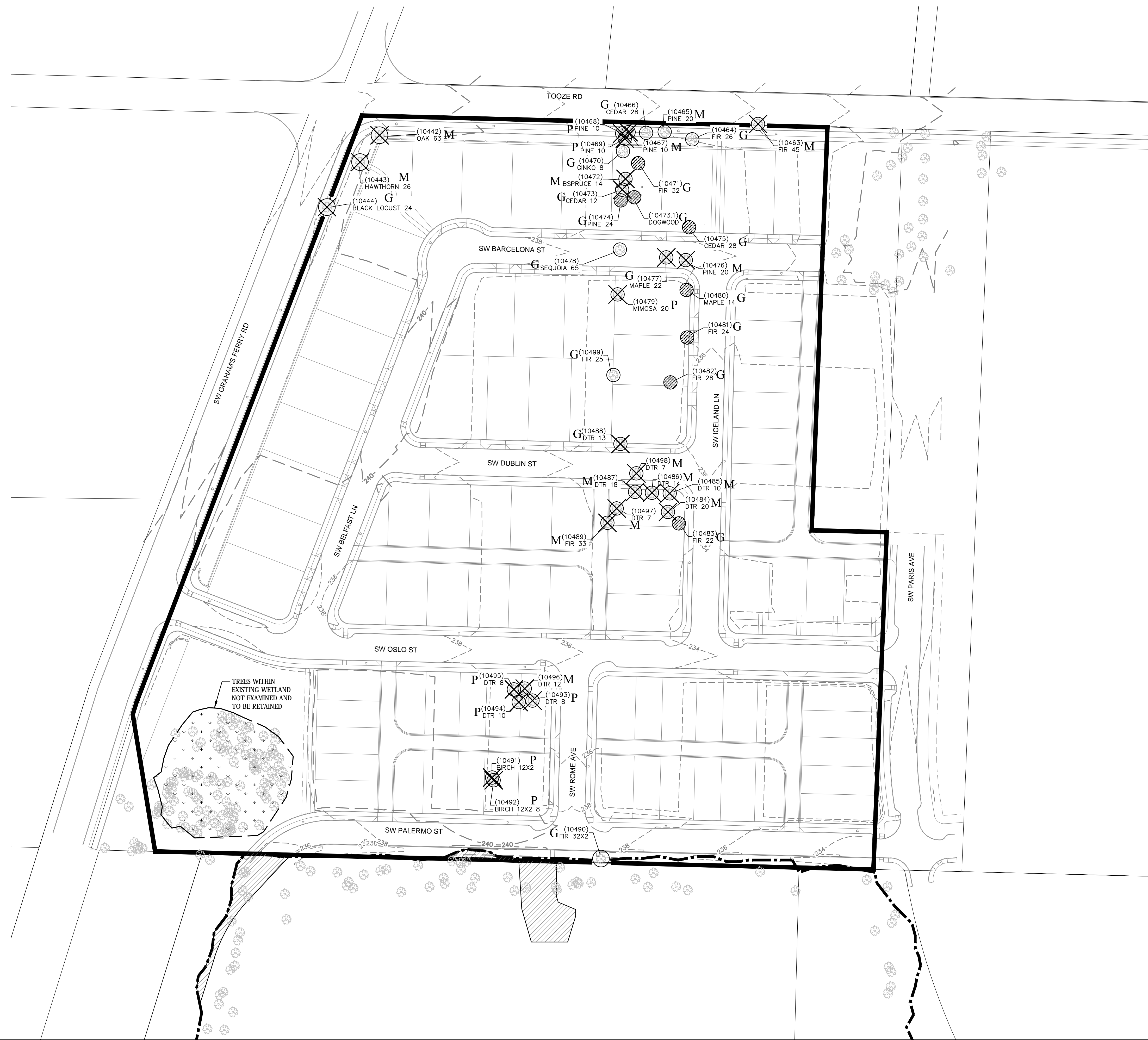
Preliminary
Development Plan

Typical
Lot Plans

DATE 1/31/14

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LEGEND:

- I IMPORTANT
- G GOOD
- M MODERATE
- P POOR
- NE NOT EXAMINED
- (Symbol: Circle with dot) EXISTING TREES TO REMAIN
- (Symbol: Circle with cross-hatch) EXISTING TREES LIKELY TO BE REMOVED
- (Symbol: Circle with X) EXISTING TREES TO BE REMOVED
- (Symbol: Hatched rectangle) SROZ ENCROACHMENT AREA
- (Symbol: Solid rectangle) CREATED SROZ AREA
- (Symbol: Dashed line) SROZ BOUNDARY LINE

NOTES

ALL CONSTRUCTION AND GRADING WITHIN TREE PROTECTION ZONE IS TO BE COMPLETED UNDER DIRECT SUPERVISION OF PROJECT ARBORIST. CONTACT: MORGAN HOLAN PHONE: 503-646-4349

THE INTENT OF THE PLAN IS TO RETAIN AND INCORPORATE THE MAXIMUM QUANTITY OF TREES WITH IMPORTANT, GOOD, AND MODERATE CLASSIFICATIONS. THE FOLLOWING CLASSIFICATION SYSTEM WAS USED:

CLASSIFICATION METHOD:
TREES WERE RATED BASED ON THE FOLLOWING CONSIDERATIONS:

1. HEALTH
2. SPECIES (NATIVES WITH HABITAT AND ECOSYSTEM VALUE)
3. COMPATIBILITY WITH DEVELOPMENT
4. FORM / VISUAL INTEREST / MATURE SIZE

TREES RANKED AS IMPORTANT WERE RATED HIGH IN ALL FOUR AREAS.

TREES IN THE GOOD CATEGORY HAD GOOD HEALTH AND WERE A DESIRABLE SPECIES, BUT HAD IRREGULAR FORM OR LESS COMPATIBILITY WITH DEVELOPMENT.

TREES IN THE MODERATE CATEGORY HAD GOOD TO MODERATE HEALTH AND FORM, BUT WERE A LESS DESIRABLE SPECIES OR MAY BE LESS COMPATIBLE WITH DEVELOPMENT.

TREES IN THE POOR CATEGORY HAD POOR HEALTH AND/OR SUBSTANTIAL DAMAGE.

NOTES:

1. THE INFORMATION PROVIDED WITHIN THE PROJECT BOUNDARY IS BASED ON AN ON-SITE EVALUATION OF THE EXISTING TREES BY ARBORIST MORGAN HOLAN AND WAS PROVIDED IN A TREE REPORT DATE JANUARY 28, 2014 INCLUDED WITH THE APPLICATION MATERIALS.
2. RETAINED TREES WITHIN THE WETLAND HAVE NOT BEEN EXAMINED.

TREES WITHIN EXISTING WETLAND NOT EXAMINED AND TO BE RETAINED



POLYGON NW COMPANY

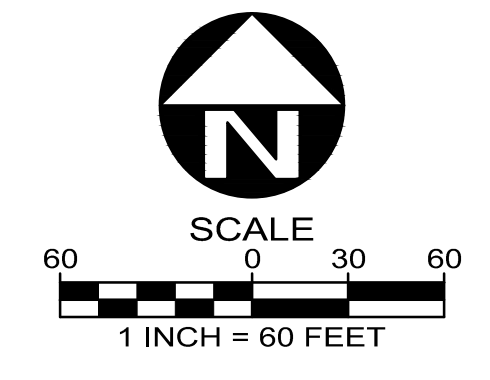


OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PDP 3N
VILLEBOIS**

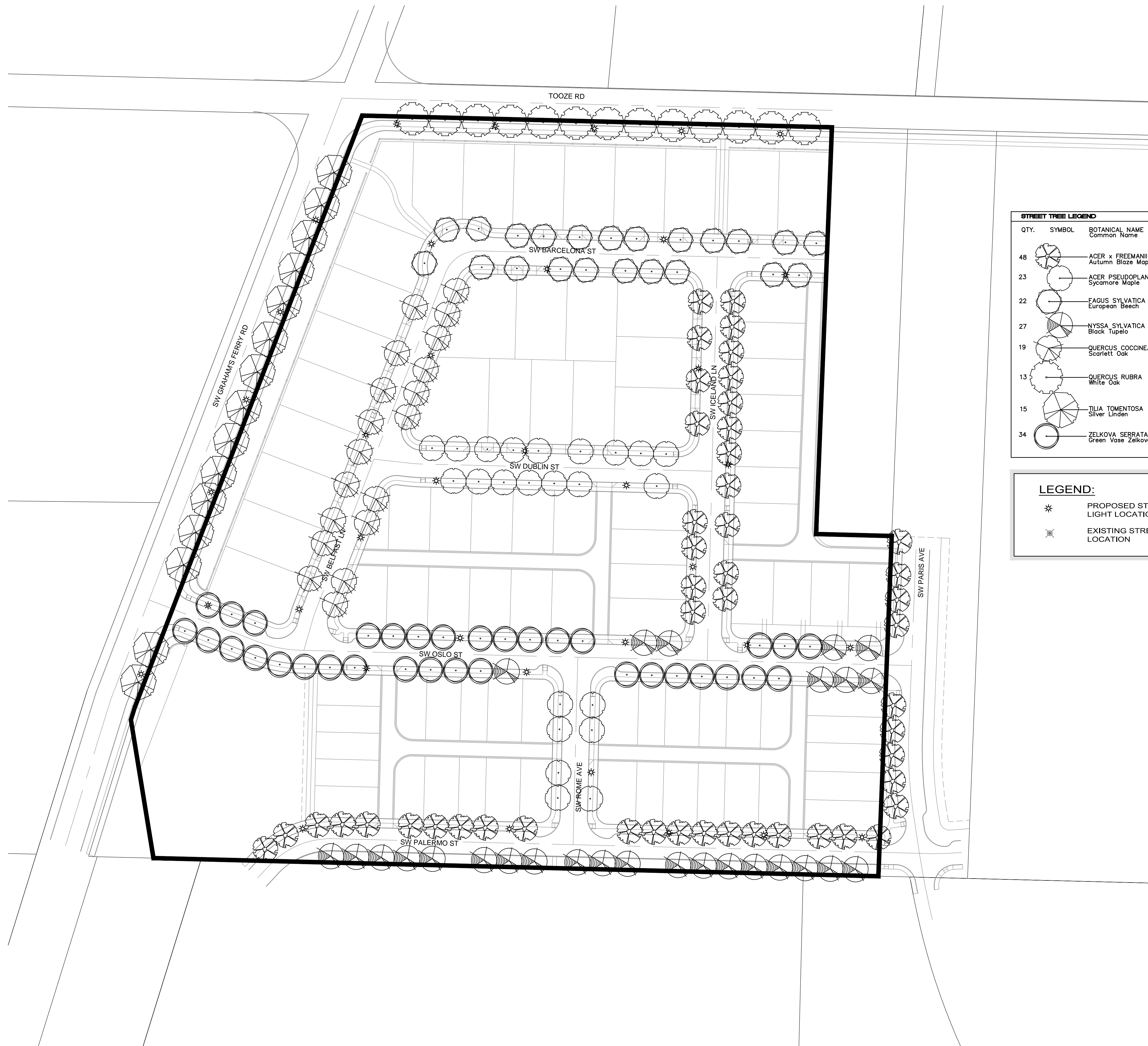
**Preliminary
Development Plan**

**Tree
Preservation
Plan**



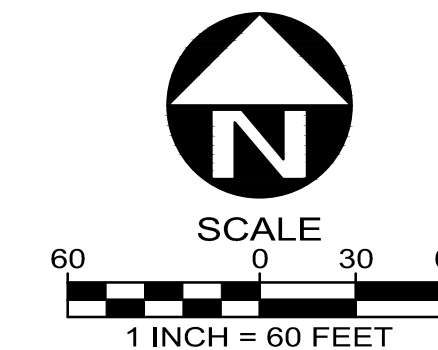
DATE 1/31/14

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QTY.	SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
48		ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
23		ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
22		FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
27		NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
19		QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
13		QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
15		TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
34		ZELKOVA SERRATA 'GREEN VASE' Green Vase Zelkova	2" cal.	30' o.c.

LEGEND:	
	PROPOSED STREET LIGHT LOCATION
	EXISTING STREET LIGHT LOCATION



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GEODESIGN, INC

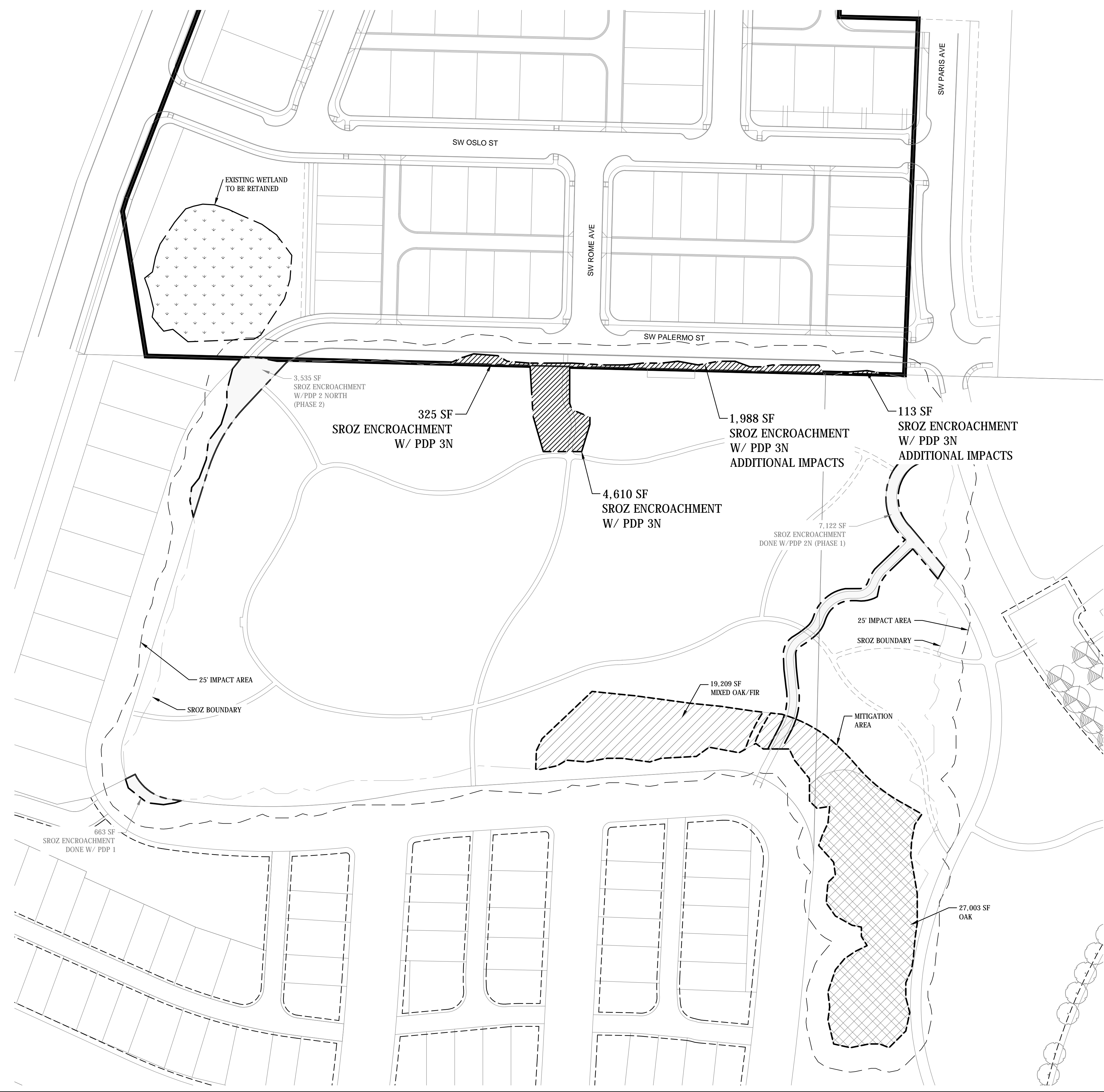
PDP 3N
VILLEBOIS

Preliminary
Development Plan

Street Tree
Plan

DATE 1/31/14

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SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



Villebois



POLYGON NW COMPANY



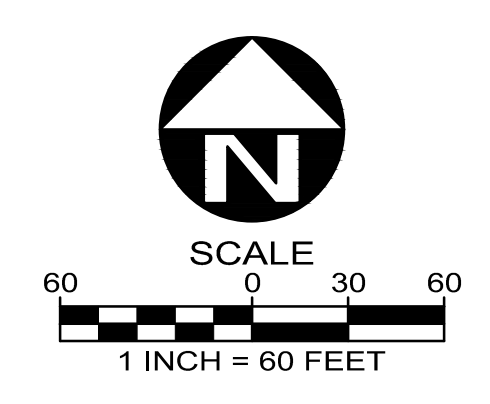
PACIFIC COMMUNITY DESIGN
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

Preliminary
Development Plan

SROZ
Plan

DATE 1/31/14



12

IIC
Utility and Drainage Reports



MEMORANDUM

DATE: January 30, 2014

TO: City of Wilsonville

FROM: Patrick Espinosa, PE
Pacific Community Design

RE: Calais at Villebois - Villebois PDP 3N
Sanitary Sewer Capacity
Job No. 395-027

This memorandum report is to address the available downstream sanitary sewer capacity and the anticipated discharge locations for sanitary sewer flow from PDP 3N of Villebois SAP North, otherwise known as Calais at Villebois. PDP 3N is located north of Villebois PDP 1 North and east of Grahams Ferry Road and will discharge to the Tooze main. This main will then discharge to the Kinsman main via the connection installed in 2007.

The Sewer Capacity Analysis report, dated February 28, 2006, for the Villebois Master Plan was completed by Alpha Community Development. The boundaries for the proposed phases are included in, and are consistent with, the Sanitary Sewer Master Plan. PDP 3N is located within Area 4 as shown in the Sanitary Sewer Master Plan; see attached Figure B.

Phase 3N consists of 15.16 acres with 84 single-family homes bordered by Grahams Ferry Road to the west, and PDP 1N to the south.

The development within Phase 3N is made up of open spaces, roadways, and single-family residential lots. The Master Plan for this area included a connection at 110th Ave to the Tooze main via the adjacent properties to the east. Currently this property is under separate ownership, so the sewer will be routed through a connection via the property south of PDP 3N. This connection will run through the future PDP 2N Phase 3 development and will connect to the existing sewer line in Berlin Ave, constructed in the fall of 2013. This sewer continues east through a trunk line that was constructed in the summer of 2013, eventually reaching Node 5 as originally intended. See Exhibit SS1 for revised route and area locations. The attached spreadsheets provide the calculations for peak flows from Area 4A (PDP 3N) and Area 5 to demonstrate that the 8-inch line will be adequately sized to convey the total flows.

1. Phase 3N & City Owned Parcel (Area 4A) - 79.71 gpm
2. (Area 5) - 208.91 gpm

The unit flow factors, determined by HDR Engineering during the Wilsonville Wastewater Collection System Master Plan Update, are as follows:

Unit Flow Factors	
<u>Residential</u>	<u>213 gal/day/unit</u>
<u>Infiltration (I/T)</u>	<u>800 gal/day/acre</u>
Peaking Factor	3

Based on the calculated peak flows, the sanitary sewer lines within this phase are proposed to be eight inches. The Tooze main downstream of Node 5, as illustrated in the Sewer Capacity Analysis Report, has been designed to provide the necessary capacity for this new connection route.

Thank you.

Attachments (from the Villebois Village Sewer Capacity Analysis Report)

1. Figure SS1 - Revised Sanitary Sewer Master Plan, Dated January 30, 2014



JOB: 395-027

PROJECT: Calais at Villibois - Villebois PDP 3N

FILE: N:/PROJ/395-027/05 Reports/Sanitary Sewer/395027.Sanitary Conveyance.2014-01-30.xls

SAP NORTH PDP 3N & SCHOOL OWNED PROPERTY SANITARY PEAK FLOW CALCULATIONS AREA 4A

UNIT FLOW FACTORS

Residential: 213 gal/day/unit
Commercial: 1500 gal/day/acre
Infiltration (I/I): 800 gal/day/acre
Peaking Factor: 3, or Fig. 3-11

Residential (R): 150 units

$Q_r = R \times 213 \text{ gal/day/unit} = 31,950 \text{ gal/day}$

$Q_r = 22.19 \text{ gal/min}$

Commercial (C): 0 acres

$Q_c = C \times 1500 \text{ gal/day/acre} = 0.00 \text{ gal/day}$

$Q_c = 0.00 \text{ gal/min}$

Developed Flow (Q_f):

$Q_f = Q_r + Q_c = 22.19 \text{ gal/min} \quad 31950 \text{ gal/day}$
0.03195 MGD

Peak Flow (Q_p):

Peaking Factor = $-0.284 \ln(Q) + 2.33$
3.00

$Q_p = Q_f \times \text{Peak F} = 66.56 \text{ gal/min}$

Total Area (A): 23.67 acres

$Q_i = A \times 800 \text{ gal/day/acre} = 18,936 \text{ gal/day}$

$Q_i = 13.15 \text{ gal/min}$

$Q_t = Q_p + Q_i = 79.71 \text{ gal/min}$

**FUTURE SAP NORTH AREA
AREA 4B**

UNIT FLOW FACTORS

Residential: 213 gal/day/unit
Commercial: 1500 gal/day/acre
Infiltration (I/I): 800 gal/day/acre
Peaking Factor: 3, or Fig. 3-11

Residential (R): 36 units

$Q_r = R \times 213 \text{ gal/day/unit} = 7,668 \text{ gal/day}$

$Q_r = 5.33 \text{ gal/min}$

Commercial (C): 0 acres

$Q_c = C \times 1500 \text{ gal/day/acre} = 0.00 \text{ gal/day}$

$Q_c = 0.00 \text{ gal/min}$

Developed Flow (Qf):

$Q_f = Q_r + Q_c = 5.33 \text{ gal/min} \quad 7668 \text{ gal/day}$
 0.00767 MGD

Peak Flow (Qp):

$\text{Peaking Factor} = \frac{-0.284 \ln(Q) + 2.33}{3.00}$

$Q_p = Q_f \times \text{Peak F} = 15.98 \text{ gal/min}$
--

Total Area (A): 9.91 acres

$Q_i = A \times 800 \text{ gal/day/acre} = 7,928 \text{ gal/day}$

$Q_i = 5.51 \text{ gal/min}$

$Q_t = Q_p + Q_i = 21.48 \text{ gal/min}$

AREA 5

UNIT FLOW FACTORS

Residential: 213 gal/day/unit
Commercial: 1500 gal/day/acre
Infiltration (I/I): 800 gal/day/acre
Peaking Factor: 3, or Fig. 3-11

Residential (R): 384 units

$Q_r = R \times 213 \text{ gal/day/unit} = 81,792 \text{ gal/day}$

$Q_r = 56.80 \text{ gal/min}$

Commercial (C): 0 acres

$Q_c = C \times 1500 \text{ gal/day/acre} = 0.00 \text{ gal/day}$

$Q_c = 0.00 \text{ gal/min}$

Developed Flow (Q_f):

$Q_f = Q_r + Q_c = 56.80 \text{ gal/min} \quad 81792 \text{ gal/day}$
0.08179 MGD

Peak Flow (Q_p):

Peaking Factor = $-0.284 \ln(Q) + 2.33$
3.00

$Q_p = Q_f \times \text{Peak F} = 170.40 \text{ gal/min}$

Total Area (A): 69.31 acres

$Q_i = A \times 800 \text{ gal/day/acre} = 55,448 \text{ gal/day}$

$Q_i = 38.51 \text{ gal/min}$

$Q_t = Q_p + Q_i = 208.91 \text{ gal/min}$

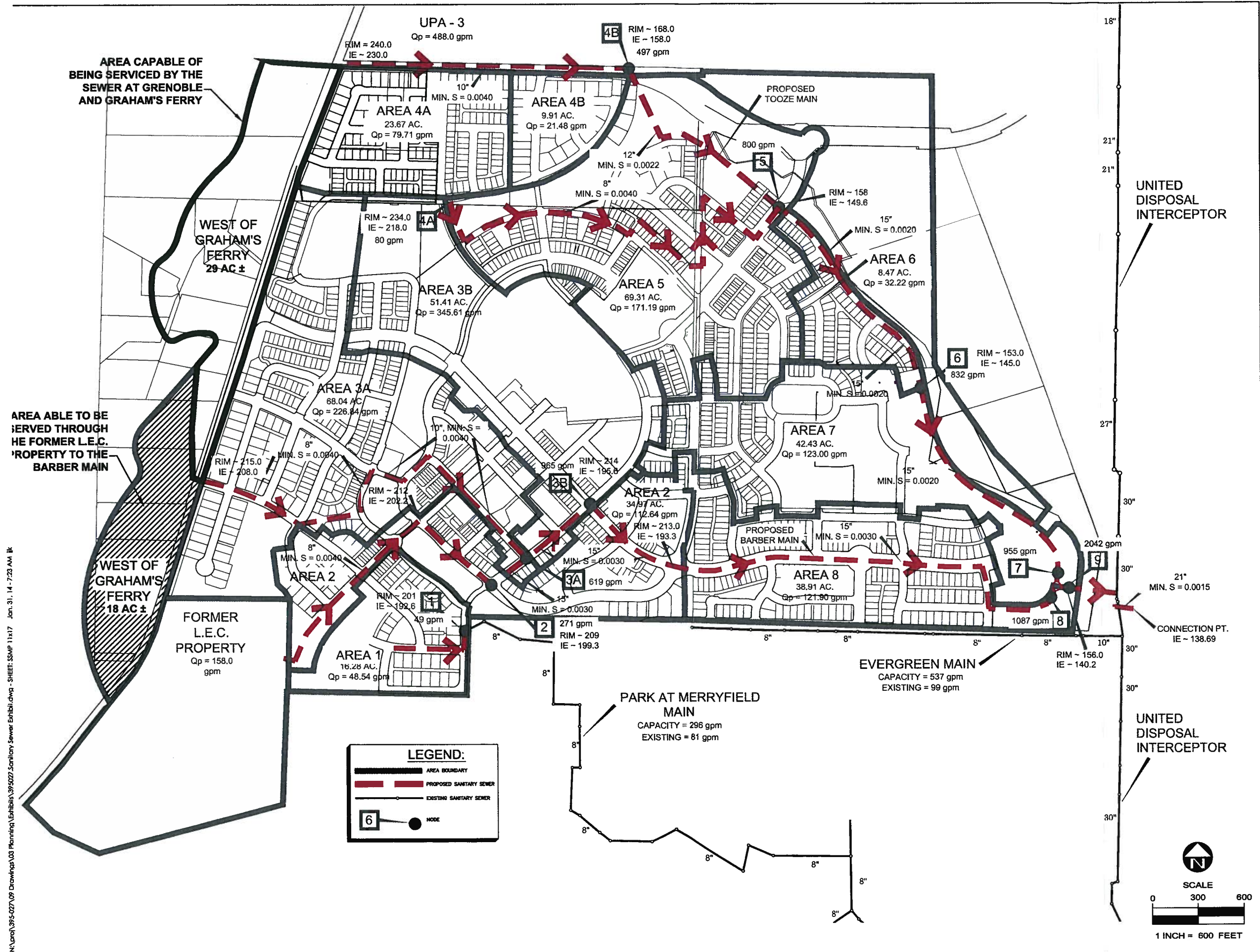


EXHIBIT J

MAIN CAPACITY CALCULATIONS

JOB: 395-027
 PROJECT: Calais at Villebois - Villebois PDP 3N
 FILE: N:\395027\05 REPORTS\SANITARY\395027.SANITARY CONVEYANCE.2014-01-30.XLS
 Manning's "n" 0.013

LINE	Q (GPM)	Q (CFS)	PIPE SIZE (IN)	SLOPE (FT/FT)	Qf (CFS)	Q/Qf (%)	Vf (FPS)	V/Vf (%)	ACTUAL V (FPS)
TOOZE MAIN									
NODE 4A	79.71	0.18	8	0.0040	0.77	0.23	2.20	0.43	0.95
Before NODE 5	288.62	0.64	8	0.0040	0.77	0.84	2.20	1.04	2.28



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LEGEND:

- AREA BOUNDARY
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- 6 NODE

SCALE
 0 300 600
 1 INCH = 600 FEET



VILLEBOIS

Villebois
Phase 3 North
Preliminary
Sewer Plan

Sanitary Sewer
United Disposal

DATE: 1/31/2014

SS1



CALAIS AT VILLEBOIS

**RAINWATER MANAGEMENT PLAN
FOR TONQUIN MEADOWS (PDP 3 NORTH)**

JOB # 395-027

DATE: 1/31/2014
BY: Patrick Espinosa, PE

Prepared By:
Pacific Community Design, Inc.
12564 SW Main Street
Tigard, OR 97223
Tele: 503-941-9484

TABLE OF CONTENTS:

Introduction3
Proposed System3
Procedure3
Conclusion4

Appendix A: Figures

- Figure A1: Rainwater Management Plan - SAP North
- Figure A2: Rainwater Management Plan - SAP North

Appendix B: Shed Basin Summaries

Appendix C: Rainwater Component Summary

INTRODUCTION

The purpose of this Rainwater Management Plan is to demonstrate how development of Villebois Preliminary Development Plan 3 North (PDP 3N) is consistent with the Rainwater Management Program (RMP) for the Specific Area Plan - North (SAP North). This plan will provide the background and data for the public and private components of the RMP.

PROPOSED SYSTEM

The rainwater management system described in this report is a compilation of several of the components from the Rainwater Management Program proposed for SAP North. In an effort to provide diversity, there are four types of components utilized and additional uses are encouraged.

This report reflects those components that are envisioned for the development within PDP 3N. These components are intended to be implemented in concert with parks planning and infrastructure to provide a benefit to the watershed, and to be complimentary to park and open space uses.

PROCEDURE

PDP 3N of Villebois consists of 84 single family residential lots on 15.16 acres. Included in PDP 3N are 2.11 acres of open space and landscape tracts and 5.04 acres of streets and alleys. The total impervious area within PDP 3N was determined based on each lots designated land use. See impervious area calculations in Appendix B.

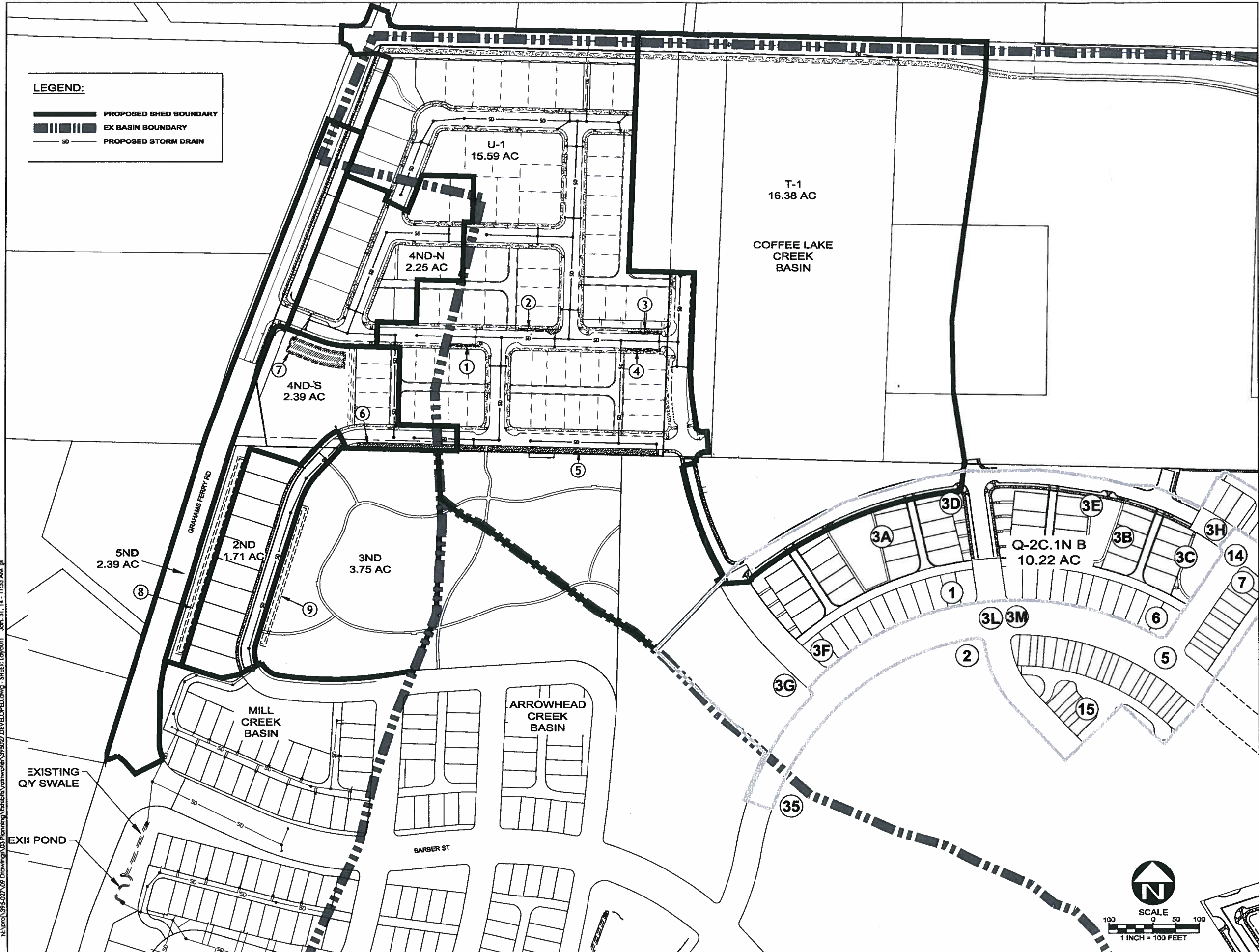
Once the total impervious area was determined, locations for rainwater management components were selected and square footages of treatment areas were calculated with the overall goal of achieving the equivalent amount of mitigation shown in the SAP North plan. The square footage for each component was divided by the sizing factor to determine the equivalent area treated. The summation of these equivalent areas was then compared to the total impervious area to determine the percentage of rainwater mitigation achieved. Appendix B contains the summary of each developed shed area within SAP North, including the total acreage and percentage of impervious area. Figure A1 shows the developed shed map for PDP 3N. Figure A2 shows the rainwater management plan for the entirety of SAP North, as approved with the SAP North application. Exhibit C provides a summary of the rainwater management in PDP 3N, as well as the SAP North rainwater management compliance once full build out has been completed.

Rainwater management within PDP 3N is provided by street trees, bio-retention cells adjacent to Oslo St and Palermo Street, and a vegetated swale adjacent to the open space area south of PDP 3N. See Exhibit C for the rainwater component summary.

CONCLUSION

The Rainwater Management Plan for PDP 3N, as presented with this report, will achieve a combined 64% mitigation of created impervious area. With the future rainwater facilities outlined in the most recent SAP and PDP applications, SAP North will reach an overall compliance of 61%. As such, the Calais at Villebois development is consistent with the practices outlined in the Rainwater Management Program for the Specific Area Plan - North.

APPENDIX A: FIGURES



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Villebois



POLYGON NW COMPANY



PACIFIC COMMUNITY DESIGN
 OTTEN LANDSCAPE ARCHITECTS, INC.
 GBO DESIGN, INC.

PDP 3N
 VILLEBOIS

Rainwater
 Management
 Exhibit

Developed Drainage
 Map
 (PDP Layout)

DATE 1/31/14

A1



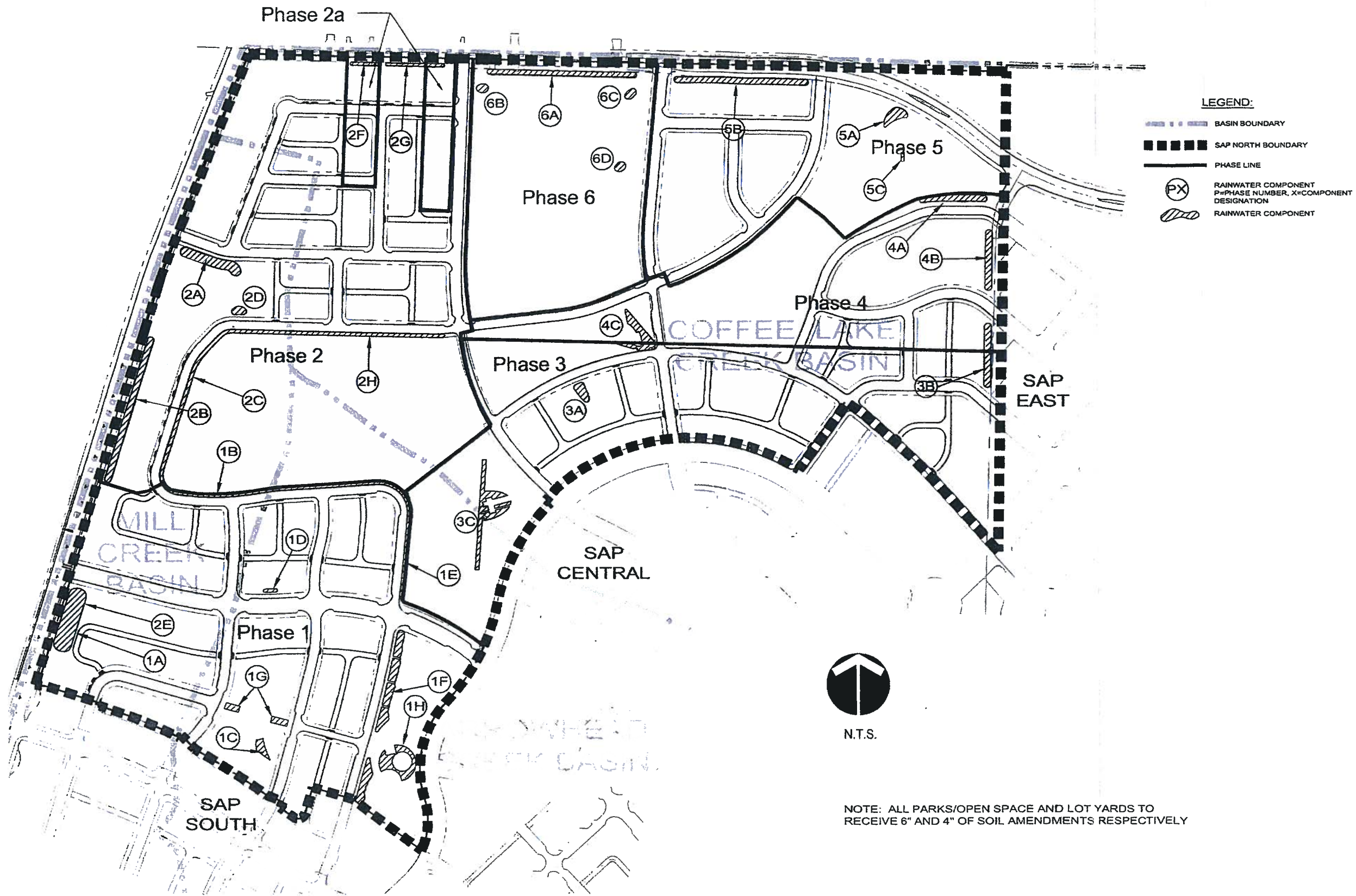
Villebois



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PACIFIC COMMUNITY DESIGN, INC

OTTEN LANDSCAPE ARCHITECTS, INC



TONQUIN WOODS No. 3

Villebois Phase 1 North Phase 2

SAP North Rainwater Management Plan

DATE: 2/27/2013

A2

APPENDIX B: SHED AREA SUMMARIES



PERCENT IMPERVIOUS SHED T-1 (PDP 3N) PDP LAYOUT

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 16.38 acres 713,469 sf

ON-SITE	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	387,336
ROW/Alley Impervious Area (80%)	95,832
Total	483,168

% Impervious = 68%

FIGURE B1



PERCENT IMPERVIOUS SHED U-1 (PDP 3N) PDP LAYOUT

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 15.59 acres 678,970 sf

ON-SITE	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	211,440
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	118,483
Total	329,923
% Impervious =	49%

FIGURE B2



PERCENT IMPERVIOUS SHED 2ND (PDP 2N) PDP LAYOUT

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 1.71 acres 74,313 sf

<u>ON-SITE</u>	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	30,840
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	18,330
Total	49,170
% Impervious =	66%

FIGURE B3



**PERCENT IMPERVIOUS
SHED 3ND (PDP 2N)
PDP LAYOUT**

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 3.75 acres 163,350 sf

<u>ON-SITE</u>	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B4



PERCENT IMPERVIOUS SHED 4ND-N (PDP 3N) PDP LAYOUT

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 2.25 acres 97,866 sf

ON-SITE	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	34,604
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	28,053
Total	62,657
% Impervious =	64%

FIGURE B6



**PERCENT IMPERVIOUS
SHED 5ND (PDP 3N)
PDP LAYOUT**

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 2.39 acres 104,108 sf

<u>ON-SITE</u>	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	75,272
Total	75,272
% Impervious =	72%

FIGURE B7



**PERCENT IMPERVIOUS
SHED Q-2C.1N B (PDP 2N)
PDP LAYOUT**

JOB NUMBER: 395-027
PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/RAINWATER/395027.RAIN PDP3N.2014-01-31.XLS

Total Site Area 10.22 acres 445,183 sf

<u>ON-SITE</u>	Imp. Area (sf)
PDP 3N	0
Single Family Lot Impervious Area (60%)	106,130
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	116,287
Total	222,417
% Impervious =	50%

FIGURE B7

APPENDIX C: RAINWATER COMPONENT SUMMARY



JOB NUMBER: 95-5427
 PROJECT: CALIF. VILLAGE - VILLAGE RD P2 P3
 FILE: 95P104195-02-77 05-48 100% TYPICAL PLAN SHEET 14-01-31-35.3

EXHIBIT C:
 RAINWATER COMPLIANCE SUMMARY - SAP NORTH

PHASE	DRAINAGE BASIN	BASIN ID	IMPERVIOUS AREA (SF)	IMPERVIOUS %	IMPERVIOUS AREA (SF)	RAINWATER COMPONENT NO.	RAINWATER COMPONENT TYPE	RAINWATER COMPONENT AREA (SQ FT)	SIZING FACTOR	IMPERVIOUS AREA TREATED			% IMPERVIOUS AREA TREATED
										ARROWHEAD CREEK	MILL CREEK	COFFEE LAKE CREEK	
POP 2K	COFFEE LAKE CREEK	U-1	19,570	4%	257,923		TREES	193	0.0	13,900	178,059	66%	
						1	BIORETENTION CELL	264	0.0	6,800			
						2	BIORETENTION CELL	444	0.0	14,900			
						3	BIORETENTION CELL	262	0.0	9,793			
						4	BIORETENTION CELL	262	0.0	9,793			
						5	BIORETENTION CELL	3,708	0.0	126,500			
POP 2K	MILL CREEK	2ND	19,350	0%	0								
POP 2K	MILL CREEK	4TH	95,978	20%	13,022		TREES	10	0.0	1,000	13,022	100%	
						6	BIORETENTION CELL	2,728	0.0	12,023			
POP 2K	MILL CREEK	4TH	111,213	64%	70,695		TREES	29	0.0	70,695			
						7	BIORETENTION CELL	4,828	0.0	67,795			
POP 2K	MILL CREEK	2ND	74,313	66%	49,170		TREES	18	0.0	1,800	49,170	100%	
						9	VEGETATED SWALE	6,460	0.0	47,570			
POP 2K	MILL CREEK	3RD	104,109	72%	75,272		TREES	19	0.0	75,272			
						8	BIORETENTION CELL	7,227	0.0	78,972			
POP 2K	COFFEE LAKE CREEK	O-2C-N1-B	445,153	50%	222,417		TREES	60	0.0	198,378	60%		
						1A'	BIORETENTION CELL	3,240	0.0	12,516			
						1B'	VEGETATED SWALE	1,882	0.0	16,842			
						1C'	BIORETENTION CELL	1,818	0.0	60,153			
						1D'	BIORETENTION CELL	190	0.0	3,233			
						1E'	BIORETENTION CELL	120	0.0	4,000			
						1F'	BIORETENTION CELL	210	0.0	7,000			
						1G'	BIORETENTION CELL	200	0.0	10,000			
						1H'	BIORETENTION CELL	191	0.0	6,297			
						1I'	BIORETENTION CELL	181	0.0	6,000			
						1J'	BIORETENTION CELL	149	0.0	4,897			
						1K'	BIORETENTION CELL	1,391	0.0	44,987			
						1L'	BIORETENTION CELL	288	0.0	6,857			
						1M'	BIORETENTION CELL	286	0.0	9,833			
TOTAL POP 2K			788,254		348,299					124,442	188,378	50%	
TOTAL POP 3K			891,179		413,611					63,888	178,887	64%	
TOTAL POP 4K			968,146		514,279					257,824	22,285	54%	
FUTURE SAP NORTH PHASES			1,512,275		610,591						58,817	80%	
SAP NORTH TOTAL			4,192,094		1,885,900					257,824	230,513	74%	



**CALAIS AT VILLEBOIS
VILLEBOIS PDP 3N
WATER QUALITY ANALYSIS
COFFEE LAKE CREEK BASIN
JOB #395-027**

**Prepared By:
Pacific Community Design, Inc.
12564 SW Main Street
Tigard, OR 97223
Tele: 503.941.9484**

**Prepared For:
Polygon Northwest Company**

**DATE: 1/30/2014
BY: PATRICK ESPINOSA, P.E.**

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- Figure A1 - Soil Survey Map
- Figure A2 - Pre-Developed Drainage Basin Map
- Figure A3 - Developed Drainage Basin Map

APPENDIX B - SHED BASIN CALCULATIONS

- Figure B2- SCS Curve Numbers
- Figure B3 - Manning’s “N” Values
- Figures B4-B6 - Composite Curve Numbers
- Figures B7-B9 - Impervious Area Calculations
- Developed Time of Concentration Calculations

APPENDIX C - WATER QUALITY FACILITY SIZING CALCULATIONS

INTRODUCTION

This report represents the analysis done for the Preliminary Development 3N, hereby referred to as Calais at Villebois, of the Villebois development. The intent of this report is to demonstrate that the proposed water quality facilities comply with City of Wilsonville "Public Works Standards" and are consistent with the original Coffee Lake Basin water quality analysis. All calculations and supporting figures are included with this document.

PROJECT DESCRIPTION

PROJECT LOCATION

Calais at Villebois is located on tax lots 1200, 1202, and 1205 of Clackamas County Tax Map 3S1W15. This portion of Villebois will consist of 84 residential homes on property located to the south of Tooze Road and east of SW Graham's Ferry Road. The total area of the development site is 15.16 acres.

PROJECT ZONING/LAND USE

Sap North in the Villebois Village development has been assigned the land use designation of Village zone by the City of Wilsonville. The Villebois Village Master Plan designates this area further as a Residential Village. This area will be developed as an urban village including single-family units of various sizes, and park spaces.

EXISTING CONDITIONS

EXISTING TOPOGRAPHY, LAND USE, AND ONSITE DRAINAGE

This portion of the Villebois development drains east to the Coffee Lake Basin. The development site is primarily cultivated open space with a scattering of houses and barns that make up approximately 0.5% impervious area within the site. The site falls within hydrologic groups C and D per the Soil Survey Map for Clackamas County (Figure A1). The pre-developed topography for the project site is shown in Figure A2.

SOIL CONDITIONS

Below is a summary of the existing soil conditions for Calais at Villebois.

**TABLE 1
PROJECT SITE SOILS**

SOIL NAME	SCS SYMBOL	HYDROLOGIC GROUP
ALOHA SILT LOAM (0-3 percent slopes)	1A	C
ALOHA SILT LOAM (3-6 percent slopes)	1B	C

SCS CURVE NUMBERS

Below is a summary of the SCS curve numbers in accordance with the Conditions of Approval for SAP North of the Villebois Village.

**TABLE 2
SCS CURVE NUMBERS**

LAND USE	CURVE NUMBER
OPEN SPACE AND LANDSCAPING	80
COMMERCIAL AREAS	94
RIGHT-OF-WAYS (based on 80% impervious - CN of 98 And 20% pervious - CN of 80)	94.4
RESIDENTIAL DEVELOPMENT (1/8 acre or less)	90
RESIDENTIAL DEVELOPMENT (1/4 acre)	83

DEVELOPED CONDITIONS

DEVELOPED DRAINAGE CONDITIONS

Stormwater runoff from the developed site will be collected by a series of catch basins leading to an underground piping system. This system will transport the runoff off-site to the existing storm main line found within Tooze Road. This line will direct the runoff to an existing storm water detention facility near the intersection of Tooze Road and 110th Ave, eventually being discharged to the Coffee Lake Creek outlet.

HYDROLOGY

The site was first divided into drainage sheds as shown on the Existing Shed map and the Developed Shed Map (Figures A2 & A3). The locations of these divisions were based on the existing and proposed drainage patterns. The percentage of impervious area for each shed area was then calculated based on the approved land use. The following Table summarizes the impervious area information from Figures B7 through B9:

**TABLE 3
DEVELOPED CONDITIONS HYDROFLOW INPUT PARAMETERS**

Shed	Area (acres)	Percent Impervious
T-1	16.38	77%
U-1	15.59	51%
TR-1	1.61	80%

WATER QUANTITY

The City of Wilsonville Master Stormwater Plan currently does not require any detention within this portion of the Coffee Lake Basin.

WATER QUALITY

The City of Wilsonville requires that 65% removal of phosphorous be provided for stormwater runoff if any new impervious surfaces are created during site development. A permanent water quality facility must be constructed or funded to reduce contaminants that enter the storm and surface water system. Impervious surfaces shall include pavement, gravel roads, buildings, public and private roadways, and other surfaces that contribute runoff to the surface water system. Water quality requirements for Calais at Villebois will be addressed with pollution control manholes, and constructing a water quality swale within an existing detention pond.

The water quality swale will be sized to temporarily retain the runoff from the water quality storm event of 0.36-inches over a 4-hour period. This facility will be sized to provide treatment for the future development areas to the east of the site and a portion of Tooze Road as well. The water quality swale will be sized to provide a minimum treatment time of 9-minutes as required in the City of Wilsonville Public Works Standards. An energy dissipation device will be constructed at the outfall to prevent erosive velocities entering the facilities. Once treated the site runoff will continue to the east via underground pipe system to drain to the existing wetlands to the east.. See Appendix C for water quality swale sizing calculations.

CONCLUSION

Water quality facilities for Calais at Villebois are consistent with the design requirements of the City of Wilsonville. The water quality swale has been designed to reduce post-development phosphorous levels by 65 percent for the portion of SAP North construction within the Coffee Lake Basin, which will maintain an acceptable level of water quality as the site discharges to the Coffee Lake Creek outlet.

APPENDIX A

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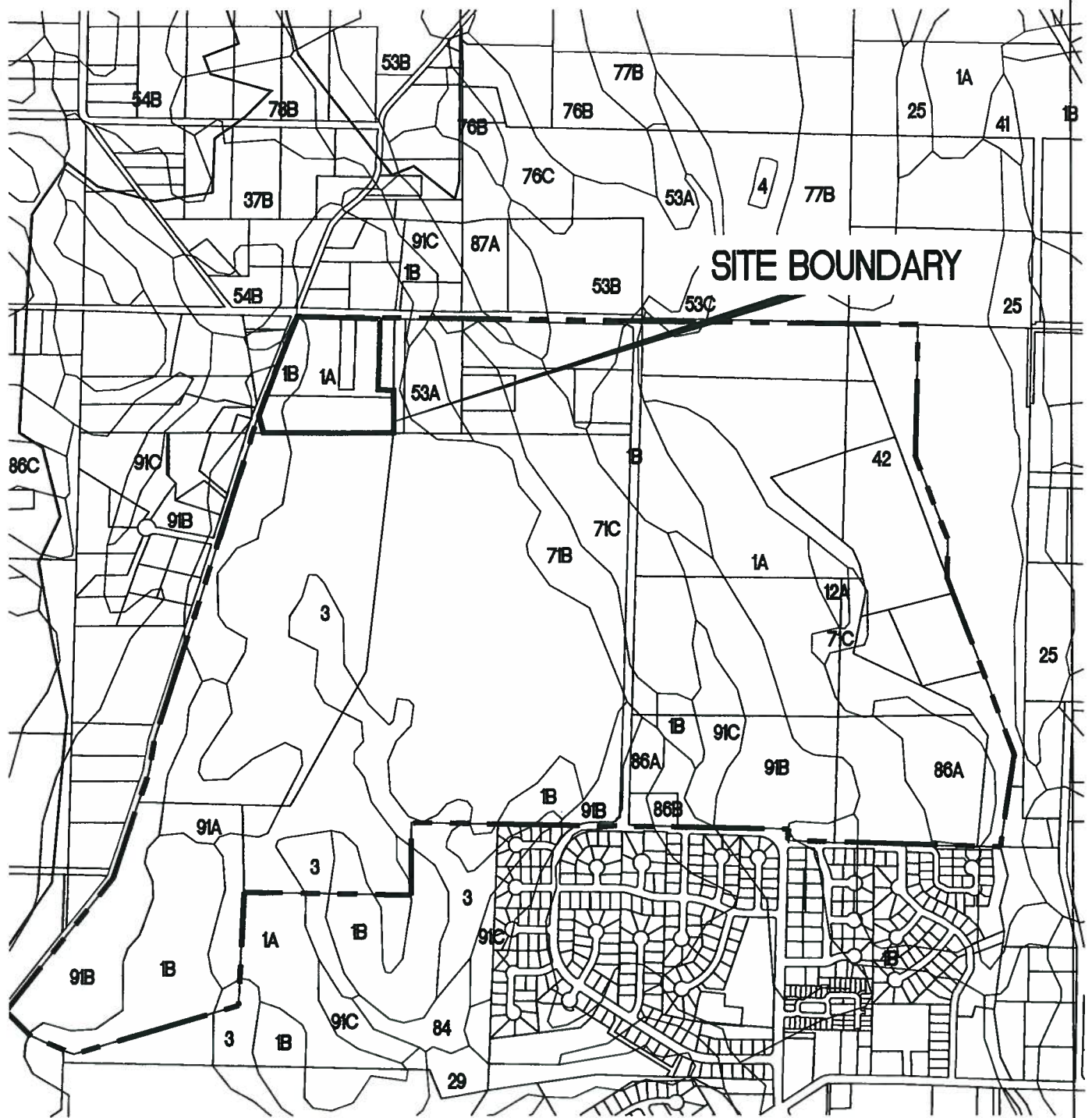


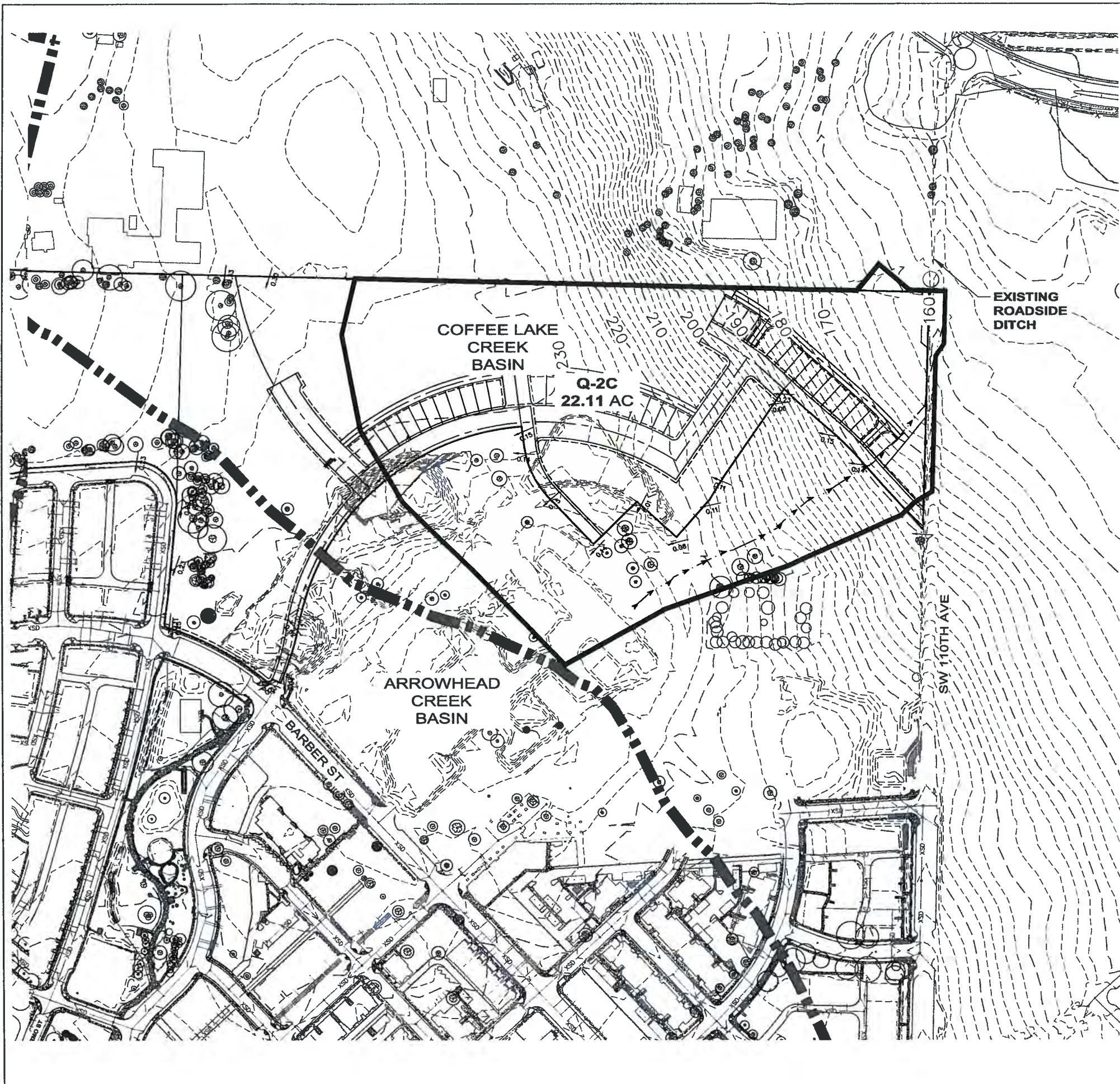
EXHIBIT A1: SOIL SURVEY MAP

DRAWN BY: JJK DATE: 01/31/14
REVIEWED BY: JJK DATE: 01/31/14
PROJECT NO.: 395-027
SCALE: 1"=1000'



[T] 503-941-9484
[F] 503-941-9485

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LEGEND:

-  EXISTING SHED BOUNDARY
-  EX BASIN BOUNDARY
-  EX STORM DRAIN



POLYGON NW COMPANY



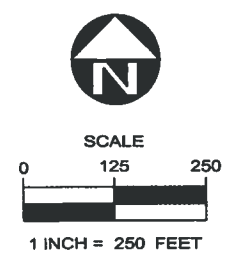
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GBODSIGN, INC

PDP 3N VILLEBOIS

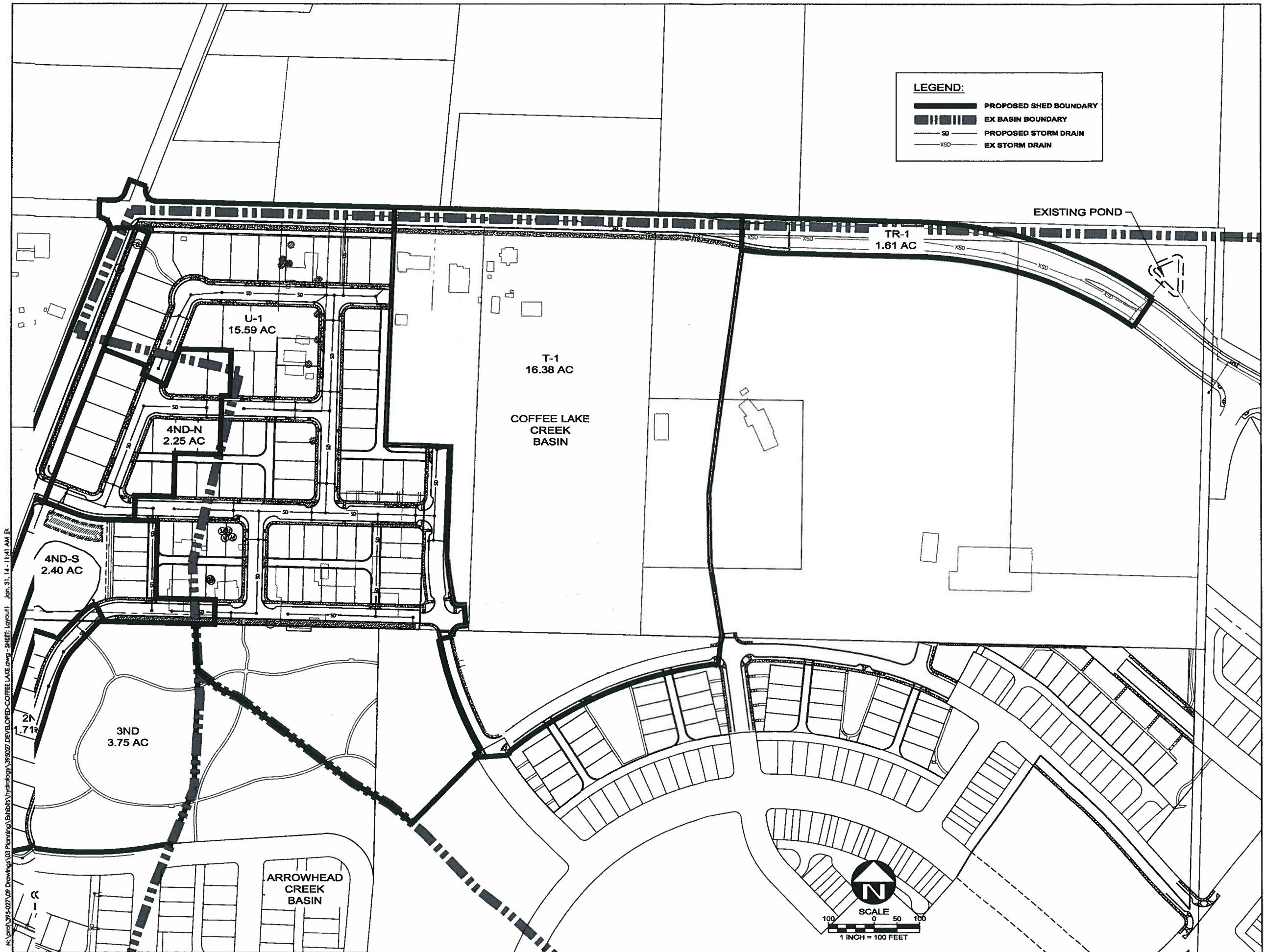
Hydrology Exhibit

Existing Drainage Basin Map (PDP Layout)

DATE 1/24/14



A3



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Villebois



POLYGON NW COMPANY



PACIFIC COMMUNITY DESIGN

OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

Hydrology
Exhibit

Developed Drainage
Basin Map - Coffee Lake
Basin
(PDP Layout)

DATE 1/24/14

A3

APPENDIX B

**SCS CURVE NUMBERS
FIGURE B1**

LAND USE DESCRIPTION		CURVE NUMBERS BY HYDROLOGIC SOIL GROUP			
		A	B	C	D
Cultivated land (1):	winter condition	86	91	94	95
Mountain open areas:	low growing brush & grasslands	74	82	89	92
Meadow or pasture:		65	78	85	89
Wood or forest land:	undisturbed	42	64	76	81
Wood or forest land:	young second growth or brush	55	72	81	86
Orchard:	with crop cover	81	88	92	94
Open spaces, lawns, parks, golf courses, cemeteries, landscaping					
Good condition:	grass cover on $\geq 75\%$ of the area	68	80	86	90
Fair condition:	grass cover on 50-75% of the area	77	85	90	92
Gravel roads and parking lots:		76	85	89	91
Dirt roads and parking lots:		72	82	87	89
Impervious surfaces, pavement, roofs etc.		98	98	98	98
Open water bodies:	lakes, wetlands, ponds, etc.	100	100	100	100
Single family residential (2):	(per C.O.A)				
Lot Size (Acres)					
1/8	or less	90	90	90	90
1/4	or less	83	83	83	83
Commercial Development		94	94	94	94
PUD's, condos, apartments, commercial businesses & industrial areas	%impervious must be computed				

(1) For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Sec. 4, Hydrology, Chapter 9, August 1972.

(2) Assumes roof and driveway runoff is directed into street/storm system.

(3) The remaining pervious areas (lawn) are considered to be in good condition for these curve numbers.

MANNING'S "n" VALUES FIGURE B2

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphalt, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover \leq 20%	0.06
Cultivated soil with residue cover $>$ 20%	0.17
Short prairie grass and lawns	0.15
Dense grasses	0.24
Bermuda grasses	0.41
Range (natural)	0.13
Woods or forrest with light underbrush	0.40
Woods or forrest with dense underbrush	0.80

SHALLOW CONCENTRATED FLOW (after initial 300 ft of sheet flow, $R = 0.1$)	k_s
Forrest with heavy ground litter and meadows ($n = 0.010$)	3
Brushy ground with some trees ($n = 0.060$)	5
Fallow or minimum tillage cultivation ($n = 0.040$)	8
High grass ($n = 0.035$)	9
Short grass, pasture and lawns ($n = 0.030$)	11
Nearly bare ground ($n = 0.25$)	13
Paved and gravel areas ($n = 0.012$)	27

CHANNEL FLOW (Intermittent) (At the beginning of all visible channels, $R = 0.2$)	k_c
Forested swale with heavy ground cover ($n = 0.10$)	5
Forested drainage course/ravine with defined channel bed ($n = 0.050$)	10
Rock-lined waterway ($n = 0.035$)	15
Grassed waterway ($n = 0.030$)	17
Earth-lined waterway ($n = 0.025$)	20
CMP pipe ($n = 0.024$)	21
Concrete pipe ($n = 0.012$)	42
Other waterways and pipe $0.508/n$	

CHANNEL FLOW (continuous stream, $R = 0.4$)	k_c
Meandering stream ($n = 0.040$)	20
Rock-lined stream ($n = 0.035$)	23
Grass-lined stream ($n = 0.030$)	27
Other streams, man-made channels and pipe ($n = 0.807/n$)	



**COMPOSITE CURVE NUMBER
SHED T-1 (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	11.23	94	68.6%
Street and Alley ROW's	3.09	94.4	18.9%
Open Space Area	2.06	80	12.6%
TOTAL	16.38		

Composite Curve Number per COA = 92.3

FIGURE B4



**COMPOSITE CURVE NUMBER
SHED U-1 (PDP 3N)
PDP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.97	90	12.6%
Single Family Detached (1/4 acre)	4.07	83	26.1%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	5.38	94.4	34.5%
Open Space Area	4.17	80	26.7%
TOTAL	15.59		

Composite Curve Number per COA = 87.0

FIGURE B5



**COMPOSITE CURVE NUMBER
SHED TR-1 (PDP 3N)
PDP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	1.61	94.4	100.0%
Open Space Area	0.00	80	0.0%
TOTAL	1.61		

Composite Curve Number per COA = 94.4

FIGURE B6



PERCENT IMPERVIOUS SHED T-1 (SAP NORTH)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

Total Site Area 16.38 acres 713,513 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	440,261
ROW/Alley Impervious Area (80%)	107,680
Total	547,941
% Impervious =	77%

FIGURE B7



PERCENT IMPERVIOUS SHED U-1 (PDP 3N)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

Total Site Area 15.59 acres 679,100 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	157,861
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	187,482
Total	345,344
% Impervious =	51%

FIGURE B8



PERCENT IMPERVIOUS SHED TR-1 (PDP 3N)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-COFFEE LAKE.2014-01-31.XLS

Total Site Area 1.61 acres 70,132 sf

<u>ON-SITE</u>	<u>Imp. Area (sf)</u>
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	56,105
Total	56,105
% Impervious =	80%

FIGURE B9

APPENDIX C



WATER QUALITY SWALE CALCULATIONS FIGURE C (SHED BASINS T-1, U-1, & TR-1)

JOB NUMBER: 395-027
 PROJECT: CALAIS AT VILLEBOIS - VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/395027.HYDRO-COFFEE LAKE.2014-01-31.XLS

REFERENCES:

1. City of Wilsonville Public Works Standards - 2006 Edition

REQUIRED WATER QUALITY TREATMENT: 70% Total Suspended Solids (TSS) Removal

PROPOSED TREATMENT METHODS:

1. Sumped Catch Basins	15%
2. Bio-Filtration Swale	55%
total	70%

DESIGN STORM:

Precipitation:	0.36 inches
Storm Duration:	4 hours
Storm Return Period:	96 hours
Storm Window:	2 weeks

IMPERVIOUS AREA:

Watershed Area:	33.58 acres
Percent imp:	65%
Impervious Area:	21.80 acres

Design Inflow = $(21.795 \text{ ac}) \cdot (43560 \text{ ft}^2/\text{ac}) \cdot (0.36 \text{ in} / 4.0 \text{ hrs}) =$ **1.98 cfs**

BIOFILTRATION SWALE DESIGN CRITERIA:

Max Velocity:	0.9 ft/s
Side Slopes:	4 :1 (treatment area)
Base:	5 feet (2' min)
n Factor:	0.24 (plantings)

SWALE CHARACTERISTICS:

Q=	1.98 Design Storm Discharge (determined above)
N=	0.24 Plantings
B=	10 ft Base width of channel
Z=	4 :1 Side slopes
SLOPE=	0.005 ft/ft Slope of channel (0.005 minimum)
ASS. Y=	0.5 ft Assumed depth to begin analysis (0.5 ft maximum)

ITERATIVE SOLUTION OF MANNING'S EQUATION FOR NORMAL DEPTH:

ITERATION	Y (FT)	P (FT)	A(FT ²)	R	Q (CFS)	% ERROR	V (FPS)
1	0.50	14.12	6.00	0.42	1.49	-24.82	0.25
2	0.60	14.99	7.51	0.50	2.08	5.06	0.28
3	0.59	14.83	7.22	0.49	1.96	-0.88	0.27
4	0.59	14.85	7.27	0.49	1.98	0.16	0.27
5	0.59	14.85	7.26	0.49	1.98	-0.03	0.27
6	0.59	14.85	7.26	0.49	1.98	0.00	0.27
7	0.59	14.85	7.26	0.49	1.98	0.00	0.27
8	0.59	14.85	7.26	0.49	1.98	0.00	0.27
9	0.59	14.85	7.26	0.49	1.98	0.00	0.27
10	0.59	14.85	7.26	0.49	1.98	0.00	0.27
11	0.59	14.85	7.26	0.49	1.98	0.00	0.27
12	0.59	14.85	7.26	0.49	1.98	0.00	0.27
13	0.59	14.85	7.26	0.49	1.98	0.00	0.27
14	0.59	14.85	7.26	0.49	1.98	0.00	0.27
15	0.59	14.85	7.26	0.49	1.98	0.00	0.27

NORMAL DEPTH = 0.59 ft
 FLOW WIDTH = 14.70 ft
 VELOCITY = 0.27 ft/s
 TREATMENT TIME = 9.00 min
TREATMENT LENGTH = 147.18 ft



MEMORANDUM

DATE: January 28, 2014

TO: City of Wilsonville

FROM: Patrick Espinosa, PE
Pacific Community Design

RE: Villebois PDP 3N Stormwater Detention and Water Quality
Analysis - Mill Creek
Job No. 395-027

This memorandum report is to address the available downstream stormwater capacity for the Mill Creek portion of PDP 3N of Villebois SAP North. This phase is located south of Tooze Road and east of Grahams Ferry Road and will discharge south to the Mill Creek Drainage Basin via the existing infrastructure that was construction with PDP 1N-Phase 2 (Tonquin Woods No. 3). A portion of PDP 3N drains east to the Coffee Lake Drainage Basin and will be addressed in a separate report.

The portion of this project draining to the Mill Creek Drainage Basin was included within the water quality and drainage analysis report, dated January 2, 2013, for the Tonquin Woods No. 3 development (PDP 1N) completed by Pacific Community Design. The land use for PDP 3N is consistent with this previous report. Accordingly the water quality and detention facility design outlined in the previous report will be adequately sized to handle the additional runoff from this site.

The following is a table that summarizes the land use comparison and subsequent impervious area percentages of the current layout versus the layout previously analyzed, as calculated in Figures B1-B19:

**TABLE 1
DEVELOPED CONDITIONS SHED BASIN SUMMARY - MILL CREEK**

BASIN ID	SAP AREA (acre)	PDP AREA (acre)	SAP IMPERVIOUS (acre)	PDP IMPERVIOUS (acre)
2ND	2.28	1.71	1.52	1.13
3ND	3.81	3.75	0.00	0.00
4ND-S	1.87	2.39	0.00	0.48
4ND-N	2.18	2.25	1.30	1.44
5ND	2.42	2.39	1.94	1.73
TOTAL	12.56	12.49 (-0.07)	4.75	4.78 (+0.03)

Also, attached is the original Tonquin Woods No. 3 report with the portion of runoff from the project highlighted on the developed drainage basin map exhibit (Exhibit A3).




Thank you.

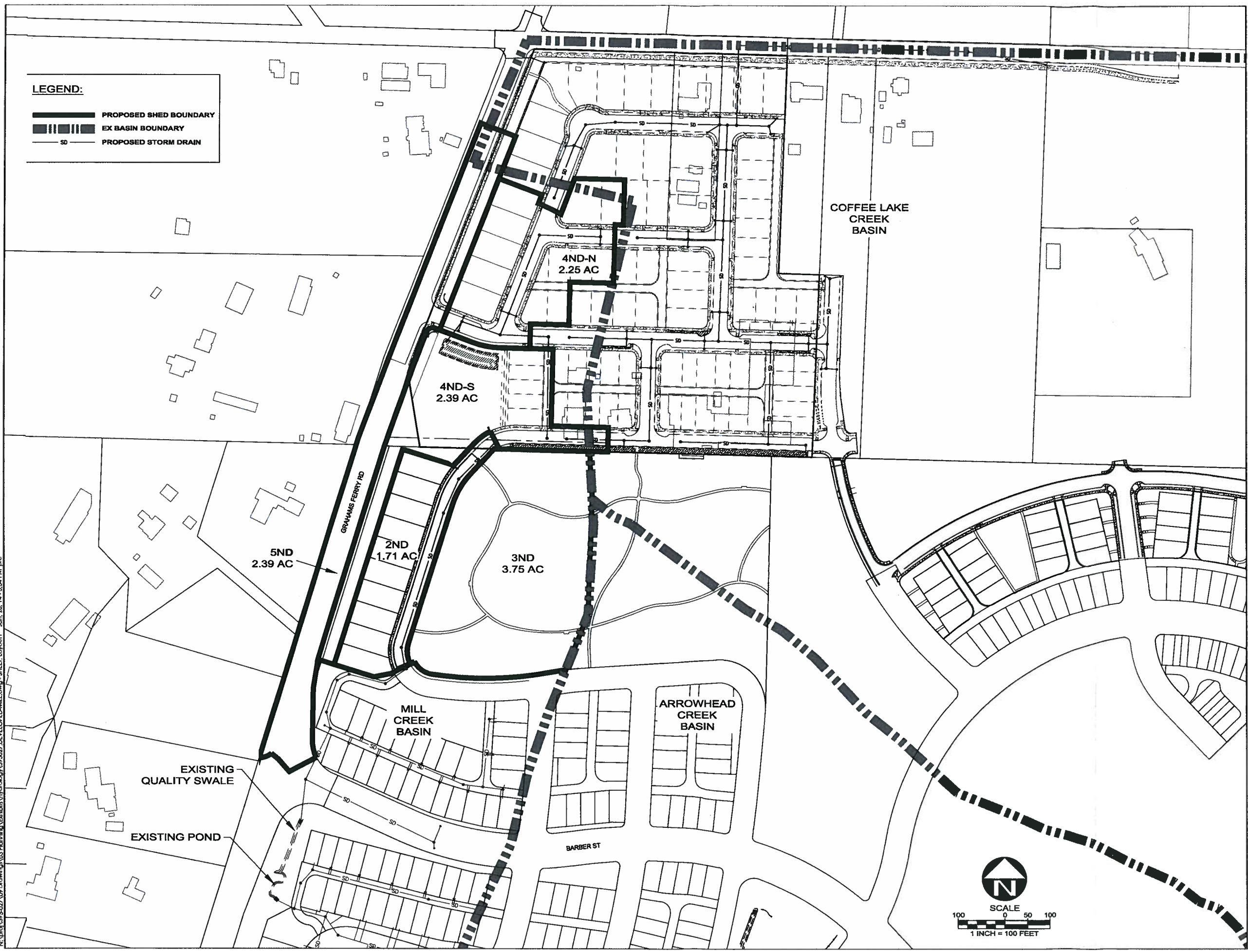
Attachments


1. water quality and drainage analysis report, dated January 2, 2013, for the Tonquin Woods No. 3 development (PDP 1N) completed by Pacific Community Design
2. Figure A: Developed Drainage Map, Mill Creek Basin (PDP Layout)
3. Figures B1-B19: Composite Curve Number and Impervious Area calculations

N:\proj\395-027\09 Drawings\03 Planning\Exhibits\Hydrology\995027_DEVELOPED-MILL.dwg - SHEET Layout1 Jan. 28. 14. 5:34 PM pte

LEGEND:

-  PROPOSED SHED BOUNDARY
-  EX BASIN BOUNDARY
-  PROPOSED STORM DRAIN




 SCALE
 100 0 50 100
 1 INCH = 100 FEET



Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC
GBODESIGN, INC

PDP 3N
VILLEBOIS

Hydrology
Exhibit

Developed Drainage
Map
Mill Creek Basin
(PDP Layout)

DATE 1/24/14

A



**COMPOSITE CURVE NUMBER
SHED 2ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.53	90	67.1%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.75	94.4	32.9%
Open Space Area	0.00	80	0.0%
TOTAL	2.28		

Composite Curve Number per COA = 91.4

FIGURE B1



COMPOSITE CURVE NUMBER SHED 2ND (PDP 2N)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.18	90	69.2%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.53	94.4	30.8%
Open Space Area	0.00	80	0.0%
TOTAL	1.71		

Composite Curve Number per COA = 91.4

FIGURE B2



**COMPOSITE CURVE NUMBER
SHED 3ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.00	94.4	0.0%
Open Space Area	3.81	80	100.0%
TOTAL	3.81		

Composite Curve Number per COA = 80.0

FIGURE B3



**COMPOSITE CURVE NUMBER
SHED 3ND (PDP 2N)**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.00	94.4	0.0%
Open Space Area	3.75	80	100.0%
TOTAL	3.75		

Composite Curve Number per COA = 80.0

FIGURE B4



**COMPOSITE CURVE NUMBER
SHED 4ND-S (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.00	94.4	0.0%
Open Space Area	1.87	80	100.0%
TOTAL	1.87		

Composite Curve Number per COA = 80.0

FIGURE B5



**COMPOSITE CURVE NUMBER
SHED 4ND-S (PDP 2N & 3N)**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.29	90	12.3%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.38	94.4	16.0%
Open Space Area	1.72	80	71.7%
TOTAL	2.39		

Composite Curve Number per COA = 83.5

FIGURE B6



**COMPOSITE CURVE NUMBER
SHED 4ND-N (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.17	90	53.7%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.75	94.4	34.4%
Open Space Area	0.26	80	11.9%
TOTAL	2.18		

Composite Curve Number per COA = 90.3

FIGURE B7



COMPOSITE CURVE NUMBER SHED 4ND-N (PDP 3N)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.32	90	58.9%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.81	94.4	35.8%
Open Space Area	0.12	80	5.2%
TOTAL	2.25		

Composite Curve Number per COA = 91.1

FIGURE B8



**COMPOSITE CURVE NUMBER
SHED 5ND-N (GFR)
SAP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	2.42	94.4	100.0%
Open Space Area	0.00	80	0.0%
TOTAL	2.42		

Composite Curve Number per COA = 94.4

FIGURE B9



**COMPOSITE CURVE NUMBER
SHED 5ND-N (GFR)
PDP LAYOUT**

JOB NUMBER: 395-027
 PROJECT: VILLEBOIS PDP 3N
 FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	2.16	94.4	90.4%
Open Space Area	0.23	80	9.6%
TOTAL	2.39		

Composite Curve Number per COA = 93.0

FIGURE B10



PERCENT IMPERVIOUS SHED 2ND (SAP)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.28 acres 99,317 sf

<u>ON-SITE</u>	<u>Imp. Area (sf)</u>
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	39,988
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	26,136
Total	66,124
% Impervious =	67%

FIGURE B11



PERCENT IMPERVIOUS SHED 2ND (PDP 2N)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 1.71 acres 74,313 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	30,840
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	18,330
Total	49,171
% Impervious =	66%

FIGURE B12



PERCENT IMPERVIOUS SHED 3ND (SAP NORTH)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 3.81 acres 165,964 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B13



PERCENT IMPERVIOUS SHED 3ND (PDP 2N LAYOUT)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 3.75 acres 163,350 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B14



PERCENT IMPERVIOUS SHED 4ND-S (SAP NORTH)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 1.87 acres 81,457 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B15



PERCENT IMPERVIOUS SHED 4ND-S (PDP 2N & 3N LAYOUT)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.39 acres 104,283 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	7,684
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	13,347
Total	21,031
% Impervious =	20%

FIGURE B16



PERCENT IMPERVIOUS SHED 4ND-N (SAP NORTH)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.18 acres 94,961 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	30,579
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	26,136
Total	56,715
% Impervious =	60%

FIGURE B17



PERCENT IMPERVIOUS SHED 4ND-N (PDP 3N LAYOUT)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.25 acres 97,866 sf

<u>ON-SITE</u>	<u>Imp. Area (sf)</u>
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	34,604
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	28,053
Total	62,657
% Impervious =	64%

FIGURE B18



PERCENT IMPERVIOUS SHED 5ND (SAP NORTH) SAP LAYOUT

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.42 acres 105,415 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	84,332
Total	84,332
% Impervious =	80%

FIGURE B19



PERCENT IMPERVIOUS SHED 5ND (PDP 2N & 3N LAYOUT)

JOB NUMBER: 395-027
PROJECT: VILLEBOIS PDP 3N
FILE: N:/PROJ/395-027/05-REPORTS/HYDROLOGY/3950027.HYDRO-MILL.2014-01-17.XLS

Total Site Area 2.39 acres 104,108 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	75,272
Total	75,272
% Impervious =	72%

FIGURE B20



**TONQUIN WOODS NO.3
&
GRAHAMS FERRY ROAD
WATER QUALITY AND DETENTION ANALYSIS
VILLEBOIS - PDP 1 NORTH - PHASE 2**

JOB # 395-002



DATE: 6/17/2013
BY: PATRICK ESPINOSA, PE

EXPIRES: 12-31-13

Prepared By:
Pacific Community Design, Inc.
13500 SW Pacific Highway, PMB #519
Tigard, OR 97223
Tele: 503-941-9484

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APPENDIX A - FIGURES

 Figure A1 - Soil Survey Map

 Figure A2 - Pre-Developed Drainage Basin Map - Mill Creek

 Figure A3 - Developed Drainage Basin Map

APPENDIX B - SHED BASIN CALCULATIONS

 Figure B1- SCS Curve Numbers

 Figure B2 - Manning’s “N” Values

 Figures B3-B10 - Composite Curve Numbers

 Figures B11-B18 - Impervious Area Calculations

 Developed Time of Concentration Calculations

APPENDIX C - DEVELOPED HYDROGRAPHS & DETENTION POND DESIGN-MILL CREEK

APPENDIX D - WATER QUALITY SWALE SIZING CALCULATIONS

APPENDIX E - CONVEYANCE CALCULATIONS

 Figure E1- Proposed Conveyance Map

 Exhibit E2 - Stormwater Conveyance Calculations

INTRODUCTION

This report represents the analysis done for the second phase of Preliminary Development Plan 1N, hereby referred to as PDP 1 North-Phase 2 (PDP 1N-II), of Villebois for water quality and detention facilities. In addition to PDP 1N-II, this report will represent the second phase of Grahams Ferry Road improvements. The intent of this report is to demonstrate consistency between PDP 1N-II, Grahams Ferry Road, and the SAP North Analysis, and demonstrate compliance with City of Wilsonville "Public Works Standards". All calculations and supporting figures are included with this document.

PROJECT DESCRIPTION

PROJECT LOCATION

The proposed Villebois development is located on tax lot 2906 of Clackamas County Tax Map 3S1W15. This portion of Villebois will consist of 58 residential homes on property located to the north of Phase 5 South and east of Grahams Ferry Road. The area of PDP 1N-II is 8.17 ac.

The second phase of Grahams Ferry Road consists of the portion of the road running north of Surrey Street along the entirety of the PDP 1N-II parcel.

PROJECT ZONING/LAND USE

Sap North in the Villebois Village development has been assigned the land use designation of Village zone by the City of Wilsonville. The Villebois Village Master Plan designates this area further as a Residential Village. This area will be developed as an urban village including single-family units of various sizes, neighborhood row houses, and park spaces.

EXISTING CONDITIONS

EXISTING TOPOGRAPHY, LAND USE, AND ONSITE DRAINAGE

The entirety of the pre-developed site is open space, a portion of which was cultivated. This site slopes to the southwest at a gradient of 1-3%. The drainage basin falls within hydrologic group C per the Soil Survey Map for Clackamas County (Exhibit A1). The pre-developed topography for the project site is shown in Exhibit A2.

SOIL CONDITIONS

Below is a summary of the existing soil conditions for the Mill Creek portion of SAP North.

**TABLE 1
PROJECT SITE SOILS**

SOIL NAME	SCS SYMBOL	HYDROLOGIC GROUP
ALOHA SILT LOAM (0-3 percent slopes)	1A	C
ALOHA SILT LOAM (3-6 percent slopes)	1B	C

SCS CURVE NUMBERS

Below is a summary of the SCS curve numbers in accordance with the Conditions of Approval for SAP North of the Villebois Village.

**TABLE 2
SCS CURVE NUMBERS**

LAND USE	CURVE NUMBER
OPEN SPACE AND LANDSCAPING	80
COMMERCIAL AREAS	94
RIGHT-OF-WAYS (based on 80% impervious - CN of 98 And 20% pervious - CN of 80)	94.4
RESIDENTIAL DEVELOPMENT (1/8 acre of less)	90
RESIDENTIAL DEVELOPMENT (1/4 acre)	83
DENSE FOREST AREA	80

EXISTING POINTS OF DISCHARGE

PDP 1N-II and Grahams Ferry Road currently drain to the Mill Creek Basin to the southwest of this site via an existing culvert (culvert 3) crossing under Grahams Ferry Road. This culvert previously drained west to Tax Lot 1600 of Clackamas County Tax Map 3S1W15 where the overland runoff crossed a pasture before it entered another culvert under a private driveway and drained to Mill Creek (see Figure A2 for culvert location). With recent improvements to Grahams Ferry Road this runoff is now collected by a new culvert which drains onto Tax Lot 1500 directly upstream of the existing culvert located under the private driveway.

HYDROLOGY

The Santa Barbara Urban Hydrograph (SBUH) methodology was used to calculate the runoff hydrographs for all of the shed areas. The HydroCAD Stormwater Modeling System 2006 software program by HydroCAD was used to perform these calculations. The following tables summarize the input parameters for the hydrographs as well as the results of the pre-developed analysis performed by OTAK.

The storm drainage report titled "Villebois Village: SAP North: Mill Creek Basin Storm Drainage Report" updated on June 29th, 2007 and published by OTAK separated the area within Mill Creek Basin into drainage sheds based on the approved SAP North layout and the existing Grahams Ferry Road alignment. Runoff calculations were provided in the above mentioned report for the pre-developed conditions of the Mill Creek Basin. The calculations within this report will show that the detained runoff from the developed PDP 1N area will not exceed these pre-developed levels. The following tables show the pre-developed input parameters and runoff rates for Mill Creek, as determined by the previously approved storm drainage report. See Exhibit A2 for pre-developed drainage map.

**TABLE 3
PRE-DEVELOPED CONDITIONS HYDROCAD INPUT PARAMETERS - SAP NORTH***

BASIN ID	AREA (acre)	TIME OF CONCENTRATION (min)	COMPOSITE CURVE NUMBER
BASIN 2NE	14.11	52.2	80
BASIN 3NE	2.91	50.0	80
BASIN 2ME	2.69	50.0	80
BASIN 5NE	2.26	20.9	94.4
BASIN 6NE	0.80	5.0	94.4
TOTAL	22.77		

*Refer to the report titled "Villebois Village: SAP North: Mill Creek Basin Storm Drainage Report" updated on June 29th, 2007 and published by OTAK for all supporting calculations.

**TABLE 4
PRE-DEVELOPED CONDITIONS RUNOFF RATES (cfs) - SAP NORTH***

BASIN ID	2-YEAR	10-YEAR	25-YEAR	100-YEAR
BASIN 2NE	1.25	2.78	3.64	4.54
BASIN 3NE	0.26	0.57	0.75	0.94
BASIN 5NE	0.89	1.36	1.59	1.82
BASIN 6NE	0.35	0.55	0.65	0.76
CULVERT 3**	2.63	5.11	6.46	7.87

*Refer to the report titled "Villebois Village: SAP North: Mill Creek Basin Storm Drainage Report" updated on June 29th, 2007 and published by OTAK for all supporting calculations.

**Existing flows equal the sum of the hydrographs; the peaks may not coincide

DEVELOPED CONDITIONS

DEVELOPED DRAINAGE CONDITIONS

Stormwater runoff from the developed site will be collected by a series of catch basins leading to an underground piping system. This system will transport the runoff to a detention pond in PDP 1N-II (Pond 'O'). Pond 'O' will detain the runoff to pre-developed levels prior to releasing upstream of the existing culvert on Tax Lot 1600 of Clackamas County Tax Map 3S1W15, via the 18-inch culvert recently constructed under Grahams Ferry Road.

HYDROLOGY - MILL CREEK

In order to determine the required detention volume, SAP North was divided into a number of shed basins based on the proposed land use and geography. The Santa Barbara Urban Hydrograph (SBUH) methodology was used to calculate the runoff hydrographs for all of these developed shed areas. The Hydroflow Hydrographs Modeling System 2004 software program by Intelisolve was used to perform these calculations. The following tables summarize the developed shed basin input parameters and their resulting runoff rates.

**TABLE 5
DEVELOPED CONDITIONS HYDROFLOW INPUT PARAMETERS - MILL CREEK**

BASIN ID	AREA (acre)	COMPOSITE CURVE NUMBER	TIME OF CONCENTRATION (min)
BASIN 1ND	4.40	89.4	22.25
BASIN 2ND	2.28	91.4	10.9
BASIN 3ND	3.81	80.0	66.0
BASIN 4ND-S	1.87	80.0	46.3
BASIN 4ND-N	2.18	90.3	14.5
BASIN 5ND	2.42	94.4	20.8
BASIN 6ND	0.71	94.4	4.9
BASIN 2MD	3.25	89.6	16.4
POND BASIN	0.48	83.0	5.0
TOTAL	21.40		

**TABLE 6
DEVELOPED CONDITIONS RUNOFF RATES (cfs)**

BASIN ID	2-YEAR	10-YEAR	25-YEAR	100-YEAR
BASIN 1ND	1.24	2.09	2.52	2.95
BASIN 2ND	0.85	1.36	1.62	1.88
BASIN 3ND	0.31	0.67	0.88	1.09
BASIN 4ND-S	0.18	0.39	0.51	0.63
BASIN 4ND-N	0.75	1.24	1.49	1.74
BASIN 5ND	0.95	1.44	1.68	1.93
BASIN 6ND	0.35	0.53	0.61	0.70
BASIN 2MD	1.01	1.69	2.04	2.40
POND BASIN	0.11	0.21	0.27	0.32

WATER QUANTITY - MILL CREEK

A detention pond will be constructed with the development of PDP 1N-II to detain the developed runoff and release the stormwater into Mill Creek at or below pre-developed levels. The Hydroflow Hydrographs Modeling System 2004 software program by Intelisolve was used to determine the required detention volume for this pond, as well as design the flow control structure. The following table is a summary of the pond volume and storage levels.

**TABLE 7
POND SUMMARY**

STORM EVENT	STORAGE VOLUME	WATER DEPTH
2-YEAR	12,247 cu.ft.	2.6 ft
10-YEAR	21,697 cu.ft.	3.8 ft
25-YEAR	27,612 cu.ft.	4.3 ft
100-YEAR	32,170 cu.ft.	4.7 ft

The table below summarizes the results of the pond analysis. Full calculations provided by Hydroflow are shown in Appendix C.

**TABLE 8
POND "O" DETENTION PERFORMANCE**

RETURN PERIOD	FLOW COMPLIANCE TARGET (cfs)*	DESIGN RELEASE RATE (cfs)	SURFACE ELEVATION	MAXIMUM STORAGE (cu.ft.)
2-YEAR	2.63	2.54	217.60	12,247
10-YEAR	5.11	5.07	218.76	21,697
25-YEAR	6.46	5.97	219.33	27,612
100-YEAR	7.87	8.21	219.74	32,170

*Flow compliance target is based on existing condition analysis completed as part of the following report: "Villebois Village: SAP North: Mill Creek Basin Storm Drainage Report" updated on June 29th, 2007 and published by OTAK.

The pond runoff will be conveyed to an existing ditch on the west side of Grahams Ferry Road via an 24-inch pipe. The capacity of this pipe is 17.37 cfs which will be sufficient to convey the 100-year storm event runoff rate of 8.21 cfs.

In addition to the detention pond analysis, conveyance calculations were completed for the storm drain mains designed for PDP 1N-II to insure that pipes were sized sufficiently to convey the 25-year storm event. These calculations are shown in Appendix E along with a conveyance map showing the individual drainage areas for each pipe run.

WATER QUALITY - MILL CREEK

The City of Wilsonville requires that 65% removal of phosphorous be provided for stormwater runoff if any new impervious surfaces are created during site development. A permanent water quality facility must be constructed or funded to reduce contaminants that enter the storm and surface water system. Impervious surfaces shall include pavement, gravel roads, buildings, public and private roadways, and other surfaces that contribute runoff to the surface water system.

Water quality requirements for Mill Creek Basin will be addressed with pollution control manholes and water quality swales located within Pond O. Shed Area 3MD will be treated by a water quality swale located within the southern portion of Pond O. This swale will be 2-feet wide and 100-feet long.

The remaining portion of Mill Creek (PDP 1N and SAP North) will be treated by a water quality swale within the northern portion of Pond O. This swale will be 5-feet wide and 120-feet long.

APPENDIX A

N:\pro 2A\09 Drawings\04 Civil\Exhibits-Hydrology\395002.PSOIL.dwg - SHEET: 8x11 Dec. 27, 12 - 5:32 PM. pl

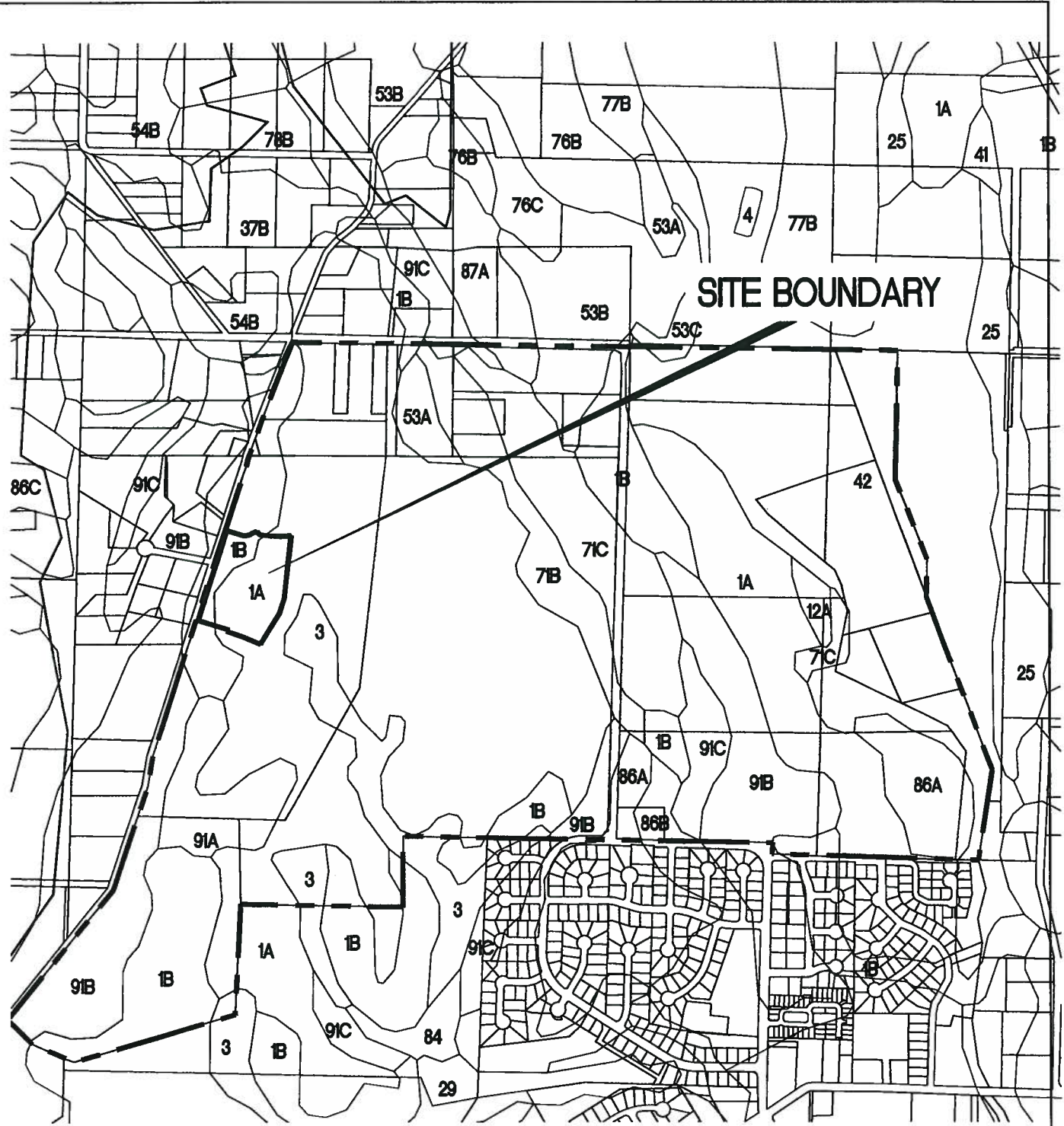
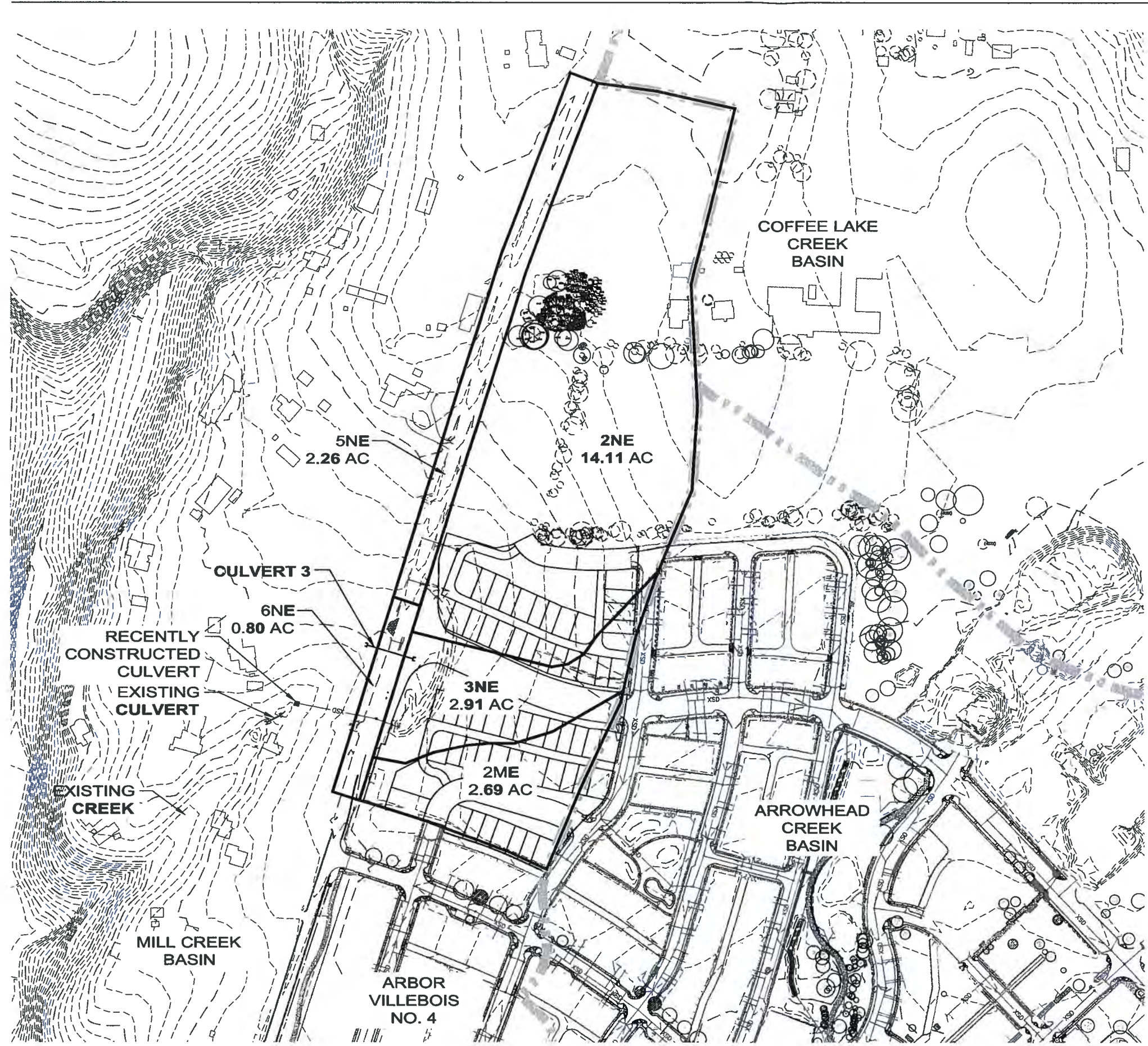


EXHIBIT A1: SOIL SURVEY MAP

DRAWN BY: PRE DATE: 12/26/12
 REVIEWED BY: PRE DATE: 12/26/12
 PROJECT NO.: 395-002
 SCALE: 1"=1000'



[T] 503-941-9484
 [F] 503-941-9485



LEGEND:

- EXISTING SHED BOUNDARY
- - - EX BASIN BOUNDARY
- - - EX STORM DRAIN

SCALE
0 125 250
1 INCH = 250 FEET

Villebois

POLYGON NW COMPANY
PACIFIC COMMUNITY DESIGN, INC.
OTTEN LANDSCAPE ARCHITECTS, INC.

TONQUIN WOODS No. 3

Villebois
PDP 1N - Phase 2
Hydrology

Pre-Developed
Drainage Basin Map

DATE: 12/27/2012

A2



Villebois



POLYGON NW COMPANY

PACIFIC COMMUNITY DESIGN, INC

OTTEN LANDSCAPE ARCHITECTS, INC

TONQUIN WOODS No. 3

Villebois PDP 1N - Phase 2 Hydrology

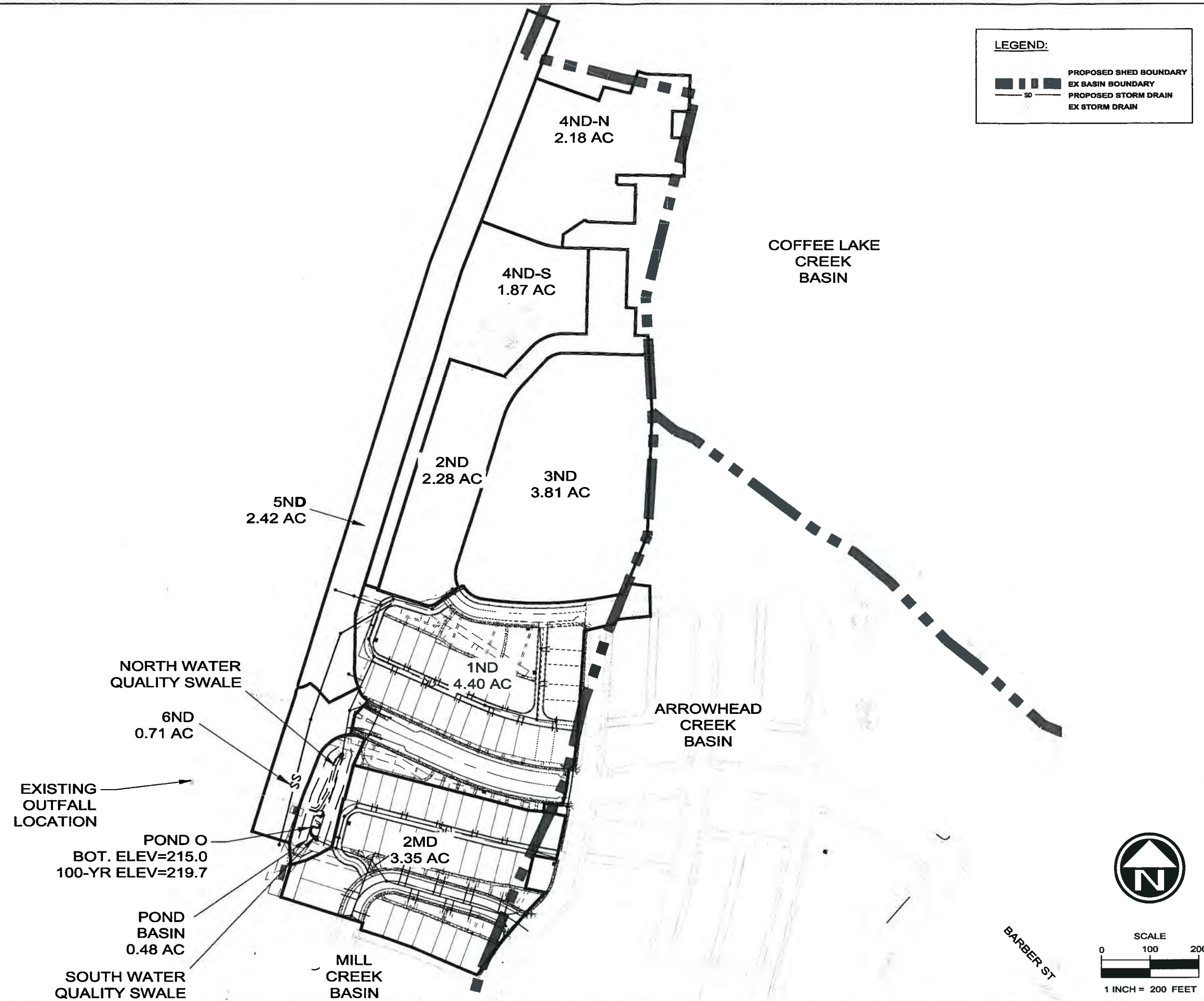
Developed Drainage Basin Map

DATE: 4/16/2013

A3

LEGEND:

- PROPOSED SHED BOUNDARY
- EX BASIN BOUNDARY
- PROPOSED STORM DRAIN
- EX STORM DRAIN



PLAN DATE: 4/16/2013

APPENDIX B

**SCS CURVE NUMBERS
FIGURE B1**

LAND USE DESCRIPTION		CURVE NUMBERS BY HYDROLOGIC SOIL GROUP			
		A	B	C	D
Cultivated land (1):	winter condition	86	91	94	95
Mountain open areas:	low growing brush & grasslands	74	82	89	92
Meadow or pasture:		65	78	85	89
Wood or forest land:	undisturbed	42	64	76	81
Wood or forest land:	young second growth or brush	55	72	81	86
Orchard:	with crop cover	81	88	92	94
Open spaces, lawns, parks, golf courses, cemeteries, landscaping					
Good condition:	grass cover on \geq 75% of the area	68	80	86	90
Fair condition:	grass cover on 50-75% of the area	77	85	90	92
Gravel roads and parking lots:		76	85	89	91
Dirt roads and parking lots:		72	82	87	89
Impervious surfaces, pavement, roofs etc.		98	98	98	98
Open water bodies:	lakes, wetlands, ponds, etc.	100	100	100	100
Single family residential (2):	(per C.O.A)				
Lot Size (Acres)					
1/8	or less	90	90	90	90
1/4	or less	83	83	83	83
Commercial Development		94	94	94	94
PUD's, condos, apartments, commercial businesses & industrial areas	%impervious must be computed				

(1) For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Sec. 4, Hydrology, Chapter 9, August 1972.

(2) Assumes roof and driveway runoff is directed into street/storm system.

(3) The remaining pervious areas (lawn) are considered to be in good condition for these curve numbers.

MANNING'S "n" VALUES
FIGURE B2

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphalt, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover \leq 20%	0.06
Cultivated soil with residue cover > 20%	0.17
Short prairie grass and lawns	0.15
Dense grasses	0.24
Bermuda grasses	0.41
Range (natural)	0.13
Woods or forrest with light underbrush	0.40
Woods or forrest with dense underbrush	0.80

SHALLOW CONCENTRATED FLOW (after initial 300 ft of sheet flow, R = 0.1)	k_s
Forrest with heavy ground litter and meadows (n = 0.010)	3
Brushy ground with some trees (n = 0.060)	5
Fallow or minimum tillage cultivation (n = 0.040)	8
High grass (n = 0.035)	9
Short grass, pasture and lawns (n = 0.030)	11
Nearly bare ground (n = 0.25)	13
Paved and gravel areas (n = 0.012)	27

CHANNEL FLOW (Intermittent) (At the beginning of all visible channels, R = 0.2)	k_c
Forested swale with heavy ground cover (n = 0.10)	5
Forested drainage course/ravine with defined channel bed (n = 0.050)	10
Rock-lined waterway (n = 0.035)	15
Grassed waterway (n = 0.030)	17
Earth-lined waterway (n = 0.025)	20
CMP pipe (n = 0.024)	21
Concrete pipe (n = 0.012)	42
Other waterways and pipe 0.508/n	

CHANNEL FLOW (continuous stream, R = 0.4)	k_c
Meandering stream (n = 0.040)	20
Rock-lined stream (n = 0.035)	23
Grass-lined stream (n = 0.030)	27
Other streams, man-made channels and pipe (n = 0.807/n)	



**COMPOSITE CURVE NUMBER
SHED 2MD (PDP 1N-II)**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	2.01	90	60.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.78	94.4	23.3%
Open Space Area	0.56	80	16.7%
TOTAL	3.35		

Composite Curve Number per COA = 89.4

FIGURE B3



**COMPOSITE CURVE NUMBER
SHED 1ND (PDP 1N-II)**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.65	90	37.5%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	1.73	94.4	39.3%
Open Space Area	1.02	80	23.2%
TOTAL	4.40		

Composite Curve Number per COA = 89.4

FIGURE B4



**COMPOSITE CURVE NUMBER
SHED 2ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.53	90	67.1%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.75	94.4	32.9%
Open Space Area	0.00	80	0.0%
TOTAL	<u>2.28</u>		

Composite Curve Number per COA = 91.4

FIGURE B5



**COMPOSITE CURVE NUMBER
SHED 3ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.00	94.4	0.0%
Open Space Area	3.81	80	100.0%
TOTAL	3.81		

Composite Curve Number per COA = 80.0

FIGURE B6



**COMPOSITE CURVE NUMBER
SHED 4ND-S (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

<u>ON-SITE</u>	<u>(AC)</u>	<u>CN</u>	<u>% of total</u>
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.00	94.4	0.0%
Open Space Area	1.87	80	100.0%
TOTAL	1.87		

Composite Curve Number per COA = 80.0

FIGURE B7



**COMPOSITE CURVE NUMBER
SHED 4ND-N (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	1.17	90	53.7%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.75	94.4	34.4%
Open Space Area	0.26	80	11.9%
TOTAL	2.18		

Composite Curve Number per COA = 90.3

FIGURE B8



**COMPOSITE CURVE NUMBER
SHED 5ND-N (GFR)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilizing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	2.42	94.4	100.0%
Open Space Area	0.00	80	0.0%
TOTAL	2.42		

Composite Curve Number per COA = 94.4

FIGURE B9



**COMPOSITE CURVE NUMBER
SHED 6ND (GFR)
SAP LAYOUT**

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-12-26.XLS

CURVE NUMBERS PER SAP NORTH C.O.A. PFA3

Open Space and landscape areas	80
Commercial areas	94
Impervious Area Streets, Alleys *	98
Residential Development 1/8 acre or less	90
Residential Development 1/4 acre or less	83

* Streets and Alleys are modeled as 80% impervious and 20% pervious. Utilfzing a CN of 80 for the pervious area and 98 for the impervious area, the weighted CN for streets and alleys would be 94.4.

ON-SITE	(AC)	CN	% of total
Row House (1/8 acre)	0.00	90	0.0%
Single Family Detached (1/8 acre)	0.00	90	0.0%
Commercial/Multi-Family areas	0.00	94	0.0%
Street and Alley ROW's	0.71	94.4	100.0%
Open Space Area	0.00	80	0.0%
TOTAL	0.71		

Composite Curve Number per COA = 94.4

FIGURE B10



PERCENT IMPERVIOUS SHED 2MD (PDP 1N-II)

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 3.35 acres 145,926 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	52,533
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	27,181
Total	79,715
% Impervious =	55%

FIGURE B11



PERCENT IMPERVIOUS SHED 1ND (PDP 1N-II)

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 4.40 acres 191,664 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	43,124
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	60,287
Total	103,411
% Impervious =	54%

FIGURE B12



PERCENT IMPERVIOUS SHED 2ND (PDP 1N-II)

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 2.28 acres 99,317 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	39,988
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	26,136
Total	66,124
% Impervious =	67%

FIGURE B13



**PERCENT IMPERVIOUS
SHED 3ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 3.81 acres 165,964 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B14



**PERCENT IMPERVIOUS
SHED 4ND-S (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 1.87 acres 81,457 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	0
Total	0
% Impervious =	0%

FIGURE B15



**PERCENT IMPERVIOUS
SHED 4ND-N (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 2.18 acres 94,961 sf

	Imp. Area (sf)
ON-SITE	
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	30,579
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	26,136
Total	56,715
% Impervious =	60%

FIGURE B16



**PERCENT IMPERVIOUS
SHED 5ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 2.42 acres 105,415 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	84,332
Total	84,332
% Impervious =	80%

FIGURE B17



**PERCENT IMPERVIOUS
SHED 6ND (SAP NORTH)
SAP LAYOUT**

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

Total Site Area 0.71 acres 30,928 sf

ON-SITE	Imp. Area (sf)
Row House Lot Impervious Area (85%)	0
Single Family Lot Impervious Area (60%)	0
Commercial Lot Impervious Area (90%)	0
ROW/Alley Impervious Area (80%)	24,742
Total	24,742
% Impervious =	80%

FIGURE B18



DEVELOPED TIME OF CONCENTRATION MILL CREEK (SAP AREAS)

JOB NUMBER: 395-002
PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

$$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5} (S_0)^{0.4}}$$

SHED 2ND (SAP NORTH)

Accum.

PIPE FLOW (FIRST 680 FEET)

Catchment Time	5.00 min.	
Longest Run of Pipe	1068 ft	
Velocity of Flow	3 ft/s	
Time in Pipe = (1068 ft)/(3 ft/s) =	356 s	10.93 min.

TOTAL DEVELOPED TIME OF CONCENTRATION =

10.93 min.

SHED 3ND (SAP NORTH)

Accum.

LAG ONE: SHEET FLOW (FIRST 300 FEET)

Tt = Travel time

Manning's "n" = 0.400
 Flow Length, L = 300 ft (300 ft. max.)
 P = 2-year, 24hr storm = 2.5 in
 Slope, S₀ = 0.017 ft/ft

$$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5} (S_0)^{0.4}} \quad 62.88 \text{ min.} \quad 62.88 \text{ min.}$$

LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 150 FEET)

Tc Velocity factor, k= 5
 Slope, S₀ = 0.026 ft/ft

$$V = k\sqrt{S_0} \quad 0.81 \text{ ft/s}$$

Flow Length, L = 150 ft

$$T = \frac{L}{(60)(V)} \quad 3.10 \text{ min.} \quad 65.98 \text{ min.}$$

TOTAL DEVELOPED TIME OF CONCENTRATION = 65.98 min.

SHED 4ND-S (SAP NORTH)

Accum.

LAG ONE: SHEET FLOW (FIRST 300 FEET)

Tt = Travel time

Manning's "n" = 0.150
 Flow Length, L = 300 ft (300 ft. max.)
 P = 2-year, 24hr storm = 2.5 in
 Slope, S₀ = 0.007 ft/ft

$$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5} (S_0)^{0.4}} \quad 40.63 \text{ min.} \quad 40.63 \text{ min.}$$

LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 519 FEET)

Tc Velocity factor, k= 11
 Slope, S₀ = 0.019 ft/ft

$$V = k\sqrt{S_0} \quad 1.52 \text{ ft/s}$$

Flow Length, L = 519 ft

$$T = \frac{L}{(60)(V)} \quad 5.70 \text{ min.} \quad 46.33 \text{ min.}$$

TOTAL DEVELOPED TIME OF CONCENTRATION = 46.33 min.

SHED 4ND-N (SAP NORTH)

Accum.

PIPE FLOW (FIRST 680 FEET)

Catchment Time	5.00 min.	
Longest Run of Pipe	1715 ft	
Velocity of Flow	3 ft/s	
Time in Pipe = (1715 ft)/(3 ft/s) =	572 s	14.53 min.

TOTAL DEVELOPED TIME OF CONCENTRATION = 14.53 min.

SHED 5ND (GRAHAMS FERRY ROAD)

Accum.

LAG ONE: SHEET FLOW (FIRST 100 FEET)

Tc

Tt = Travel time		
Manning's "n" =	0.011	
Flow Length, L =	100 ft	(300 ft. max.)
P = 2-year, 24hr storm =	2.5 in	
Slope, S ₀ =	0.020 ft/ft	

$$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}} \quad 1.37 \text{ min.} \quad 1.37 \text{ min.}$$

LAG TWO: SHALLOW CONCENTRATED FLOW (NEXT 1316 FEET)

Tc Velocity factor, k=	10	
Slope, S ₀ =	0.013 ft/ft	
$V = k\sqrt{S_0}$	1.13 ft/s	
Flow Length, L =	1316 ft	
$T = \frac{L}{(60)(V)}$	19.46 min.	20.83 min.

TOTAL DEVELOPED TIME OF CONCENTRATION = 20.83 min.

SHED 6ND (GRAHAMS FERRY ROAD PER OTAK)

Accum.

LAG ONE: SHEET FLOW (FIRST 400 FEET)

Tc

Tt = Travel time		
Manning's "n" =	0.011	
Flow Length, L =	400 ft	(300 ft. max.)
P = 2-year, 24hr storm =	2.5 in	
Slope, S ₀ =	0.013 ft/ft	

$$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}} \quad 4.94 \text{ min.} \quad 4.94 \text{ min.}$$

TOTAL DEVELOPED TIME OF CONCENTRATION = 4.94 min.

APPENDIX C

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Hydrograph Return Period Recap

No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SBUH Runoff	----	----	1.24	----	----	2.09	2.52	----	2.95	Shed 1N - Developed
2	SBUH Runoff	----	----	0.85	----	----	1.36	1.62	----	1.88	Shed 2N - Developed
3	SBUH Runoff	----	----	0.31	----	----	0.67	0.88	----	1.09	Shed 3N - Developed
4	SBUH Runoff	----	----	0.18	----	----	0.39	0.51	----	0.63	Shed 4N-S - Developed
5	SBUH Runoff	----	----	0.75	----	----	1.24	1.49	----	1.74	SHED 4N-N (Developed)
6	SBUH Runoff	----	----	0.95	----	----	1.44	1.68	----	1.93	Shed 5N - Developed
7	SBUH Runoff	----	----	0.35	----	----	0.53	0.61	----	0.70	Shed 6N - Developed
8	SBUH Runoff	----	----	1.01	----	----	1.69	2.04	----	2.40	Shed 2M - Developed
9	SBUH Runoff	----	----	0.11	----	----	0.21	0.27	----	0.32	Pond
11	Combine	1, 2, 3, 4, 5, 6,	----	4.17	----	----	7.04	8.52	----	10.04	SHED 1N, 2N, 3N, 4N, 5N
12	Combine	7, 8, 9,	----	1.47	----	----	2.43	2.92	----	3.42	SHEDS 6N, 2M, POND
13	Combine	11, 12	----	5.61	----	----	9.46	11.44	----	13.46	COMBINED POND IN
14	Reservoir	13	----	2.54	----	----	5.07	5.97	----	8.21	COMBINED OUT

Hydrograph Summary Report

1.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	1.24	6	486	23,716	---	---	---	Shed 1N - Developed
2	SBUH Runoff	0.85	6	480	13,599	---	---	---	Shed 2N - Developed
3	SBUH Runoff	0.31	6	528	12,294	---	---	---	Shed 3N - Developed
4	SBUH Runoff	0.18	6	498	6,034	---	---	---	Shed 4N-S - Developed
5	SBUH Runoff	0.75	6	480	12,301	---	---	---	SHED 4N-N (Developed)
6	SBUH Runoff	0.95	6	486	16,747	---	---	---	Shed 5N - Developed
7	SBUH Runoff	0.35	6	474	4,913	---	---	---	Shed 6N - Developed
8	SBUH Runoff	1.01	6	480	17,697	---	---	---	Shed 2M - Developed
9	SBUH Runoff	0.11	6	480	1,840	---	---	---	Pond
11	Combine	4.17	6	486	84,690	1, 2, 3, 4, 5, 6,	---	---	SHED 1N, 2N, 3N, 4N, 5N
12	Combine	1.47	6	480	24,451	7, 8, 9,	---	---	SHEDS 6N, 2M, POND
13	Combine	5.61	6	480	109,141	11, 12	---	---	COMBINED POND IN
14	Reservoir	2.54	6	558	109,141	13	217.60	12,247	COMBINED OUT

Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Thursday, Apr 11 2013, 2:7 PM

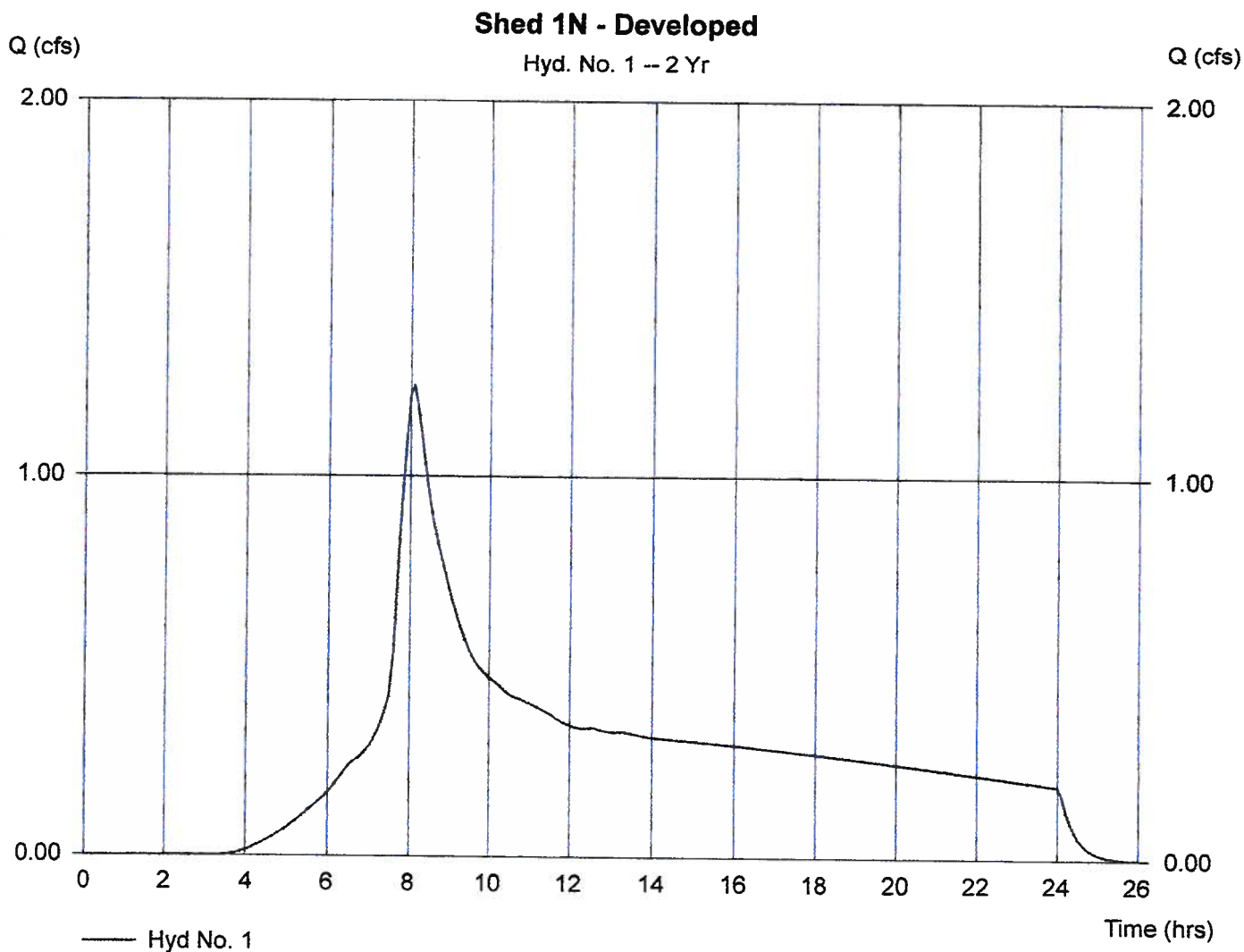
Hyd. No. 1

Shed 1N - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 2 yrs
Drainage area = 4.40 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 2.50 in
Storm duration = 24 hrs

Peak discharge = 1.24 cfs
Time interval = 6 min
Curve number = 89.4
Hydraulic length = 0 ft
Time of conc. (Tc) = 22.25 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 23,716 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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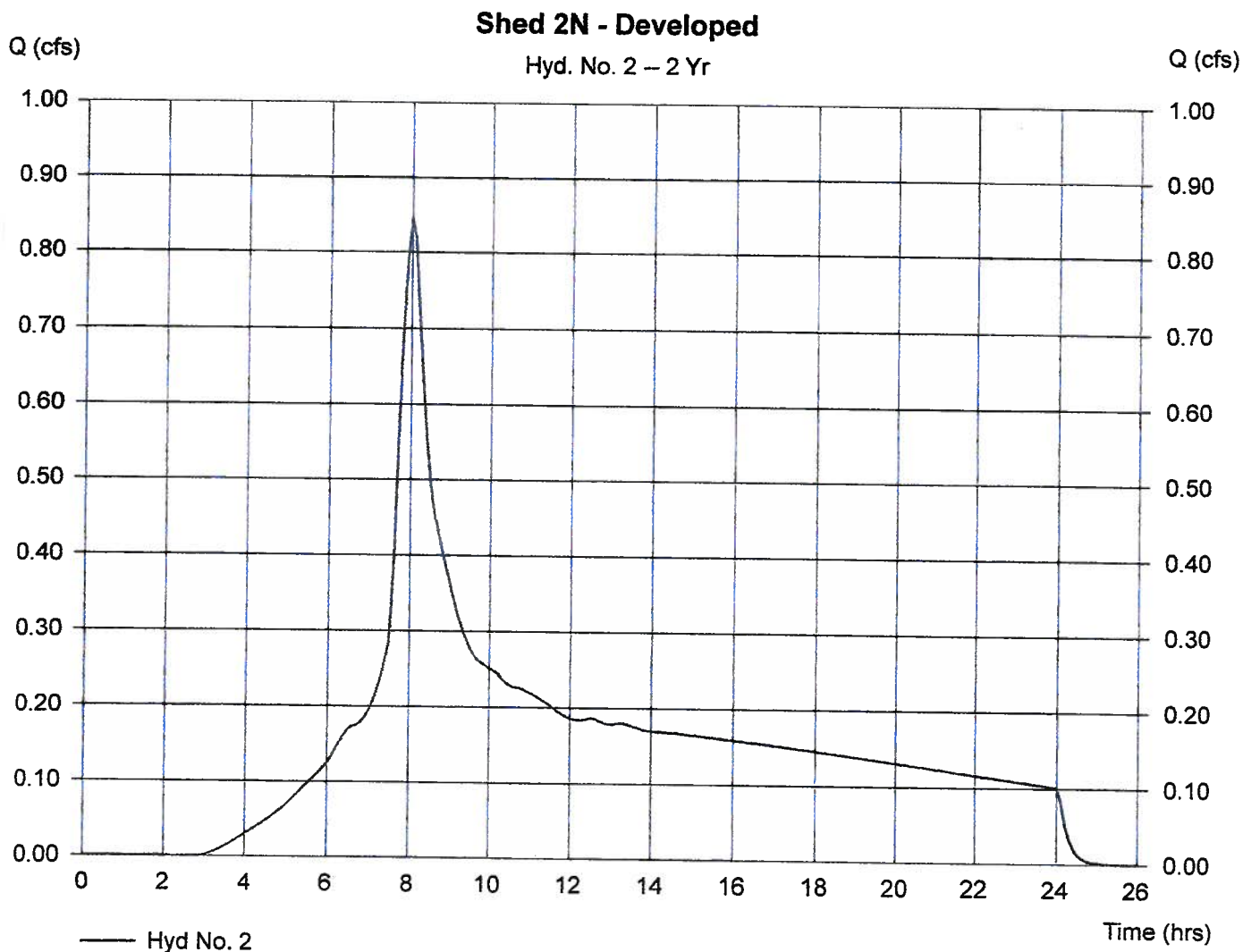
Hyd. No. 2

Shed 2N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 2 yrs
 Drainage area = 2.28 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 2.50 in
 Storm duration = 24 hrs

Peak discharge = 0.85 cfs
 Time interval = 6 min
 Curve number = 91.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 13,599 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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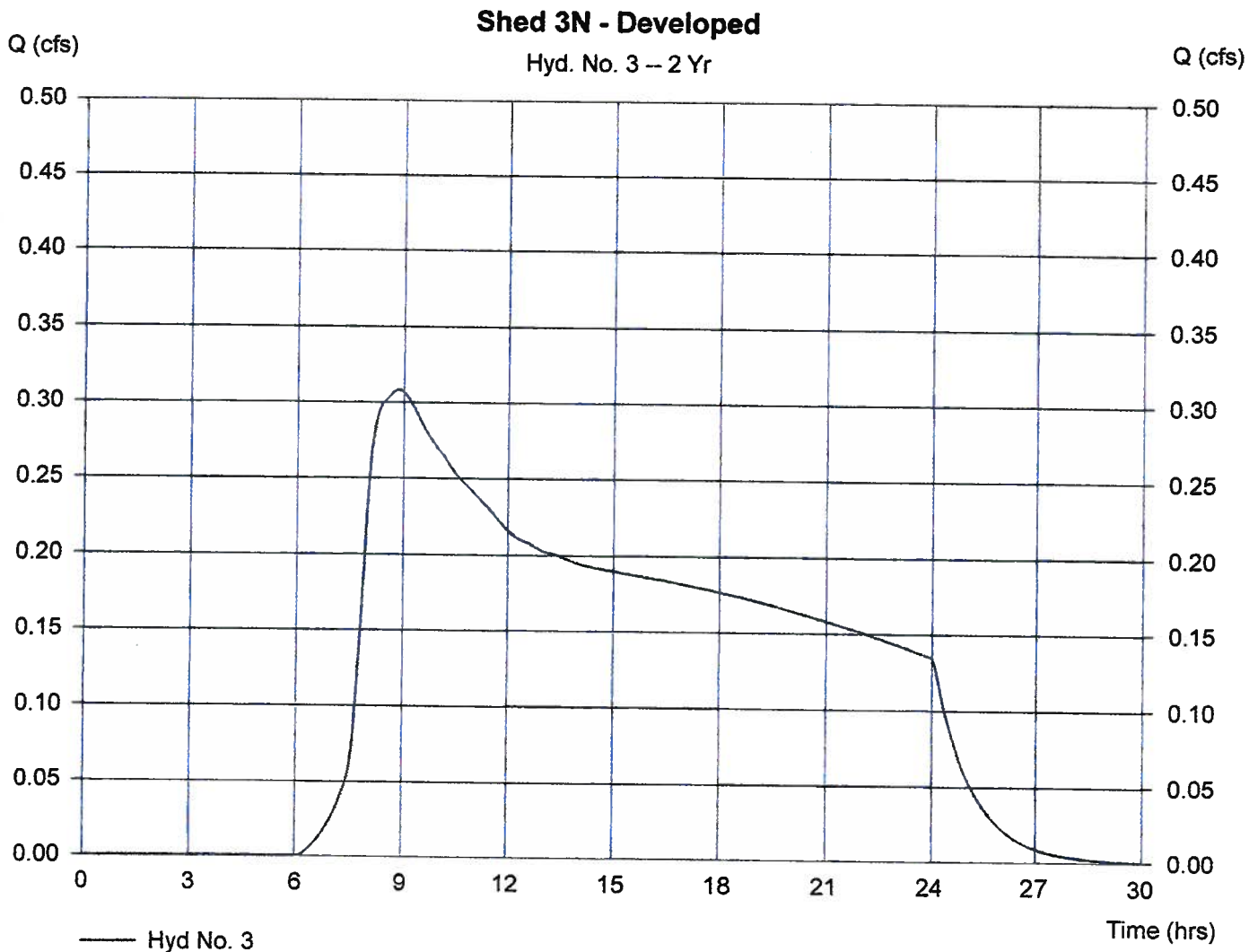
Hyd. No. 3

Shed 3N - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 2 yrs
Drainage area = 3.81 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 2.50 in
Storm duration = 24 hrs

Peak discharge = 0.31 cfs
Time interval = 6 min
Curve number = 80
Hydraulic length = 0 ft
Time of conc. (Tc) = 66 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 12,294 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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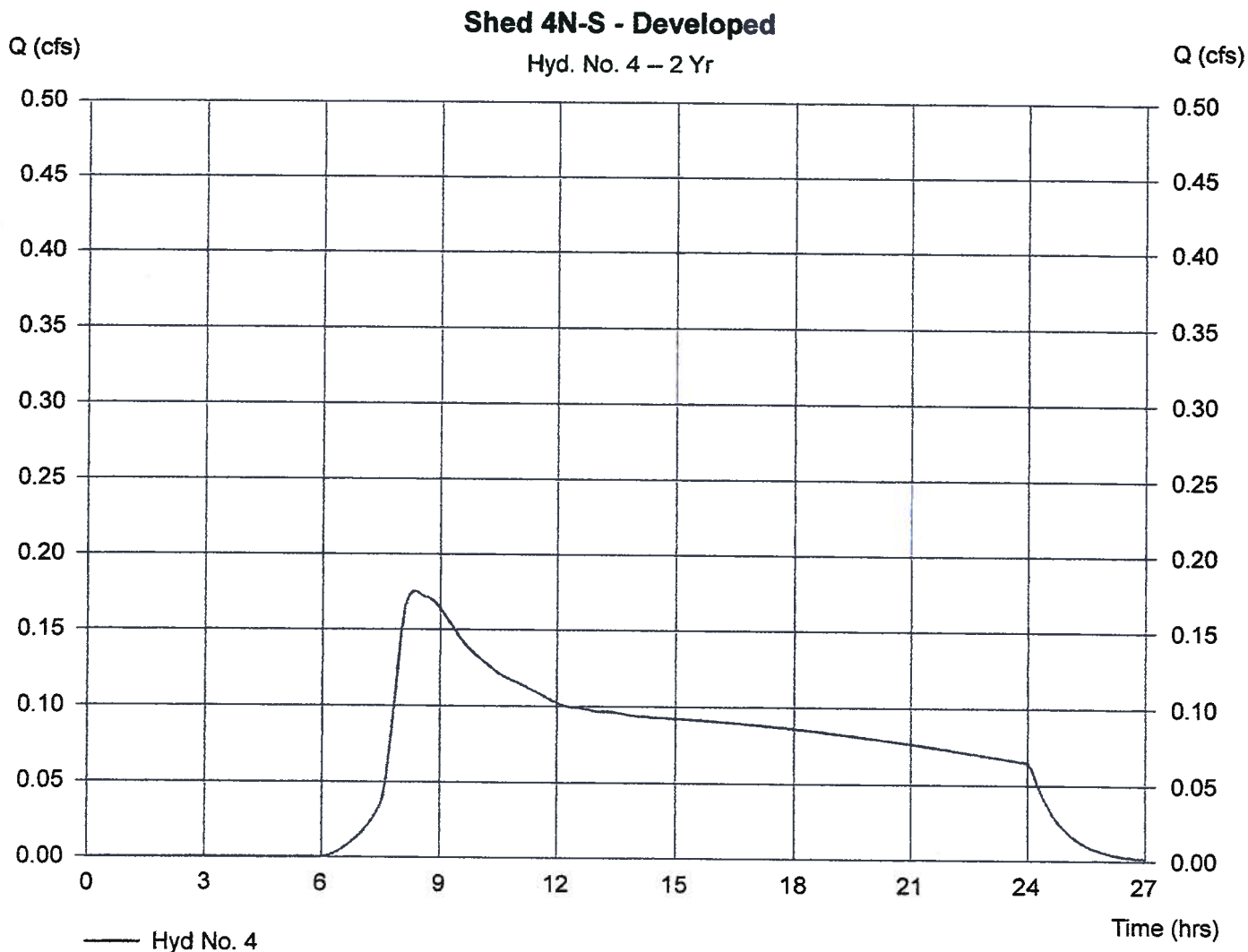
Hyd. No. 4

Shed 4N-S - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 2 yrs
 Drainage area = 1.87 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 2.50 in
 Storm duration = 24 hrs

Peak discharge = 0.18 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 46.3 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 6,034 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

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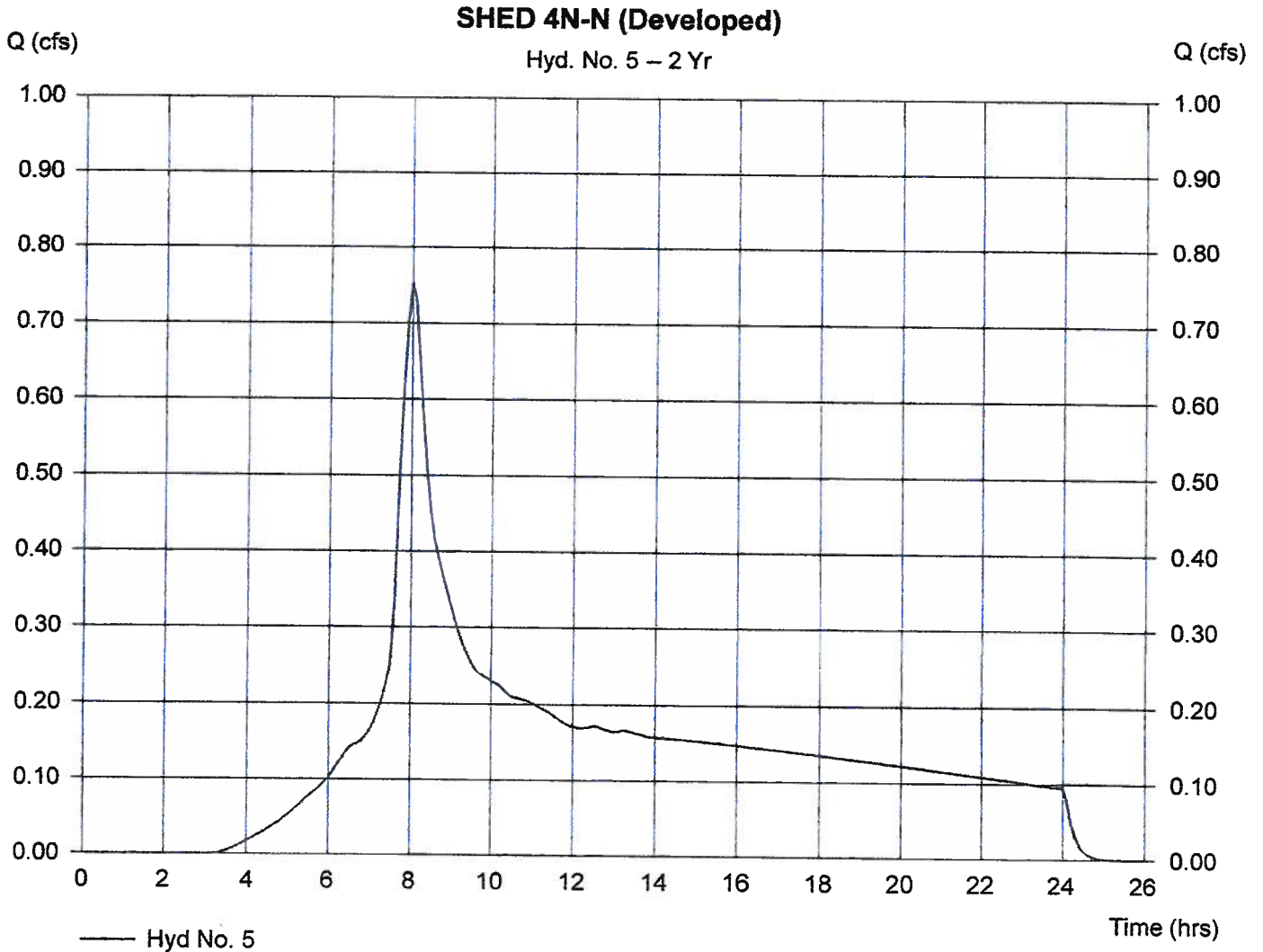
Hyd. No. 5

SHED 4N-N (Developed)

Hydrograph type = SBUH Runoff
Storm frequency = 2 yrs
Drainage area = 2.18 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 2.50 in
Storm duration = 24 hrs

Peak discharge = 0.75 cfs
Time interval = 6 min
Curve number = 90.3
Hydraulic length = 0 ft
Time of conc. (Tc) = 13.1 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 12,301 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

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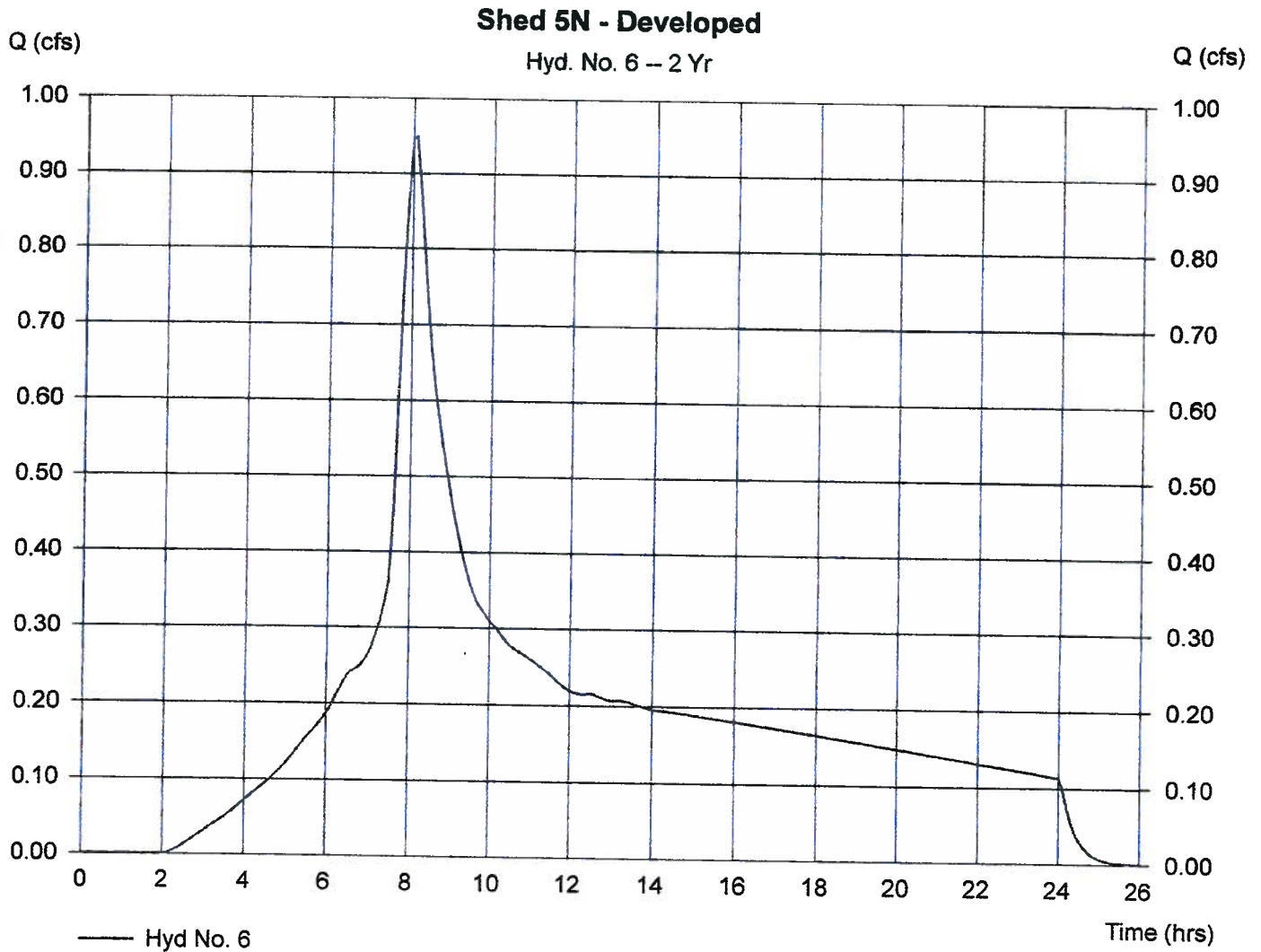
Hyd. No. 6

Shed 5N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 2 yrs
 Drainage area = 2.42 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 2.50 in
 Storm duration = 24 hrs

Peak discharge = 0.95 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.8 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 16,747 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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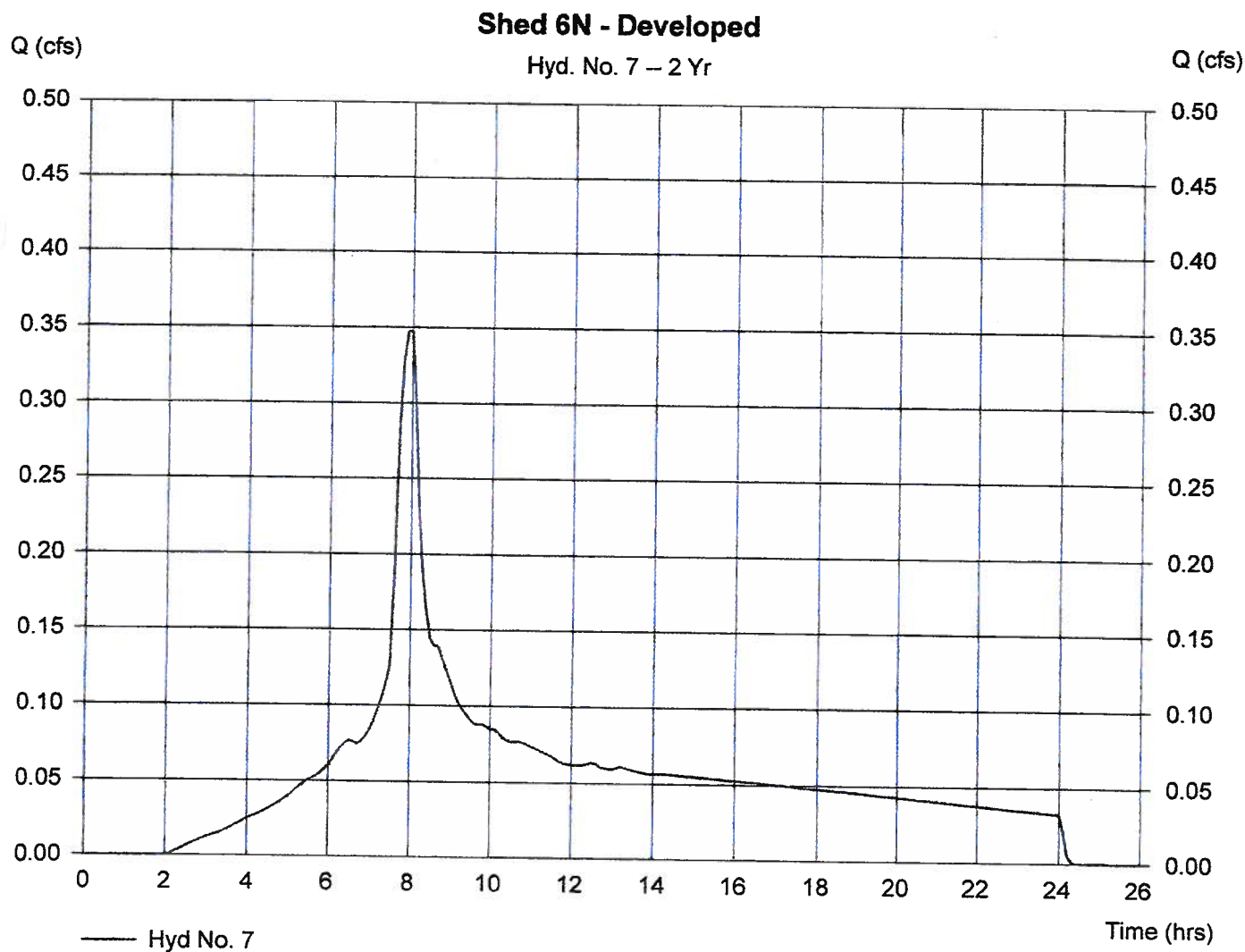
Hyd. No. 7

Shed 6N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 2 yrs
 Drainage area = 0.71 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 2.50 in
 Storm duration = 24 hrs

Peak discharge = 0.35 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 4,913 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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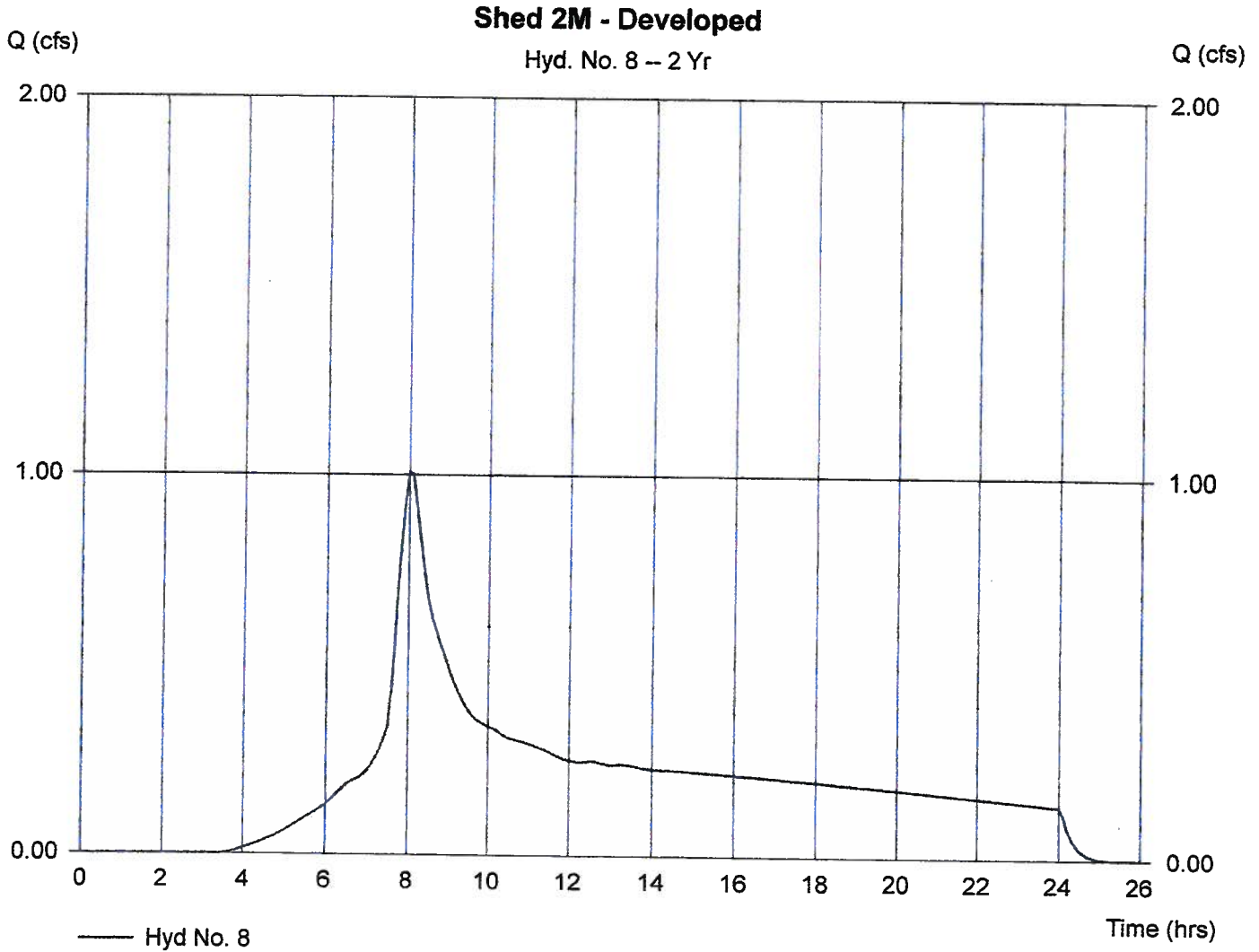
Hyd. No. 8

Shed 2M - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 2 yrs
Drainage area = 3.25 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 2.50 in
Storm duration = 24 hrs

Peak discharge = 1.01 cfs
Time interval = 6 min
Curve number = 89.6
Hydraulic length = 0 ft
Time of conc. (Tc) = 16.4 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 17,697 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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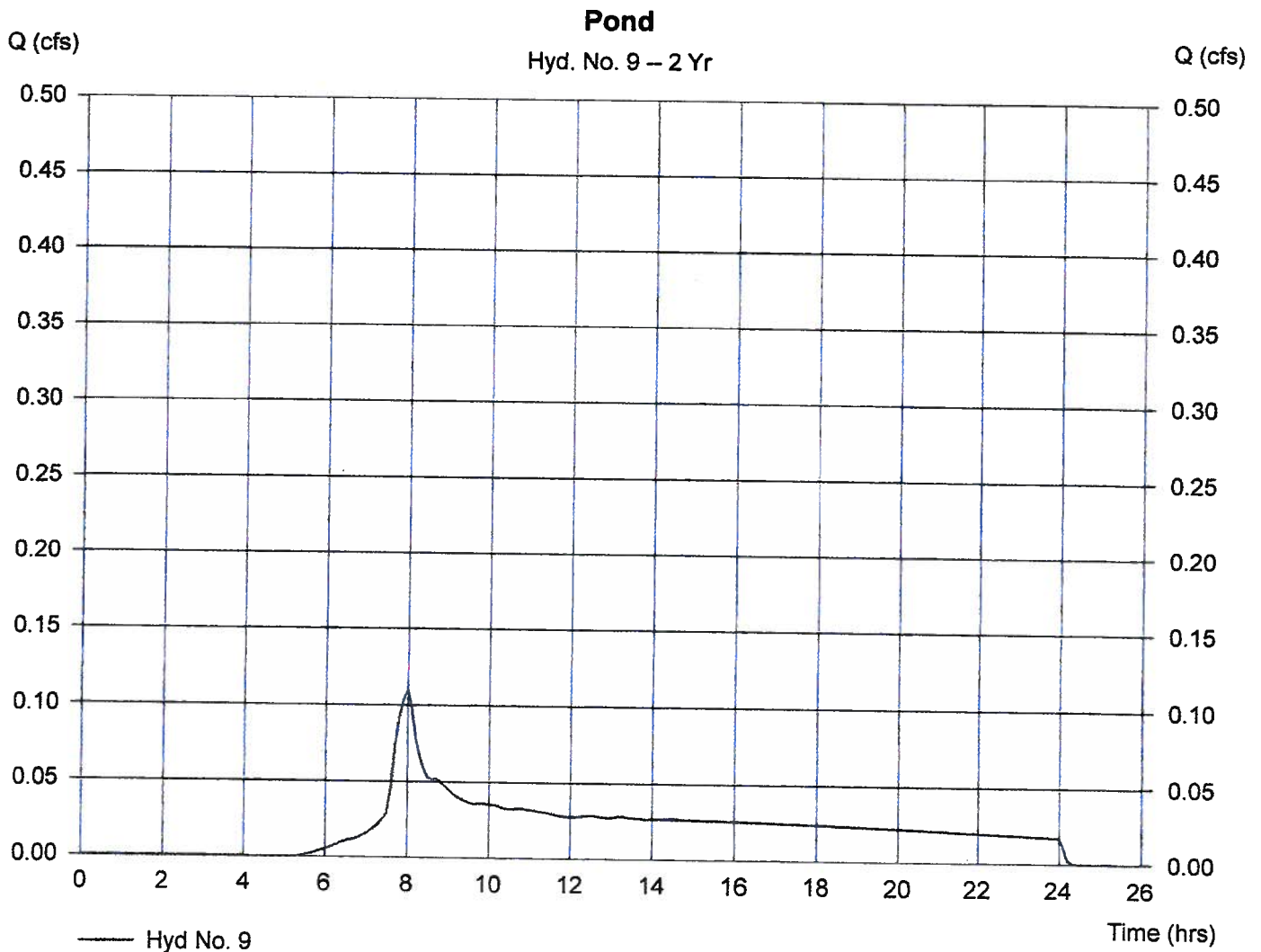
Hyd. No. 9

Pond

Hydrograph type = SBUH Runoff
 Storm frequency = 2 yrs
 Drainage area = 0.48 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 2.50 in
 Storm duration = 24 hrs

Peak discharge = 0.11 cfs
 Time interval = 6 min
 Curve number = 83
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 1,840 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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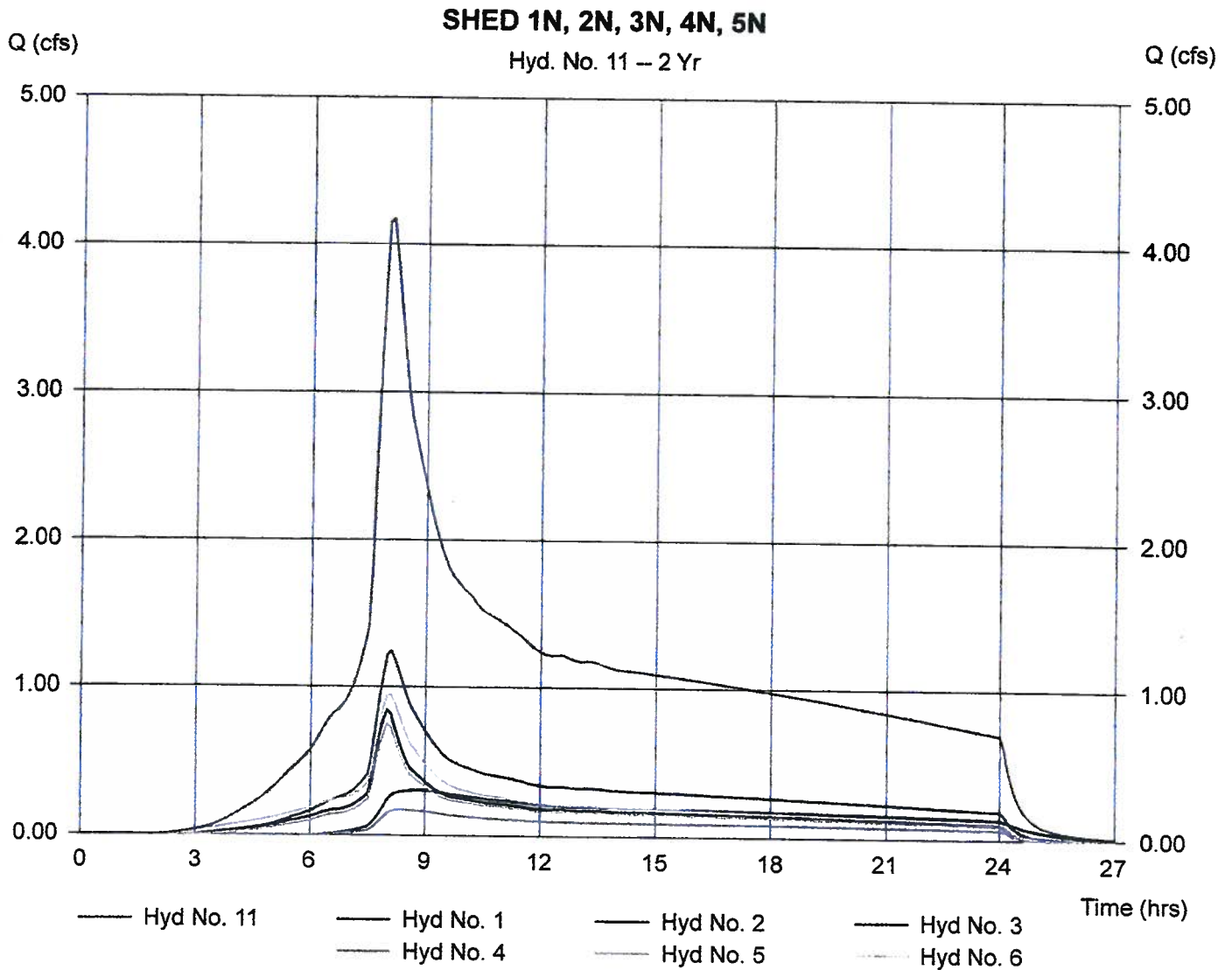
Hyd. No. 11

SHED 1N, 2N, 3N, 4N, 5N

Hydrograph type = Combine
 Storm frequency = 2 yrs
 Inflow hyds. = 1, 2, 3, 4, 5, 6

Peak discharge = 4.17 cfs
 Time interval = 6 min

Hydrograph Volume = 84,690 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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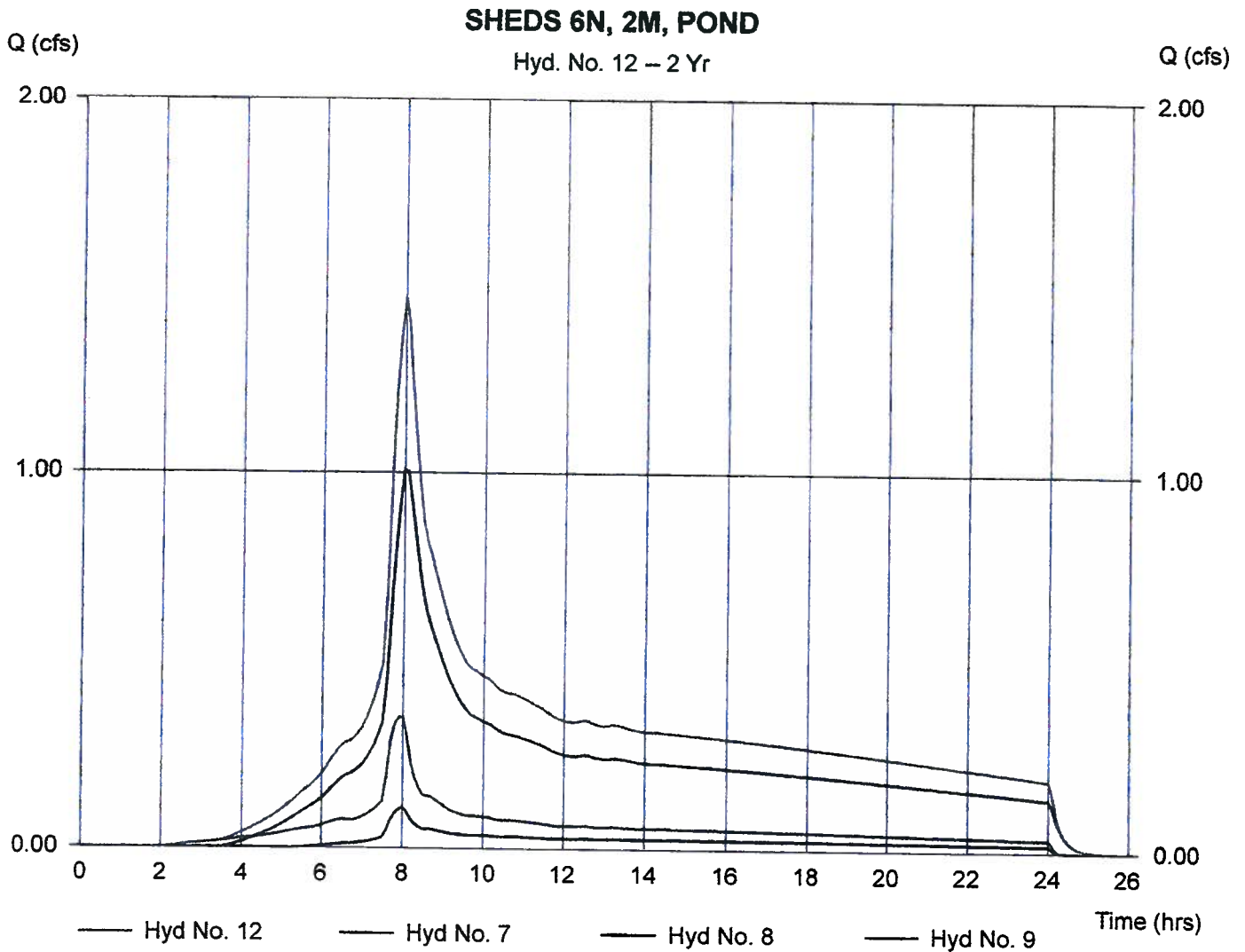
Hyd. No. 12

SHEDS 6N, 2M, POND

Hydrograph type = Combine
Storm frequency = 2 yrs
Inflow hyds. = 7, 8, 9

Peak discharge = 1.47 cfs
Time interval = 6 min

Hydrograph Volume = 24,451 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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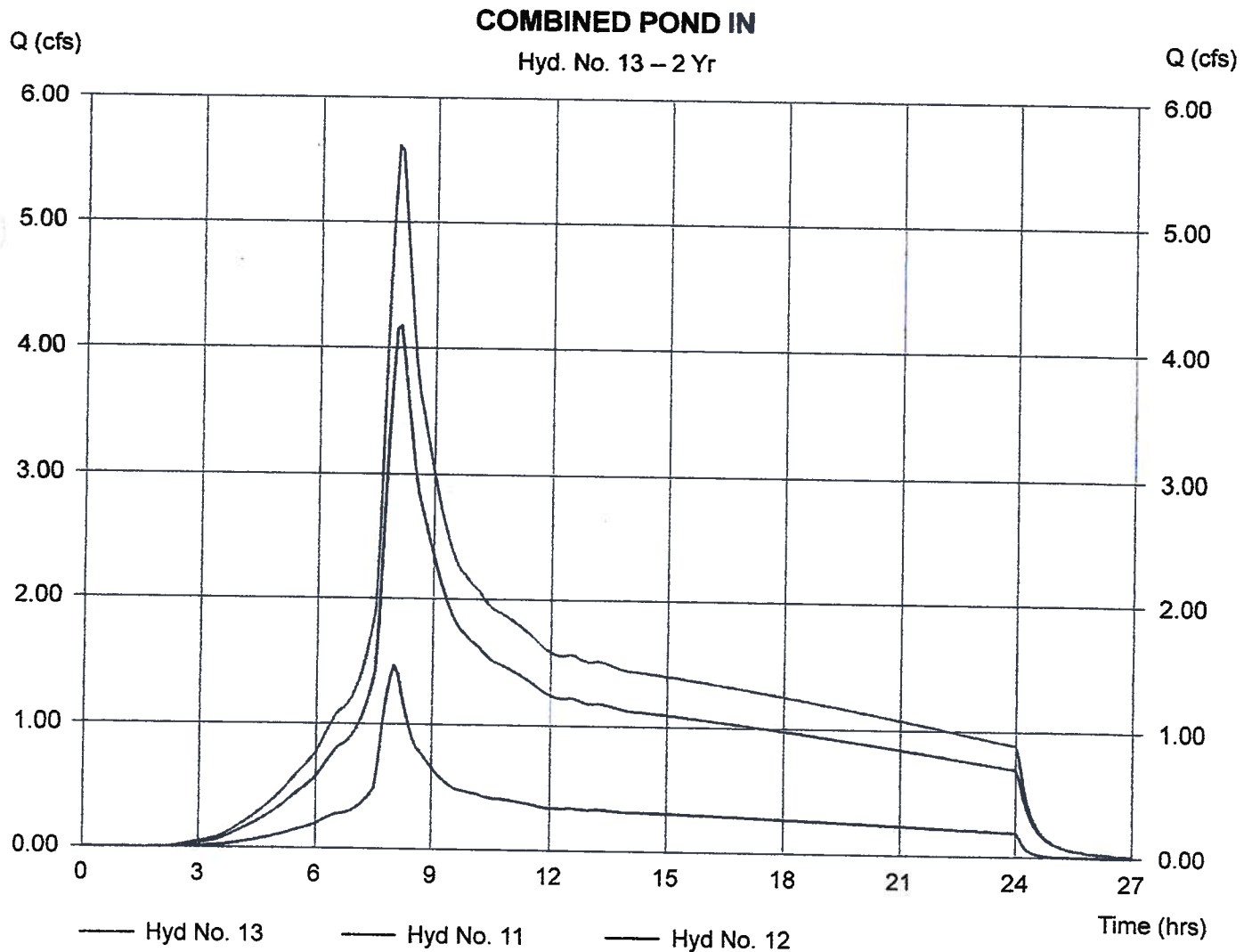
Hyd. No. 13

COMBINED POND IN

Hydrograph type = Combine
Storm frequency = 2 yrs
Inflow hyds. = 11, 12

Peak discharge = 5.61 cfs
Time interval = 6 min

Hydrograph Volume = 109,141 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Hyd. No. 14

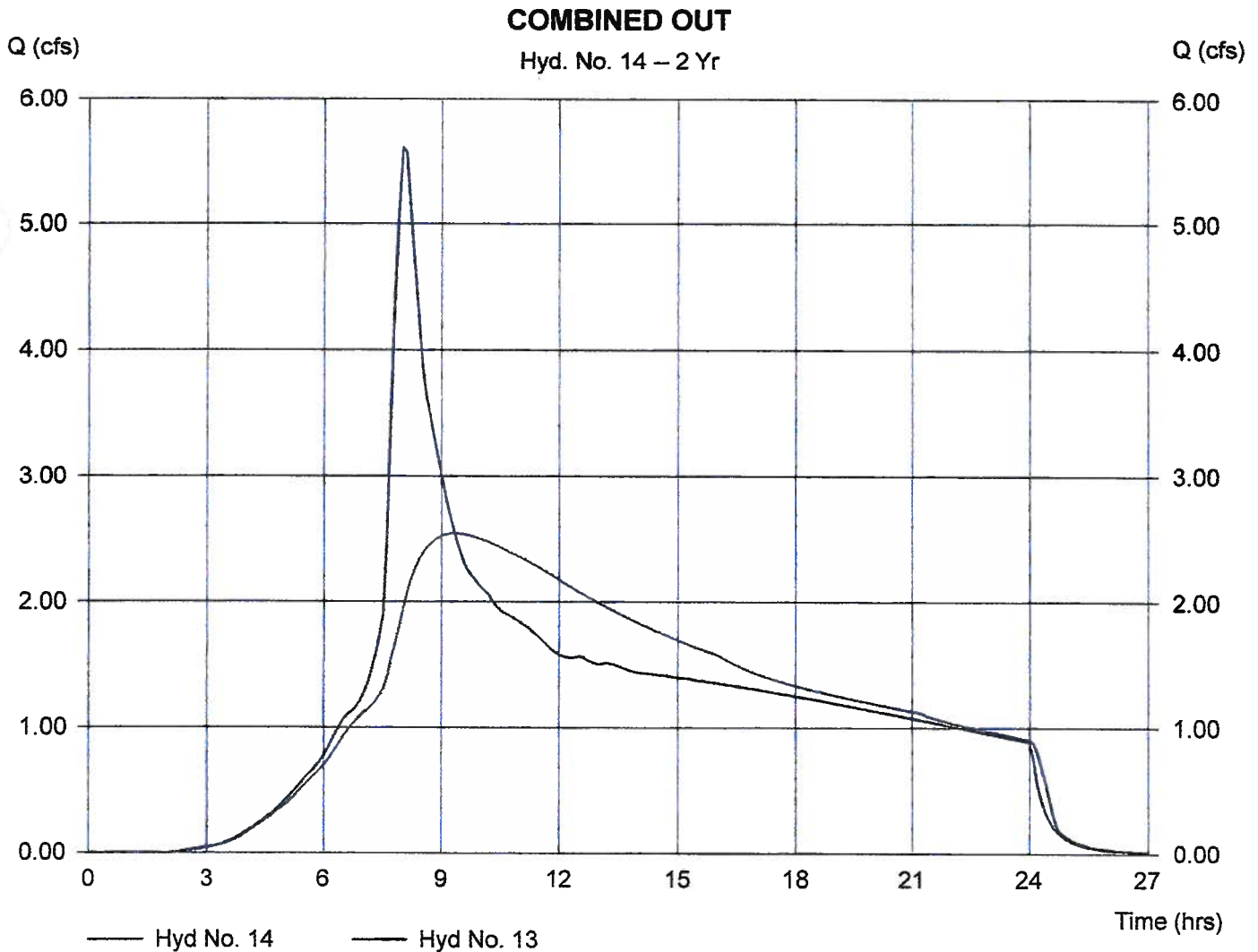
COMBINED OUT

Hydrograph type = Reservoir
Storm frequency = 2 yrs
Inflow hyd. No. = 13
Reservoir name = POND O

Peak discharge = 2.54 cfs
Time interval = 6 min
Max. Elevation = 217.60 ft
Max. Storage = 12,247 cuft

Storage Indication method used.

Hydrograph Volume = 109,141 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Pond No. 3 - POND O

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	215.00	263	0	0
0.50	215.50	2,380	661	661
1.00	216.00	4,322	1,676	2,336
3.00	218.00	8,067	12,389	14,725
4.00	219.00	10,170	9,119	23,844
5.00	220.00	12,417	11,294	35,137
6.00	221.00	15,857	14,137	49,274

Culvert / Orifice Structures

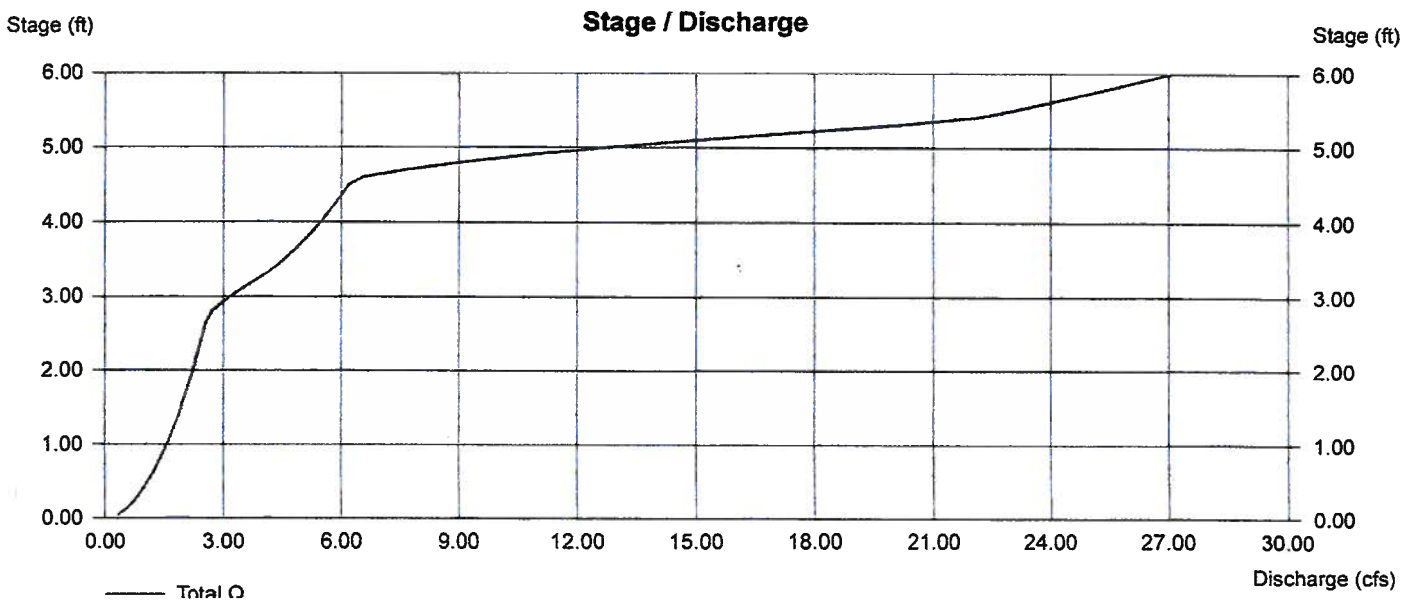
	[A]	[B]	[C]	[D]
Rise (In)	= 24.00	7.75	9.50	0.00
Span (In)	= 24.00	7.75	9.50	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 213.62	213.72	217.65	0.00
Length (ft)	= 72.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	0.00	0.00	0.00
Crest El. (ft)	= 219.55	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



Hydrograph Summary Report

1.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	2.09	6	486	38,224	---	----	----	Shed 1N - Developed
2	SBUH Runoff	1.36	6	480	21,345	---	----	----	Shed 2N - Developed
3	SBUH Runoff	0.67	6	504	22,631	---	----	----	Shed 3N - Developed
4	SBUH Runoff	0.39	6	492	11,108	---	----	----	Shed 4N-S - Developed
5	SBUH Runoff	1.24	6	480	19,591	---	----	----	SHED 4N-N (Developed)
6	SBUH Runoff	1.44	6	480	25,270	---	----	----	Shed 5N - Developed
7	SBUH Runoff	0.53	6	474	7,414	---	----	----	Shed 6N - Developed
8	SBUH Runoff	1.69	6	480	28,448	---	----	----	Shed 2M - Developed
9	SBUH Runoff	0.21	6	480	3,238	---	----	----	Pond
11	Combine	7.04	6	486	138,170	1, 2, 3, 4, 5, 6,	----	----	SHED 1N, 2N, 3N, 4N, 5N
12	Combine	2.43	6	480	39,100	7, 8, 9,	----	----	SHEDS 6N, 2M, POND
13	Combine	9.46	6	480	177,271	11, 12	----	----	COMBINED POND IN
14	Reservoir	5.07	6	540	177,271	13	218.76	21,697	COMBINED OUT

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

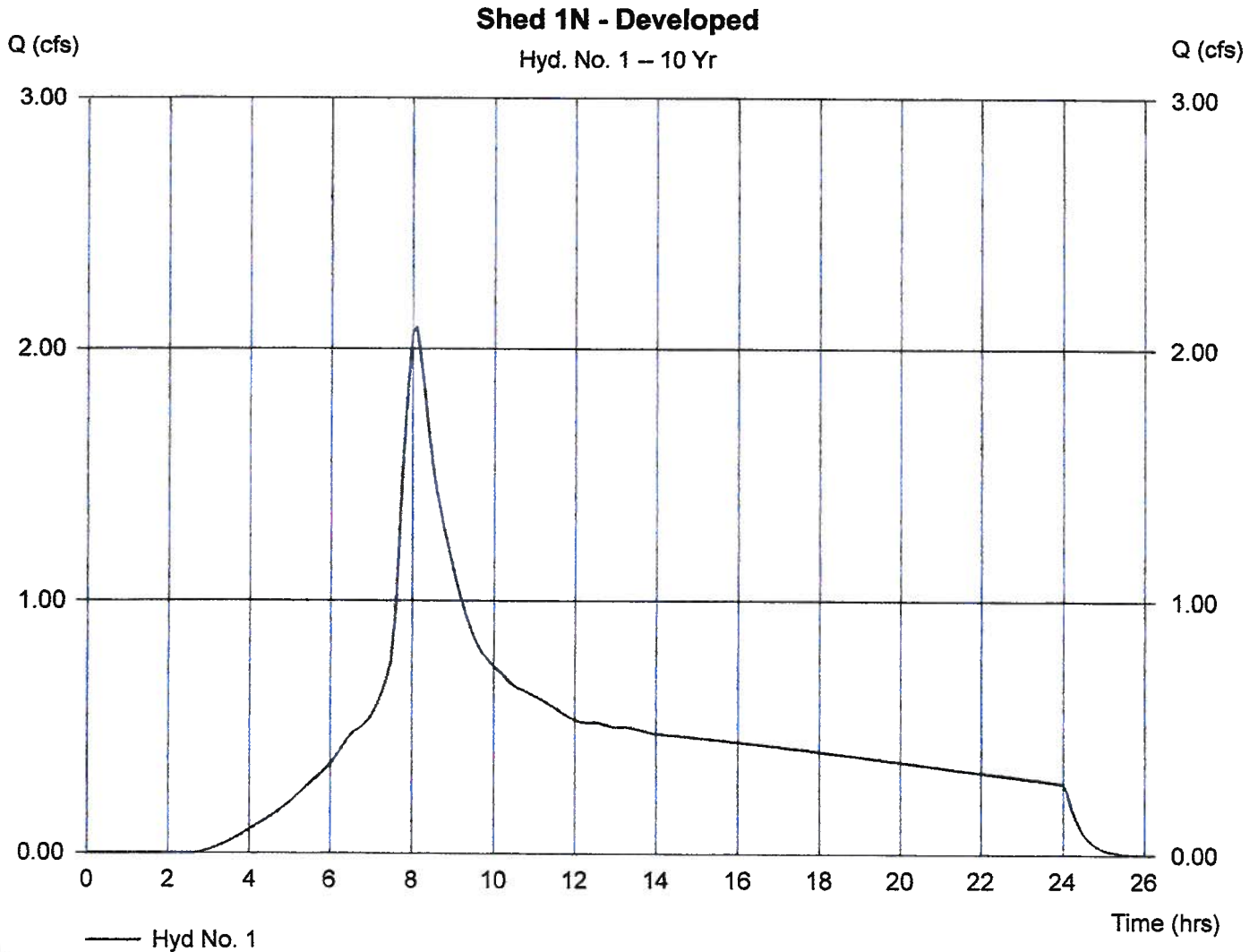
Hyd. No. 1

Shed 1N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 4.40 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 2.09 cfs
 Time interval = 6 min
 Curve number = 89.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 22.25 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 38,224 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

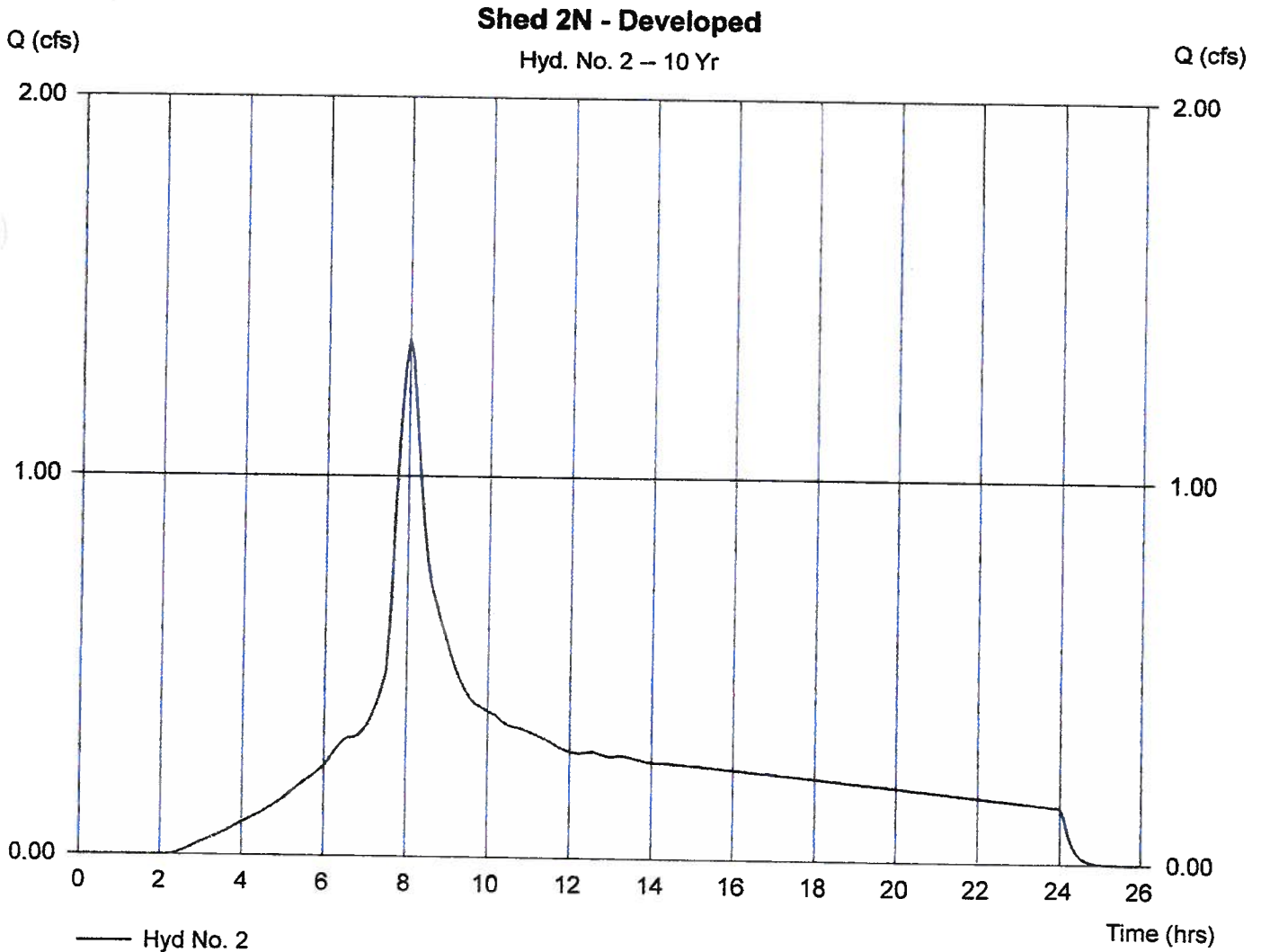
Hyd. No. 2

Shed 2N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 2.28 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 1.36 cfs
 Time interval = 6 min
 Curve number = 91.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 21,345 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelloive

Thursday, Apr 11 2013, 2:7 PM

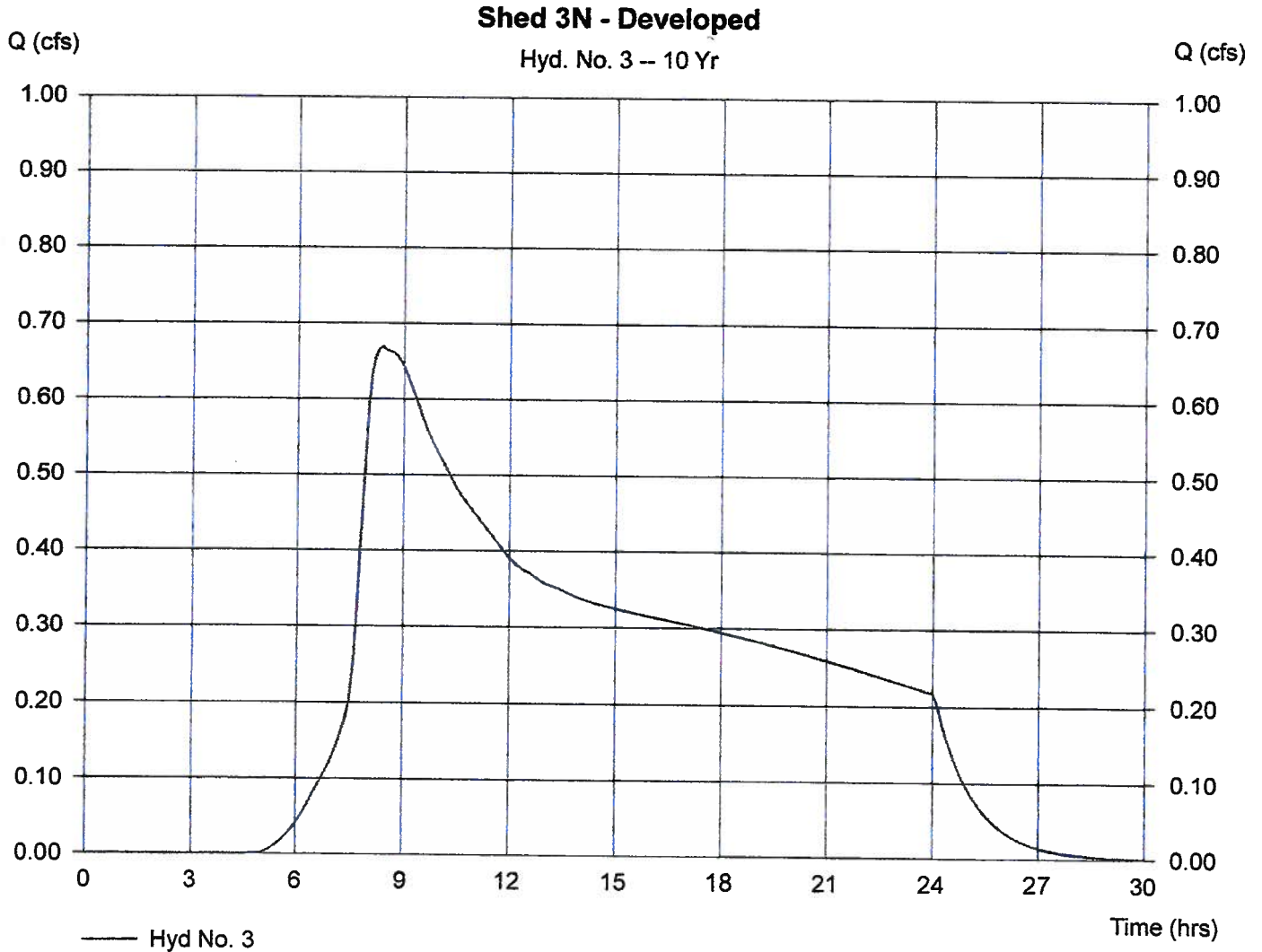
Hyd. No. 3

Shed 3N - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 10 yrs
Drainage area = 3.81 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 3.50 in
Storm duration = 24 hrs

Peak discharge = 0.67 cfs
Time interval = 6 min
Curve number = 80
Hydraulic length = 0 ft
Time of conc. (Tc) = 66 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 22,631 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

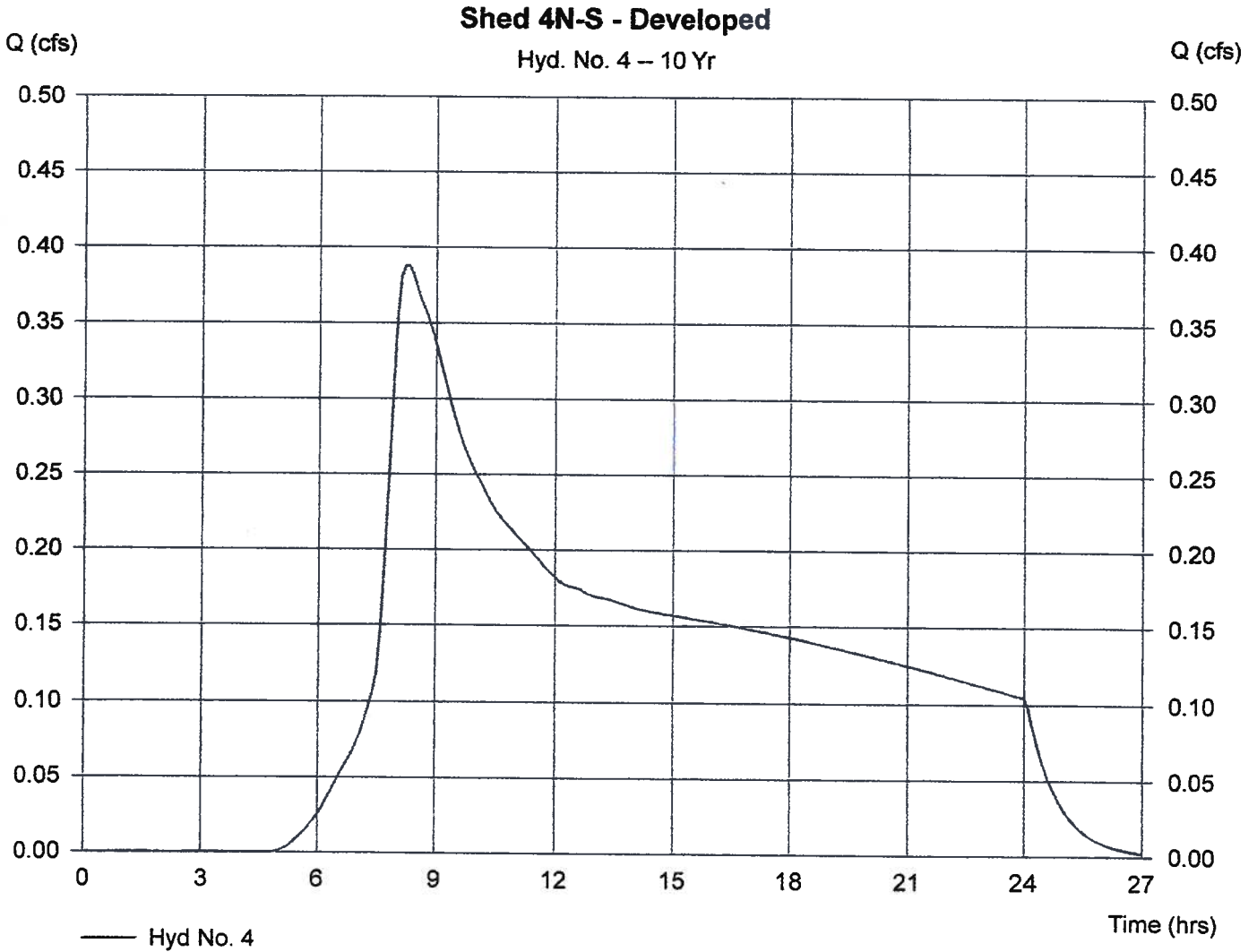
Hyd. No. 4

Shed 4N-S - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 1.87 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 0.39 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 46.3 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 11,108 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

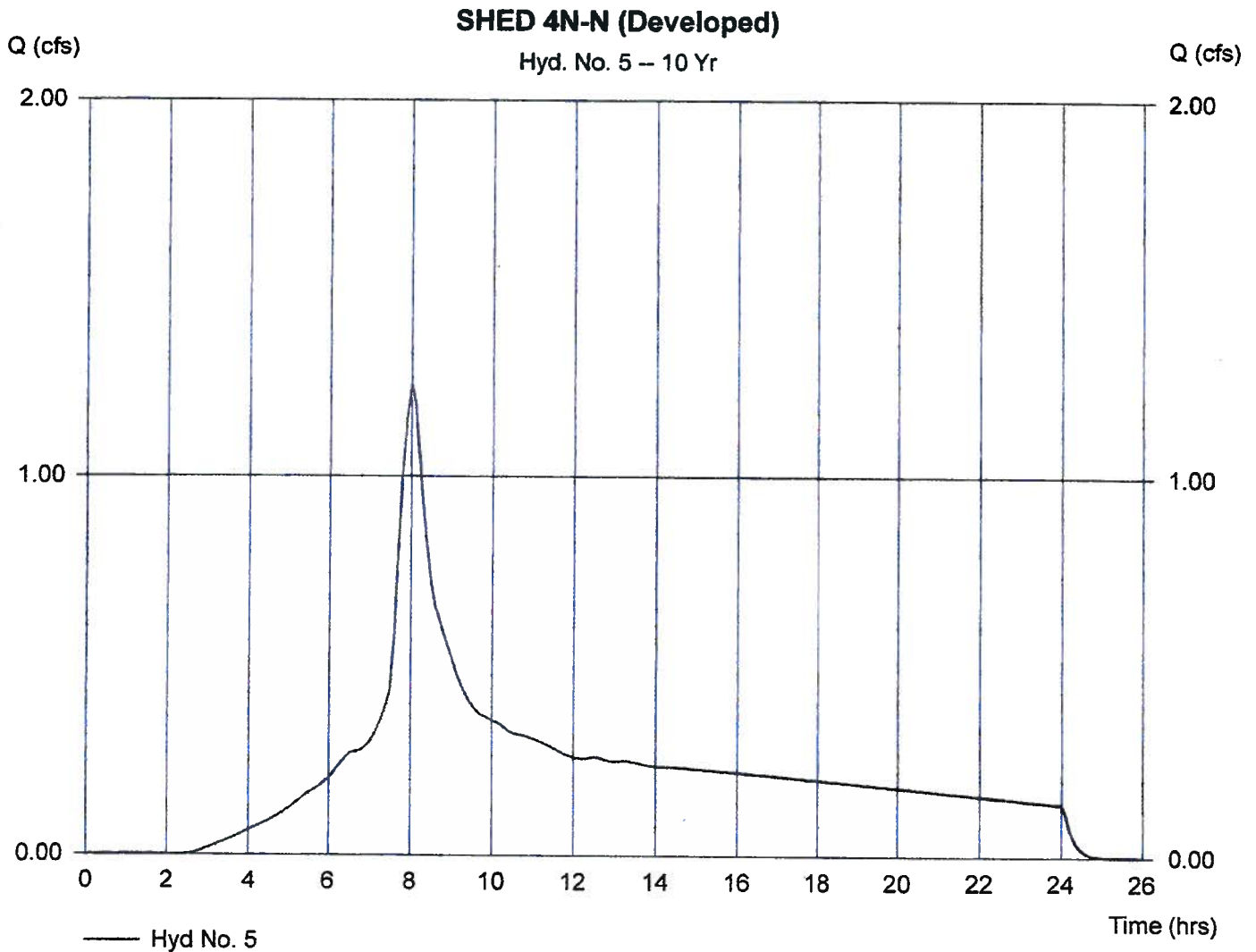
Hyd. No. 5

SHED 4N-N (Developed)

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 2.18 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 1.24 cfs
 Time interval = 6 min
 Curve number = 90.3
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 19,591 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

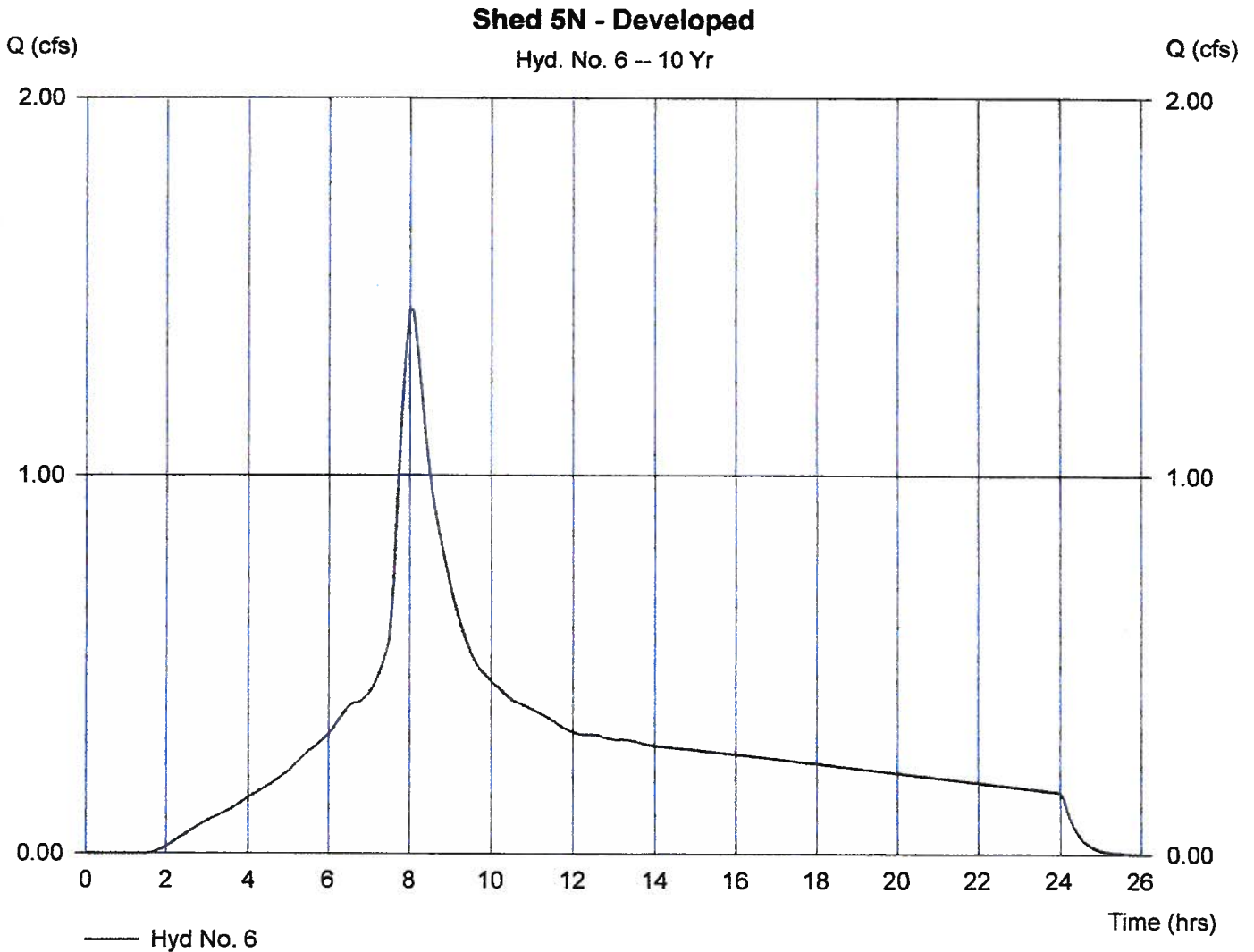
Hyd. No. 6

Shed 5N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 2.42 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 1.44 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.8 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 25,270 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

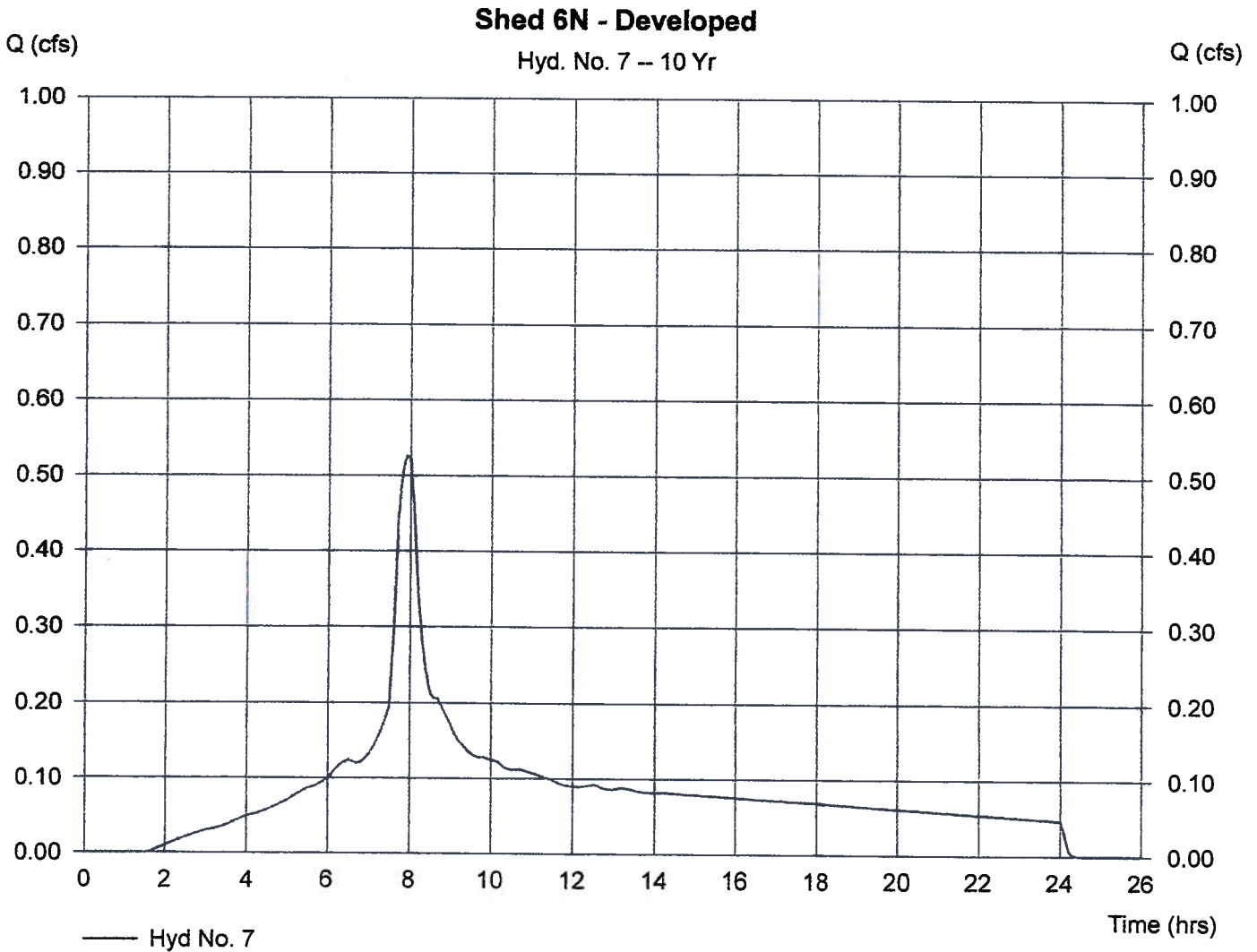
Hyd. No. 7

Shed 6N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 0.71 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 0.53 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 7,414 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

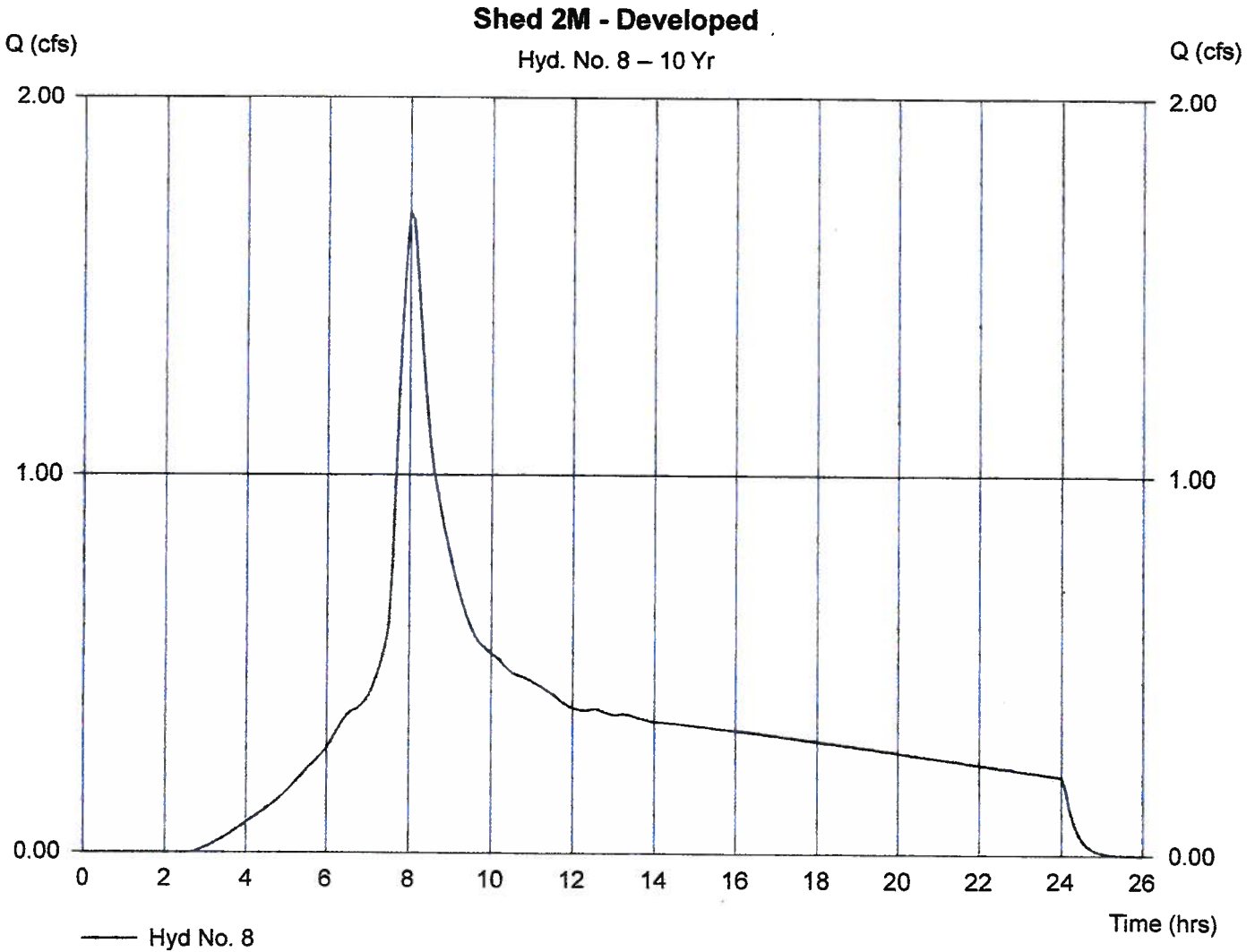
Hyd. No. 8

Shed 2M - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 10 yrs
 Drainage area = 3.25 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 3.50 in
 Storm duration = 24 hrs

Peak discharge = 1.69 cfs
 Time interval = 6 min
 Curve number = 89.6
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 16.4 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 28,448 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

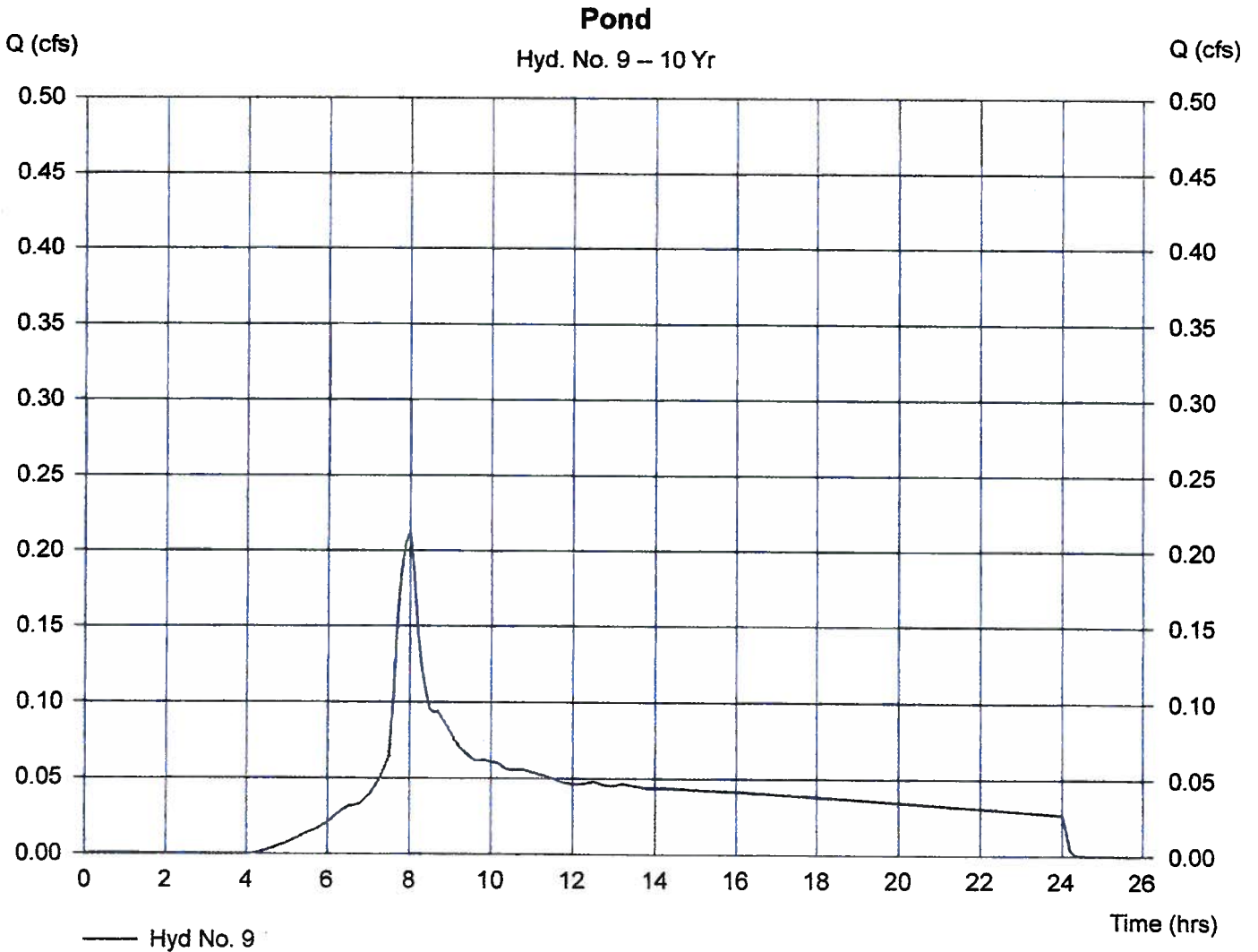
Hyd. No. 9

Pond

Hydrograph type = SBUH Runoff
Storm frequency = 10 yrs
Drainage area = 0.48 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 3.50 in
Storm duration = 24 hrs

Peak discharge = 0.21 cfs
Time interval = 6 min
Curve number = 83
Hydraulic length = 0 ft
Time of conc. (Tc) = 5 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 3,238 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Tuesday, Apr 16 2013, 12:16 PM

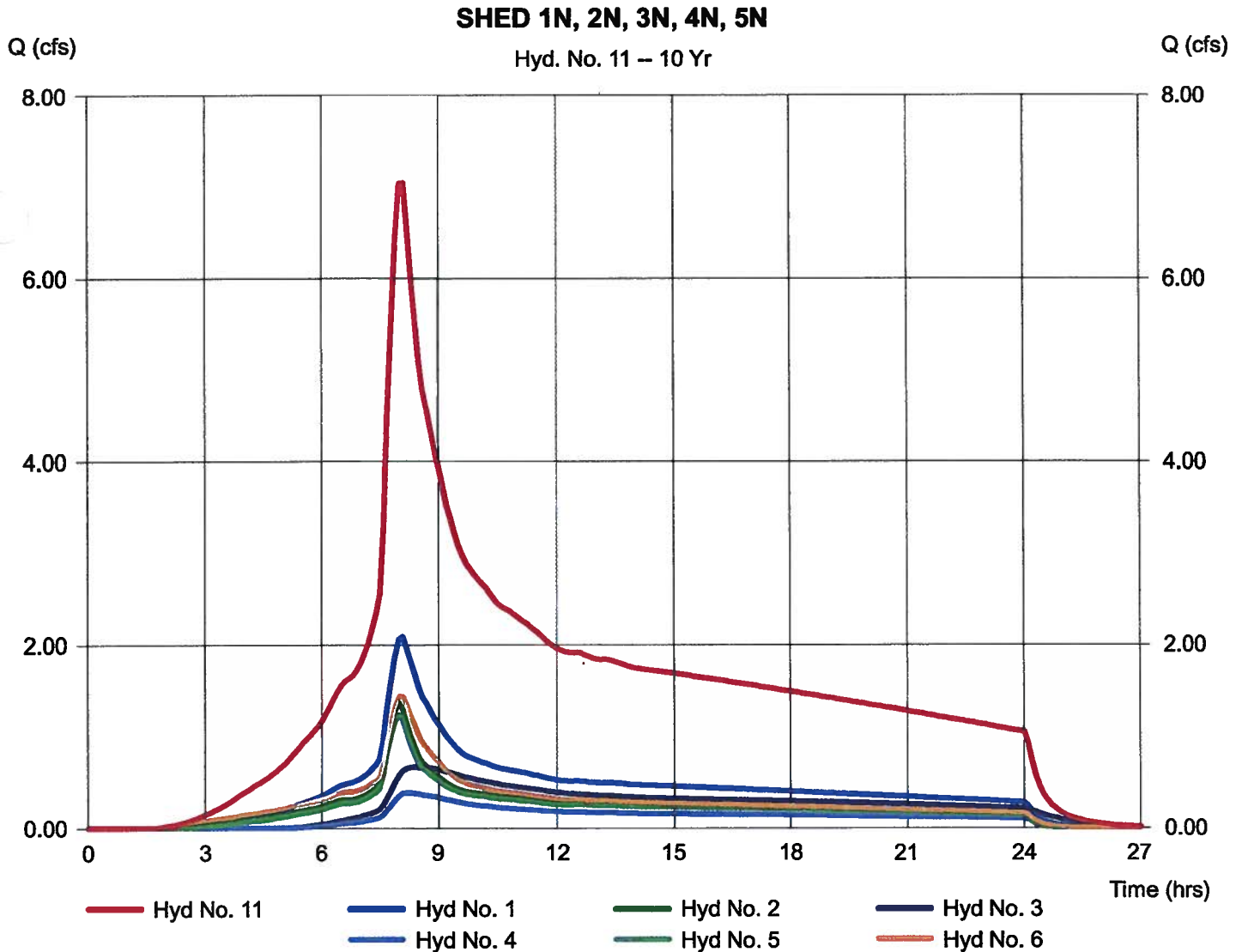
yd. No. 11

SHED 1N, 2N, 3N, 4N, 5N

Hydrograph type = Combine
Storm frequency = 10 yrs
Inflow hyds. = 1, 2, 3, 4, 5, 6

Peak discharge = 7.04 cfs
Time interval = 6 min

Hydrograph Volume = 138,170 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

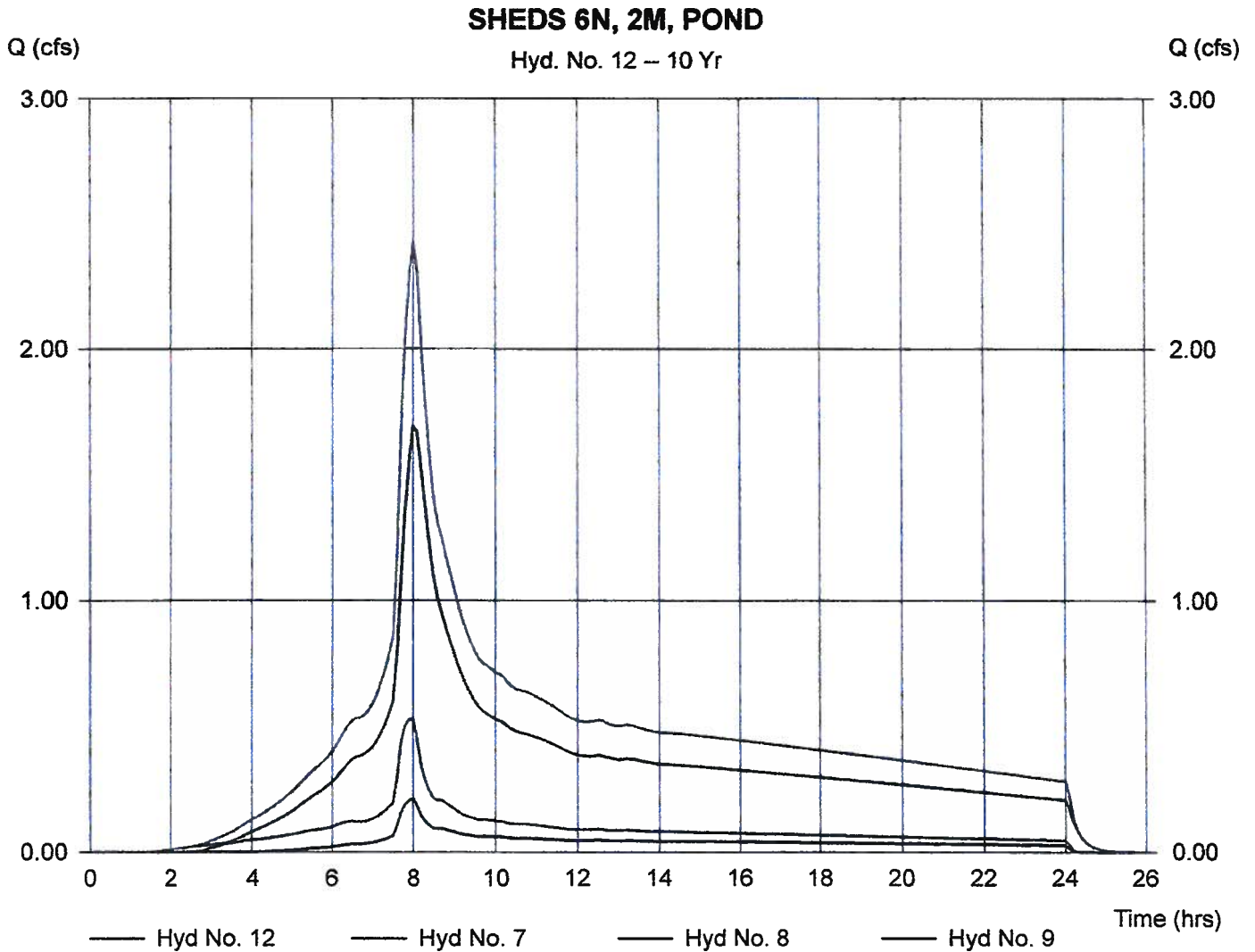
Hyd. No. 12

SHEDS 6N, 2M, POND

Hydrograph type = Combine
 Storm frequency = 10 yrs
 Inflow hyds. = 7, 8, 9

Peak discharge = 2.43 cfs
 Time interval = 6 min

Hydrograph Volume = 39,100 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

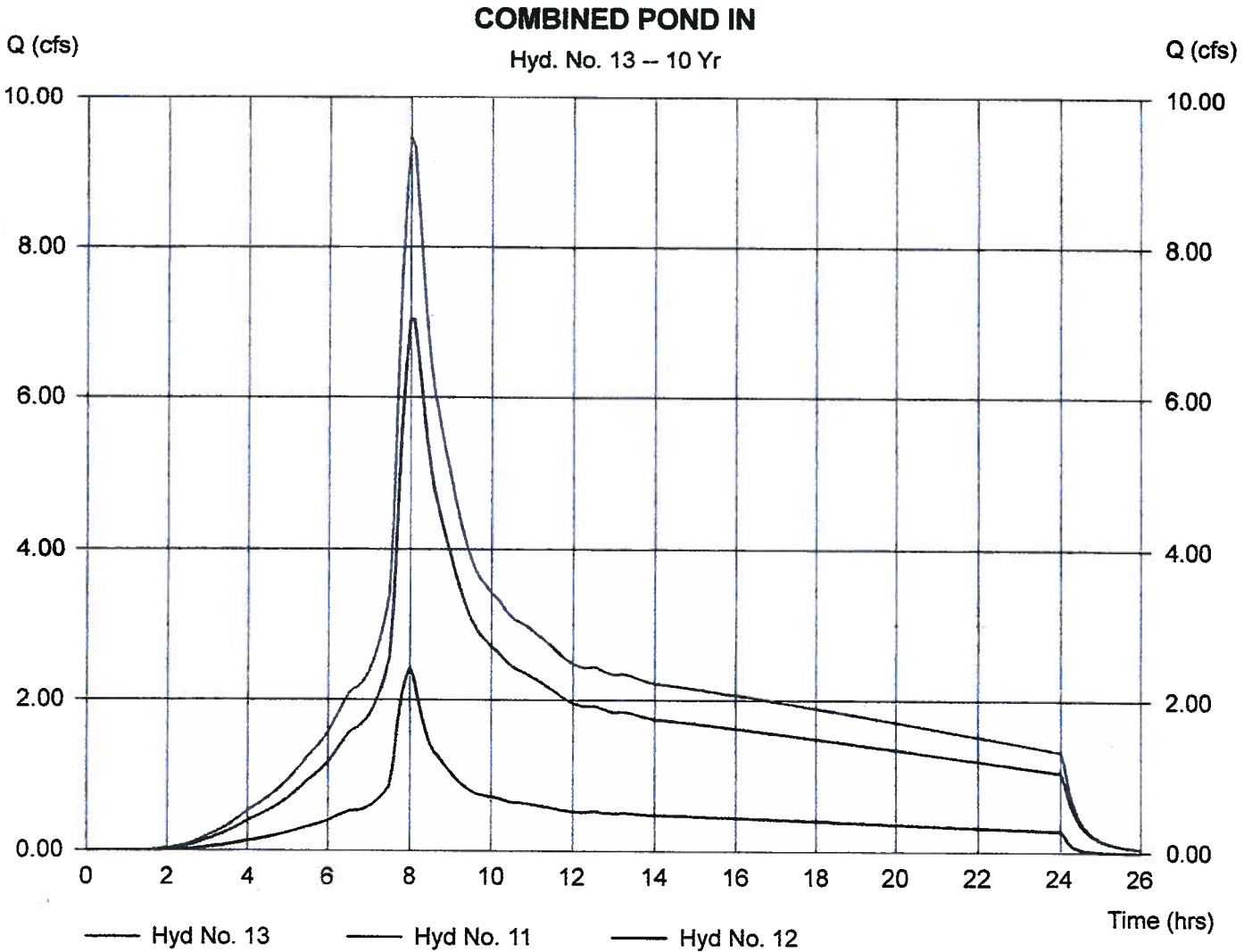
Hyd. No. 13

COMBINED POND IN

Hydrograph type = Combine
Storm frequency = 10 yrs
Inflow hyds. = 11, 12

Peak discharge = 9.46 cfs
Time interval = 6 min

Hydrograph Volume = 177,271 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Hyd. No. 14

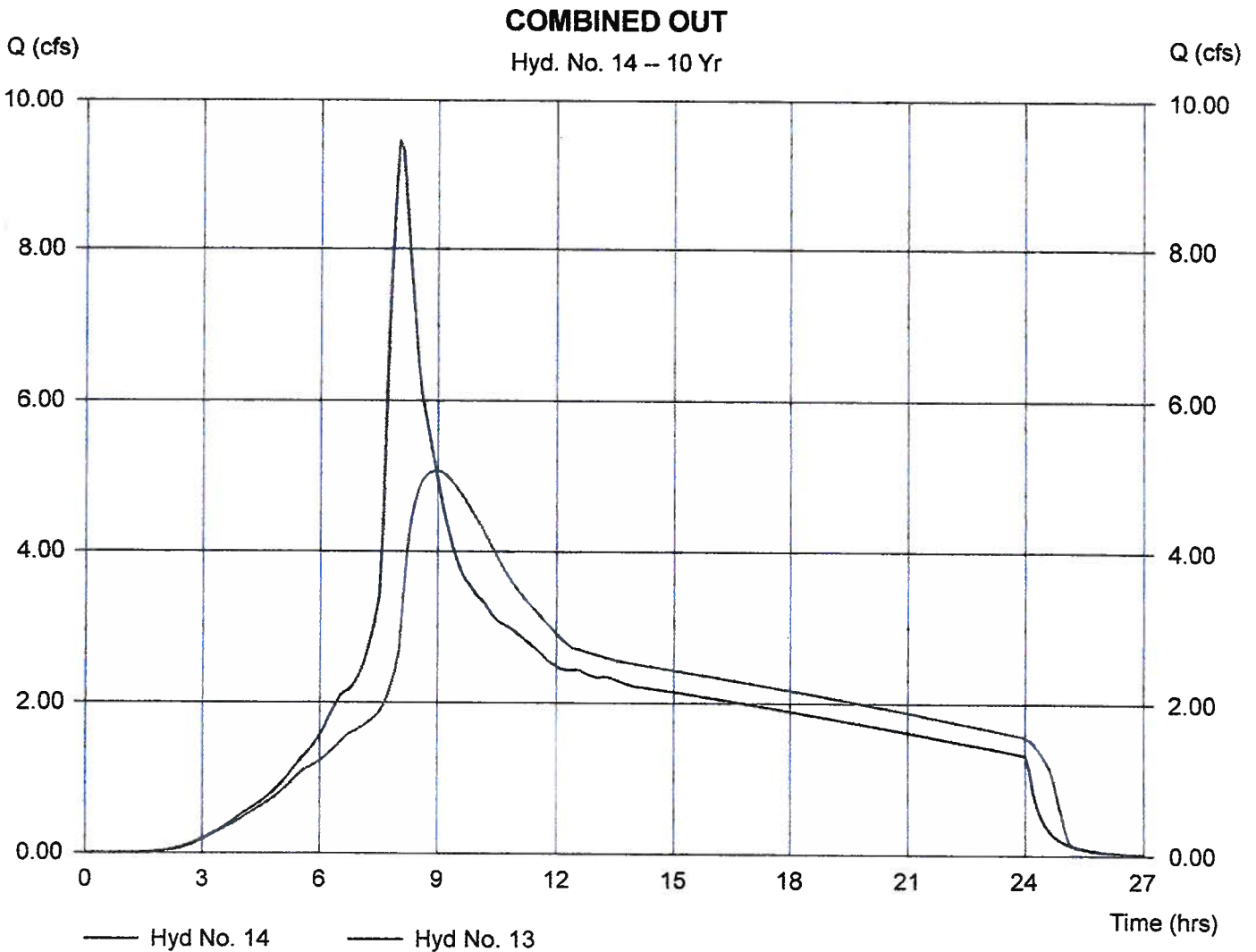
COMBINED OUT

Hydrograph type = Reservoir
Storm frequency = 10 yrs
Inflow hyd. No. = 13
Reservoir name = POND O

Peak discharge = 5.07 cfs
Time interval = 6 min
Max. Elevation = 218.76 ft
Max. Storage = 21,697 cuft

Storage Indication method used.

Hydrograph Volume = 177,271 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Pond No. 3 - POND O

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	215.00	263	0	0
0.50	215.50	2,380	661	661
1.00	216.00	4,322	1,676	2,336
3.00	218.00	8,067	12,389	14,725
4.00	219.00	10,170	9,119	23,844
5.00	220.00	12,417	11,294	35,137
6.00	221.00	15,857	14,137	49,274

Culvert / Orifice Structures

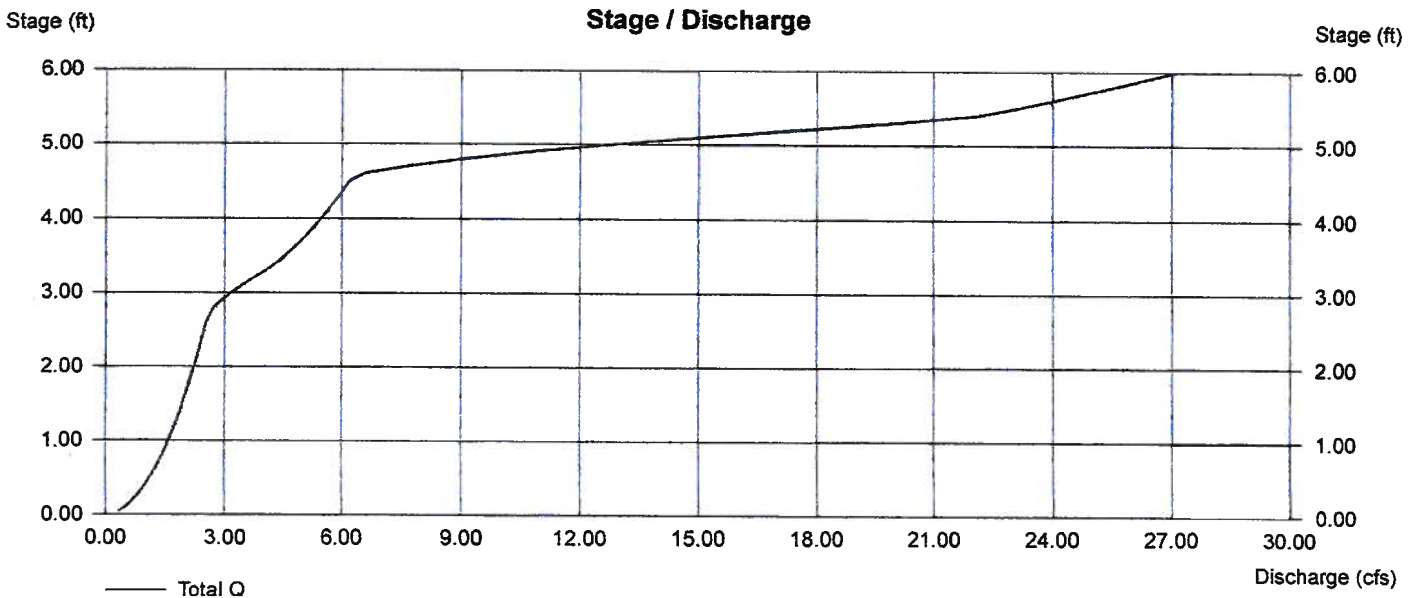
	[A]	[B]	[C]	[D]
Rise (in)	= 24.00	7.75	9.50	0.00
Span (in)	= 24.00	7.75	9.50	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 213.62	213.72	217.65	0.00
Length (ft)	= 72.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	0.00	0.00	0.00
Crest El. (ft)	= 219.55	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	—	—	—
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



Hydrograph Summary Report

i.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	2.52	6	486	45,700	---	----	----	Shed 1N - Developed
2	SBUH Runoff	1.62	6	480	25,302	---	----	----	Shed 2N - Developed
3	SBUH Runoff	0.88	6	504	28,237	---	----	----	Shed 3N - Developed
4	SBUH Runoff	0.51	6	492	13,859	---	----	----	Shed 4N-S - Developed
5	SBUH Runoff	1.49	6	480	23,332	---	----	----	SHED 4N-N (Developed)
6	SBUH Runoff	1.68	6	480	29,576	---	----	----	Shed 5N - Developed
7	SBUH Runoff	0.61	6	474	8,677	---	----	----	Shed 6N - Developed
8	SBUH Runoff	2.04	6	480	33,983	---	----	----	Shed 2M - Developed
9	SBUH Runoff	0.27	6	480	3,983	---	----	----	Pond
11	Combine	8.52	6	480	166,008	1, 2, 3, 4, 5, 6,	----	----	SHED 1N, 2N, 3N, 4N, 5N
12	Combine	2.92	6	480	46,643	7, 8, 9,	----	----	SHEDS 6N, 2M, POND
13	Combine	11.44	6	480	212,650	11, 12	----	----	COMBINED POND IN
14	Reservoir	5.97	6	540	212,650	13	219.33	27,612	COMBINED OUT

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

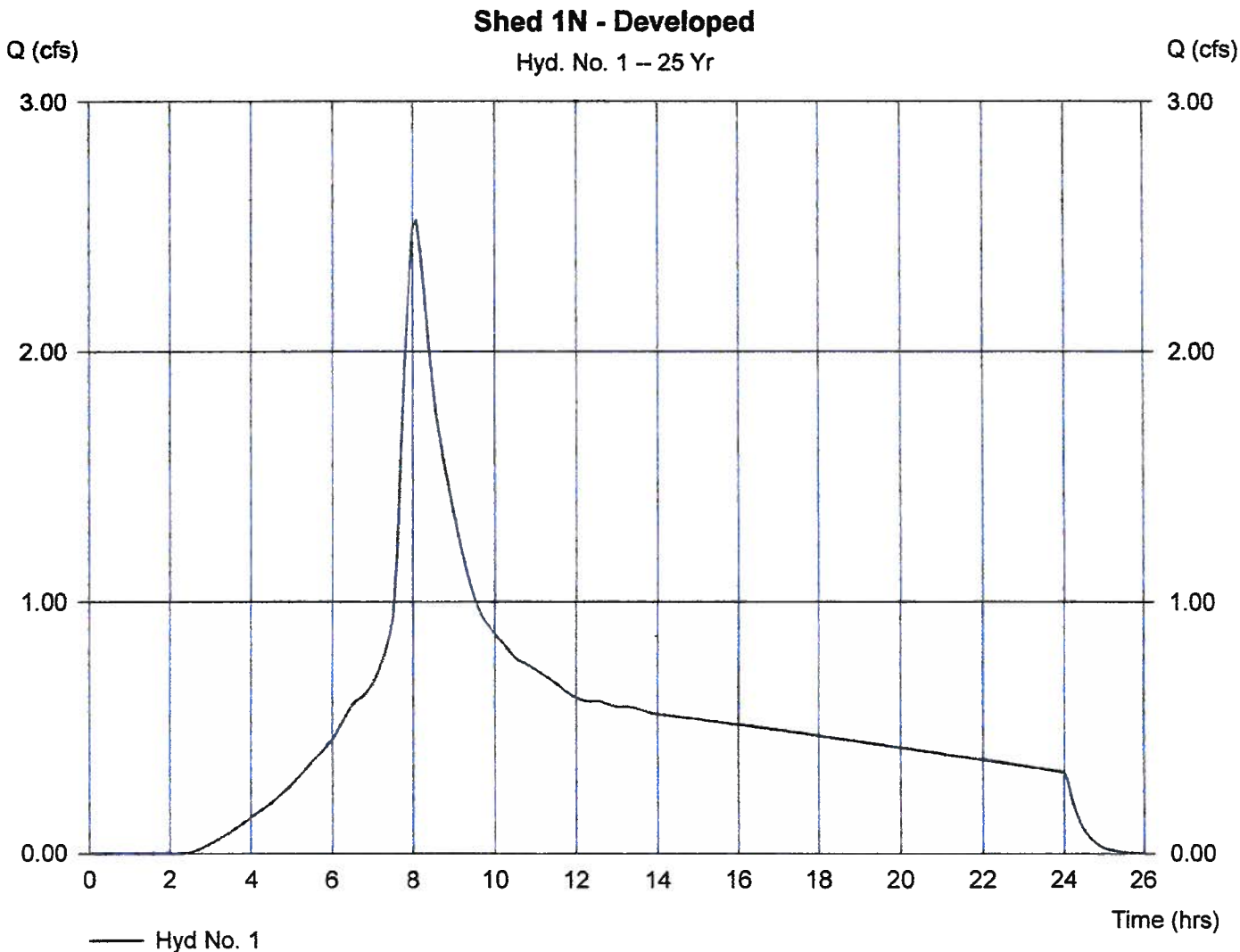
Hyd. No. 1

Shed 1N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 4.40 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 2.52 cfs
 Time interval = 6 min
 Curve number = 89.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 22.25 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 45,700 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Thursday, Apr 11 2013, 2:7 PM

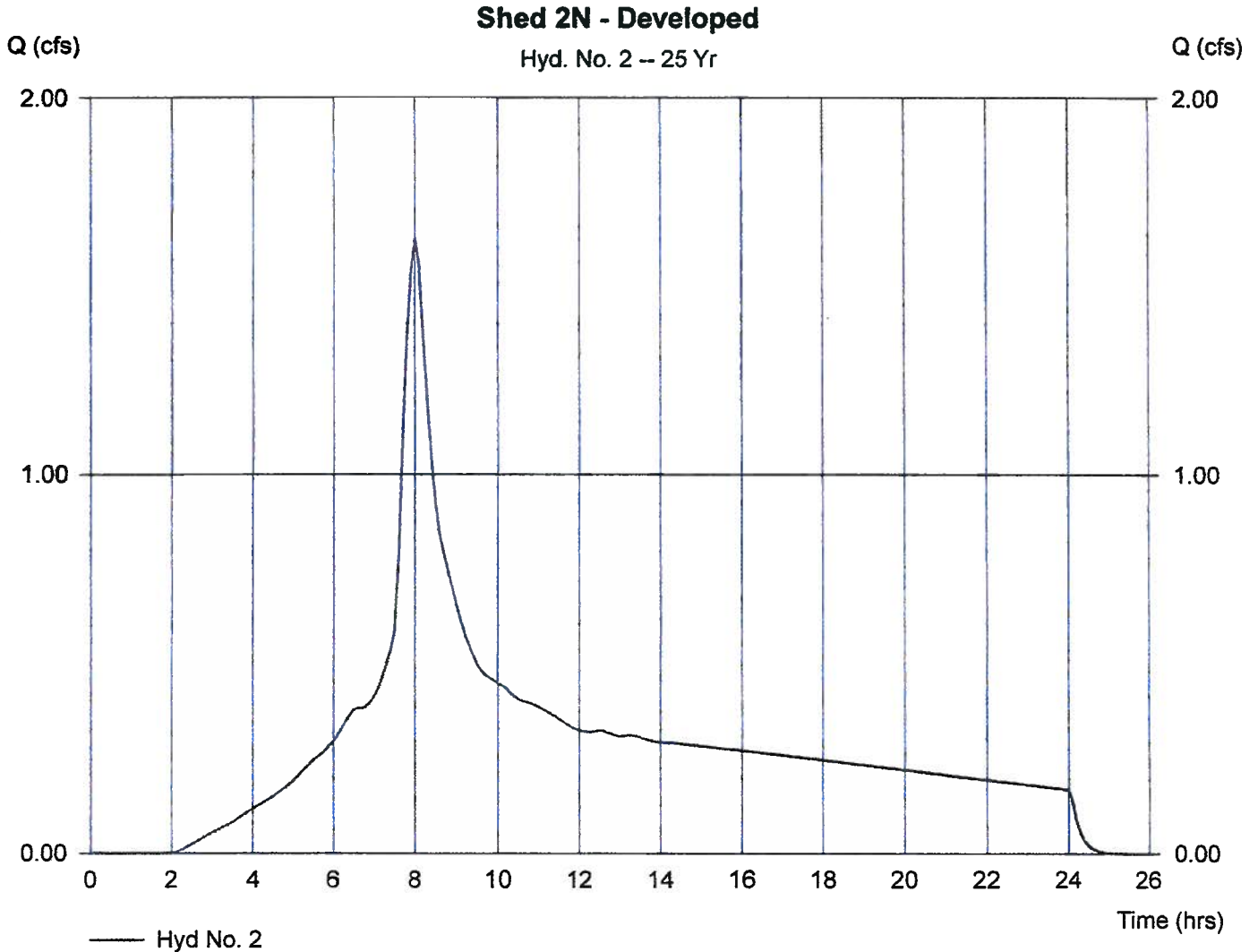
Hyd. No. 2

Shed 2N - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 25 yrs
Drainage area = 2.28 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 4.00 in
Storm duration = 24 hrs

Peak discharge = 1.62 cfs
Time interval = 6 min
Curve number = 91.4
Hydraulic length = 0 ft
Time of conc. (Tc) = 13.1 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 25,302 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

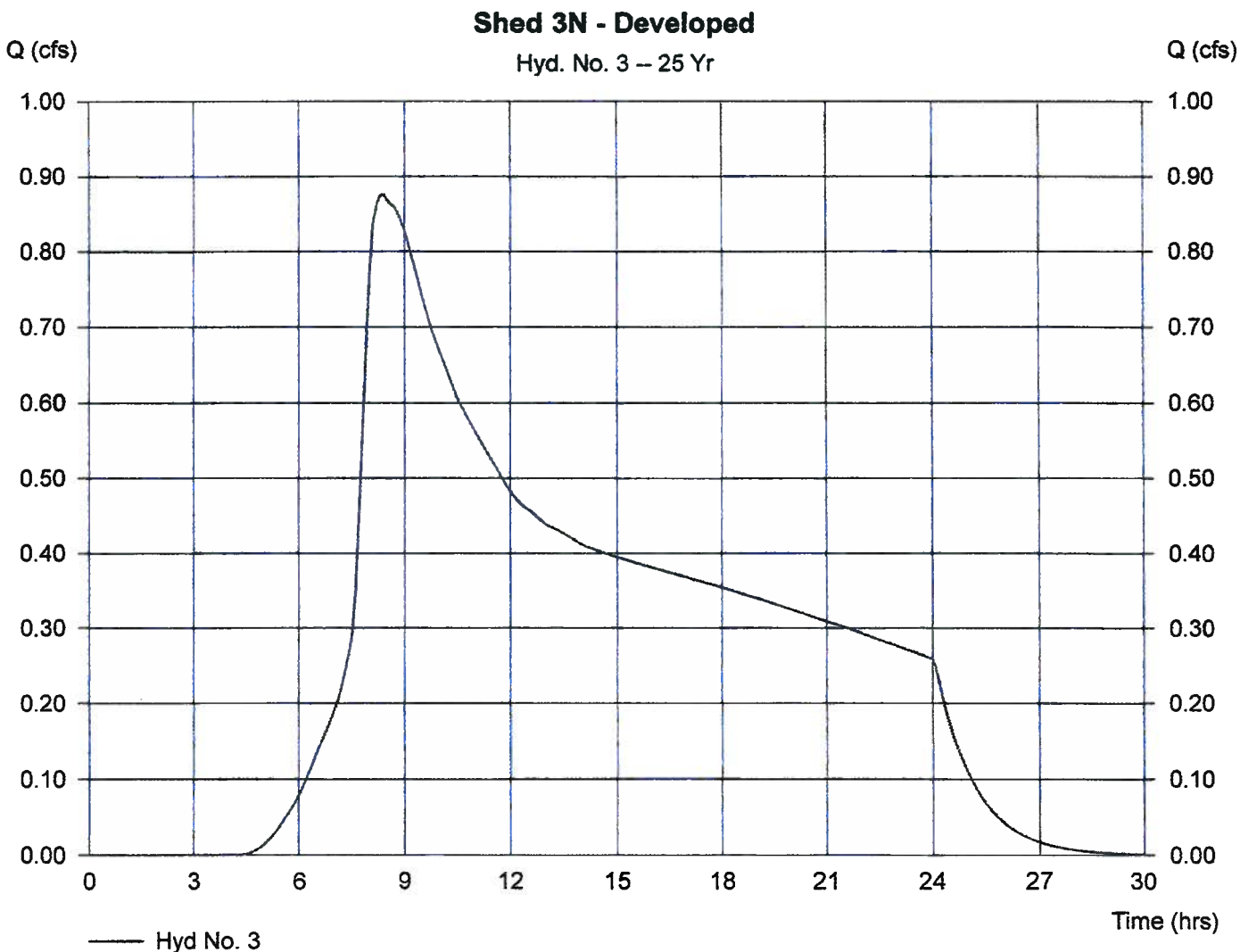
Hyd. No. 3

Shed 3N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 3.81 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 0.88 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 66 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 28,237 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

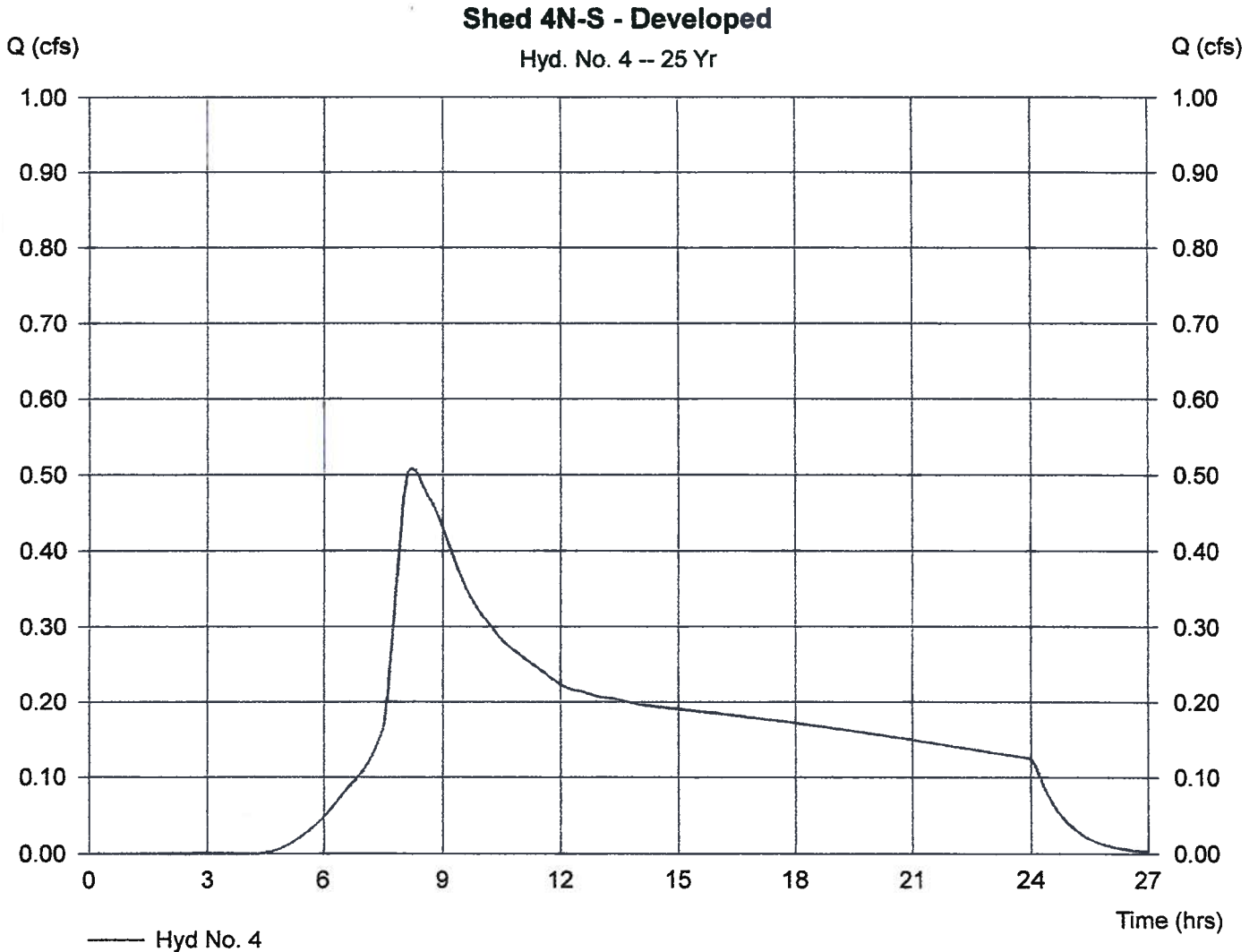
Hyd. No. 4

Shed 4N-S - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 1.87 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 0.51 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 46.3 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 13,859 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

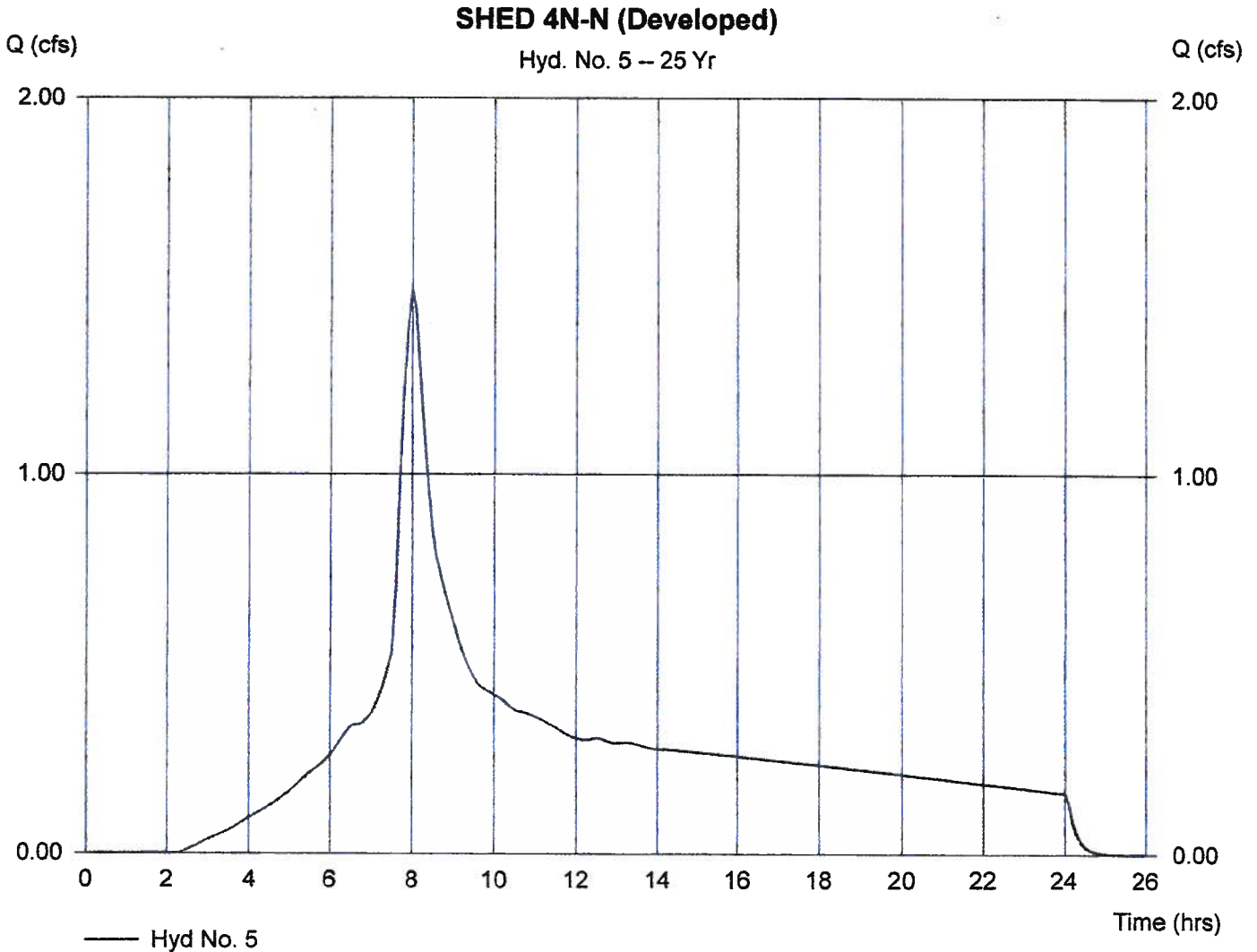
Hyd. No. 5

SHED 4N-N (Developed)

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 2.18 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 1.49 cfs
 Time interval = 6 min
 Curve number = 90.3
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 23,332 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

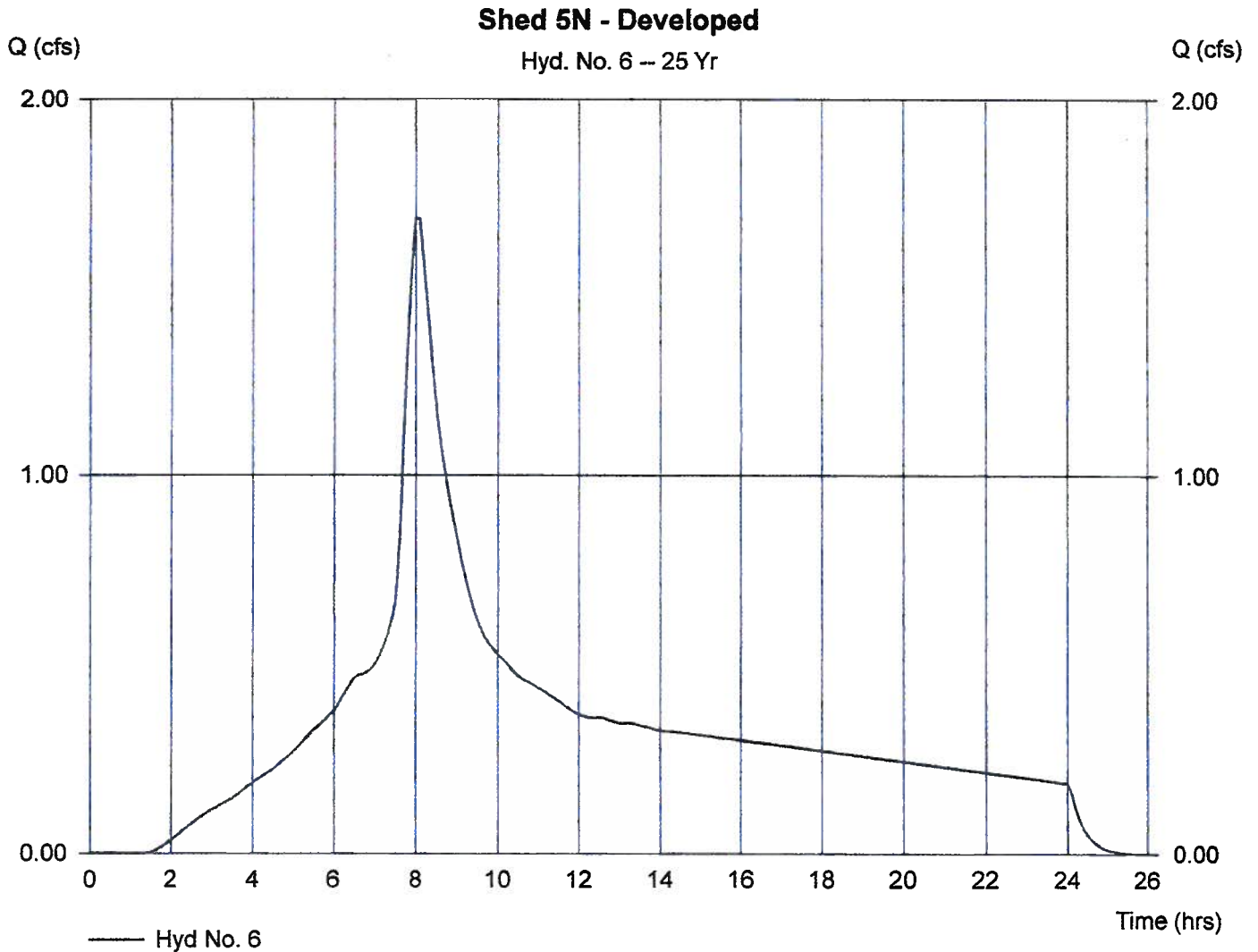
Hyd. No. 6

Shed 5N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 2.42 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 1.68 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.8 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 29,576 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellsolve

Thursday, Apr 11 2013, 2:7 PM

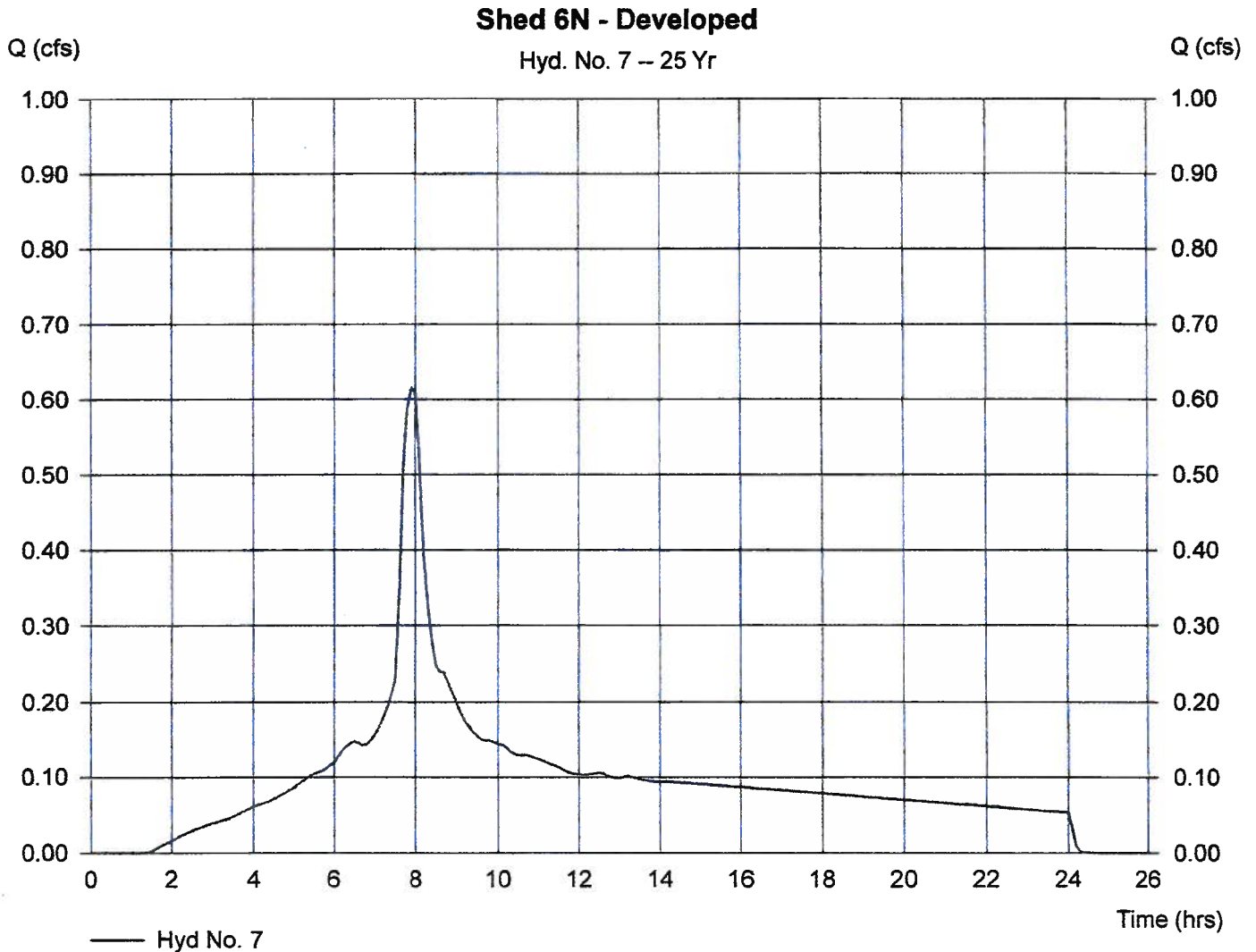
Hyd. No. 7

Shed 6N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 0.71 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 0.61 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 8,677 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

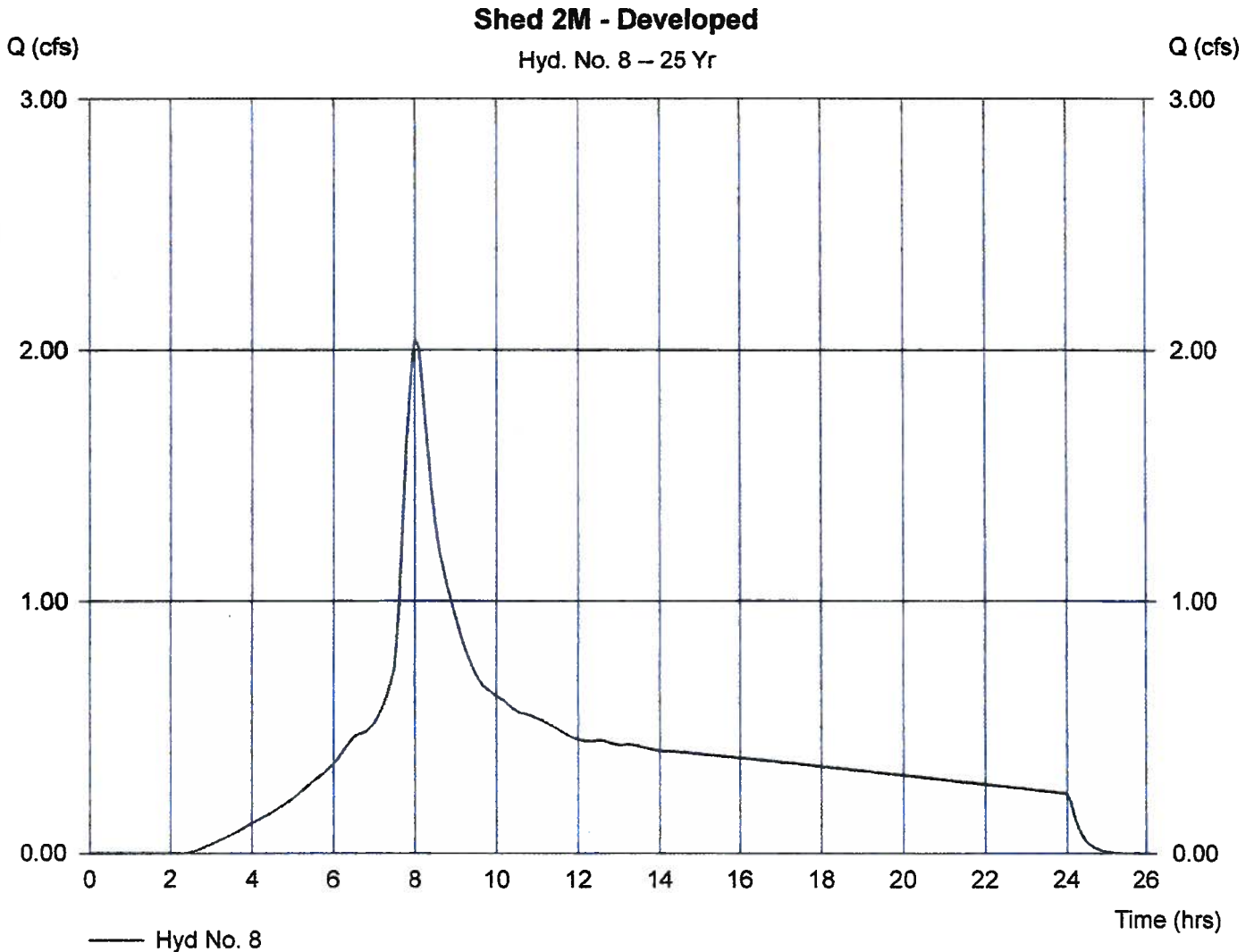
Hyd. No. 8

Shed 2M - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 3.25 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.00 in
 Storm duration = 24 hrs

Peak discharge = 2.04 cfs
 Time interval = 6 min
 Curve number = 89.6
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 16.4 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 33,983 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

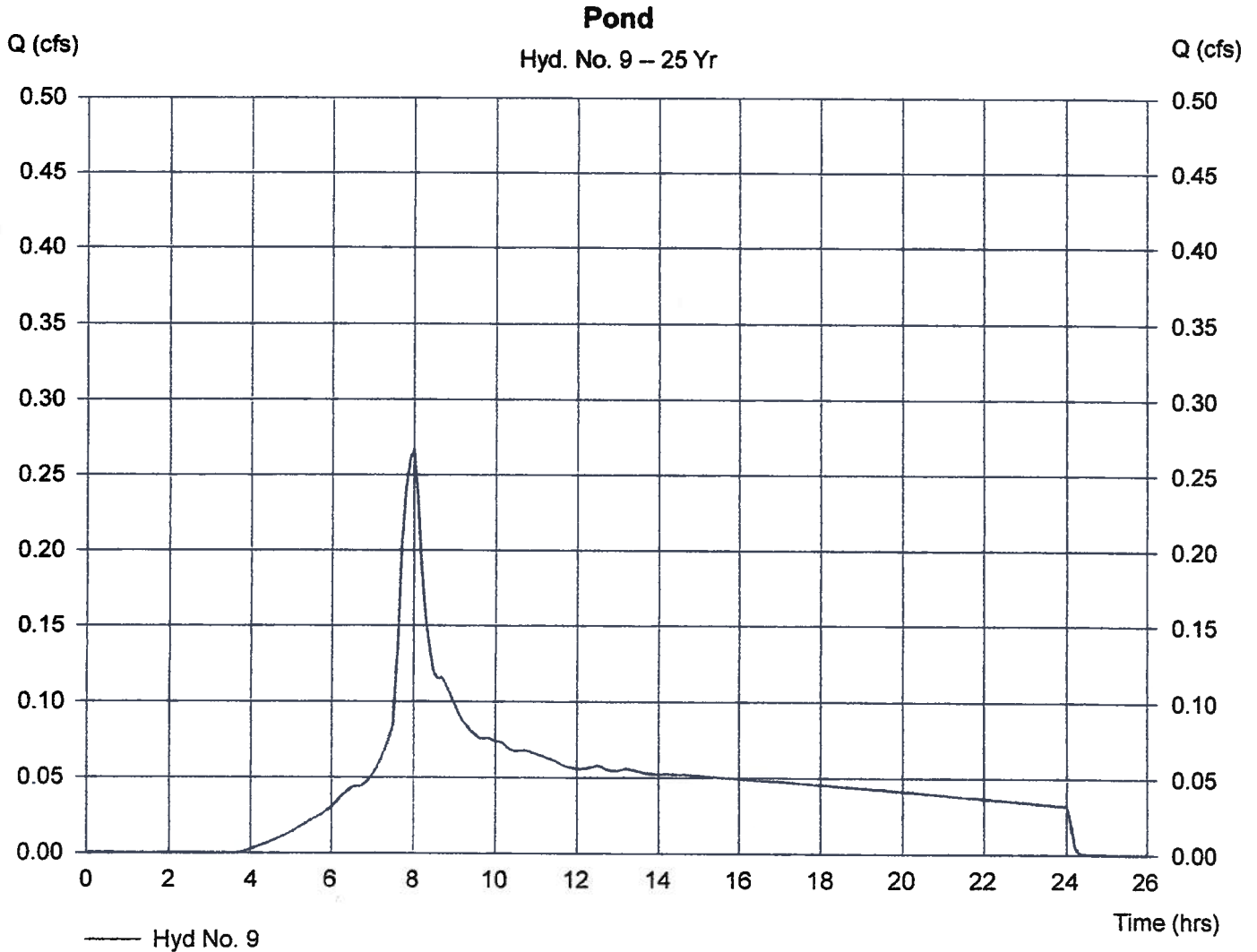
Hyd. No. 9

Pond

Hydrograph type = SBUH Runoff
Storm frequency = 25 yrs
Drainage area = 0.48 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 4.00 in
Storm duration = 24 hrs

Peak discharge = 0.27 cfs
Time interval = 6 min
Curve number = 83
Hydraulic length = 0 ft
Time of conc. (Tc) = 5 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 3,983 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Thursday, Apr 11 2013, 2:7 PM

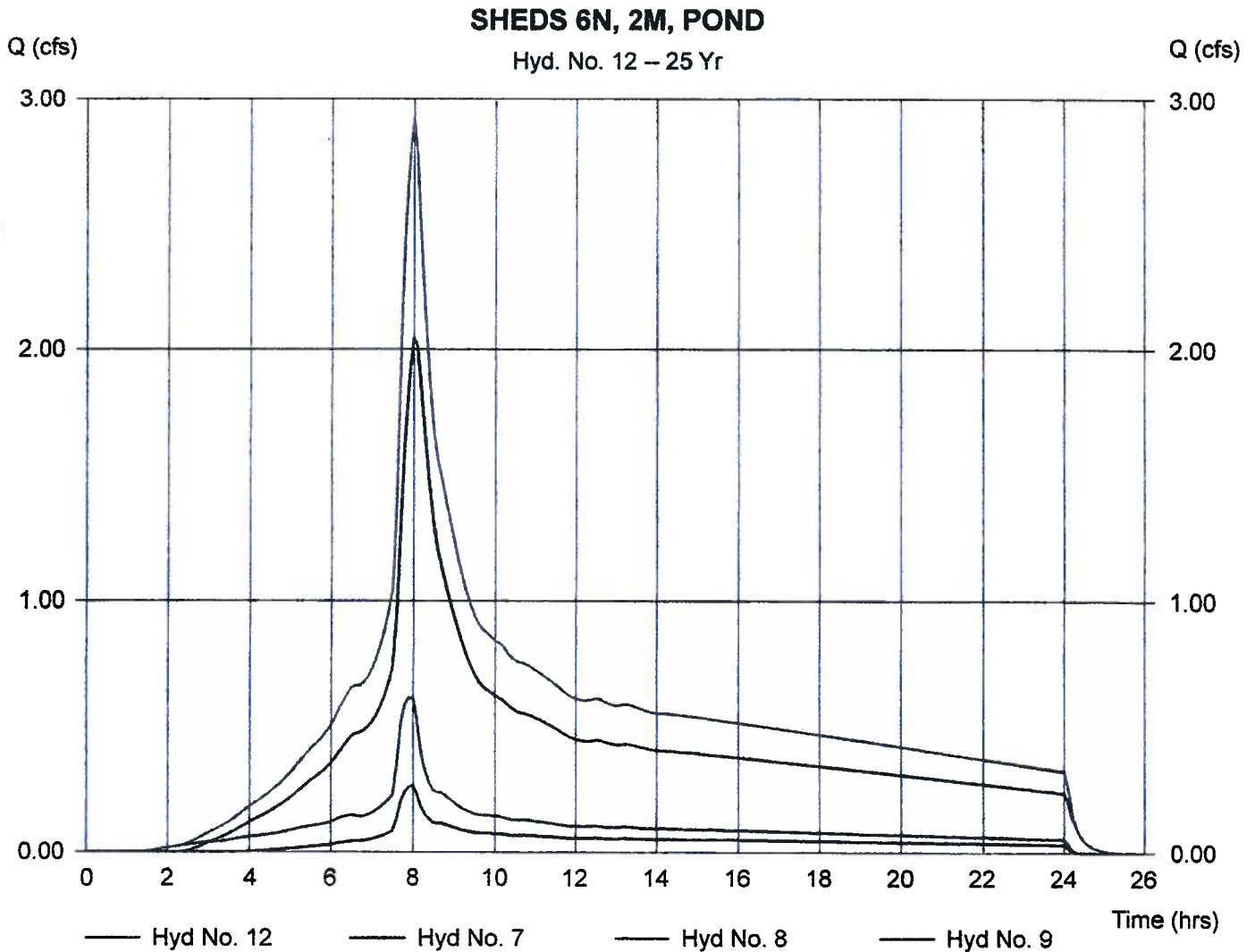
Hyd. No. 12

SHEDS 6N, 2M, POND

Hydrograph type = Combine
Storm frequency = 25 yrs
Inflow hyds. = 7, 8, 9

Peak discharge = 2.92 cfs
Time interval = 6 min

Hydrograph Volume = 46,643 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

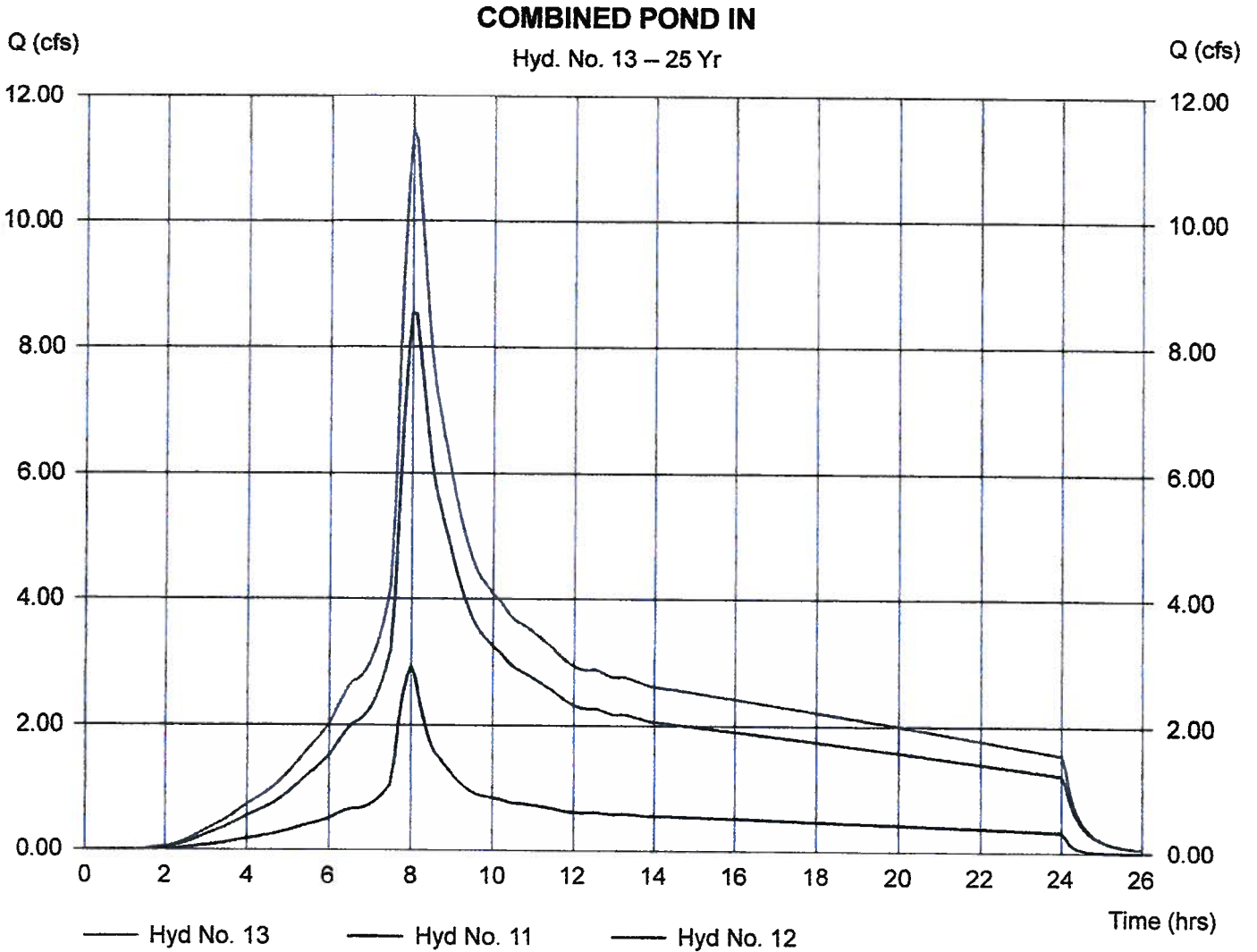
Hyd. No. 13

COMBINED POND IN

Hydrograph type = Combine
Storm frequency = 25 yrs
Inflow hyds. = 11, 12

Peak discharge = 11.44 cfs
Time interval = 6 min

Hydrograph Volume = 212,650 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Hyd. No. 14

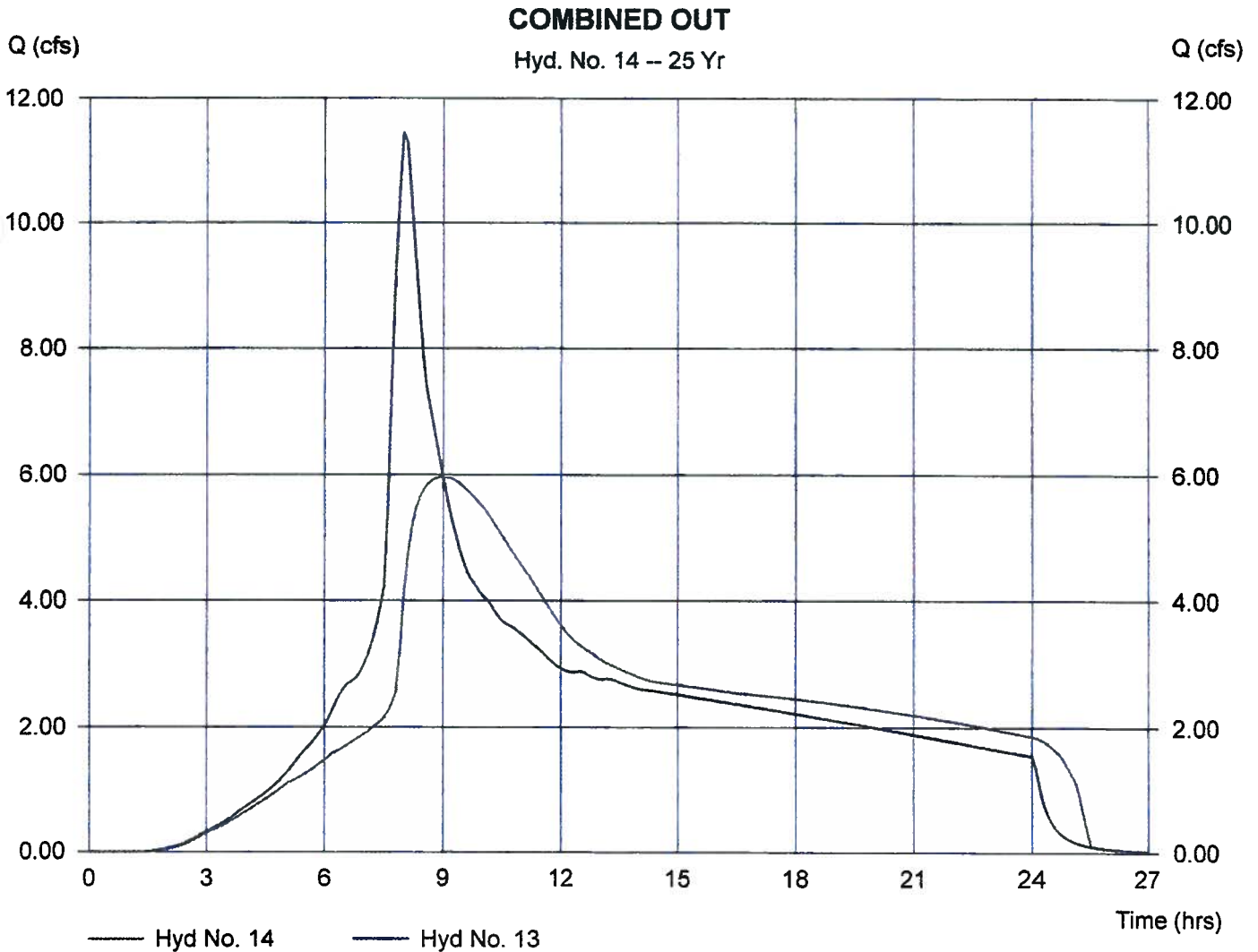
COMBINED OUT

Hydrograph type = Reservoir
Storm frequency = 25 yrs
Inflow hyd. No. = 13
Reservoir name = POND O

Peak discharge = 5.97 cfs
Time interval = 6 min
Max. Elevation = 219.33 ft
Max. Storage = 27,612 cuft

Storage Indication method used.

Hydrograph Volume = 212,650 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Pond No. 3 - POND O

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	215.00	263	0	0
0.50	215.50	2,380	661	661
1.00	216.00	4,322	1,676	2,336
3.00	218.00	8,067	12,389	14,725
4.00	219.00	10,170	9,119	23,844
5.00	220.00	12,417	11,294	35,137
6.00	221.00	15,857	14,137	49,274

Culvert / Orifice Structures

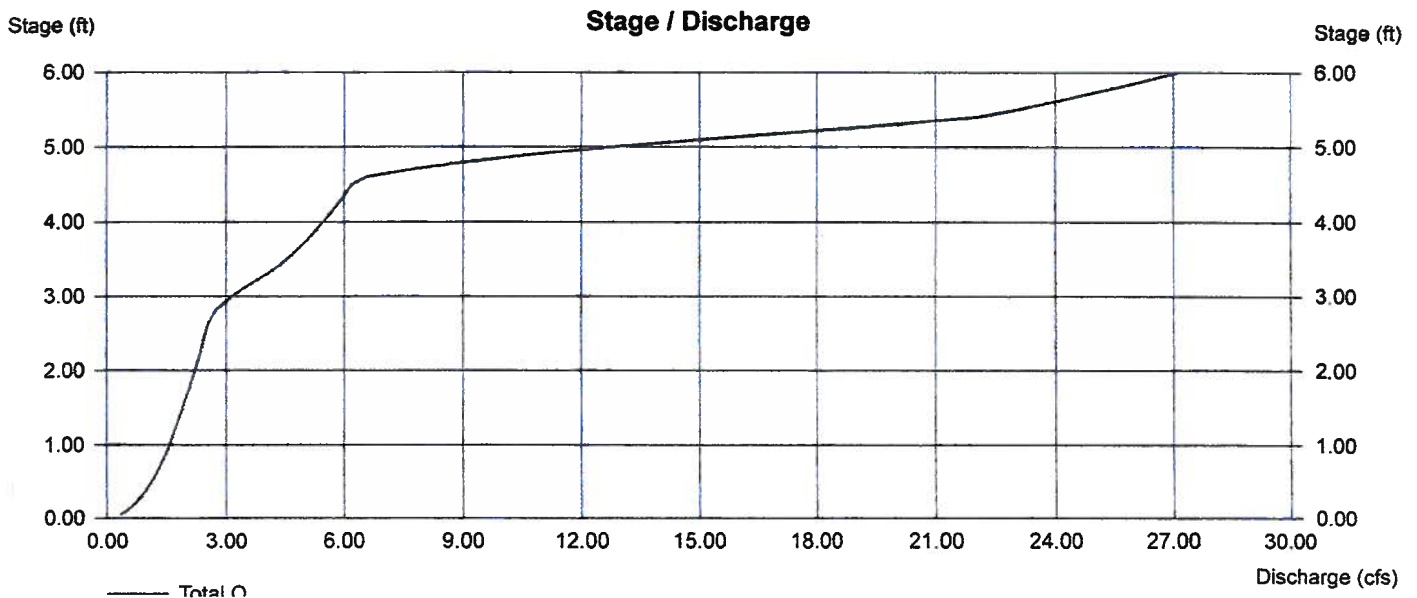
	[A]	[B]	[C]	[D]
Rise (in)	= 24.00	7.75	9.50	0.00
Span (in)	= 24.00	7.75	9.50	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 213.62	213.72	217.65	0.00
Length (ft)	= 72.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	0.00	0.00	0.00
Crest El. (ft)	= 219.55	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



Hydrograph Summary Report

Ord.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SBUH Runoff	2.95	6	486	53,270	---	----	----	Shed 1N - Developed
2	SBUH Runoff	1.88	6	480	29,294	---	----	----	Shed 2N - Developed
3	SBUH Runoff	1.09	6	498	34,044	---	----	----	Shed 3N - Developed
4	SBUH Runoff	0.63	6	492	16,709	---	----	----	Shed 4N-S - Developed
5	SBUH Runoff	1.74	6	480	27,113	---	----	----	SHED 4N-N (Developed)
6	SBUH Runoff	1.93	6	480	33,899	---	----	----	Shed 5N - Developed
7	SBUH Runoff	0.70	6	474	9,945	---	----	----	Shed 6N - Developed
8	SBUH Runoff	2.40	6	480	39,584	---	----	----	Shed 2M - Developed
9	SBUH Runoff	0.32	6	480	4,749	---	----	----	Pond
11	Combine	10.04	6	480	194,329	1, 2, 3, 4, 5, 6,	----	----	SHED 1N, 2N, 3N, 4N, 5N
12	Combine	3.42	6	480	54,279	7, 8, 9,	----	----	SHEDS 6N, 2M, POND
13	Combine	13.46	6	480	248,608	11, 12	----	----	COMBINED POND IN
14	Reservoir	8.21	6	522	248,608	13	219.74	32,170	COMBINED OUT

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

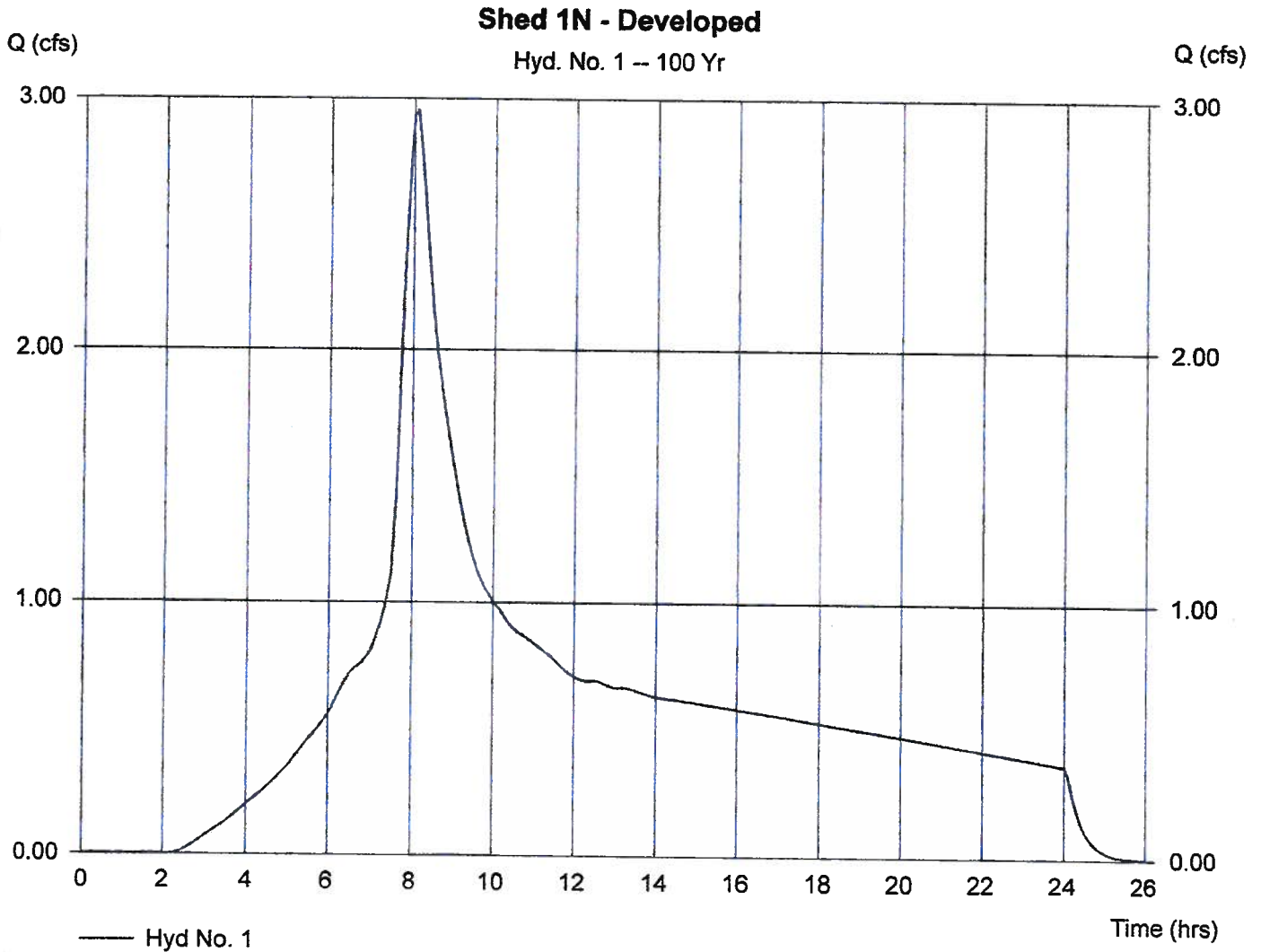
Hyd. No. 1

Shed 1N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 4.40 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 2.95 cfs
 Time interval = 6 min
 Curve number = 89.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 22.25 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 53,270 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

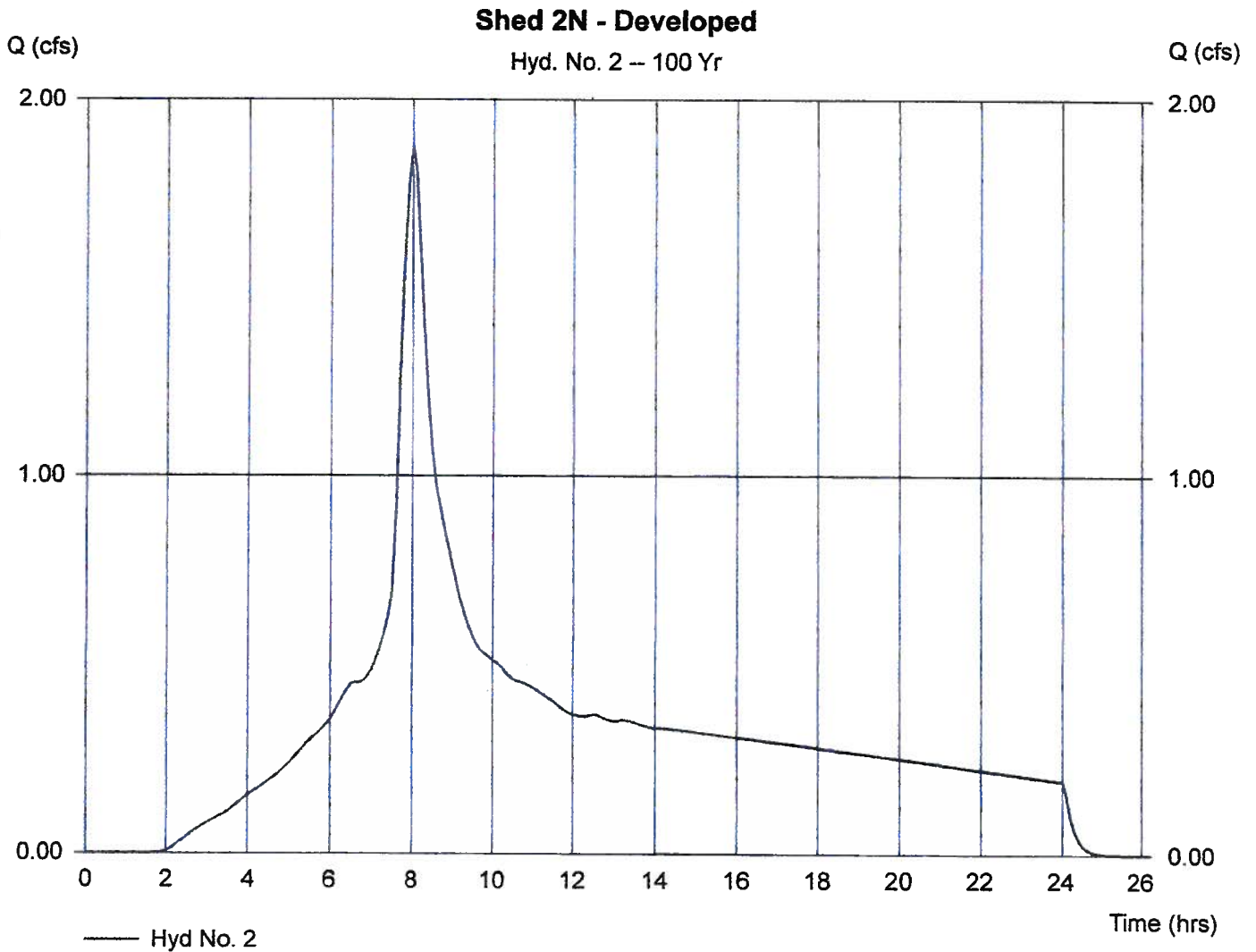
Hyd. No. 2

Shed 2N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 2.28 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 1.88 cfs
 Time interval = 6 min
 Curve number = 91.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 29,294 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

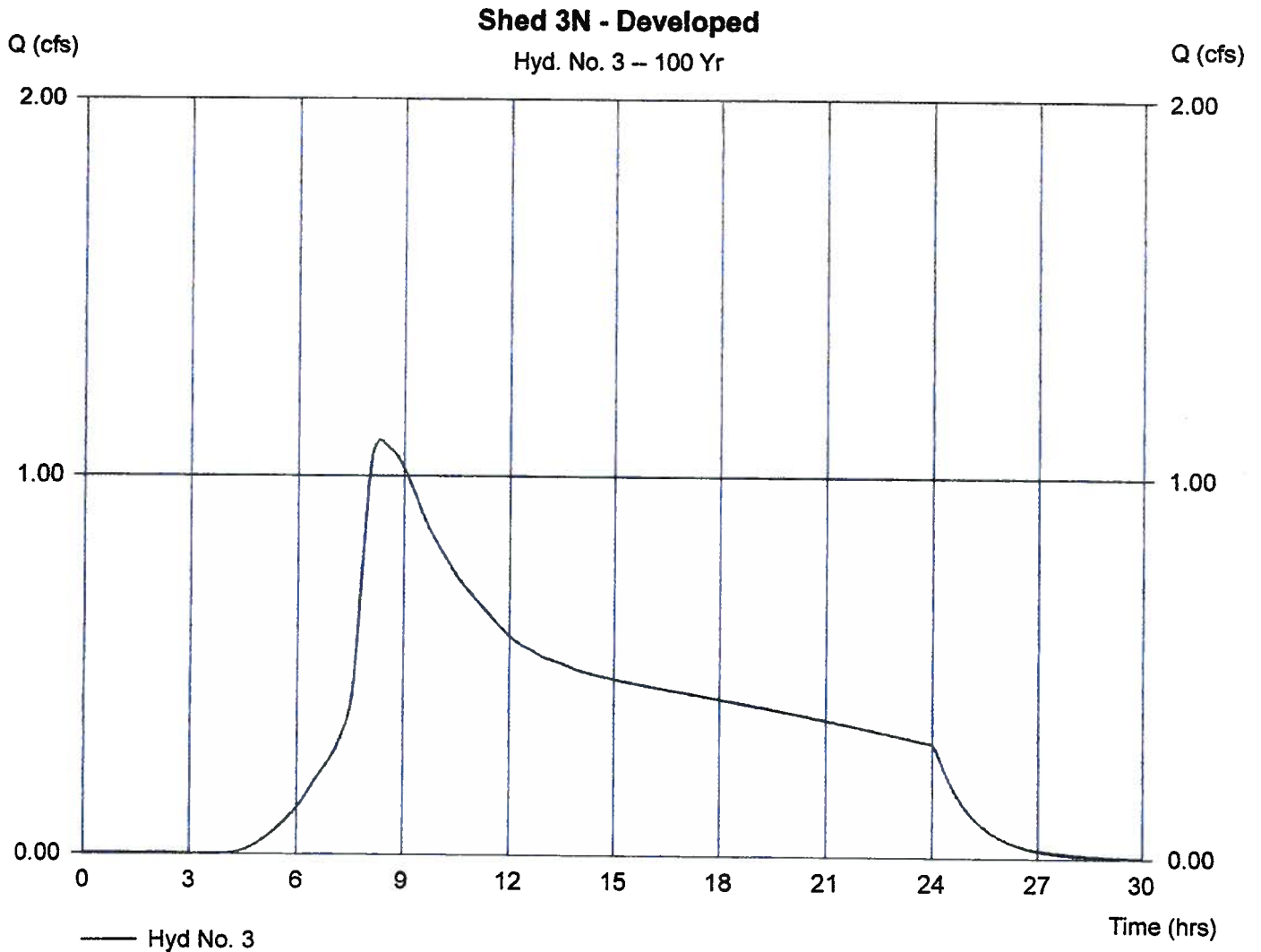
Hyd. No. 3

Shed 3N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 3.81 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 1.09 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 66 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 34,044 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

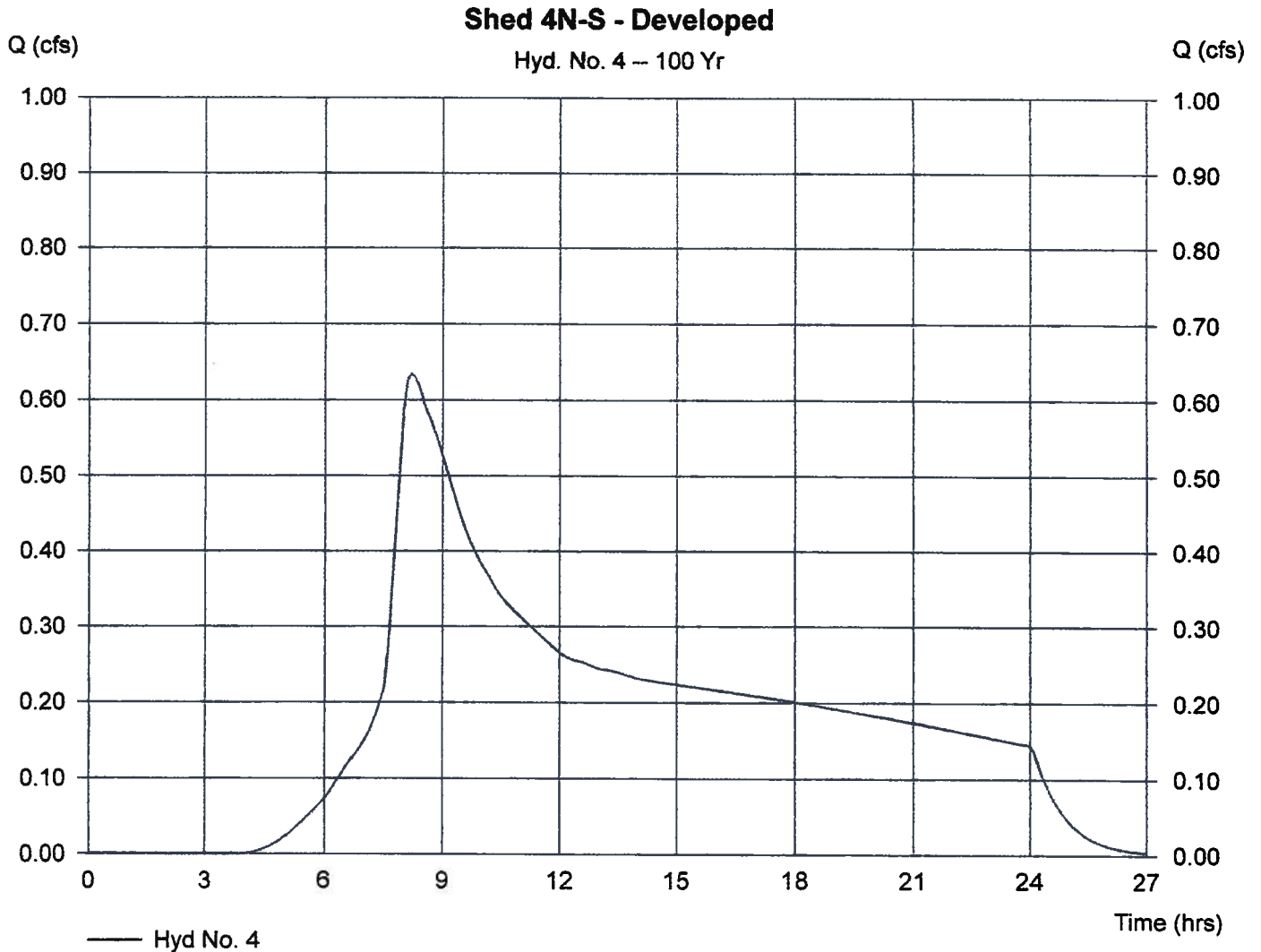
Hyd. No. 4

Shed 4N-S - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 1.87 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 0.63 cfs
 Time interval = 6 min
 Curve number = 80
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 46.3 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 16,709 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

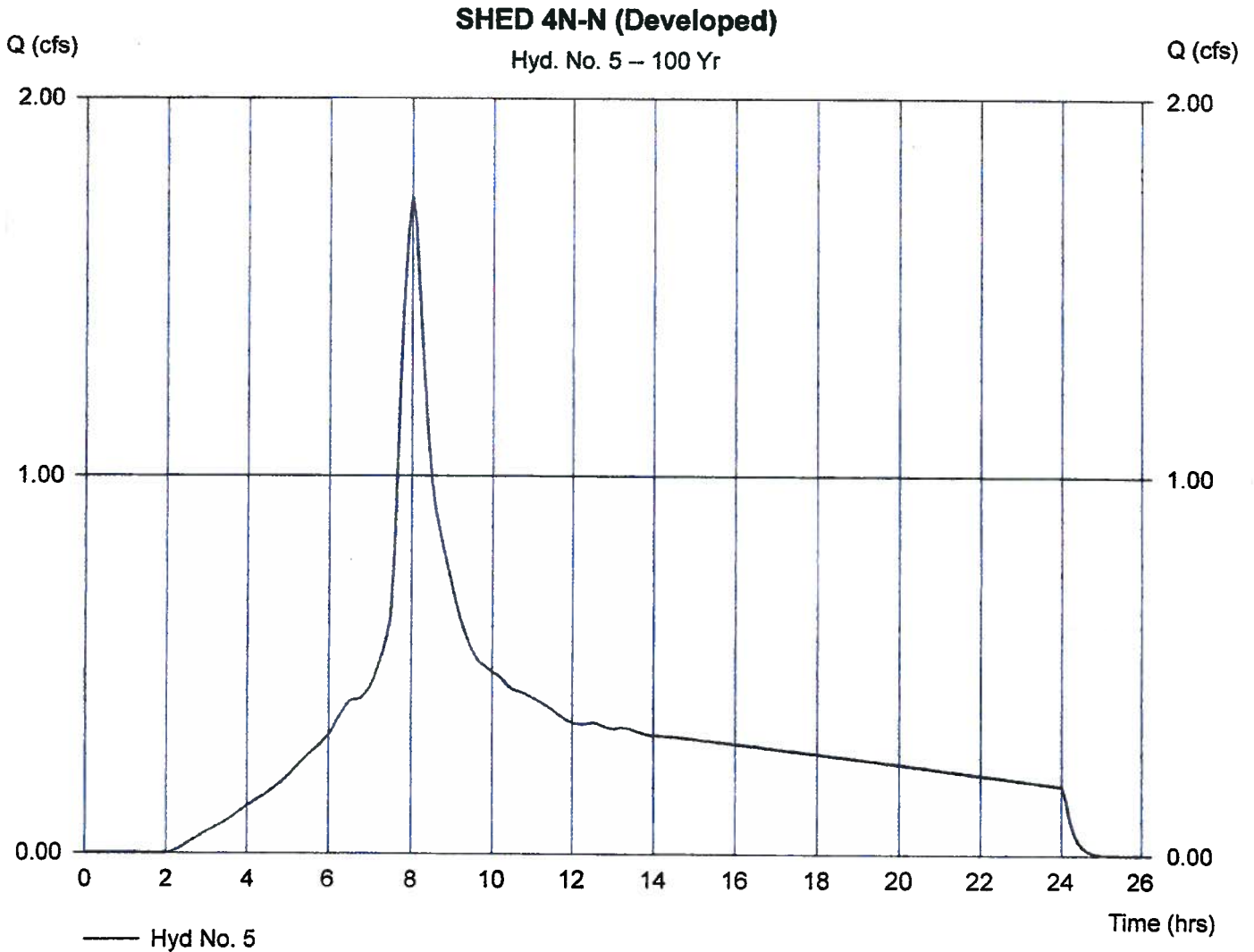
Hyd. No. 5

SHED 4N-N (Developed)

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 2.18 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 1.74 cfs
 Time interval = 6 min
 Curve number = 90.3
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 13.1 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 27,113 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Thursday, Apr 11 2013, 2:7 PM

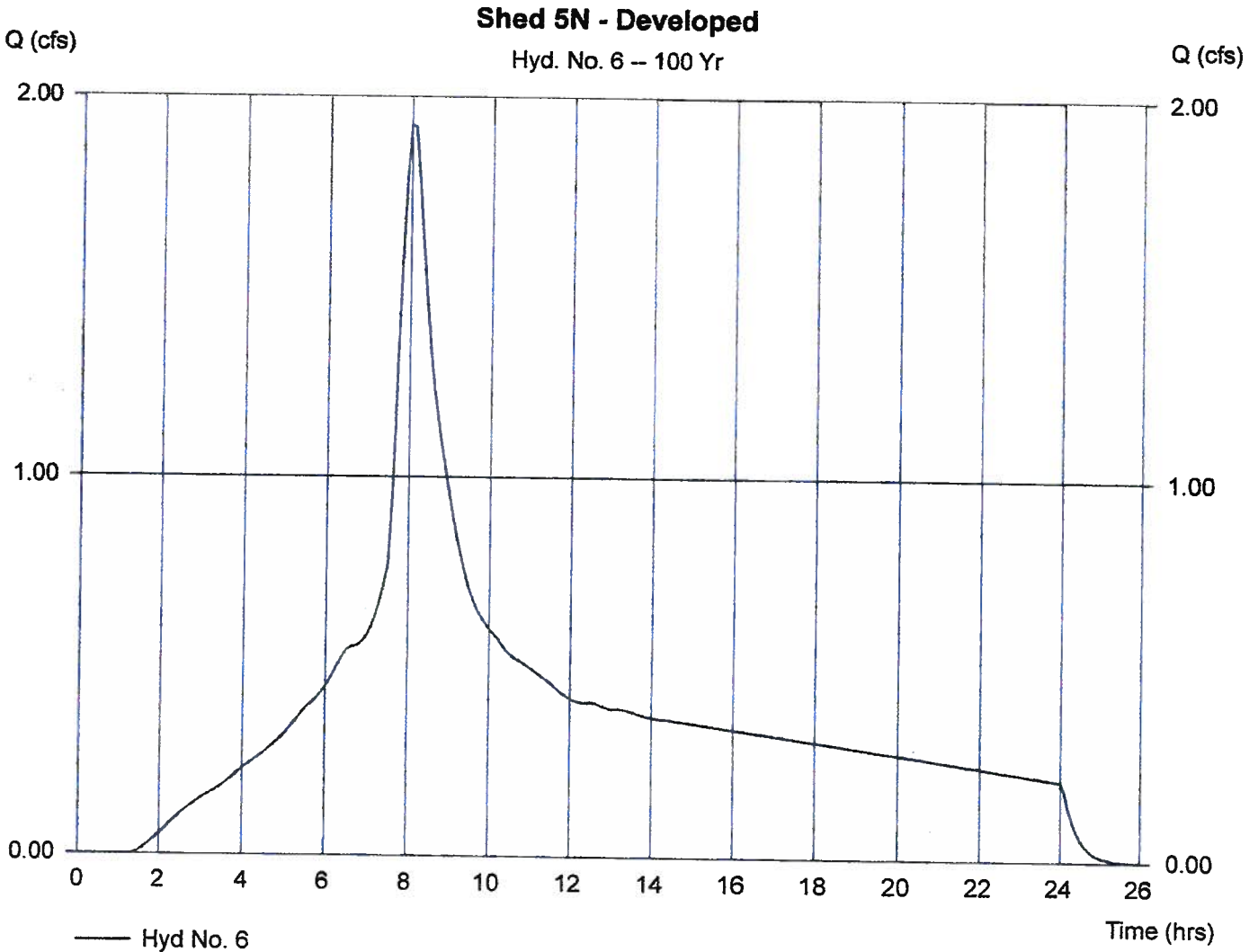
Hyd. No. 6

Shed 5N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 2.42 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 1.93 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 20.8 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 33,899 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

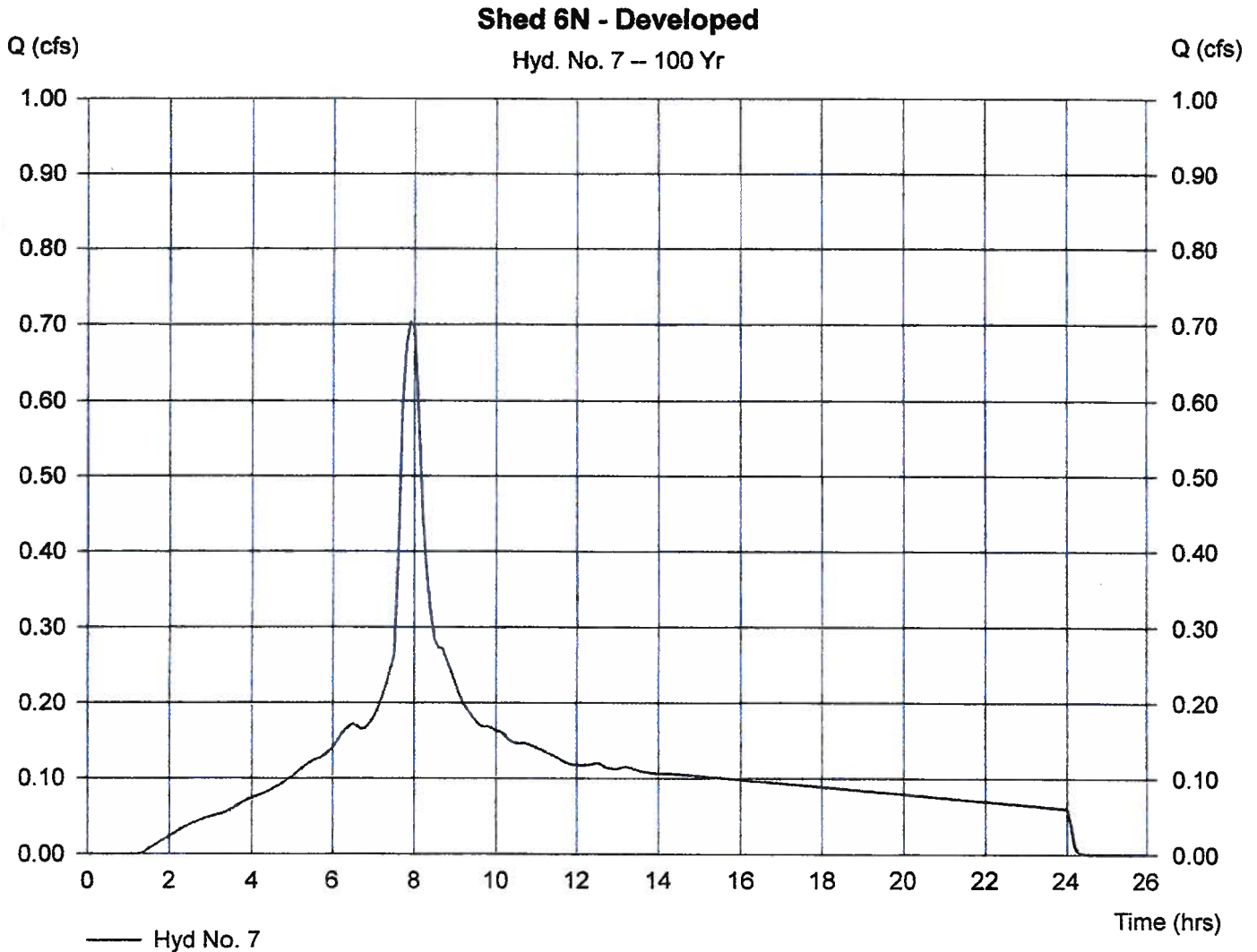
Hyd. No. 7

Shed 6N - Developed

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 0.71 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 0.70 cfs
 Time interval = 6 min
 Curve number = 94.4
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 9,945 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

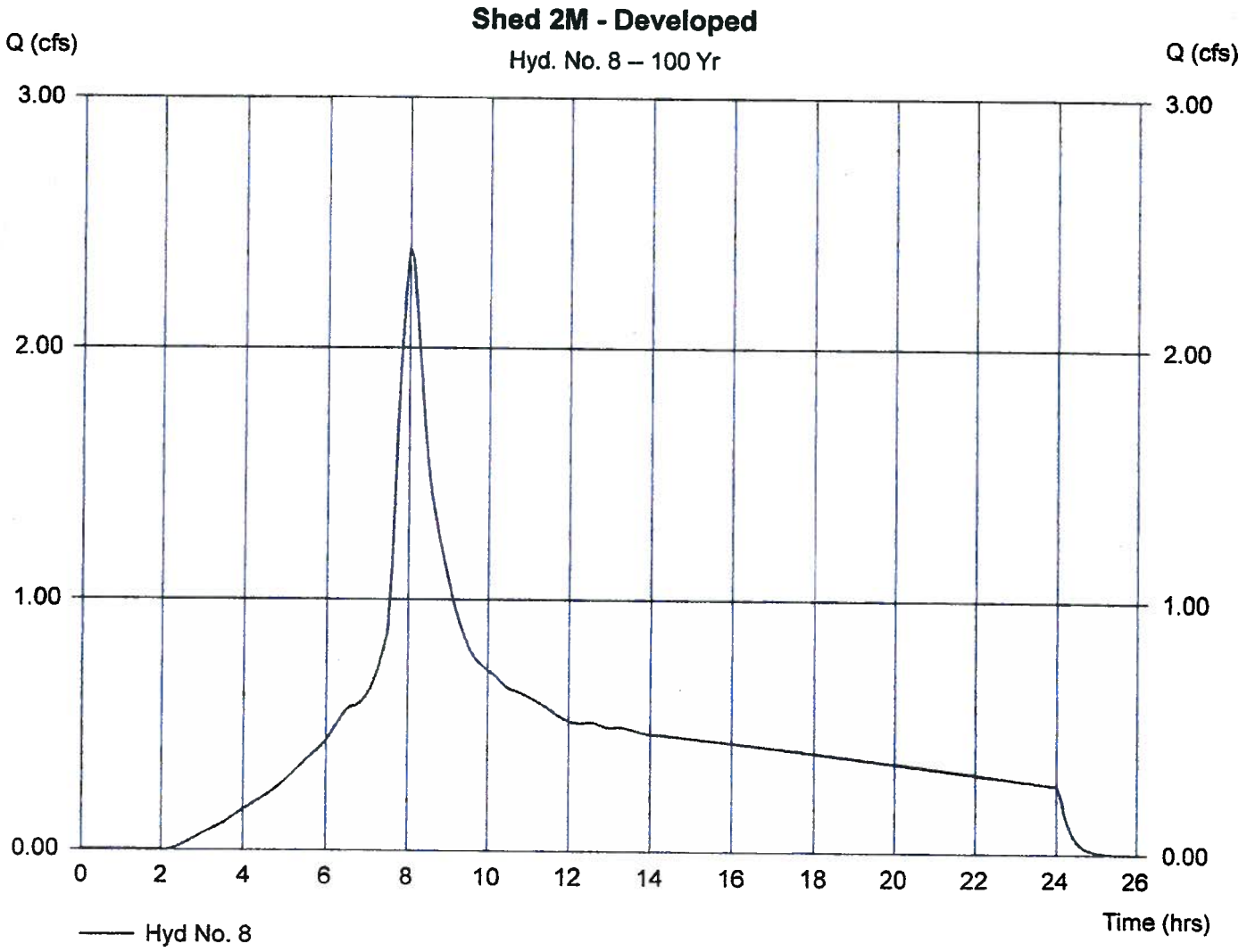
Hyd. No. 8

Shed 2M - Developed

Hydrograph type = SBUH Runoff
Storm frequency = 100 yrs
Drainage area = 3.25 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 4.50 in
Storm duration = 24 hrs

Peak discharge = 2.40 cfs
Time interval = 6 min
Curve number = 89.6
Hydraulic length = 0 ft
Time of conc. (Tc) = 16.4 min
Distribution = Type IA
Shape factor = N/A

Hydrograph Volume = 39,584 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

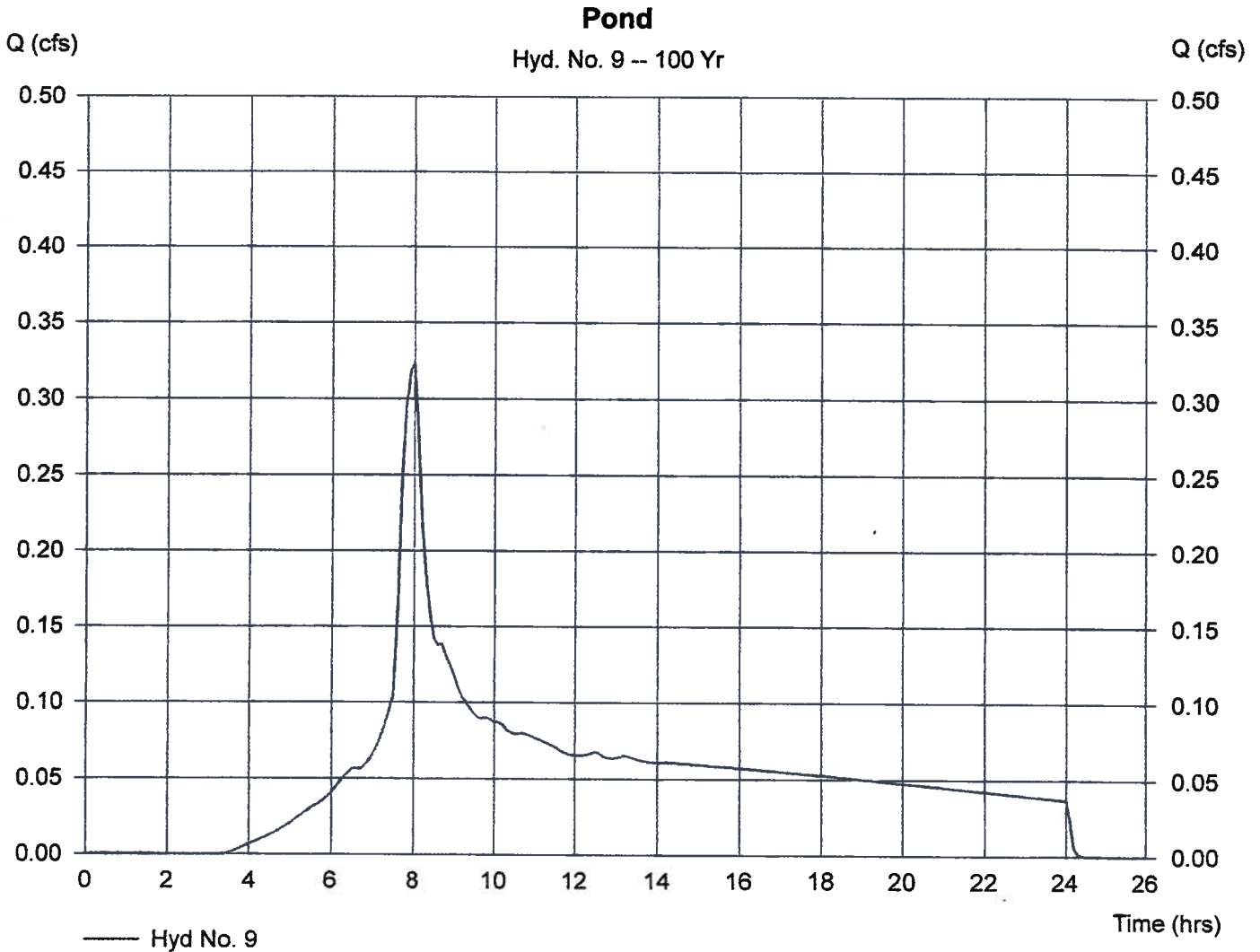
Hyd. No. 9

Pond

Hydrograph type = SBUH Runoff
 Storm frequency = 100 yrs
 Drainage area = 0.48 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 4.50 in
 Storm duration = 24 hrs

Peak discharge = 0.32 cfs
 Time interval = 6 min
 Curve number = 83
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 4,749 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

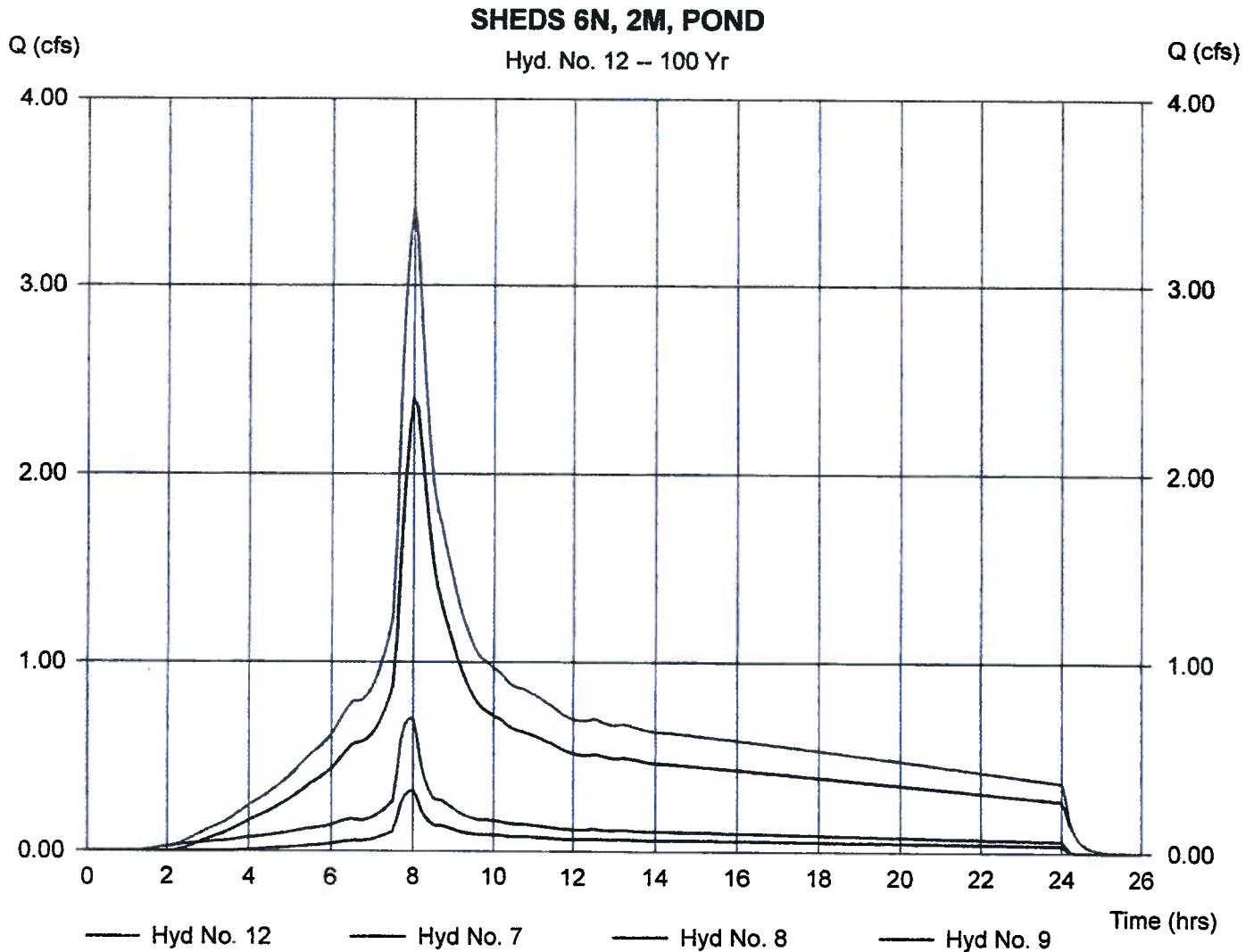
Hyd. No. 12

SHEDS 6N, 2M, POND

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Inflow hyds. = 7, 8, 9

Peak discharge = 3.42 cfs
 Time interval = 6 min

Hydrograph Volume = 54,279 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Thursday, Apr 11 2013, 2:7 PM

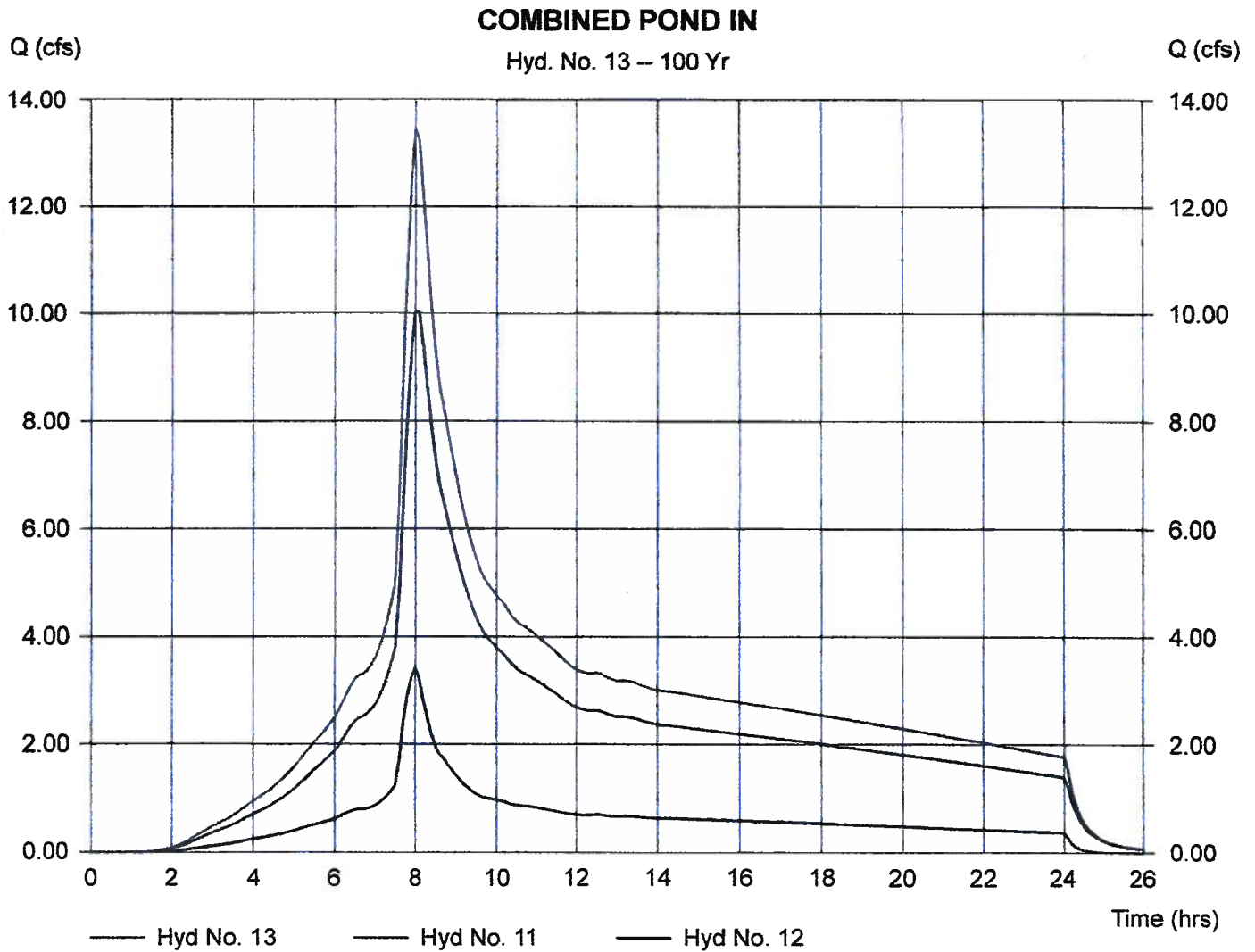
Hyd. No. 13

COMBINED POND IN

Hydrograph type = Combine
 Storm frequency = 100 yrs
 Inflow hyds. = 11, 12

Peak discharge = 13.46 cfs
 Time interval = 6 min

Hydrograph Volume = 248,608 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Hyd. No. 14

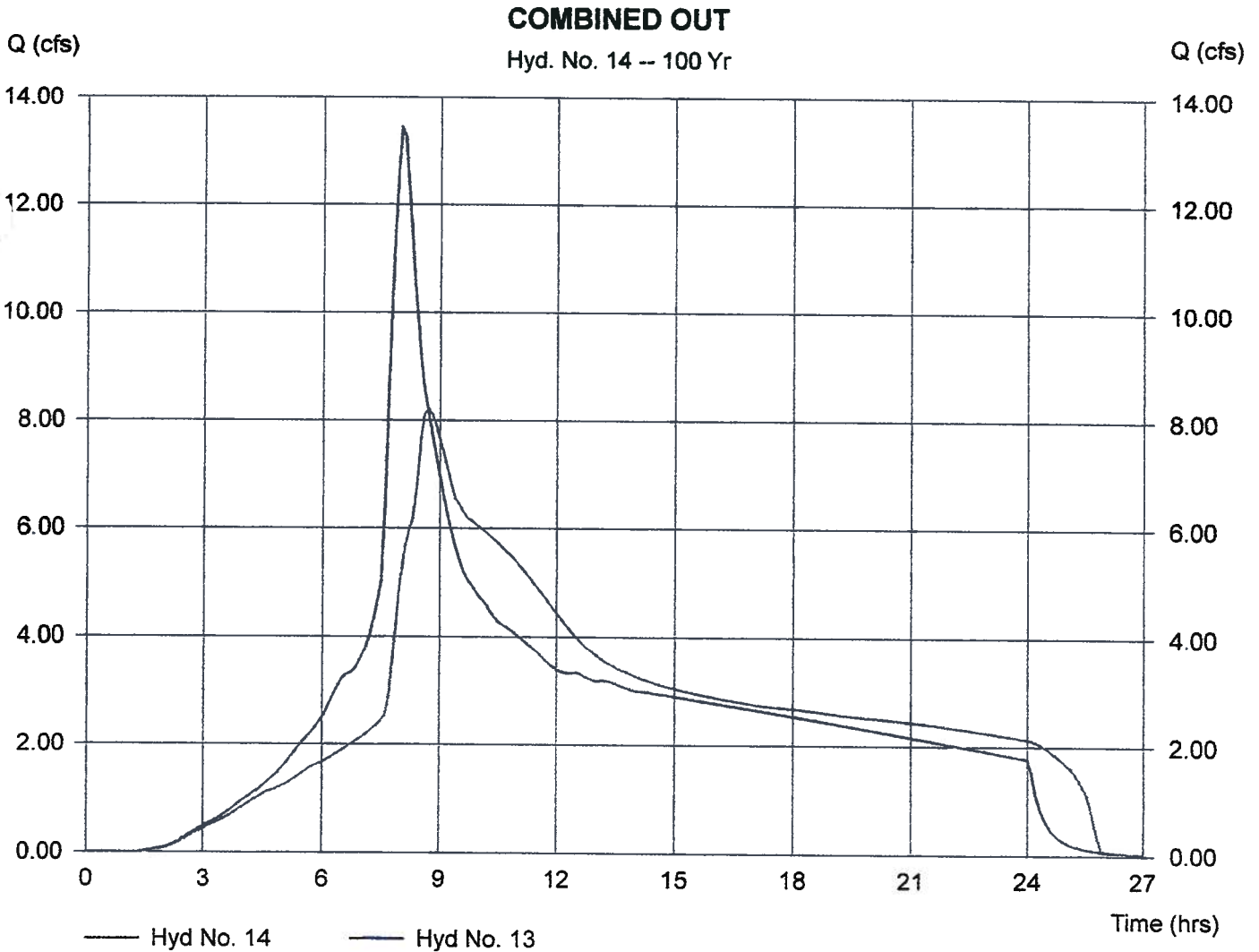
COMBINED OUT

Hydrograph type = Reservoir
Storm frequency = 100 yrs
Inflow hyd. No. = 13
Reservoir name = POND O

Peak discharge = 8.21 cfs
Time interval = 6 min
Max. Elevation = 219.74 ft
Max. Storage = 32,170 cuft

Storage Indication method used.

Hydrograph Volume = 248,608 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Jun 17 2013, 9:40 AM

Pond No. 3 - POND O

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	215.00	263	0	0
0.50	215.50	2,380	661	661
1.00	216.00	4,322	1,676	2,336
3.00	218.00	8,067	12,389	14,725
4.00	219.00	10,170	9,119	23,844
5.00	220.00	12,417	11,294	35,137
6.00	221.00	15,857	14,137	49,274

Culvert / Orifice Structures

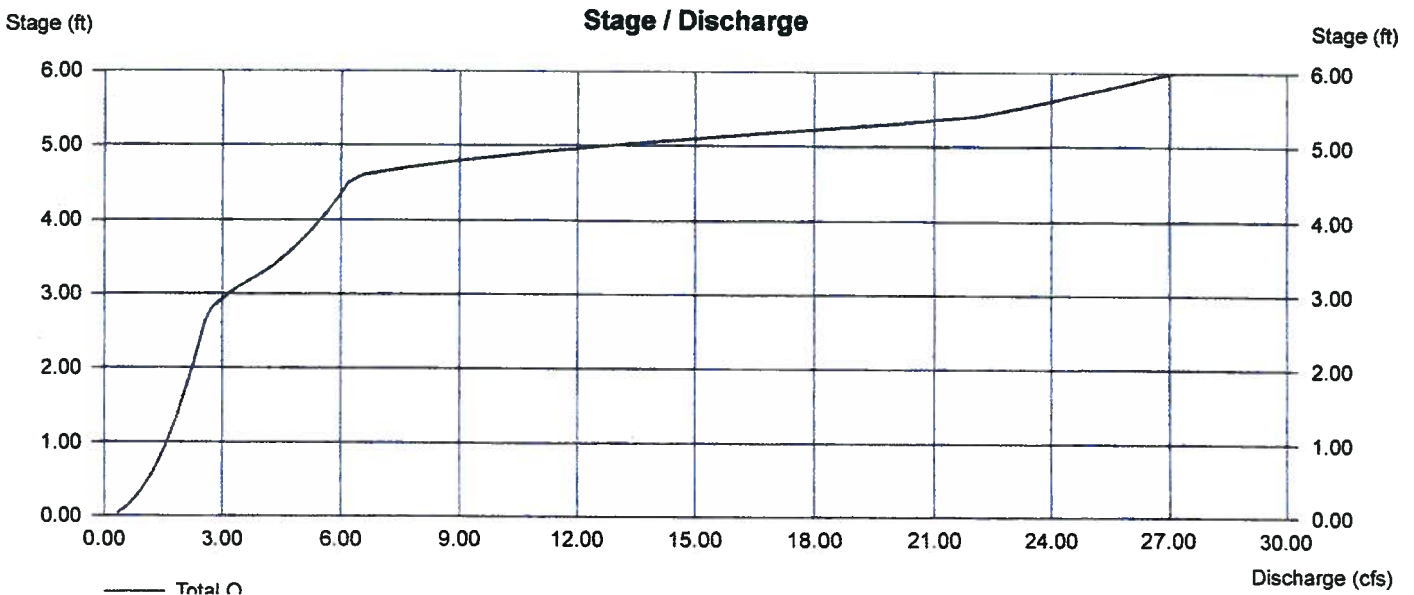
	[A]	[B]	[C]	[D]
Rise (in)	= 24.00	7.75	9.50	0.00
Span (in)	= 24.00	7.75	9.50	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 213.62	213.72	217.65	0.00
Length (ft)	= 72.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	0.00
N-Value	= .013	.013	.013	.013
Orif. Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	0.00	0.00	0.00
Crest El. (ft)	= 219.55	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Riser	---	---	---
Multi-Stage	= Yes	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control. Weir riser checked for orifice conditions.



APPENDIX D



WATER QUALITY SWALE CALCULATIONS SOUTH SWALE (SHED BASIN 2MD)

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

REFERENCES:

1. City of Wilsonville Public Works Standards - 2006 Edition

REQUIRED WATER QUALITY TREATMENT: 70% Total Suspended Solids (TSS) Removal

PROPOSED TREATMENT METHODS:

1. Sumped Catch Basins	15%
2. Bio-Filtration Swale	55%
total	70%

DESIGN STORM:

Precipitation:	0.36 inches
Storm Duration:	4 hours
Storm Return Period:	96 hours
Storm Window:	2 weeks

IMPERVIOUS AREA:

Watershed Area:	3.35 acres
Percent imp:	55%
Impervious Area:	1.83 acres

Design Inflow = $(1.83 \text{ ac}) \cdot (43560 \text{ ft}^2/\text{ac}) \cdot (0.36 \text{ in} / 4.0 \text{ hrs}) =$ 0.17 cfs

BIOFILTRATION SWALE DESIGN CRITERIA:

Max Velocity:	0.9 ft/s
Side Slopes:	4 :1 (treatment area)
Base:	2 feet (2' min)
n Factor:	0.24 (plantings)

SWALE CHARACTERISTICS:

Q=	0.17 Design Storm Discharge (determined above)
N=	0.24 Plantings
B=	2 ft Base width of channel
Z=	4 :1 Side slopes
SLOPE=	0.005 ft/ft Slope of channel (0.005 minimum)
ASS. Y=	0.5 ft Assumed depth to begin analysis (0.5 ft maximum)

ITERATIVE SOLUTION OF MANNING'S EQUATION FOR NORMAL DEPTH:

ITERATION	Y (FT)	P (FT)	A(FT ²)	R	Q (CFS)	% ERROR	V (FPS)
1	0.50	6.12	2.00	0.33	0.42	144.95	0.21
2	0.28	4.27	0.85	0.20	0.13	-24.69	0.15
3	0.33	4.74	1.11	0.23	0.18	8.37	0.17
4	0.32	4.60	1.03	0.22	0.17	-2.33	0.16
5	0.32	4.64	1.05	0.23	0.17	0.69	0.16
6	0.32	4.63	1.04	0.23	0.17	-0.20	0.16
7	0.32	4.63	1.05	0.23	0.17	0.06	0.16
8	0.32	4.63	1.04	0.23	0.17	-0.02	0.16
9	0.32	4.63	1.04	0.23	0.17	0.00	0.16
10	0.32	4.63	1.04	0.23	0.17	0.00	0.16
11	0.32	4.63	1.04	0.23	0.17	0.00	0.16
12	0.32	4.63	1.04	0.23	0.17	0.00	0.16
13	0.32	4.63	1.04	0.23	0.17	0.00	0.16
14	0.32	4.63	1.04	0.23	0.17	0.00	0.16
15	0.32	4.63	1.04	0.23	0.17	0.00	0.16

NORMAL DEPTH = 0.32 ft
 FLOW WIDTH = 4.55 ft
 VELOCITY = 0.16 ft/s
 TREATMENT TIME = 9.00 min
TREATMENT LENGTH = 87.86 ft



WATER QUALITY SWALE CALCULATIONS NORTH SWALE (SHED BASINS 1ND-6ND)

JOB NUMBER: 395-002
 PROJECT: TONQUIN WOODS NO. 3 - VILLEBOIS PDP 1N-II
 FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.HYDRO.2012-01-03.XLS

REFERENCES:

1. City of Wilsonville Public Works Standards - 2006 Edition

REQUIRED WATER QUALITY TREATMENT: 70% Total Suspended Solids (TSS) Removal

PROPOSED TREATMENT METHODS:

1. Sumped Catch Basins	15%
2. Bio-Filtration Swale	55%
total	70%

DESIGN STORM:

Precipitation:	0.36 inches
Storm Duration:	4 hours
Storm Return Period:	96 hours
Storm Window:	2 weeks

IMPERVIOUS AREA:

Watershed Area:	17.67 acres
Percent imp:	44%
Impervious Area:	7.70 acres

Design Inflow = $(7.698 \text{ ac}) \cdot (43560 \text{ ft}^2/\text{ac}) \cdot (0.36 \text{ in} / 4.0 \text{ hrs}) =$ **0.70 cfs**

BIOFILTRATION SWALE DESIGN CRITERIA:

Max Velocity:	0.9 ft/s
Side Slopes:	4 :1 (treatment area)
Base:	5 feet (2' min)
n Factor:	0.24 (plantings)

SWALE CHARACTERISTICS:

Q=	0.70 Design Storm Discharge (determined above)
N=	0.24 Plantings
B=	5 ft Base width of channel
Z=	4 :1 Side slopes
SLOPE=	0.005 ft/ft Slope of channel (0.005 minimum)
ASS. Y=	0.5 ft Assumed depth to begin analysis (0.5 ft maximum)

ITERATIVE SOLUTION OF MANNING'S EQUATION FOR NORMAL DEPTH:

ITERATION	Y (FT)	P (FT)	A(FT ²)	R	Q (CFS)	% ERROR	V (FPS)
1	0.50	9.12	3.50	0.38	0.81	15.89	0.23
2	0.45	8.74	3.09	0.35	0.68	-3.22	0.22
3	0.46	8.82	3.17	0.36	0.71	0.72	0.22
4	0.46	8.80	3.15	0.36	0.70	-0.16	0.22
5	0.46	8.81	3.16	0.36	0.70	0.03	0.22
6	0.46	8.80	3.16	0.36	0.70	-0.01	0.22
7	0.46	8.80	3.16	0.36	0.70	0.00	0.22
8	0.46	8.80	3.16	0.36	0.70	0.00	0.22
9	0.46	8.80	3.16	0.36	0.70	0.00	0.22
10	0.46	8.80	3.16	0.36	0.70	0.00	0.22
11	0.46	8.80	3.16	0.36	0.70	0.00	0.22
12	0.46	8.80	3.16	0.36	0.70	0.00	0.22
13	0.46	8.80	3.16	0.36	0.70	0.00	0.22
14	0.46	8.80	3.16	0.36	0.70	0.00	0.22
15	0.46	8.80	3.16	0.36	0.70	0.00	0.22

NORMAL DEPTH = 0.46 ft
 FLOW WIDTH = 8.69 ft
 VELOCITY = 0.22 ft/s
 TREATMENT TIME = 9.00 min
TREATMENT LENGTH = 119.68 ft

APPENDIX E



Villebois



POLYGON NW COMPANY

PACIFIC COMMUNITY DESIGN, INC

OTTEN LANDSCAPE ARCHITECTS, INC

TONQUIN WOODS No. 3

Villebois
PDP 1N - Phase 2
Hydrology

Proposed
Conveyance Map

DATE: 4/16/2013

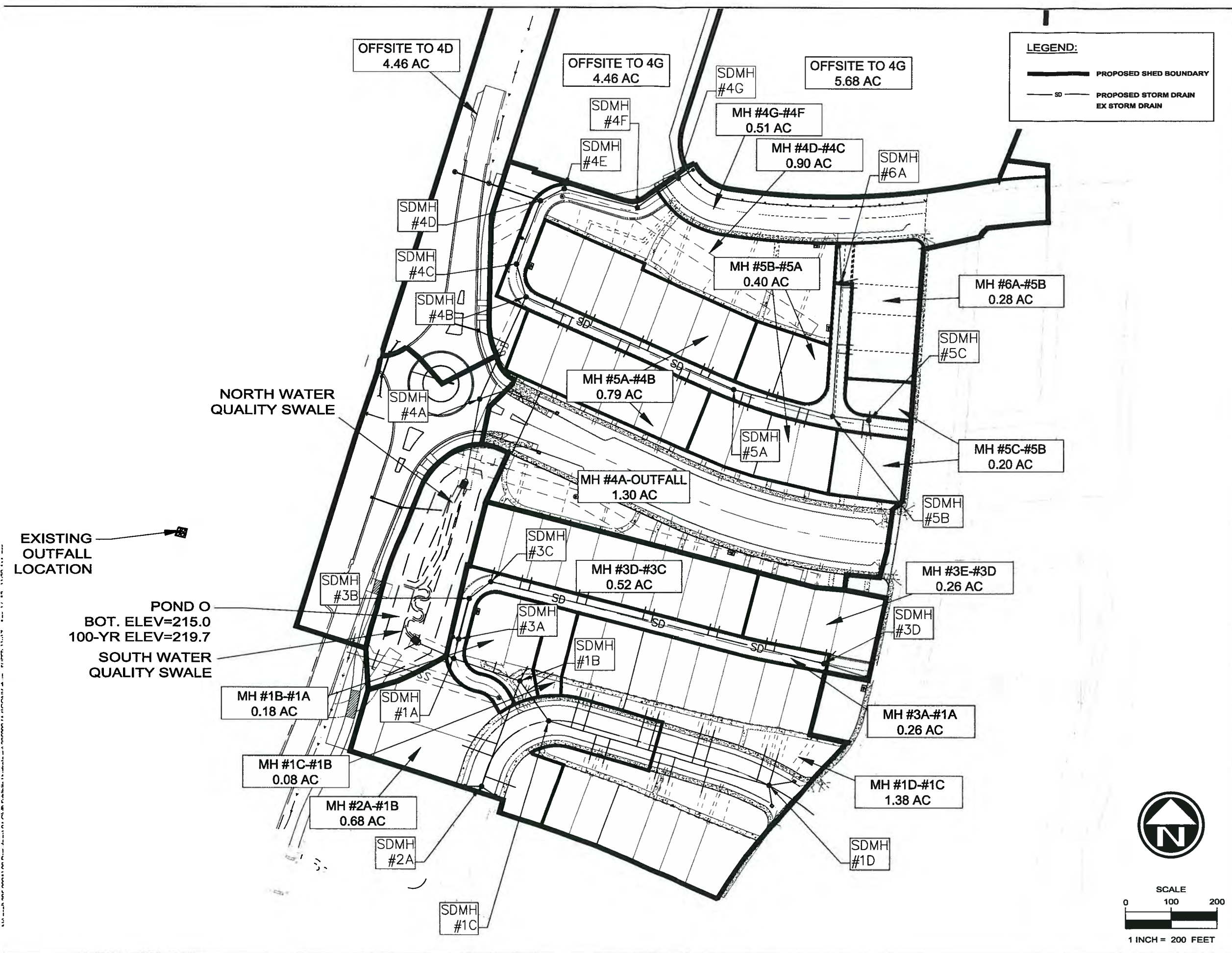
E1

LEGEND:

— PROPOSED SHED BOUNDARY

SD — PROPOSED STORM DRAIN

EX — STORM DRAIN



EXISTING OUTFALL LOCATION

POND O
BOT. ELEV=215.0
100-YR ELEV=219.7

SOUTH WATER QUALITY SWALE

SCALE

0 100 200

1 INCH = 200 FEET



STORMWATER CONVEYANCE CALCULATIONS EXHIBIT E2

JOB: 395-002
PROJECT: VILLEBOIS PDP 1N-II
FILE: N:/PROJ/395-002A/05-REPORTS/HYDROLOGY/395002A.CONV.2012-12-26.XLS

Design Storm: 25 YR
Storm Duration: 24 HRS
Precipitation: 4 IN
Manning's "n": 0.013

LINE	INC. AREA (AC)		AREA TOTAL (AC)		AREA % IMP. (AC)		AREA PERV. (AC)		TOTAL AREA PERV. (AC)		CN PER. (AC)		TOTAL AREA IMP. (AC)		CN IMP. (AC)		Q (CFS)	PIPE SIZE (IN)	SLOPE (FT/FT)	Q ² (CFS ²)	V (FPS)	V/V ² (%)	ACTUAL V (FPS)	LENGTH (FT)	INC. TIME (MIN)	
	AREA (AC)	PERV. (AC)	AREA (AC)	PERV. (AC)	AREA (AC)	PERV. (AC)	AREA (AC)	PERV. (AC)	AREA (AC)	PERV. (AC)	AREA (AC)	PERV. (AC)	Q (CFS)	TIME (MIN)												
6A - 5B	0.02	0.28	0.02	0.10	60	0.00	0.00	0.11	80	0.02	0.02	98	0.02	0.17	98	10.00	0.02	12	0.0187	4.89	0.00	6.22	0.20	1.27	147.74	1.95
5C - 5B	0.20	0.20	0.20	0.08	60	0.08	0.08	0.08	80	0.12	0.12	98	0.12	0.12	98	10.00	0.15	12	0.0060	2.77	0.05	3.52	0.25	0.90	39.17	0.73
5B - 5A ¹	0.40	0.88	0.40	0.16	60	0.16	0.35	0.35	80	0.24	0.33	98	0.24	0.33	98	11.62	0.65	12	0.0060	2.77	0.24	3.52	0.44	1.53	112.38	1.22
5A - 4B	0.79	1.67	0.79	0.32	60	0.32	0.66	0.66	80	0.47	1.01	98	0.47	1.01	98	12.35	1.22	12	0.0236	5.49	0.22	6.99	0.42	2.95	248.65	1.40

STORM CONVEYANCE - STORM LINES 5 & 6 (ALLEY 8 & 9)

¹ Pipe segment includes flow from line '6'

STORM CONVEYANCE - STORM LINE 4 (ALLEY 8 TO NORTH OUTFALL)

OFFSITE TO 4G (SAP NORTH) - SHED AREAS 2ND, 4ND-N	4.46	4.46	63	1.65	1.65	80	2.81	2.81	98	10.00	3.43	18	0.0050	7.45	0.46	4.21	0.66	3.00	560.00	3.11
OFFSITE TO 4G (OPEN SPACES) - SHED AREAS 3ND, 4ND-S	5.68	5.68	0	5.68	5.68	80	0.00	0.00	98	62.88	1.36	18	0.0050	7.45	0.18	4.21	0.38	3.00	0.00	0.00
4G - 4F	0.51	10.65	80	0.10	7.43	80	0.41	3.22	98	13.11	6.27	18	0.0050	7.45	0.84	4.21	1.04	4.39	56.02	0.21
4F - 4E	0.00	10.65	60	0.00	7.43	80	0.00	3.22	98	13.32	6.25	18	0.0060	8.16	0.77	4.62	0.97	4.46	81.98	0.31
4E - 4D	0.00	10.65	60	0.00	7.43	80	0.00	3.22	98	13.63	6.22	18	0.0060	8.16	0.76	4.62	0.96	4.44	28.93	0.11
OFFSITE TO 4D (GRAHAM FERRY ROAD) - SHED AREA 5ND	2.42	2.42	80	0.48	0.48	80	1.94	1.94	98	20.83	1.73	12	0.0050	2.53	0.69	3.72	0.89	3.00	59.26	0.33
4D - 4C	0.50	13.37	10	0.45	8.37	80	0.05	5.20	98	21.16	7.40	21	0.0040	10.05	0.74	4.18	0.94	3.91	74.46	0.32
	0.40	13.97	80	0.08	8.45	80	0.32	5.52	98	21.16	7.69	21	0.0040	10.05	0.76	4.18	0.96	4.03	74.46	0.31
4C - 4B	0.00	13.97	60	0.00	8.45	80	0.00	5.52	98	21.47	7.65	24	0.0030	12.42	0.82	3.95	0.82	3.23	37.83	0.20
4B - 4A	0.00	15.64	60	0.00	9.11	80	0.00	6.53	98	21.66	8.67	24	0.0030	12.42	0.70	3.95	0.90	3.35	126.14	0.59
4A - OUTFALL (NORTH SWALE)	0.50	16.14	10	0.45	9.56	80	0.05	6.58	98	22.23	8.81	24	0.0030	12.42	0.71	3.95	0.91	3.59	89.20	0.41
	0.60	16.94	80	0.16	9.72	80	0.64	7.22	98	22.25	9.37	24	0.0030	12.42	0.79	3.95	0.95	3.77	89.20	0.39

² Pipe segment includes flow from line '5'

STORM CONVEYANCE - STORM LINE 3 (ALLEY 7)

3E - 3D	0.03	0.03	80	0.01	0.01	80	0.02	0.02	98	10.00	0.03	12	0.0090	3.39	0.01	4.31	0.21	0.90	115.71	2.15
	0.23	0.26	60	0.09	0.10	80	0.14	0.16	98	10.00	0.20	12	0.0090	3.39	0.06	4.31	0.26	1.12	115.71	1.73
3D - 3C	0.52	0.78	60	0.21	0.31	80	0.31	0.47	98	11.73	0.58	12	0.0104	3.64	0.16	4.64	0.36	1.66	259.26	2.60
3C - 3B	0.00	0.78	60	0.00	0.31	80	0.00	0.47	98	14.33	0.95	12	0.0176	4.74	0.12	6.03	0.32	1.91	30.24	0.26
3B - 3A	0.00	0.78	60	0.00	0.31	80	0.00	0.47	98	14.59	0.95	12	0.0177	4.75	0.12	6.09	0.32	1.91	46.01	0.40
3A - 1A	0.26	1.04	80	0.05	0.36	80	0.21	0.68	98	14.59	0.76	12	0.0180	4.79	0.16	6.10	0.36	2.18	22.24	0.17

STORM CONVEYANCE - STORM LINE 2 (SAN REMO)

2A - 1B	0.30	0.30	80	0.06	0.06	80	0.24	0.24	98	10.00	0.25	12	0.0050	2.53	0.10	3.22	0.30	0.97	123.27	2.12
	0.38	0.68	60	0.15	0.21	80	0.23	0.47	98	10.00	0.54	12	0.0050	2.53	0.21	3.22	0.41	1.33	123.27	1.54

STORM CONVEYANCE - STORM LINE 1 (SAN REMO TO SOUTH OUTFALL)

1D - 1C	0.20	0.20	80	0.04	0.04	80	0.16	0.16	98	10.00	0.17	12	0.0058	2.72	0.06	3.46	0.26	0.91	251.53	4.61
	0.53	1.03	60	0.33	0.37	80	0.50	0.66	98	10.00	0.80	12	0.0058	2.72	0.29	3.46	0.49	1.71	251.53	2.45
	0.35	1.38	10	0.32	0.69	80	0.04	0.69	98	10.00	0.98	12	0.0058	2.72	0.36	3.46	0.56	1.94	251.53	2.16

1C - 1B	0.08	1.46	60	0.03	0.72	80	0.05	0.74	98	12.16	1.01	12	0.0050	2.33	0.40	3.22	0.60	1.93	53.54	0.46
1B - 1A ³	0.18	2.32	60	0.07	1.00	80	0.11	1.32	98	12.62	1.65	12	0.0050	2.33	0.65	3.22	0.85	2.75	76.64	0.47
1A - SOUTH OUTFALL ⁴	0.00	3.36	60	0.00	1.36	80	0.00	2.00	98	14.76	2.35	18	0.0050	7.45	0.32	4.21	0.32	2.17	42.39	0.32

³ Pipe segment includes flow from line ' 2'

⁴ Pipe segment includes flow from line ' 3'

IID Traffic Analysis



117 Commercial Street NE
 Suite 310
 Salem, OR 97301
 503.391.8773
 www.dksassociates.com



MEMORANDUM

DATE: March 14, 2014

TO: Steve Adams, P.E., City of Wilsonville

FROM: Brad Coy, P.E. *BC*
 Derek Moore, E.I.T

SUBJECT: **Villebois SAP North PDP 3 Transportation Review**

P14006-006

This memorandum documents trip generation for the Villebois Specific Area Plan (SAP) North with emphasis on Planned Development Phase (PDP) 3. Since the Master Plan approval of SAP North, the land use within this SAP has been modified, and residential units associated with PDP 1 and PDP 2 have already been approved. In addition, the site plan provided by the project sponsor¹ was reviewed to identify potential safety and mobility concerns.

The following sections of this memorandum document previous SAP North (general area) land use and trip generation assumptions, PDP 3 trip generation (current phase), and the site plan impacts for PDP 3.

SAP North Land Use/Trip Generation

The *Villebois Master Plan*² initially approved SAP North for 252 single family units, 71 condo/townhouse units, and 30 apartments for a total of 353 residential units, along with 5,000 square feet of commercial space and a 47,000 sq. ft. primary school. Table 1 shows the estimated trip generation for SAP North based on the *Master Plan* unit counts and assumptions regarding trip generation rates. As shown, the original SAP North land uses were approved for 447 (268 in, 179 out) p.m. peak hour trips.

¹ *PDP 3N Villebois*, Polygon Northwest Company, January 1, 2014.

² *Villebois Urban Village Master Plan Amendment Transportation Study*, DKS Associates, June 2005



Table 1: Master Plan Approved SAP North Trip Generation (based on assumed trip generation rates)

Land Use (ITE Code)	Size	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	252 units	1.01 trips/unit	161	94	255
Condo/Townhome (230)	71 units	0.52 trips/unit	25	12	37
Apartments (220)	30 units	0.62 trips/unit	12	7	19
Shopping Center (820)	5 KSF	3.75 trips/KSF	9	10	19
School	47 KSF	3 trips/KSF	73	68	141
Total Trips			280	191	471
<i>Internal Trips^a</i>			-9	-9	-18
<i>Pass-By Trips^b</i>			-3	-3	-6
Net New Trips			268	179	447

^a Internal trip rates from ITE's *Trip Generation Manual*, 9th Edition, 2012. 5% of school trips assumed to be internal.

^b 34% of external shopping center trips

In 2013, a phasing amendment proposed that SAP North would include 423 single family units, 31 condo/townhouse units, and 10 apartment units for a total of 464 residential units. As shown in Table 2, the proposed land uses would generate 449 (284 in, 165 out) p.m. peak hour trips, which would only result in 2 additional p.m. peak hour trips as compared with the prior *Master Plan* approval.

Table 2: Proposed SAP North Trip Generation

Land Use (ITE Code)	Size	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	423 units	1.01 trips/unit	269	158	427
Condo/Townhome (230)	31 units	0.52 trips/unit	11	5	16
Apartments (220)	10 units	0.62 trips/unit	4	2	6
Total Trips			284	165	449

SAP North PDP 3 Trip Generation

SAP North is broken into approximately seven PDPs, with the current phase being PDP 3 (i.e. the 3rd phase). Prior transportation studies determined that SAP North PDP 1 would generate 137 (87 in, 50 out) p.m. peak hour trips and that SAP North PDP2 would generate approximately 91 (57 in, 34 out) p.m. peak hour trips.

It is currently proposed that PDP 3 consist of 84 single-family residential units. This is 17 units less than the 101 units that were proposed for PDP 3 in the 2013 phasing amendment. Table 3 shows the estimated trip generation for PDP 3 based on the revised unit count. As shown, the 84 proposed single family detached residential units planned for PDP 3 would generate approximately 85 (54 in, 31 out) p.m. peak hour trips. The



decrease in the proposed number of units would result in 17 p.m. peak hour trips less than what was estimated for the 2013 phase amendment (15 less than the *Master Plan* approval).

Table 3: PDP 2 P.M. Peak Hour Trip Generation

Land Use (ITE Code)	Number of Units	Average Trip Generation Rate	Number of New Trips		
			In	Out	Total
Single Family Units (210)	84	1.01 trips/unit	54	31	85
TOTAL	84	-	54	31	85

Site Plan Evaluation

DKS reviewed the current site plan provided by the project sponsor, and the site plan comments are summarized below:

- **Roadway Alignment:** SW Rome Avenue should be aligned with the alley to the north, which is currently shown offset to the east by approximately 50 feet. This may be accomplished by shifting two of the lots from the east to the west side of SW Rome Avenue.

Summary

A summary of key findings relating to the SAP East PDP 3E review include the following:

- The proposed current phase for SAP North (PDP 3) consists of 84 single family detached units which are expected to generate 85 (54 in, 31 out) p.m. peak hour trips. This would result in 17 p.m. peak hour trips less than what was estimated for the 2013 phase amendment and 15 less than the *Master Plan* approval. Therefore, it is within approved levels.
- SW Rome Avenue should be aligned with the alley to the north, which is currently shown offset to the east by approximately 50 feet. This may be accomplished by shifting two of the lots from the east to the west side of SW Rome Avenue.

Please let us know if you have any questions or comments.



Appendix

Villebois (updated 1/28/14)

Land Use Table

LAND USE	SAP NORTH	SAP SOUTH	SAP EAST	SAP CENTRAL	TOTAL
Estate	22	0	0	0	22
Large	41	104	0	0	145
Standard	22	68	49	0	139
Medium	89	127	112	0	328
subtotal	174	299	161	0	634
Small Detached	214	158	226	8	606
Small Attached / Cottage	49	0	147	9	205
Rowhouse	0	103	42	138	283
Nbhd Apartments	10	21	0	0	31
Village Apartments	0	0	0	411	411
Condos	0	0	0	124	124
Urban Apartments	0	0	0	90	90
Mixed Use Condos	0	0	0	104	104
Specialty Condos	0	0	0	127	127
subtotal	273	282	415	1,011	1,981
TOTAL UNITS	447	581	576	1,011	2,615

SAP North (updated 1/28/14)

Existing (reflects proposed phasing amendment)

Product Type	PDP 1N**	PDP 2N***	3N	3A N	4N	5N	6N*	Total
Estate	0	0	0	0	2	15	5	22
Large	0	0	2	1	8	8	3	22
Standard	2	10	16	0	0	0	5	33
Medium	30	6	22	4	6	0	17	85
Small	98	37	30	4	7	0	36	212
Small Cottage	12	37	0	0	0	0	0	49
Row House	0	0	31	0	0	0	0	31
Nbhd Apartment	0	0	0	0	0	0	10	10
Total	142	90	101	9	23	23	76	464

* Includes PDP 6N units added back due to School relocation to SAP East.

**Includes PDP 1 North modifications approved in 2011 & 2013.

***Includes PDP 2 North approved in 2013.

Proposed

Product Type	PDP 1N**	PDP 2N***	3N	3A N	4N	5N	6N*	Total
Estate	0	0	0	0	2	15	5	22
Large	0	0	21	1	8	8	3	41
Standard	2	10	5	0	0	0	5	22
Medium	30	6	26	4	6	0	17	89
Small	98	37	32	4	7	0	36	214
Small Cottage	12	37	0	0	0	0	0	49
Row House	0	0	0	0	0	0	0	0
Nbhd Apartment	0	0	0	0	0	0	10	10
Total	142	90	84	9	23	23	76	447

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LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
LT	LANDSCAPE TRACT
PP	POCKET PARK

LOT COUNT:

32	SMALL LOTS
26	MEDIUM LOTS
5	STANDARD LOTS
21	LARGE LOTS
84	TOTAL

LAND AREA TABLE:

TOTAL AREA:	15.16 AC
PUBLIC STREETS:	4.49 AC
OPEN SPACE / PARK AREAS:	2.07 AC
LOTS & ALLEYS:	8.60 AC
AVG. DENSITY PER NET ACRE:	84 / 8.60 = 9.77 UNITS / AC

FOR TYPICAL LOT PLANS SEE SHEET 9.



POLYGON NW COMPANY



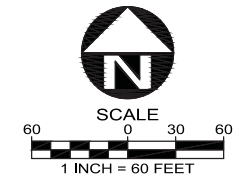
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PDP 3N
VILLEBOIS**

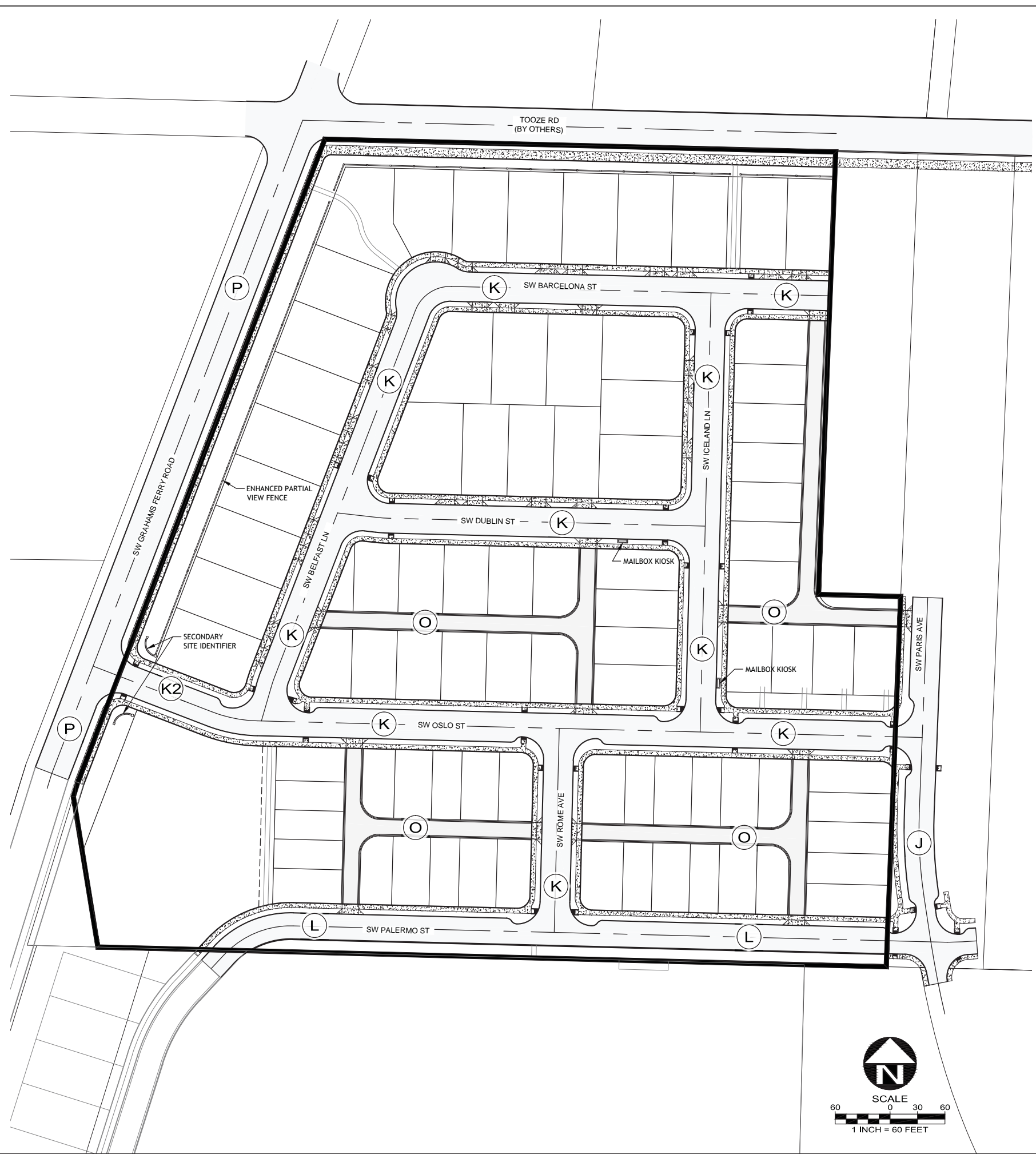
**Preliminary
Development Plan**

**Site/Land Use
Plan**

DATE 1/31/



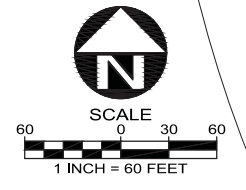
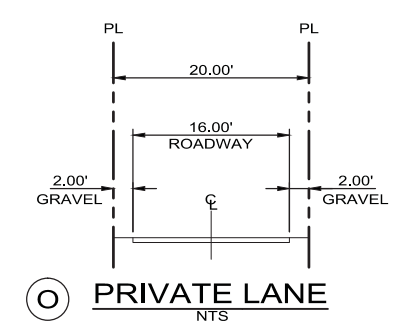
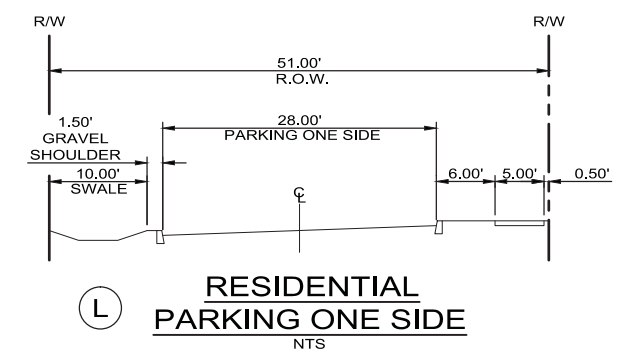
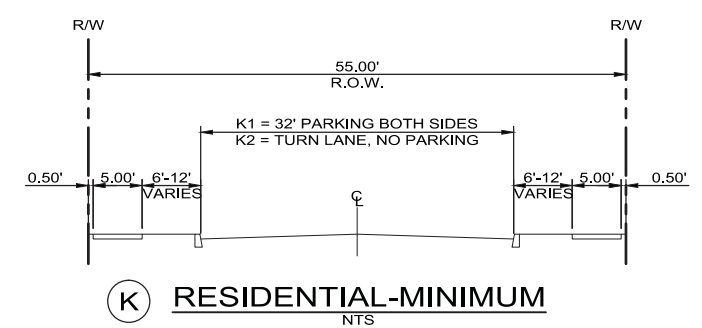
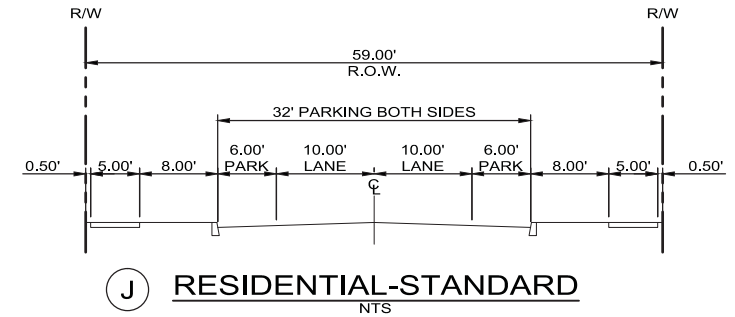
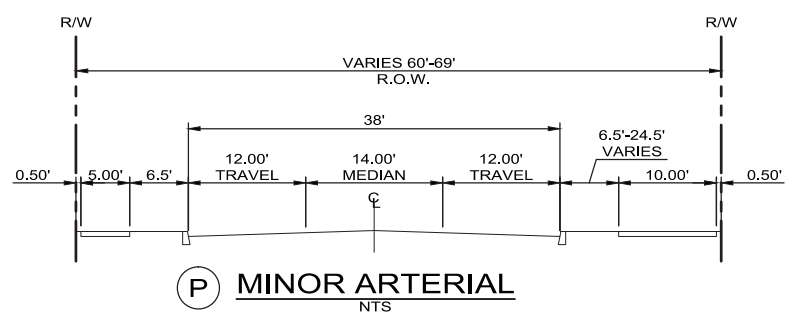
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LEGEND:

(P) ROAD SECTION TYPE
SEE THIS SHEET FOR DETAILS

— PROJECT BOUNDARY LINE



OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

**PDP 3N
VILLEBOIS**

**Preliminary
Development Pla**

**Circulation
Plan &
Street Sections**

DATE 1/31/

III E
Tree Report

**Villebois PDP 3 North – Wilsonville, Oregon
Tree Maintenance and Protection Plan
January 30, 2014**

MHA1405

Purpose

This Tree Maintenance and Protection Plan for the Villebois Preliminary Development Plan (PDP) 3 North project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code, Section 4.610.40. This arborist report describes the existing trees located on the project site, as well as recommendations for tree removal, retention, mitigation, and protection. This report is based on observations made by International Society of Arboriculture (ISA) Certified Arborist and Qualified Tree Risk Assessor Morgan Holen (PN-6145A) during a site visit conducted on January 28, 2014.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Polygon Northwest Company to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with development, and to develop a tree maintenance and protection plan for the project. The site is planned for residential development. A site plan was provided by Pacific Community Design illustrating the location of trees and tree survey point numbers, and potential construction impacts.

Visual Tree Assessment (VTA¹) was performed on individual trees located across the site, except for a group of approximately 113 Oregon ash (*Fraxinus latifolia*) trees located with the wetland boundaries that are planned for preservation during construction. Trees were evaluated in terms species, size, general condition, and potential construction impacts, and treatment recommendations include retain, remove for construction or because of poor or hazardous condition, or likely to be removed due to construction impacts. Following the inventory fieldwork, we coordinated with Pacific Community Design to discuss and finalize treatment recommendations based on the proposed site plan.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The Villebois PDP 3 North project site includes the Rumpf and Taber properties located east of Graham's Ferry Road and south of Tooze Road. Both properties have existing homes and open pastures. The existing trees are scattered across the site, but numerous trees are found around the Taber's home and in the wetland on the Rumpf property.

In all, 41 trees measuring 6-inches and larger in diameter were inventoried including 18 tree species. Table 1 provides a summary of the count of trees by species. A complete description of individual trees is provided in the enclosed tree data.

¹ Visual Tree Assessment (VTA): The standard process of visual tree inspection whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality.

Table 1. Count of Trees by Species – Villebois PDP 3 North, Wilsonville, OR.

Common Name	Species Name	Total	%
Atlas cedar	<i>Cedrus atlantica</i>	1	2.44%
black locust	<i>Robinia Pseudoacacia</i>	1	2.44%
blue spruce	<i>Populus trichocarpa</i>	1	2.44%
dogwood	<i>Cornus spp.</i>	1	2.44%
Douglas-fir	<i>Pseudotsuga menziesii</i>	9	21.95%
English hawthorn	<i>Crataegus monogyna</i>	1	2.44%
European white birch	<i>Betula pendula</i>	2	4.88%
fruit	unknown	11	26.83%
giant sequoia	<i>Sequoiadendron giganteum</i>	1	2.44%
ginkgo	<i>Ginkgo biloba</i>	1	2.44%
lodgepole pine	<i>Pinus contorta</i>	3	7.32%
mimosa	<i>Albizia julibrissin</i>	1	2.44%
Norway maple	<i>Acer platanoides</i>	1	2.44%
Oregon white oak	<i>Quercus garryana</i>	1	2.44%
ponderosa pine	<i>Pinus ponderosa</i>	3	7.32%
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	1	2.44%
red maple	<i>Acer rubrum</i>	1	2.44%
western redcedar	<i>Thuja plicata</i>	1	2.44%
Total		41	100%

The tree inventory includes one (2.44%) Oregon white oak, but no native yews (*Taxus spp.*) or any species listed by either the state or federal government as rare or endangered were found on the site. The Oregon white oak, tree # 17236, is located in the northwest corner of the project site. This tree has codominant stems that are actively separating from one another; there is an obvious seam running from the open cavity to the ground and advanced stem and basal decay (photo 1).



Photo 1. Tree #17239, an Oregon white oak, has codominant stems actively separating from one another and a hollow with advanced decay.

Using the International Society of Arboriculture Best Management Practices for Tree Risk Assessment (2011), this tree has an *imminent* likelihood of failure and *high* likelihood of impacting a target, which means that the likelihood of failure and impact is *very likely*; considering that the consequences would be *significant*, this tree has *high* risk potential. Removal of this Oregon white oak is recommended because of hazardous condition and no reasonable risk abatement options are feasible. However, it is the property owner’s responsibility to determine the threshold level of risk they are willing to accept and Polygon is planning to retain this tree.

Tree Plan Recommendations

As described in the enclosed tree inventory data, individual trees were assigned a general condition rating as defined by the Villebois Specific Area Plan North Community Elements Book:

P: Poor Condition

M: Moderate Condition

G: Good Condition

I: Important Condition

Note that none of the trees were classified as “Important”, however trees #10478, a 61-inch diameter giant sequoia (*Sequoiadendron giganteum*), and #10499, a 27-inch diameter Douglas-fir, both classified in “Good” condition, were noted as being in excellent condition with long live crowns and no major defects.

In addition to the 113 non-inventoried Oregon ash trees located within the wetland boundaries that are planned for preservation, seven (17.1%) of the 41 inventoried trees are planned for preservation, 26 (63.4%) are planned for removal, and eight (19.5%) trees in good condition are likely to be removed. Table 2 provides a summary of the count of trees by general condition rating and treatment recommendation.

Table 2. Count of Trees by Treatment Recommendation and General Condition Rating.

Treatment Recommendation	General Condition Rating			Total
	P	M	G	
Retain		2	5	7 (17.1%)
Remove	8	13	5	26 (63.4%)
Likely to be Removed			8	8 (19.5%)
Total	8 (19.5%)	15 (36.6%)	18 (43.9%)	41 (100%)

Of the 26 trees planned for removal, 17 (65%) are recommended for removal because of condition and nine (35%) are recommended for removal for the purposes of construction, including five trees in good condition.

The eight trees classified as likely to be removed shall be accounted for as removed for the purposes of mitigation, but re-evaluated during construction in terms of long-term sustainability, and retained or removed at that time. These trees will be protected during construction, but if the arborist determines that a tree is not sustainable with construction impacts, the arborist shall submit a brief memorandum to the City documenting the change in treatment recommendation to seek written authorization to

proceed with removal and mitigation. If a tree likely to be removed is successfully protected throughout construction, no mitigation will be required for the tree.

Mitigation Requirements

All 41 inventoried trees are 6-inches or larger in diameter, including seven trees planned for retention with protection throughout construction and 34 trees planned for removal because of condition and/or construction or are likely to be removed because of construction. Removal of these 34 trees requires mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, 34 trees measuring at least 2-inch in diameter shall be planted as mitigation for tree removal.

Tree Protection Standards

Trees designated for retention will need special consideration to assure their protection during construction. We highly recommend a preconstruction meeting with the owner, contractors, and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

- **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines. Fences shall be 6-foot high steel on concrete blocks or orange plastic construction fencing on metal stakes. The project arborist shall determine the exact location and type of tree protection fencing. Trees located more than 30-feet from construction activity shall not require fencing.
- **Tree Protection Zone.** Without authorization from the Project Arborist, none of the following shall occur beneath the dripline of any protected tree:
 1. Grade change or cut and fill;
 2. New impervious surfaces;
 3. Utility or drainage field placement;
 4. Staging or storage of materials and equipment; or
 5. Vehicle maneuvering.

Root protection zones may be entered for tasks like surveying, measuring, and, sampling. Fences must be closed upon completion of these tasks.

- **Pruning.** Pruning may be needed to provide for overhead clearance and to remove dead and defective branches for safety. The project arborist can help identify where pruning is necessary once trees recommended for removal have been removed and the site is staked and prepared for construction. Tree removal and pruning shall be performed by a Qualified Tree Service.
- **Excavation.** Excavation beneath the dripline of protected trees shall be avoided if alternatives are feasible. Otherwise, the project arborist shall provide on-site consultation during all excavation activities beneath the dripline of protected trees. Excavation immediately adjacent to roots larger than 2-inches in diameter within the root protection zone of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, major roots shall be protected by tunneling or other means to avoid destruction or damage. Exceptions can be made if, in the opinion of the project arborist, unacceptable damage will not occur to the tree. Where soil grade changes affect the root protection area, the grade

line should be meandered wherever practicable. This will require on-site coordination to ensure a reasonable balance between engineering, construction, and the need for tree protection.

- **Surfacing.** If surfacing is proposed beneath the dripline of protected trees, coordinate with the project arborist to provide recommendations for adjustments to protection fencing and to monitor construction in the tree protection zone. Avoid excavation and use a modified profile to build up from existing grade (Figure 1). The profile includes a layer of permeable geotextile fabric on the ground surface and crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials. If excavation is necessary, work shall be performed under arborist supervision.

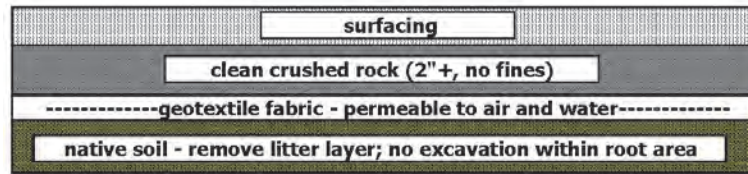


Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

- **Landscaping.** Following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the dripline of protected trees, but not directly against tree trunks. Shrubs and ground covers may be planted within tree protection areas. If irrigation is used, use drip irrigation only beneath the driplines of protected trees.
- **Quality Assurance.** The project arborist should supervise proper execution of this plan during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City on a regular basis throughout construction.

Summary

In summary, seven trees are planned for retention with construction (in addition to the approximately 113 Oregon ash trees located within the wetland boundaries), an additional eight trees will be protected but are likely to be removed during construction, and 26 trees are recommended for removal either because of condition or for the purposes of construction. The 26 trees planned for removal will require mitigation on a one-for-one basis and the eight trees likely to be removed will require mitigation if removed.

Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Villebois PDP 3 North project. Please contact us if you have questions or need any additional information.

Thank you,
Morgan Holen & Associates, LLC

Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: Villebois PDP 3 North – Tree Data 1-28-14

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10442	17236	Oregon white oak	<i>Quercus garryana</i>	60		M	codominant stems at 6' coming apart; advanced decay; high risk; remove for hazardous condition	retain
10443	17237	English hawthorn	<i>Crataegus monogyna</i>	16		M	invasive species, poor structure	remove - construction
10444	17238	black locust	<i>Robinia pseudoacacia</i>	18		G	invasive species, dead branches	remove - construction
10463		Douglas-fir	<i>Pseudotsuga menziesii</i>	45		M	poor crown structure, dead and broken branches	remove - construction
10464		Douglas-fir	<i>Pseudotsuga menziesii</i>	26	24	G	codom branches, some included bark, appears stable	retain
10465		ponderosa pine	<i>Pinus ponderosa</i>	19	12	M	poor crown structure; retain with adjacent trees only	retain
10466		Atlas cedar	<i>Cedrus atlantica</i>	27	20	G	numerous leaders	retain
10467		lodgepole pine	<i>Pinus contorta</i>	10		M	small crown, sequoia pitch moth	remove - condition
10468		lodgepole pine	<i>Pinus contorta</i>	9		P	poor crown structure, sequoia pitch moth	remove - condition
10469		lodgepole pine	<i>Pinus contorta</i>	9		P	dead branches, poor crown structure, sequoia pitch moth	remove - condition
10470		ginkgo	<i>Ginkgo biloba</i>	8	8	G	no major defects	retain
10471		Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	G	few broken branches	likely to be removed
10472		blue spruce	<i>Picea pungens</i>	15		M	twig dieback, suspect adelgid	remove - condition
10473		Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	11	G	no major defects	remove - construction
10473.1		dogwood	<i>Cornus spp.</i>	6	14	G	prune dominant trees for crown clearance if retained	likely to be removed
10474		ponderosa pine	<i>Pinus ponderosa</i>	21	12	G	multiple leaders, sequoia pitch moth	likely to be removed
10475		western redcedar	<i>Thuja plicata</i>	28	16	G	no major defects	likely to be removed
10476		ponderosa pine	<i>Pinus ponderosa</i>	21	10	M	multiple leaders, sequoia pitch moth, prune if retained	remove - construction
10477		Norway maple	<i>Acer platanooides</i>	20	22	G	invasive species	remove - construction

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10478		giant sequoia	<i>Sequoiadendron giganteum</i>	61	16	G	excellent condition, long live crown, no major defects	remove - construction
10479		mimosa	<i>Albizia julibrissin</i>	20		P	codom stems at 1' coming apart, advanced basal and stem decay	remove - hazardous
10480		red maple	<i>Acer rubrum</i>	15	18	G	scaffold branch with included bark	likely to be removed
10481		Douglas-fir	<i>Pseudotsuga menziesii</i>	25	22	G	broken top	likely to be removed
10482		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	18	G	few dead twigs	likely to be removed
10483		Douglas-fir	<i>Pseudotsuga menziesii</i>	22	16	G	no major defects	likely to be removed
10484		fruit	unknown	20		M	poor crown structure	remove - condition
10485		fruit	unknown	10		M	poor crown structure	remove - condition
10486		fruit	unknown	5,6,8,9		M	poor crown structure	remove - condition
10487		fruit	unknown	10,14		M	poor crown structure	remove - condition
10488		fruit	unknown	13		G	no major defects	remove - construction
10489		Douglas-fir	<i>Pseudotsuga menziesii</i>	33		M	codom stems, included bark, seam	remove - hazardous
10490		Douglas-fir	<i>Pseudotsuga menziesii</i>	2*32	24	G	codom at 4', some included bark, appears stable	retain
10491		European white birch	<i>Betula pendula</i>	2*12		P	invasive species, poor structure	remove - condition
10492		European white birch	<i>Betula pendula</i>	8,2*12		P	invasive species, poor structure	remove - condition
10493		fruit	unknown	8		P	branch and stem decay	remove - condition
10494		fruit	unknown	10		P	branch and stem decay	remove - condition
10495		fruit	unknown	8		P	stem decay, small live crown	remove - condition
10496		fruit	unknown	12		M	no major defects	remove - construction
10497		fruit	unknown	8		M	poor crown structure	remove - condition
10498		fruit	unknown	7		M	no major defects	remove - condition
10499		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	20	G	excellent condition, long live crown, no major defects	retain

*DBH: Diameter at Breast Height (measured 4.5-feet above ground level in inches); trees with multiple trunks splitting below DBH are measured separately and individual trunk measurements are separated

^C-Rad: Crown Radius, the distance from the center of the tree to the edge of the dripline (measured in feet)

#Condition Codes: I-Important; G-Good; M-Moderate; P-Poor

III F
Conceptual Elevations



Color Option Legend

- (A)** ACCENT 1
 - (B)** ACCENT 2
 - (C)** ACCENT 3
 - (D)** BODY
 - (E)** BASE
- WINDOW, TRIM & COLUMNS
5" LAP SIDING SIDING
DOOR & SHUTTERS
- STUCCO SIDING
STONE VENEER



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 Polygon Northwest Company

**Small Detached (French Revival)
 Front Elevation**

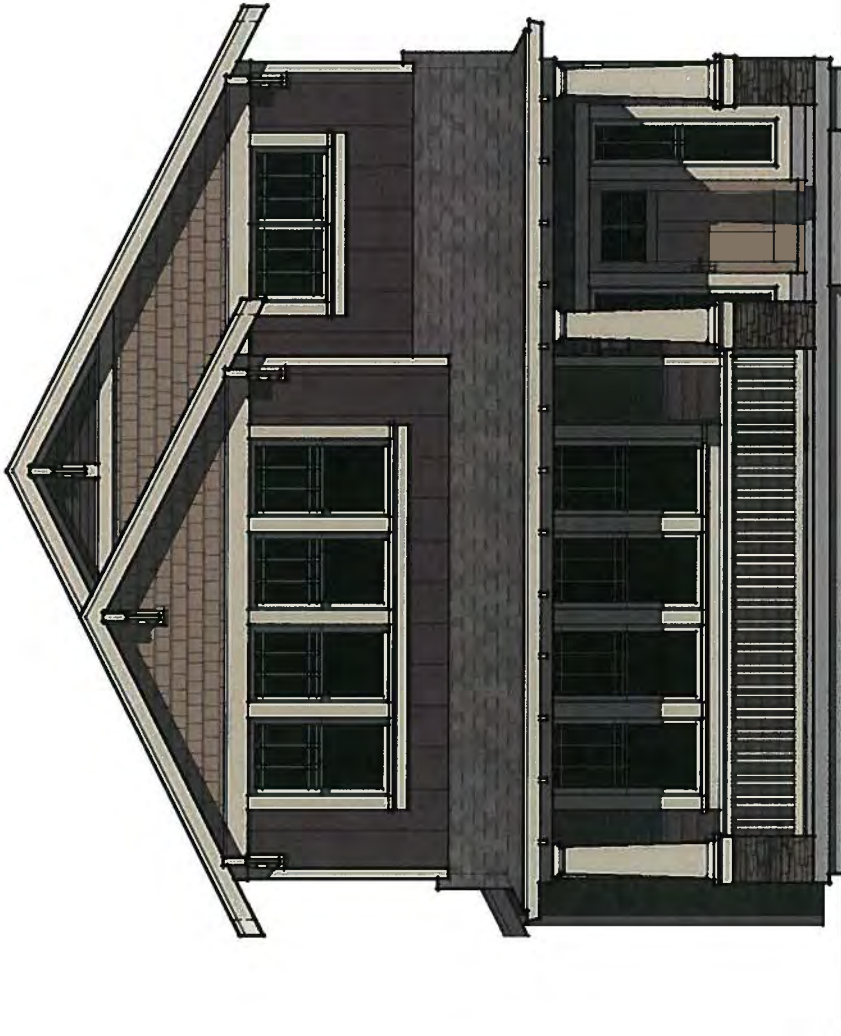
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Sheet No. 7 of 1119

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- (D) 5" LAP SIDING
- (E) ACCENT 3
- (F) DODGE & SHINGLE
- (G) BODY
- (H) BOARD & BATTEN
- (I) BASE
- (J) STONE VENEER



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Small Detached (American Modern) Front Elevation

Scale: 1/4" = 1'-0"	Room No: RT/AF	Date: 11-07-12	Rev: 11-07-12
Sheet No: 8			1119

Color Option Legend

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WINDOW, TRIM & COLUMNS
- B** BODY
5" LAP SIDING SIDING
- C** ACCENT 2
DOOR & SHUTTERS



EXHIBIT 0001 - 20250524-0001

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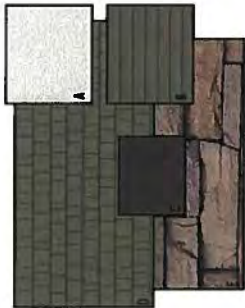
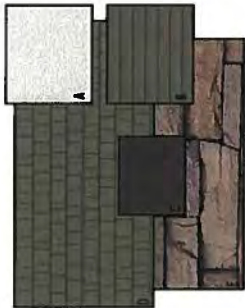
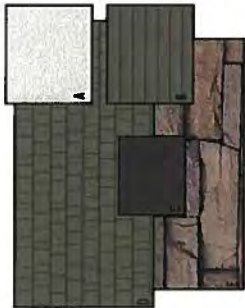
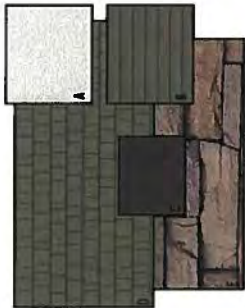
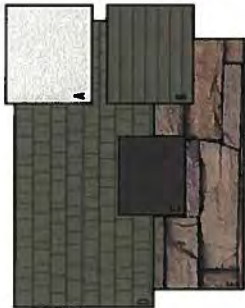
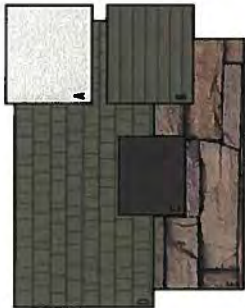
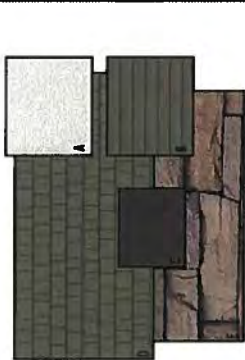
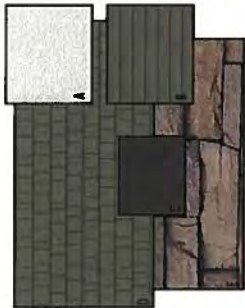
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Rev. No.	11-07-12



Color Option Legend

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- (B) WINDOW, TRIM & COLUMNS
- (C) ACCENT 2
- (D) ACCENT 3
- (E) BODY SHINGLE
- (F) 5" LAP SIDING
- (G) BASE STONE VENEER
- (H) DOOR & VENT



EXAMPLE - 280V38E-006



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**Medium Detached (American Modern)
 Front Elevation**

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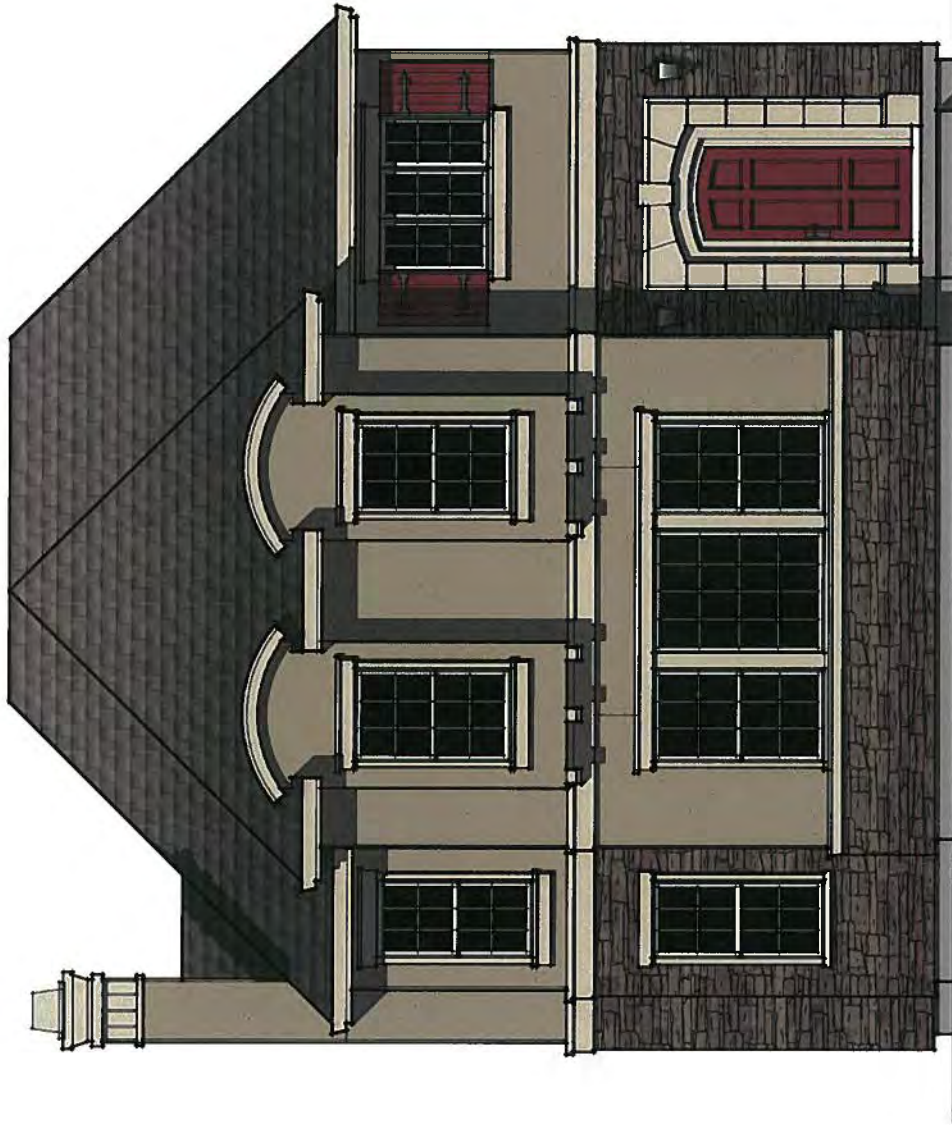
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Rev. No.: 11-07-12

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Color Option Legend

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- (B)** ACCENT 2
- (C)** BODY
- (D)** STUCCO SIDING
- (E)** WINDOW, TRIM & COLUMNS
- (F)** BASE
- (G)** STONE VENEER



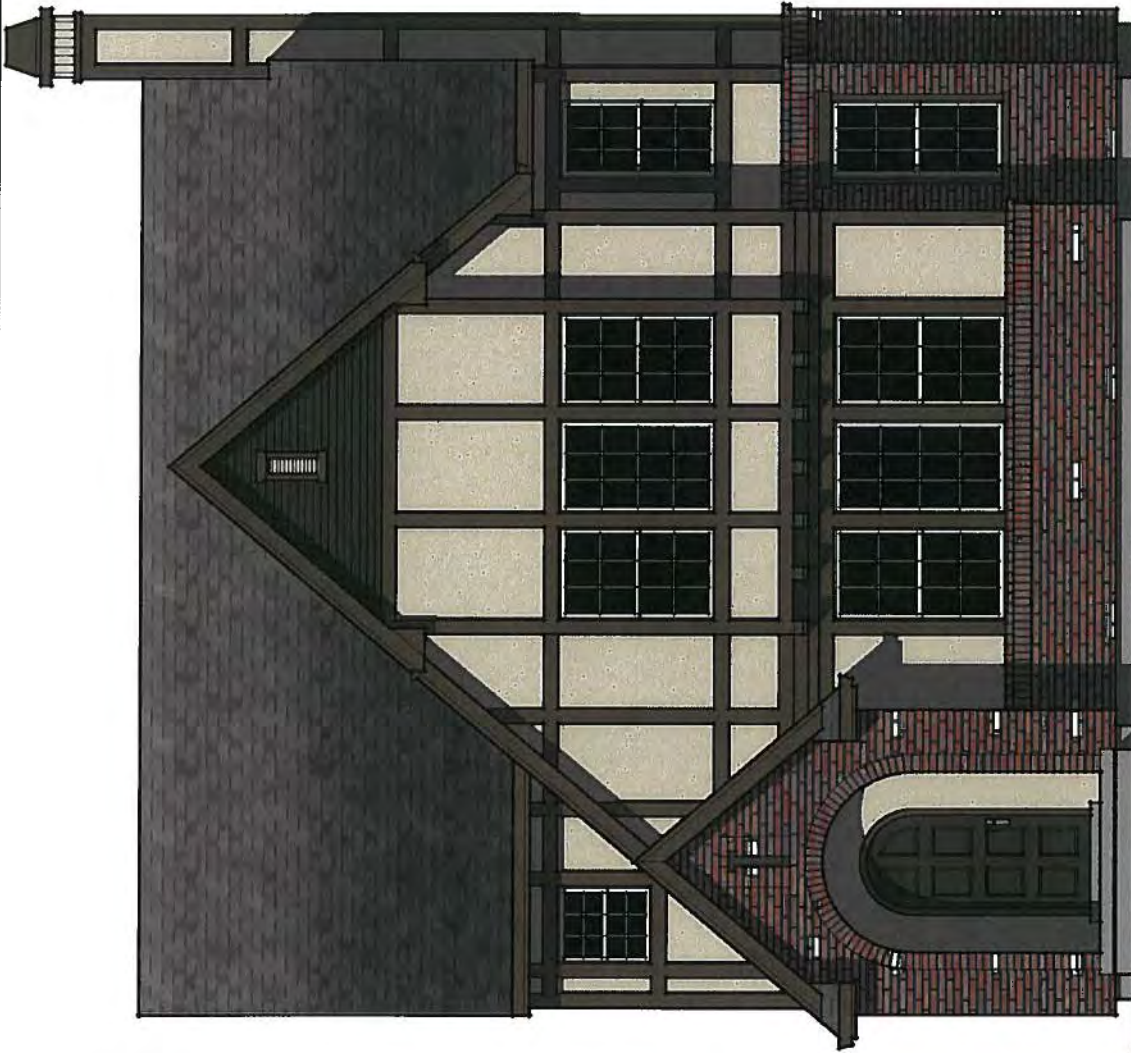
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Medium Detached (French Revival) Front Elevation				11

Color Option Legend

- (A) ACCENT 1
- (B) WINDOW & TRIM
- (C) ACCENT 2
- (D) DOOR & VENT
- (E) BODY
- (F) STUCCO SIDING
- (G) BASE
- (H) BRICK VENEER



Sheet No. **12**
 Job No. 1119

Medium Detached (English Revival)
Front Elevation
 Scale: 1/4" = 1'-0"
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① Front Elevation
1/4" = 1'-0"

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Villebois II Single Family

Willamette, OR

Polygon Vancouver

40 ft Alley - C American Classic
 Front Elevation

Scale: 1/4" = 1'-0"
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 Date: 11 FEB 2014

Sheet No. **Bank 10**
 Date: 1348



① Front Elevation
1/4" = 1'-0"

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Villebois II Single Family
 Willacreville, OR
Polygon Vancouver

40 ft Alley - B American Modern
 Front Elevation
 Scale: 1/4" = 1'-0"
 Drawn by: JRT, AH
 Date: 11 FEB 2014

Sheet No. **Bank 8**
 Job No. 1348



① Front Elevation
1/4" = 1'-0"

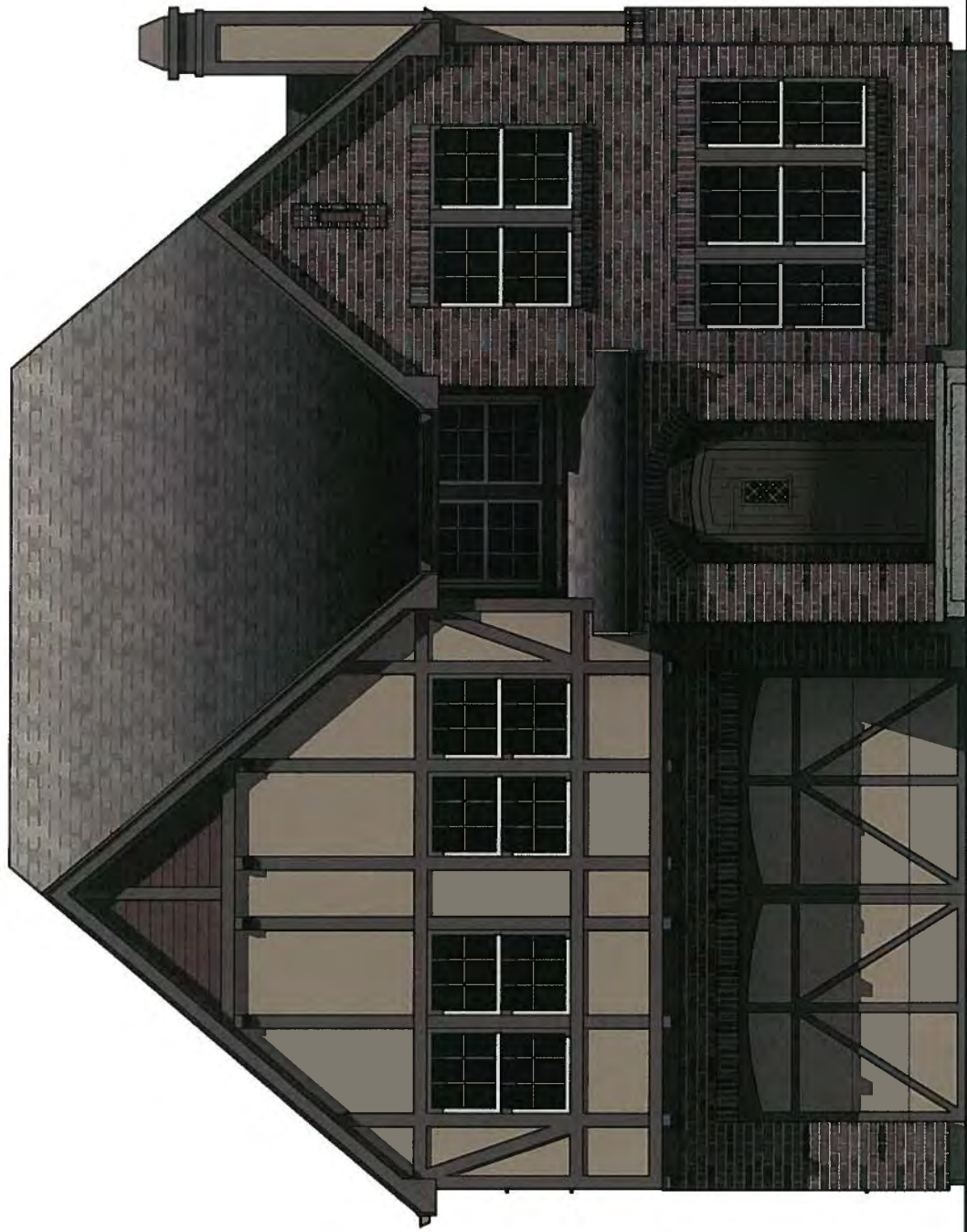
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Villebois II Single Family
 Willacreville, OR
Polygon Vancouver

40 ft Alley - A English Revival
 Front Elevation

Sheet No. **Bank 7**
 1348

Scale: 1/4" = 1'-0"
 Drawn by: JRT-AH
 Date: 11 FEB 2014
 Date Revised:



① Front Elevation
1/4" = 1'-0"

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Villebois II Single Family
 Willcooville, OR
 Polygon Northwest Company

4017-A English Revival
 Front Elevation

Scale: 1/4" = 1'-0" Date: RT, AH Date Plotted: 11 FEB 2014

Sheet No. **BANK 1**
 1348



① Front Elevation
1/4" = 1'-0"

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 25 Central Way, Suite 210, Kirkland, Washington 98033
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Villebois II Single Family
 Wilsonville, OR
 Polygon Northwest Company

4017-B American Modern
 Front Elevation

Sheet No. **BANK 2**
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 Author: [Name]

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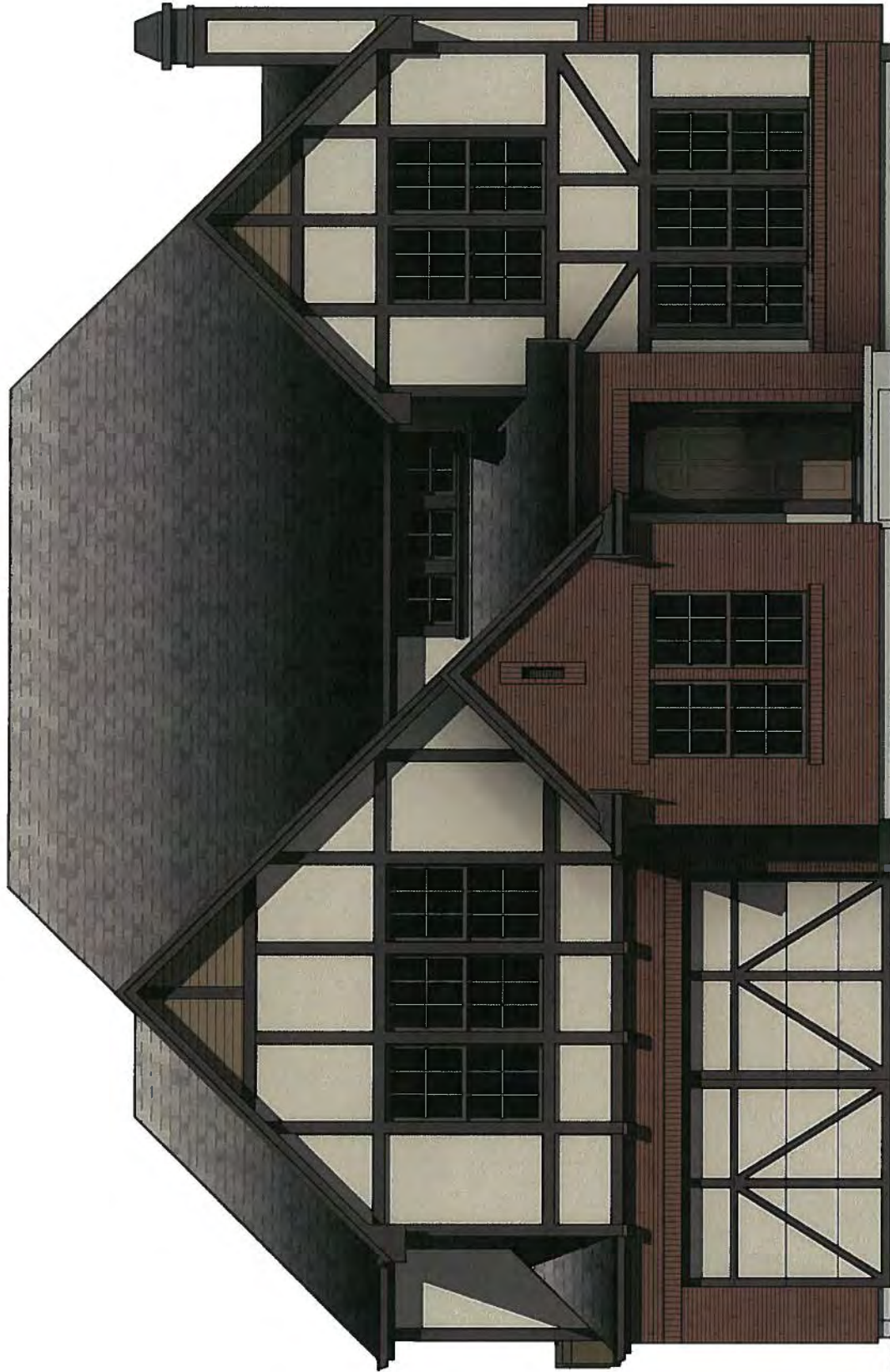


① Front Elevation
1/4" = 1'-0"

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Villebois II Single Family
 Willsonville, OR
 Polygon Northwest Company

4017-D French Revival
 Front Elevation
 Scale: 1/4" = 1'-0"
 Drawn by: RTT, AH
 Date: 11 FEB 2014
 User Name:



① Front Elevation
1/4" = 1'-0"

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Villebois II Single Family

Willacreville, OR

Polygon Vancouver

5017 - A English Revival
 Front Elevation

1/4" = 1'-0"

RT, AH

11 FEB 2014

Bank
4

1348



① Front Elevation
1/4" = 1'-0"

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 Phone: 425-447-1130 Fax: 425-438-1200
 Website: <http://www.milbrandtarch.com>

Villebois II Single Family
 Willbournville, OR
 Polygon Vancouver

5017 - B American Modern
 Front Elevation

Scale: 1/4" = 1'-0"
 Date: RT, AH
 Date Plotted: 11 FEB 2014

Plot No. **Bank 5**
 Job No. 1348



① Front Elevation
1/4" = 1'-0"

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 25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-884-7288 Fax: 425-884-7288 Website: <http://www.milbrandt.com>

Villebois II Single Family
 Willacreville, OR
Polygon Vancouver

5017 - D French Revival
 Front Elevation
 Scale: 1/4" = 1'-0"
 Drawn by: RT, AH
 Date: 11 FEB 2014

Sheet No. **Bank 6**
 1348

IIIG
SRIR Addendum &
Wetland Delineation Report

**PHASE 3 SAP NORTH
SIGNIFICANT RESOURCE IMPACT REPORT ADDENDUM
WILSONVILLE, OREGON
T3S, R1W, SECTION 15, TAX LOTS 1200, 1202 and 1205
CLACKAMAS COUNTY, W.M.**

Prepared for

Polygon Northwest Company
109 East 13th Street
Vancouver, Washington 98660

Prepared by



SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205-2235
503.224.0333
www.swca.com

March 2014

SWCA Project No. 21087.11

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- A. PDP 3N Preliminary Development Plan
- B. Site Photographs
- C. Wetland Delineation Report & 2007 Concurrence Letter

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INTRODUCTION

A Significant Resource Impact Report (SRIR) was submitted to the City of Wilsonville in March 2013 for SAP South Plan Area 2. The SRIR included an accounting of the proposed encroachments into the SROZ and the proposed SROZ mitigation for multiple phases of the Villebois development including SROZ encroachment and mitigation for the Phase 3 North development. The preliminary site development plan for Phase 3 North has been developed (Attachment A), and this addendum includes slight revisions to the proposed SROZ encroachment.

EXISTING CONDITIONS

SROZ and Impact Area Boundary

The location of the existing mapped Significant Resource Overlay Zone (SROZ) boundary and the 25-foot Impact Area boundary is shown on the preliminary site development plan. The SROZ upland forest unit as a whole consists of a closed canopy Douglas-fir (*Pseudotsuga menziesii*) forest with Oregon white oak (*Quercus garryana*) present in the southern and eastern edges of the forest. The shrub layer in the Douglas-fir community consists of beaked hazelnut (*Corylus cornuta*), ornamental hawthorn (*Crataegus monogyna*), oso berry (*Oemleria cerasiformis*), thimbleberry (*Rubus parviflorus*), snowberry (*Symphoricarpos albus*), and scattered big leaf maple (*Acer macrophyllum*) seedlings. Groundcover is nearly 100% English ivy (*Hedera helix*), which is also growing on many tree trunks. Occasional areas of sword fern (*Polystichum munitum*) and California dewberry (*Rubus ursinus*) are present. Himalayan blackberry (*Rubus armeniacus*) is dominant in the forest edges and in the southern Oregon white oak community. The southern finger of the forest consists of an Oregon white oak canopy with a few Oregon ash (*Fraxinus latifolia*) and black cottonwood (*Populus balsamifera*) trees at the southernmost edge.

The SROZ encroachment area along the north forest edge on the PDP 3N site consists of the shrubby forest edge and is comprised of beaked hazelnut, red elderberry, serviceberry, cherry, and English holly shrubs with English ivy in the understory. Site photographs are included in Attachment B.

Wetlands

Wetlands on the PDP 3N site were delineated by Pacific Habitat Services in 2007 under Oregon Department of State Lands (DSL) file number WD #2007-0706. The concurrence letter is dated May 5, 2008. SWCA's wetland investigation was conducted using the new DSL process of requesting a reissuance of a jurisdictional determination, which is allowed by DSL for projects seeking development permits within 1 year of the 5-year expiration date of May 5, 2013.

The northern wetland "wetland A" is a very subtle depression and is difficult to see on the landscape. The wetland is dominated by colonial bent grass (*Agrostis capillaris*). We found no change in the previously delineated boundary of wetland A (0.37 acre), and we requested concurrence with the previously delineated boundary.

The southern wetland "wetland B" is a circular depressional feature dominated by an Oregon ash canopy with bare soils. It was determined to be smaller, approximately 0.45 acre instead of the 0.52 acre previously delineated. The wetland boundary follows the forested Oregon ash (*Fraxinus*

latifolia) perimeter and the edge of pugged soils. The wetland boundary was revised slightly to exclude small higher elevation areas along the edges and to conform with the geomorphic land form depression that is characteristic of Oregon ash forested wetlands.

The wetland delineation report was submitted to DSL and the Corps in November 2013 and is currently undergoing review and concurrence. The wetland delineation report is included in Attachment C. The 2007 concurrence letter is included in Appendix B of the wetland delineation report.

The two wetlands delineated on the site were not included in the study area for the City's Natural Resource Inventory (Fishman Environmental Services 2000). The two wetlands are each less than 0.5 acre in size and were not determined to be locally significant. According to the City's SROZ requirements, a 50-foot vegetated corridor is required adjacent to significant wetlands that are mapped in the City's inventory or meet the definition of a Metro Title 3 wetland, for areas where the slope adjacent to the wetland is less than 25%.

Title 3 wetlands are defined in Chapter 3.07 of Metro's Urban Grown Management Functional Plan as "wetlands of metropolitan concern as shown on the Metro Water Quality and Flood Management Area Map and other wetlands added to city or county adopted Water Quality and Flood Management Area maps consistent with the criteria in Title 3, section 3.07.340 (E) (3)" (Metro 2012).

The criteria in Metro Title 3, section 3.07.340 (E) (3) are contained in the City's development code section 4.139.10 (.02) as follows:

- A. The wetland is fed by surface flows, sheet flows or precipitation, and has evidence of flooding during the growing season, and has 60 percent or greater vegetated cover, and is over one-half acre in size; or the wetland qualifies as having intact water quality function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
- B. The wetland is in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps, and has evidence of flooding during the growing season, and is five acres or more in size, and has a restricted outlet or no outlet; or the wetland qualifies as having intact hydrologic control function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
- C. The wetland or a portion of the wetland is within a horizontal distance of less than one-fourth mile from a water body which meets the Department of Environmental Quality definition of water quality limited water body in OAR Chapter 340, Division 41 (1996).
- D. Created or restored wetlands that meet the requirements of Section 4.139.10(.02) shall be added to the Significant Resource Overlay Zone. [Added by Ord. # 674 11/16/09]

Wetland A does not meet the City's criteria for adding wetlands to the SROZ per the City's development code section 4.139.10 (.02) based on the following site conditions of Wetland A:

- A) The wetland is fed by precipitation, does not display evidence of flooding during the growing season, and it is less than 0.5 acre in size.
- B) The wetland is not in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps, it does not display evidence of flooding during the growing season, and it is less than 0.5 acre in size.

- C) The wetland is not within a horizontal distance of less than 0.25 mile from a DEQ water quality limited water body.
- D) The wetland is not a created or restored wetland meeting the requirements of section 4.139.10 (.02).

Wetland B does not meet the City’s criteria for adding wetlands to the SROZ per the City’s development code section 4.139.10 (.02) based on the following site conditions of Wetland B:

- A) The wetland is fed by precipitation and it is less than 0.5 acre in size.
- B) The wetland is not in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps and it is less than 0.5 acre in size.
- C) The wetland is not within a horizontal distance of less than 0.25 mile from a DEQ water quality limited water body.
- D) The wetland is not a created or restored wetland meeting the requirements of section 4.139.10 (.02).

On-site wetlands are not included on the City’s Natural Resource inventory and do not meet the City’s criteria for adding wetlands to the SROZ, and a vegetated corridor is not required adjacent to these wetlands.

PROPOSED IMPACTS

The Area of Limited Conflicting Use (ALCU) on the project site totals 430,988 square feet (SF), or 9.89 acres. Impacts will occur to small portions of the wildlife habitat area along the west, north, and east edges of the upland forest. The area to be impacted within the Area of Limited Conflicting Use is 18,356 SF (0.42 acre), or 4.3% of the total ALCU. The proposed mitigation area is located along the southern edge of the upland forest. The proposed wildlife habitat impact and mitigation areas are shown on the preliminary development plan in Attachment A. Table 1 summarizes the proposed function and ratios for enhancement to mitigate for impacts to upland wildlife habitat.

Table 1. Summary of proposed impacts and mitigation

Impact Type	Impact Area	Phase	Mitigation
Wildlife habitat	663 SF	PDP 1	
Wildlife habitat	3,535 SF	PDP 2N	
Wildlife habitat	325 SF	PDP 3N	46,212 SF of enhancement in southern portion of SROZ
Wildlife habitat	4,610 SF	PDP 3N	
Wildlife habitat	1,988 SF	PDP 3N	
Wildlife habitat	113 SF	PDP 3N	
Wildlife habitat	7,122 SF	PDP 2N	
TOTAL	18,356 SF		

A series of nature trails and a nature trail activity area are proposed in the SROZ as shown on the preliminary site development plan. The construction of these trails is exempt from the SROZ regulations and will be constructed in accordance with section 4.139.04 (.08) of the City’s development code. According to the City’s code, the construction of new pedestrian paths into the SROZ in order to provide access to the sensitive area or across the sensitive area is an exempt use,

provided the location of the crossing is consistent with the intent of the Wilsonville Comprehensive Plan and that paths are constructed so as to minimize and repair disturbance to existing vegetation and slope stability. The nature trail activity area is also an exempt use because it will correspond with the trail system and will be providing educational nature play opportunities. Impacts to the SROZ due construction of trails and the nature trail activity area will be minimized by careful field-siting of these features to minimize impacts to the SROZ. Trail locations shown on the preliminary development plan are general locations, and exact locations will be field located to ensure they are located to best minimize impacts to vegetation. Additional information regarding the design of the nature trail activity area will be included in the Final Development Plan. An Impact Area of 4,610 SF has been accounted for in relation to the nature play activity area to allow for a potential climbing structure or a more structured type of equipment should this be identified through the FDP review.

In summary, the nature trails and the nature trail activity area are exempt per Section 4.139.04(.08), and the following measures will be implemented to ensure minimal impact to the adjacent SROZ.

- Trails and the nature trail activity area will be field located to ensure no tree removal and no grading will occur, and they will be constructed in a way that will not impact the natural environment.
- The nature trail activity area will be sited next to trails to contain activities within close proximity to trails.
- Trails will be soft surface, and natural materials will be utilized for nature trail activity areas that will blend with the surrounding natural environment.
- For safety purposes, any nature trail activity area that children may climb on will not exceed 30 inches in height and will have wood chips placed within the fall zone.
- Coordination with the City's Natural Resources Program Manager will occur during field location and placement of nature trails and the nature trail activity area.

Impacts to the SROZ would be mitigated through natural resource enhancement at a ratio of 2 ½: 1 (mitigation:impact) in accordance with the mitigation standards in section 4.139.07 of the City's development code. An SROZ mitigation planting plan was previously submitted to the City in December 2013 which contained planting specifications for the Douglas-fir community and the Oregon white oak savanna community. Tree and shrub quantities were calculated based on the size of the disturbance in the SROZ according to the method described in Section 4.139.07(.02)(E)(1)(b) of the SROZ Ordinance. The mitigation planting plan also included information regarding performance standards, plant installation, invasive species control, maintenance, and annual monitoring and reporting. There is no change to the information contained in the previously submitted mitigation planting plan.

MITIGATION PLAN

Functional Assessment

Natural resource function ratings for the upland forest (URA#41U1) on the project site were assessed in 2000 for the City of Wilsonville's Natural Resource Inventory and are summarized in Table 2. Existing conditions of the upland forest are similar to conditions in 2000, although English ivy and Himalayan blackberry cover has increased in the outer edges of the forest. The current wildlife habitat assessment ratings are also summarized Table 2.

Table 2. Wildlife habitat assessment summary for years 2000 and 2013

Upland Habitat Function	City's Inventory Rating (2000)	Comments	Current Rating (2013)	Comments
Wildlife habitat	High	Intact, diverse structure, large size	Medium	Limited native understory due to large areas of English ivy on ground and on trees
Water quality protection	Low	No adjacent water	Low	No adjacent water
Ecological integrity	Medium	Some ivy present	Medium	Increased invasive species in forest edges
Connectivity	Low	Surrounded by agricultural lands	Low	Surrounded by agricultural lands and residential development
Uniqueness	Low	--	Low	--

Minimal adverse impacts to significant wildlife habitat resources and ecological integrity may result from minor encroachment by access roads along the forest edge and by inclusion of a trail system in the eastern edge of the forest interior. These impacts are summarized in Table 3.

Table 3. Summary of adverse ecological impacts

Upland Habitat Function	Anticipated Adverse Impact?	Comments
Wildlife habitat	No	Minor impacts to the interior forest habitat will occur due to construction of a trail connection. The wildlife habitat function of forest interior habitat has been reduced since the 2000 inventory due to ongoing encroachment of invasive species. Invasive species will be removed and native shrubs will be planted to improve the quality of this function.
Water quality protection	No	This function is currently low, and development is not anticipated to result in a change to this function.
Ecological integrity	No	Minor impacts to the ecological integrity of interior forest habitat may occur due to the potential for introduction of invasive species along the edges of the trail. The ecological integrity of the forest has been affected due to encroachment of invasive species. Invasive species will be removed and native shrubs will be planted to improve the quality of this function.
Connectivity	No	This function is currently low due to surrounding agricultural fields, roads, and residential development, and no change will occur due to site development..
Uniqueness	No	This function is currently low, and no change will occur due to site development.

Upland Wildlife Habitat Mitigation

As previously stated, an SROZ mitigation planting plan was submitted to the City in December 2013 which contained planting specifications and mitigation performance standards. There is no change to the information contained in the previously submitted mitigation planting plan.

The current assessment of habitat functions on the site determined that the existing wildlife habitat and ecological integrity functions are medium due to invasive plants in the understory along the forest edges. The upland wildlife habitat mitigation goal is to improve these functions to a “high” rating. According to the ratios established in Table NR-4 in Section 4.139.07 of the City’s Significant Resource Overlay Zone (SROZ) Ordinance, to improve a function from a medium rating to a high rating, it will require mitigation at a ratio of 2.5:1. Therefore, to compensate for impacts to 18,356 SF of wildlife habitat, a minimum of 45,890 SF would need to be enhanced. The applicant is proposing to conduct 46,212 square feet of enhancement.

LIST OF PREPARERS



Stacy Benjamin
Senior Wetland Ecologist
Fieldwork and Report Preparation



C. Mirth Walker, PWS, CWD
Senior Wetland Scientist
Report Quality Assurance/Quality Control

ATTACHMENT A

PDP 3N Preliminary Development Plan

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Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Plan

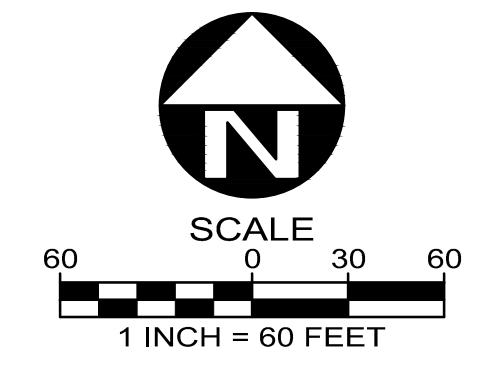
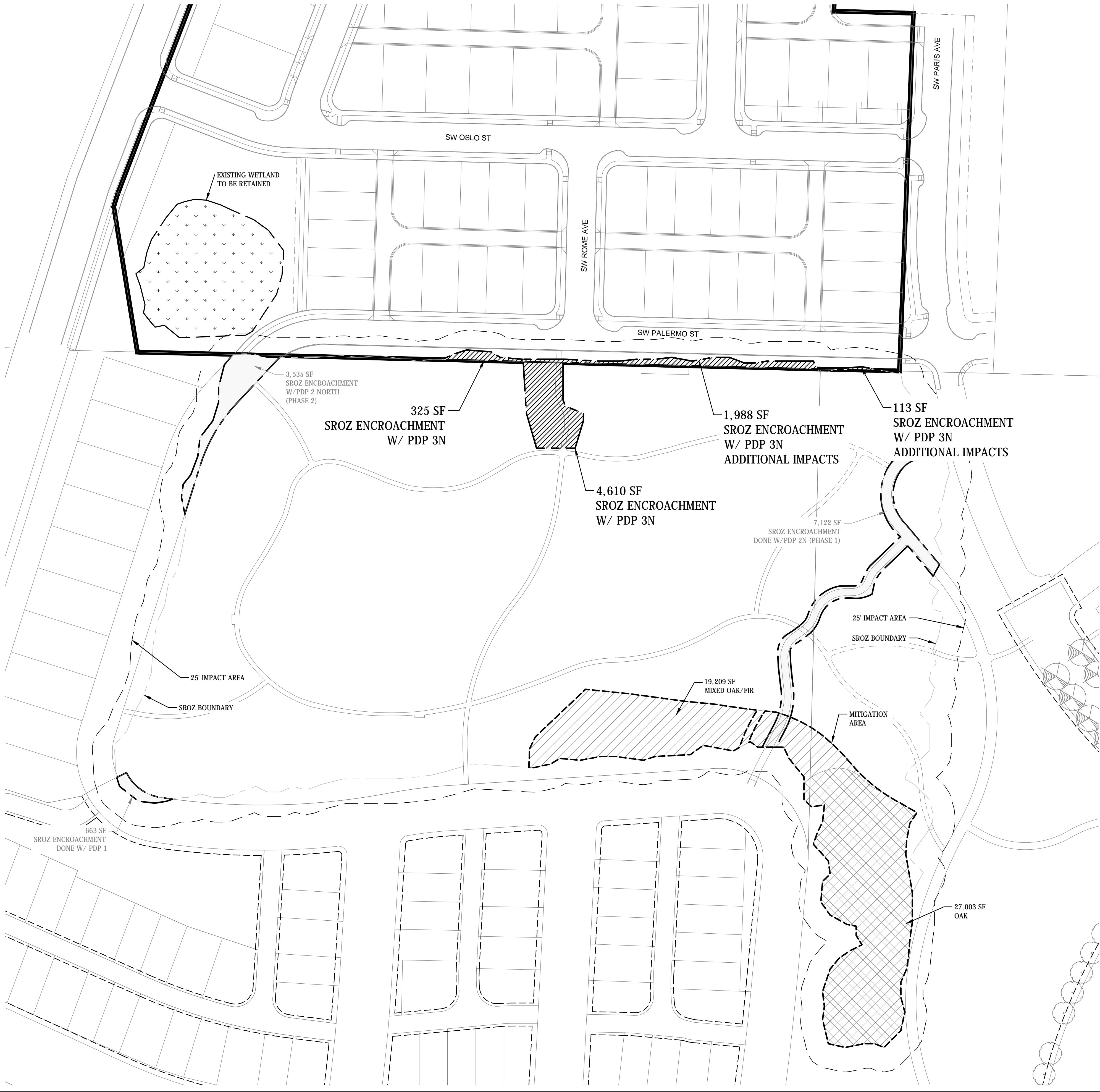
SROZ
Plan

DATE 1/31/14

12

SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



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ATTACHMENT B

Site Photographs

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Photo 1. View east of the northern forest edge.



Photo 2. View south into northern forest edge, dominated by invasive English ivy.

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ATTACHMENT C

Wetland Delineation Report & 2007 Concurrence Letter

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**RUMPF PROPERTY
WETLAND DELINEATION REPORT
28100 SW GRAHAMS FERRY ROAD
WILSONVILLE, OREGON
T3S, R1W, SECTION 15, TAX LOTS 1200, 1205, AND 1591,
CLACKAMAS COUNTY, W.M.**

Prepared for

Polygon Northwest Company
109 East 13th Street
Vancouver, Washington 98660

Prepared by



SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205
503-224-0333
www.swca.com

November 2013

SWCA Project No. 21087.11

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INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted by Polygon Northwest Company to conduct a wetland delineation update on the subject site located near the Villebois development, immediately east of Grahams Ferry Road and south of Tooze Road at 28100 SW Grahams Ferry Road, in Wilsonville, Oregon (Figure 1, Appendix A). The study area consists of tax lots 1200, 1205, and 1591 on tax map 3 1W 15, Clackamas County, Willamette Meridian (Figure 2, Appendix A), and is approximately 14.87 acres in size.

The site was delineated by Pacific Habitat Services (PHS) in 2007 under Oregon Department of State Lands (DSL) file number WD #2007-0706 (PHS 2007). The concurrence letter is dated May 5, 2008, and is attached (Appendix B). SWCA's reconnaissance was conducted with the new process of requesting a reissuance of a jurisdictional determination (JD) in mind, since we are within 1 year of the 5-year expiration date of May 5, 2013. While we found no change to the north wetland "A" (0.37 acre), we found the south wetland "B" to be smaller, approximately 0.45 acre instead of 0.52 acre. The north Wetland A is emergent and is proposed to be filled for residential development. The south Wetland B is forested and will be protected under the proposed residential subdivision site development plan.

Our study area did not include the tax lot to the south, which we delineated this past summer under WD #2013-0131 (SWCA 2013). Although it was stated in that report that wetlands extend off-site to the north, this is not true. The south wetland on the subject site is not connected to the wetland located to the south of the property line, and no wetlands are present south of the paved driveway entrance to the subject property, which is located near the southern property line.

A. LANDSCAPE SETTING AND LAND USE

OAR141-090-0035 (7)(a)

The subject site has at least one residence and a large mixed-use building with barn and office space and several smaller barns and outbuildings. The wetlands are located in horse-grazed pasture, and much of the site contains unmowed fields. A small pump house is located in the north portion of the horse pasture, east of a large Oregon white oak (*Quercus garryana*) tree in the northwest corner of the site. The surrounding land use is rural residential and agriculture, with the rapidly developing Villebois area to the south. Two long, rectangular tax lots extending south from Tooze Road contain single-family residences and are also not included within our study area boundary.

B. SITE ALTERATIONS

OAR141-090-0035 (7)(c)

Two entrance roads to the site are present: the southern road is paved and actively used, and the central road is not used. Fencing is present. A blocked small-diameter culvert is present under the south entrance road. Site residents report that the road floods in the winter. Aerial photographs reviewed on Google Earth do not reveal any patterns of seasonal saturation or ponding (Google Earth 2013).

C. PRECIPITATION DATA AND ANALYSIS

OAR141-090-0035 (7)(i)

The closest WETS (short for wetlands climate analysis) station to the project site is the North Willamette Experiment station. Average annual rainfall according to the WETS table for this station is 42.58 inches. Precipitation data were obtained from the Aurora weather station via the National Weather Service (NWS). Precipitation data are shown in Table 1, and raw data are included in Appendix C. Table 1 shows the average monthly precipitation averages according to the WETS station for the 3 months prior to SWCA’s October 1 and 8, 2013, site visits.

Table 1. Precipitation Data (inches)

Month	Average	30% Chance Will Have Less Than	More Than	Observed Precipitation	Within Normal Range?
July	0.73	0.22	0.88	0.01	Below normal
August	0.83	0.21	0.98	0.61	Yes
September	1.79	0.85	2.25	7.39	Record above normal

According to the NWS Aurora weather station, record rainfall fell in the last few days of September, and rainfall received during the month was 5.66 inches above normal in Aurora (NWS 2013). Rainfall received on the October 1, 2013, site visit was 0.38 inch, and rainfall received 2 weeks prior to the site visit was 5.18 inches. Rainfall received on the October 8, 2013, site visit was 0.02 inch, with 0.65 inch received the prior week and 3.24 inches received the week prior to that. The Aurora station does not report water year-to-date precipitation; the water year starts October 1 and runs through September 30.

The NWS Portland station reported that the precipitation for the water year-to-date, as of September 30, was 6.80 inches above the normal value of 36.03 inches (climate normal period 1981 to 2010), and 4.15 inches above the normal value of 1.47 inches for the month of September. Record rainfall event reports for the major NWS stations are included in Appendix C.

The extreme amount of rainfall that fell prior to our October 1 site reconnaissance allowed observation of primary hydrology indicators in the lowest and wettest portion of Wetland B, at Plot 1. The remaining wetlands’ hydrology did not appear to be fully recharged during our site visits, as only secondary indicators of hydrology were observed. This observation is consistent with PHS’s findings that the extent and duration of wetter conditions is not known, due to the dry season timing of fieldwork.

According to the WETS table, the growing season for the area does not end until November 21. Our site visits occurred during the growing season.

D. METHODS

OAR141-090-0035 (7)(d-e), (g-h), (16)(a-b), (f), (d) or (g), (17), and (19-20)

The methodology used for determining the presence of wetlands followed the U.S. Army Corps of Engineers’ (Corps’) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010), used by both the Corps and the Oregon DSL. Fieldwork for documenting site conditions and delineating the wetland and water boundaries was

conducted on October 1 and 8, 2013, by Mirth Walker, Stacey Reed, and Stacy Benjamin. Soils, vegetation, and indicators of hydrology were recorded at 17 sample plot locations to document site conditions (Appendix D). The previously delineated wetland boundaries were superimposed on a Google Earth aerial photograph for comparison.

Changes to the *Wetlands Delineation Manual* have occurred since the 2008 wetland delineation. These changes include hydric soil indicators and the wetland indicator status of plants. Many plants on the site that were considered facultative minus (FAC-) and did not meet the hydrophytic vegetation criterion in 2008 are now considered FAC and do meet the hydrophytic vegetation criterion.

According to the Natural Resources Conservation Service (NRCS) Clackamas County Area soil survey map and the Clackamas County hydric soil list, the following soil units are mapped in the study area (Figure 3, Appendix A):

- Aloha silt loam, 0% to 3% and 3% to 6% slopes (Units 1A and 1B) on terraces; non-hydric, with hydric Huberly and Dayton inclusions in depressions (NRCS 2013a,b,c).

Representative ground-level site photographs are included in Appendix E. Literature cited and references used are included in Appendix F.

E. DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

OAR141-090-0035 (2), (7)(b), and (17)

Wetlands

Wetland A (north wetland)

The boundary of Wetland A was documented at Plots 9 through 15. This wetland was difficult to see on the landscape: it is a very subtle depression. There was no distinct vegetation change between wetland and upland; it lacked primary indicators of hydrology; it did not display drainage patterns; and only one plot (Plot 11) displayed two secondary indicators of hydrology; therefore, we relied on the prior PHS-delineated wetland boundary.

The wetland is dominated by colonial bent grass (*Agrostis capillaris*, FAC). Soils displayed Depleted Matrix (F3) and/or Redox Dark Surface (F6) hydric soil indicators. Hydrology appears to be driven by direct precipitation. It is possible that this wetland does not display strong enough hydrology to be considered wetland during periods of normal precipitation in the spring.

Wetland B (south wetland)

Wetland B was evaluated at Plots 1 through 8 and 16. Similar to PHS findings, both upland and wetland soils commonly included redoximorphic concentrations, and upland plots had oxidized rhizospheres in the surface few inches, which were determined to likely be the result of compaction from active grazing. The wetland boundary hugged the forested Oregon ash (*Fraxinus latifolia*, FACW) perimeter and the edge of pugged soils, and we reduced the size of the wetland slightly along the western edge (Plot 2), in two small areas along the eastern edge that were obviously on higher land forms (Plot 8), and in the north, where soils were disturbed and dominated by creeping buttercup (*Ranunculus repens*, FAC; Plots 3 and 5).

Soils displayed Redox Dark Surface (F6) or Depleted below Dark Surface (A11) hydric soil indicators. This wetland exhibits strong indicators of hydrology near its southern boundary, with water marks on trees and fence posts extending up to 18 inches in height.

Soils have been disturbed in the vicinity of SWCA Plots 3 and 5 since the PHS delineation, based on the comparison of soil profiles of the closely placed SWCA Plot 5 and PHS Plot 3, and SWCA Plot 3 and PHS Plot 4. We pulled the boundary in at this point to conform with the geomorphic land form depression that was characteristic of the Oregon ash forested wetland.

Non-Wetland Waters

There are no non-wetland waters on the site.

F. DEVIATION FROM LWI OR NWI

OAR141-090-0035 (16)(e)

The site was not included in the City of Wilsonville's Local Wetland Inventory (LWI). The Sherwood, Oregon, National Wetlands Inventory (NWI) shows no mapped wetlands on the site (Figure 4, Appendix A).

G. MAPPING METHOD

OAR141-090-0035 (7)(f), (11), (12), (13), (18), and (22)

Sample plots and the wetland boundary of the south wetland were flagged in the field by SWCA and professionally land surveyed by Pacific Community Design. The surveyed delineation map is included as Figure 5 in Appendix A. Both the PHS wetland boundaries and the SWCA-revised south wetland boundary are shown for comparison purposes. Figure 6 shows just the SWCA delineation.

H. ADDITIONAL INFORMATION

OAR141-090-0035 (6)(c), (16)(c), and (21)

The wetlands have no direct surface water connection to each other or to off-site wetlands or waters.

I. RESULTS AND CONCLUSIONS

OAR141-090-0035 (7)(j)

Wetland A was not changed from the previous delineation. Wetland B was found to be smaller (0.45 acre) than the 0.52-acre wetland delineated by PHS in 2008. Table 2 below provides a summary of the size of each feature, the Cowardin and hydrogeomorphic (HGM) classifications, any hydrologic connection to other nearby waters, and our prediction of whether the feature would likely be determined jurisdictional by DSL and the Corps. Wetlands do not extend off-site.

Table 2. Summary of Potentially Jurisdictional Features in the Study Area

Feature	Acres	Cowardin Class ¹	HGM Classification	Connection to Other Waters	Predicted Jurisdiction
Wetland A	0.37	PEM	Slope/Flats	None	DSL; Corps unknown
Wetland B	0.45	PFO	Slope/Flats	None	DSL; Corps unknown
Total wetlands	0.82				

¹PEM = palustrine emergent; PFO = palustrine forested.

The approximate centroid latitude and longitude of each feature are listed in Table 3. The approximate centroid latitude and longitude of the study area are 45.315883°N and -122.798791°W.

Table 3. Latitude and Longitude of Potentially Jurisdictional Features in the Study Area

Feature	Latitude (°N)	Longitude (°W)
Wetland A	45.316211	-122.799604
Wetland B	45.315106	-122.800255

J. REQUIRED DISCLAIMER

OAR141-0090-0035 (7)(k)

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon DSL in accordance with Oregon Administrative Rules 141-090-0005 through 141-090-0055.

K. LIST OF PREPARERS

C. Mirth Walker



C. Mirth Walker, PWS, CWD
Senior Wetland Scientist

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APPENDIX A

Figures

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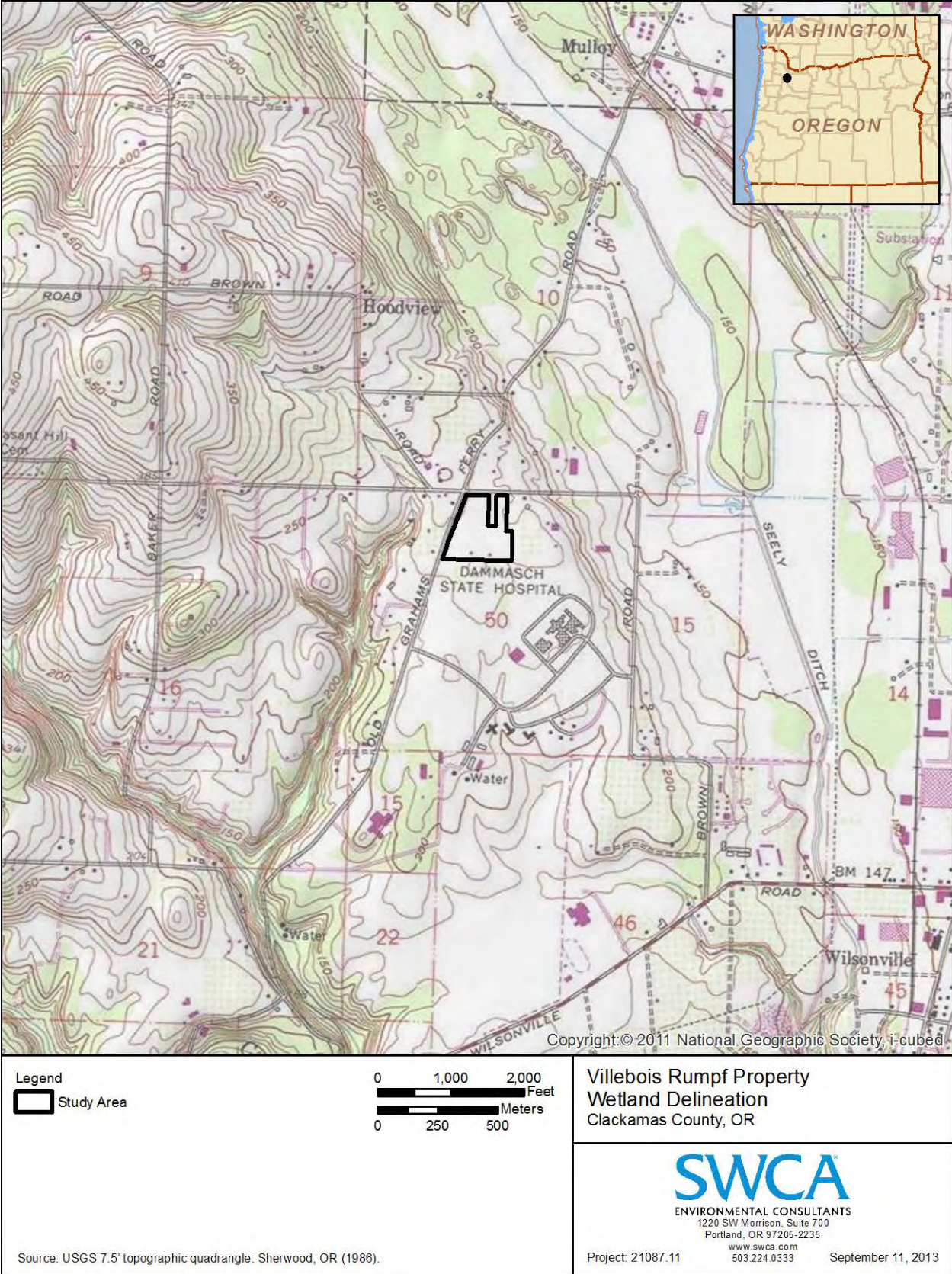


Figure 1. Site location map.

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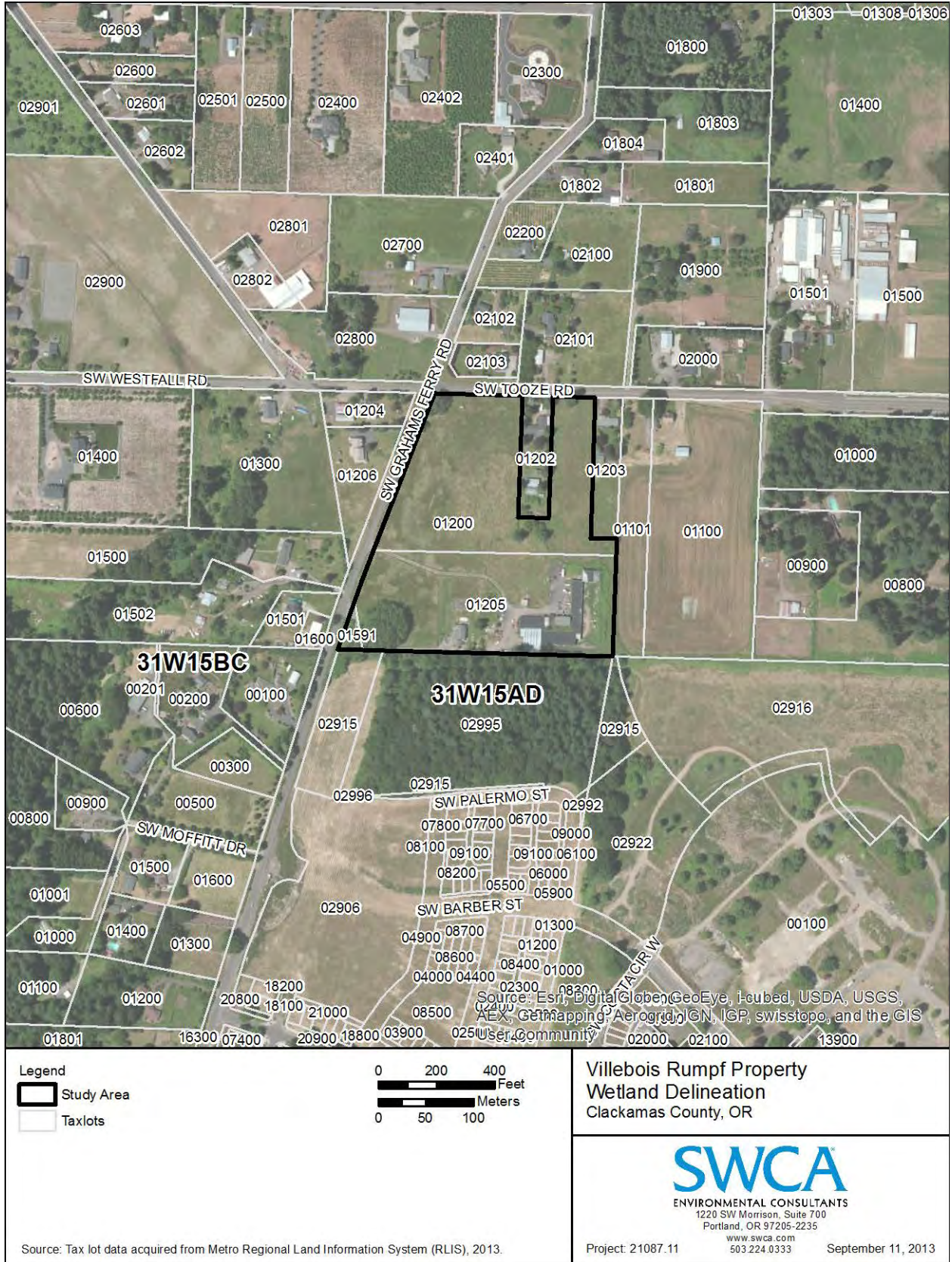


Figure 2. Tax lot map 31W 15.

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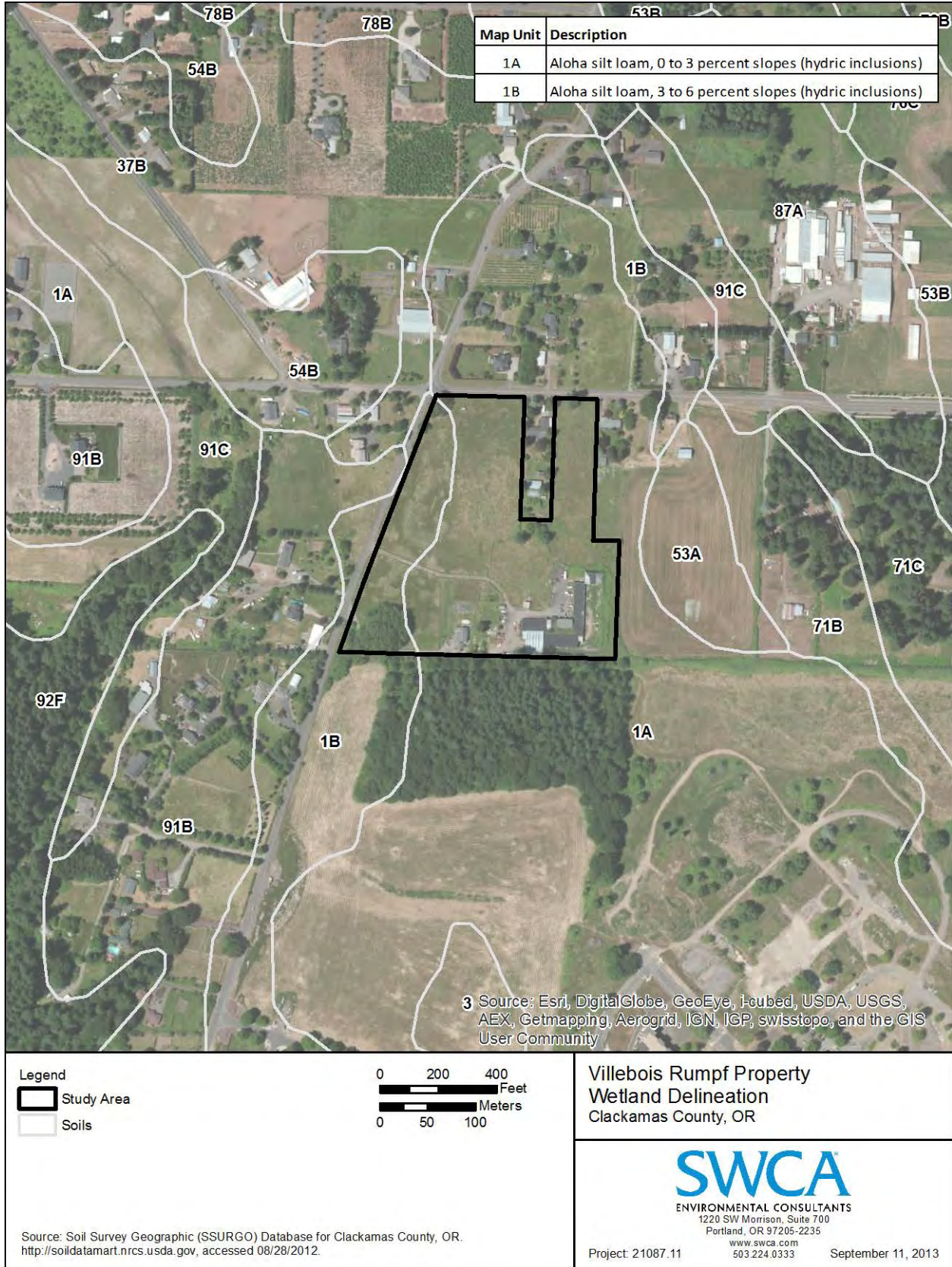


Figure 3. Soils map.

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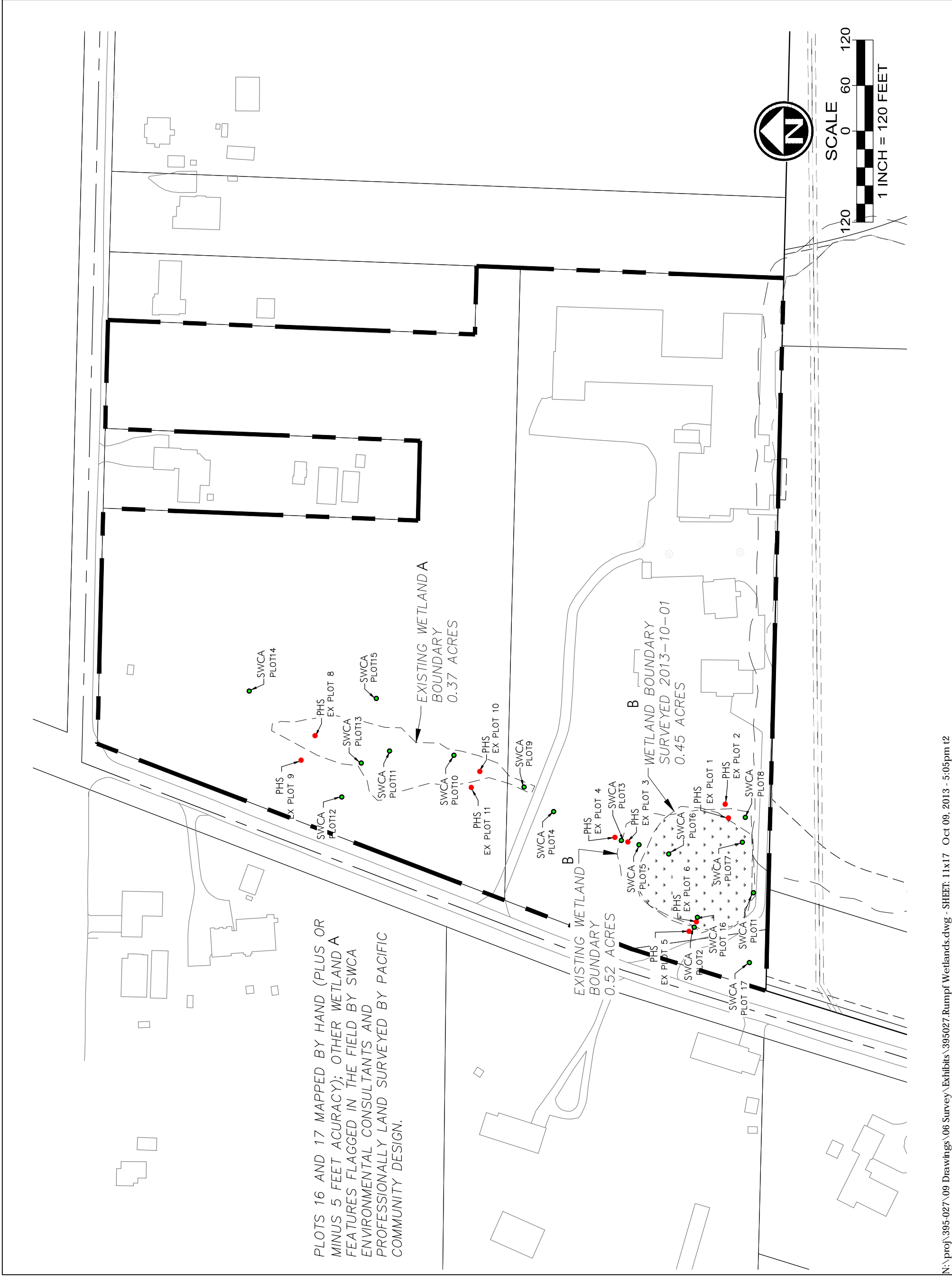
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**RUMPH
WETLAND
DELINEATION**

**STUDY
AREA
EXHIBIT**

PROJECT NO.:	395-027
TYPE:	SURVEY
REVIEWED BY:	

FIGURE 5

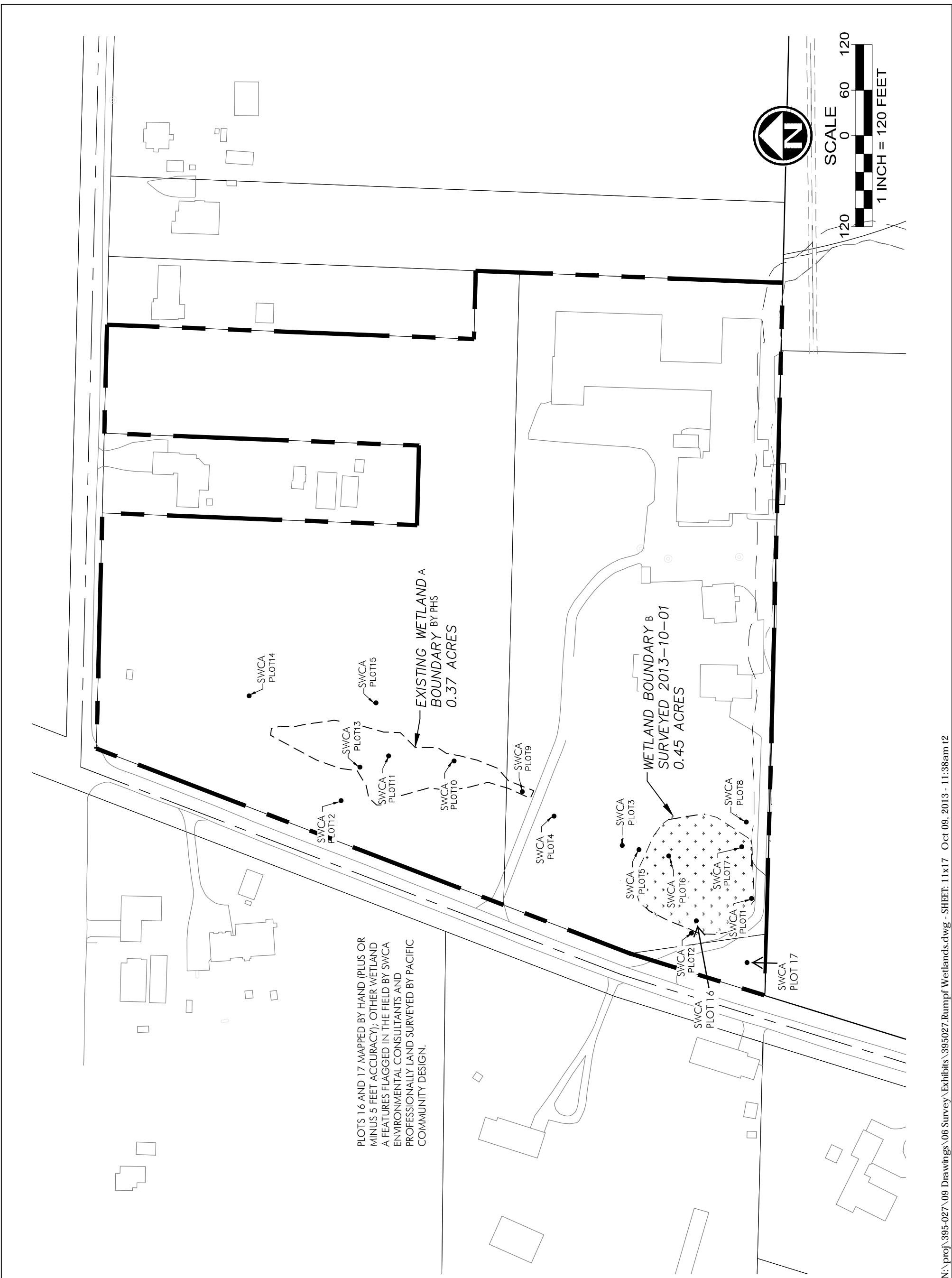


PLOTS 16 AND 17 MAPPED BY HAND (PLUS OR MINUS 5 FEET ACURACY); OTHER WETLAND A FEATURES FLAGGED IN THE FIELD BY SWCA ENVIRONMENTAL CONSULTANTS AND PROFESSIONALLY LAND SURVEYED BY PACIFIC COMMUNITY DESIGN.

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**RUMPH
WETLAND
DELINEATION**

**STUDY
AREA
EXHIBIT**



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APPENDIX B

WD #2007-0706

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Oregon

Theodore R. Kulongoski, Governor

Department of State Lands

775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

May 5, 2008

State Land Board

Terry Kinney
West Hills Development
735 SW 158th Ave
Beaverton, OR 97006

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

Re: Wetland Delineation Report for Villebois SAP North, SE of Intersection SW
Grahams Ferry Road and SW Tooze Road, Wilsonville, Clackamas County,
T3S R1W Sec.15, Tax Lots 1200, 1202, 1203, 1205, 1591, and portion of 2990;
WD #07-0706

Dear Mr. Kinney:

The Department of State Lands has reviewed the wetland delineation report prepared by Pacific Habitat Services, Inc. for the site referenced above. Based upon our review, we concur with their delineation and conclusions. Within the study area, 3 wetlands (totaling approximately 0.96 acres) were identified. The wetlands are subject to the permit requirements of the state Removal-Fill Law. A state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetlands.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

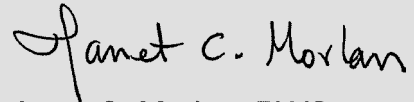
Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within 60 calendar days of the date of this letter.



Thank you for having the site evaluated. Please phone me at 503-986-5236 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Janet C. Morlan". The signature is written in a cursive style with a large initial 'J'.

Janet C. Morlan, PWS
Wetlands Program Manager

Enclosures

cc: Fred Small, Pacific Habitat Services
City of Wilsonville, Planning Department
James Holm, Corps of Engineers
Mike McCabe, DSL

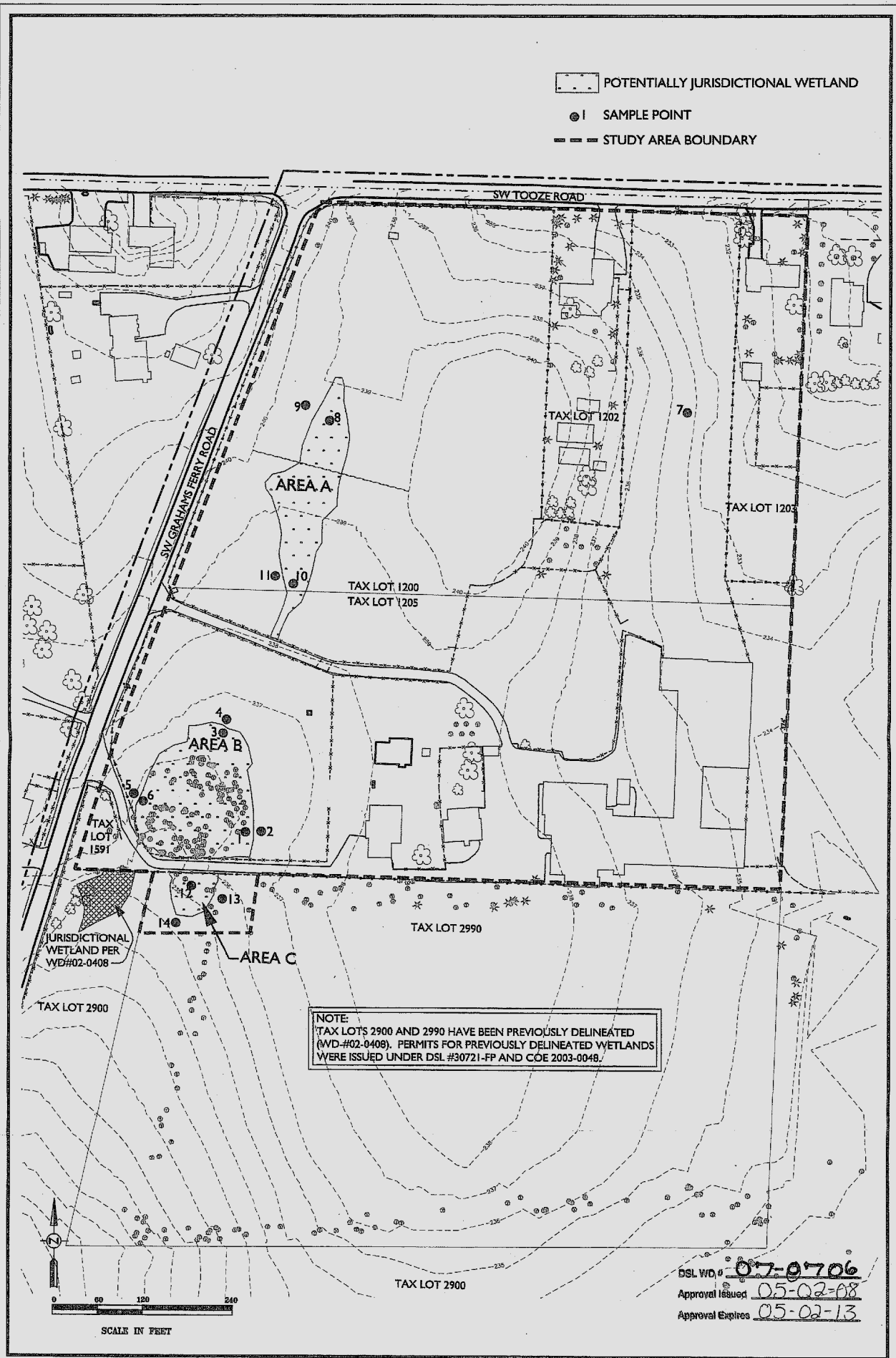


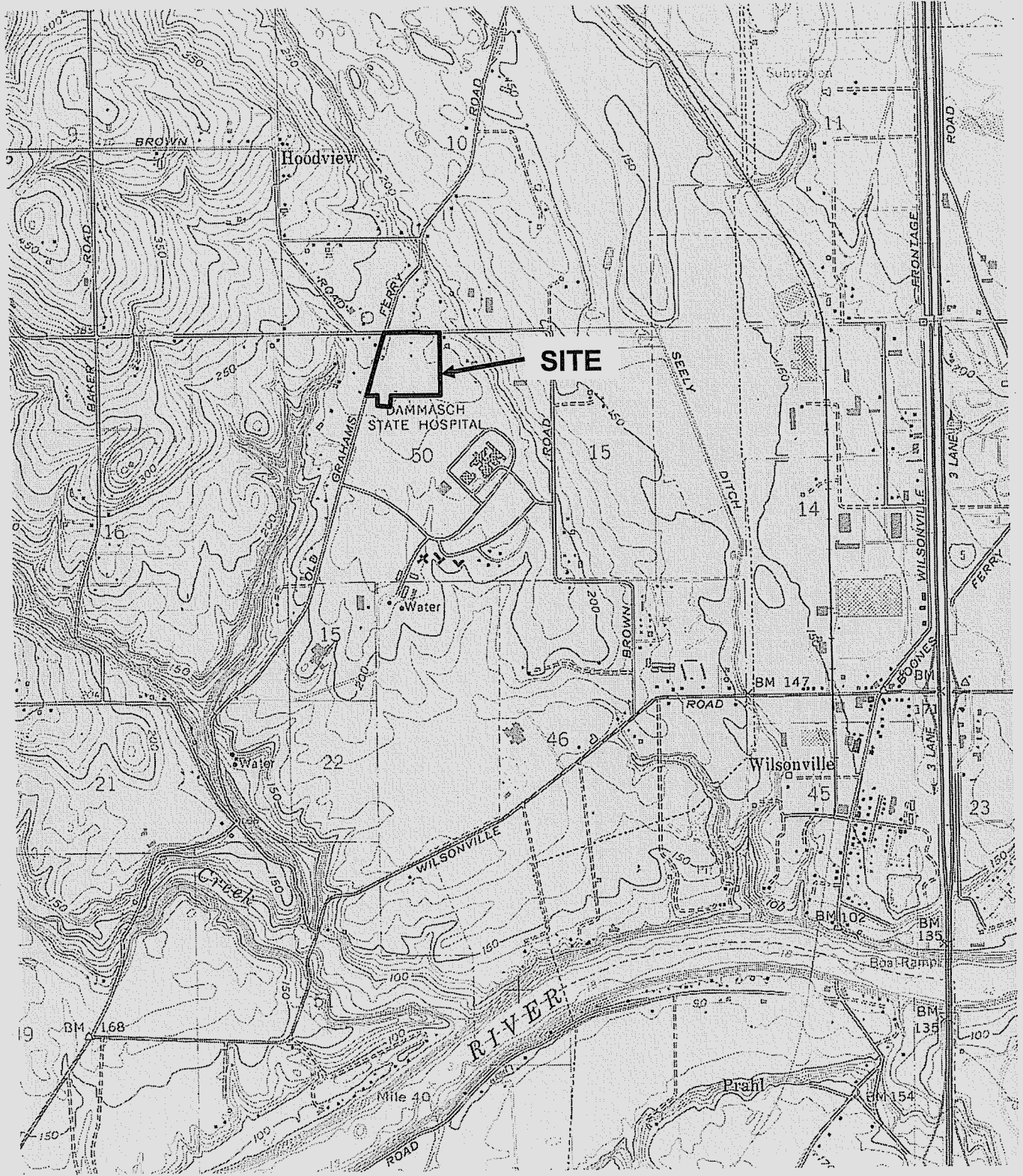
FIGURE
4

Potentially jurisdictional wetlands on a proposed residential subdivision on SW Grahams Ferry Road in Wilsonville, Oregon. Areas A and B professionally land surveyed by Alpha Engineering, Inc., 2003. Boundary of Area C is based on compass bearing and distance from surveyed points. Estimated accuracy of Area C is +/- 2 feet.

3888
10/23/06

Pacific Habitat Services, Inc.





10/30/06

3868

Location and general topography in the vicinity of SW Grahams Ferry Road in Wilsonville, Oregon (USGS, Sherwood, Oregon quadrangle, 1961, photorevised 1984).

FIGURE
1



— Pacific Habitat Services, Inc. —

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

DEPT OF STATE LANDS
RECEIVED
2007 DEC 26 P 2:07

This form constitutes a request for a jurisdictional determination by the Department of State Lands. It must be fully completed and signed, and attached to the front of reports submitted to the Department for review and approval.

**Wetlands Program Manager/Oregon Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279**

<input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: West hills Development (Attn: Terry Kinney) 735 SW 158th Avenue Beaverton, OR 97006	Business phone # 503-726-7031 Home phone # (optional) FAX # E-mail: tkinney@arborhomes.com
<input type="checkbox"/> Authorized Legal Agent, Name and Address:	Business phone # FAX # E-mail:
I either own the property described below or I have legal authority to allow access to the property, I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Terry P. Kinney</u>	Signature:
Date: _____	Special instructions regarding site access: _____

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)		
Project Name: Villebois SAP North	Latitude: 45°18'59"N	Longitude: 122°47'55"W
Proposed Use: Residential development	Tax Map # 3 1W 15	
Project Street Address (or other descriptive location): Located SE of intersection of SW Grahams Ferry Road and SW Tooze Road	Township 3S Range 1W Section 15 QQ	
City: Wilsonville County: Clackamas	Tax Lot (s) 1200, 1202, 1203, 1205, 1591, part of 2990	
	Waterway: _____ River Mile: _____	
	NWI Quad(s): Sherwood	

Wetland Delineation Information	
Wetland Consultant Name, Firm and Address: Pacific Habitat Services, Inc. (Attn: Fred Small) 9450 SW Commerce Circle, Suite 180 Wilsonville, OR 97070	Phone # (503) 570-0800 FAX # (503) 570-0855 E-mail address: fes@pacifichabitat.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.	
Consultant Signature:	Date: <u>12/18/07</u>
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Wetland Acreage: 0.96 ac

Delineation Purpose:	
<input type="checkbox"/> R-F permit application submitted with delineation	<input type="checkbox"/> Sale, purchase, lease etc.
<input type="checkbox"/> Mitigation bank site	<input type="checkbox"/> Partition, re-plat, lot line adjustment
<input type="checkbox"/> Industrial Land Certification Program site	<input type="checkbox"/> Habitat restoration project
<input type="checkbox"/> Road GA will be submitted within approx. 90 days	<input checked="" type="checkbox"/> Other: Site development
Other Information:	
Has previous delineation/application been made on parcel? Y N	<input type="checkbox"/> <input checked="" type="checkbox"/> If known, previous DSL #
Does LWI, if any, show wetland on parcel?	<input type="checkbox"/> <input checked="" type="checkbox"/> LWI wetland code:

For Office Use Only			
DSL Reviewer: <u>PR</u>	Report Tier: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3	DSL WD # <u>2007-0706</u>	
Date Delineation Received: ___/___/___	DSL Project # _____	DSL Site # _____	
Scanned: <input type="checkbox"/> Final Scan: <input type="checkbox"/>	DSL WN # _____	DSL App. # _____	

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APPENDIX C
Precipitation Data

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These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Record Report

000
SXUS76 KPQR 032342 CCA
RERPQR

RECORD EVENT REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
1215 PM PDT THU OCT 4 2013

...HISTORIC SEPTEMBER RAINFALL ACROSS THE REGION (CORRECTED)...

WITH THE RECENT HEAVY RAINFALL MANY OBSERVATIONS STATIONS HAVE REPORTED RECORD AMOUNTS OF RAINFALL FOR THE MONTH OF SEPTEMBER.

FOLLOWING ARE STATIONS WITH THE TOP 4 WETTEST SEPTEMBERS FOR EACH STATIONS (AND PERIOD OF RECORD).

ASTORIA (1890-2013)...

1. SEP 2013.....	10.70 INCHES	*** RECORD ***
2. SEP 1906.....	8.66 INCHES	
3. SEP 1920.....	8.55 INCHES	
4. SEP 1905.....	7.38 INCHES	
CLIMATOLOGICAL NORMAL: 2.14 INCHES		

PORTLAND AIRPORT (1940-2013)

1. SEP 2013.....	5.62 INCHES	*** RECORD ***
2. SEP 1986.....	4.30 INCHES	
3. SEP 1982.....	3.98 INCHES	
4. SEP 1945.....	3.96 INCHES	
CLIMATOLOGICAL NORMAL: 1.47 INCHES		

PORTLAND DOWNTOWN (1874-2013)...

1. SEP 2013.....	6.85 INCHES	*** RECORD *** CORRECTED
2. SEP 1927.....	5.52 INCHES	
3. SEP 1911.....	5.19 INCHES	
4. SEP 1969.....	4.87 INCHES	
CLIMATOLOGICAL NORMAL: 1.54 INCHES		

HILLSBORO (1929-2013)...

1. SEP 2013.....	6.27 INCHES	*** RECORD ***
2. SEP 1945.....	3.68 INCHES	

3. SEP 1982..... 3.46 INCHES
4. SEP 1977..... 3.43 INCHES
CLIMATOLOGICAL NORMAL: 1.26 INCHES

EUGENE (1892-2013)

1. SEP 2013..... 7.08 INCHES *** RECORD ***
2. SEP 1927..... 5.21 INCHES
3. SEP 1911..... 4.91 INCHES
4. SEP 1986..... 4.65 INCHES
CLIMATOLOGICAL NORMAL: 1.29 INCHES

SALEM (1892-2013)...

1. SEP 2013..... 7.05 INCHES *** RECORD ***
2. SEP 1927..... 5.52 INCHES
3. SEP 1911..... 5.19 INCHES
4. SEP 1969..... 4.87 INCHES
CLIMATOLOGICAL NORMAL: 1.28 INCHES

VANCOUVER, WA (1890-2013)...

1. SEP 2013..... 5.24 INCHES *** RECORD ***
2. SEP 1911..... 4.88 INCHES
3. SEP 1969..... 4.82 INCHES
3. SEP 1925..... 4.46 INCHES
4. SEP 1986..... 4.44 INCHES
CLIMATOLOGICAL NORMAL: 1.56 INCHES

MCMINNVILLE (1894-2013)

1. SEP 1996..... 7.58 INCHES
2. SEP 2013..... 6.19 INCHES
3. SEP 1901..... 4.83 INCHES
4. SEP 1914..... 4.28 INCHES
CLIMATOLOGICAL NORMAL: 1.31 INCHES

CULLEN/ROCKEY

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Climatological Report (Daily)

000
CDUS46 KPQR 011142
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
441 AM PDT TUE OCT 1 2013

.....
...THE AURORA STATE OR CLIMATE SUMMARY FOR SEPTEMBER 30 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....
TEMPERATURE (F)

YESTERDAY

MAXIMUM	59	1242 PM	MM	MM
MINIMUM	50	1159 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.38	0.00
MONTH TO DATE	7.39	0.12
SINCE OCT 1	43.72	41.31
SINCE JAN 1	20.97	29.97

DEGREE DAYS

HEATING

YESTERDAY	10	5
MONTH TO DATE	109	77
SINCE SEP 1	109	77
SINCE JUL 1	119	117

COOLING

YESTERDAY	0	0
-----------	---	---

MONTH TO DATE	64	43
SINCE SEP 1	64	43
SINCE JAN 1	426	294

.....

WIND (MPH)

HIGHEST WIND SPEED	26	HIGHEST WIND DIRECTION	S (180)
HIGHEST GUST SPEED	32	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	11.5		

SKY COVER

AVERAGE SKY COVER 0.9

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

RAIN
 LIGHT RAIN
 FOG

RELATIVE HUMIDITY (PERCENT)

HIGHEST	96	600 AM
LOWEST	80	100 PM
AVERAGE	88	

.....

SUNRISE AND SUNSET

OCTOBER 1 2013.....	SUNRISE	710 AM PDT	SUNSET	651 PM PDT
OCTOBER 2 2013.....	SUNRISE	711 AM PDT	SUNSET	649 PM PDT

- INDICATES NEGATIVE NUMBERS.
 R INDICATES RECORD WAS SET OR TIED.
 MM INDICATES DATA IS MISSING.
 T INDICATES TRACE AMOUNT.

The U.S. Naval Observatory (USNO) computes astronomical data. Therefore, the NWS does not record, certify, or authenticate astronomical data. Computed times of sunrise, sunset, moonrise, moonset; and twilight, moon phases and other astronomical data are available from USNO's Astronomical Applications Department (<http://www.usno.navy.mil>). See <http://www.usno.navy.mil/USNO/astronomical-applications/astronomical-information-center/litigation> for information on using these data for legal purposes.

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Daily)

000
CDUS46 KPQR 021141
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
440 AM PDT WED OCT 2 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR OCTOBER 1 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....

TEMPERATURE (F)

YESTERDAY

MAXIMUM	58	146 PM	MM	MM
MINIMUM	42	1159 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.38	0.00
MONTH TO DATE	0.38	0.00
SINCE OCT 1	0.38	0.00
SINCE JAN 1	21.35	29.97

DEGREE DAYS

HEATING

YESTERDAY	15	0
MONTH TO DATE	15	0
SINCE SEP 1	124	77
SINCE JUL 1	134	117

COOLING

YESTERDAY	0	1
-----------	---	---

MONTH TO DATE	0	1
SINCE SEP 1	64	44
SINCE JAN 1	426	295

.....

WIND (MPH)

HIGHEST WIND SPEED	14	HIGHEST WIND DIRECTION	S (180)
HIGHEST GUST SPEED	18	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	4.0		

SKY COVER

AVERAGE SKY COVER 0.6

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

RAIN
 LIGHT RAIN
 FOG

RELATIVE HUMIDITY (PERCENT)

HIGHEST	93	400 AM
LOWEST	62	200 PM
AVERAGE	78	

.....

SUNRISE AND SUNSET

OCTOBER 2 2013.....	SUNRISE	711 AM PDT	SUNSET	649 PM PDT
OCTOBER 3 2013.....	SUNRISE	712 AM PDT	SUNSET	647 PM PDT

- INDICATES NEGATIVE NUMBERS.
 R INDICATES RECORD WAS SET OR TIED.
 MM INDICATES DATA IS MISSING.
 T INDICATES TRACE AMOUNT.

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Climatological Report (Daily)

000
CDUS46 KPQR 091147
CLIUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
446 AM PDT WED OCT 9 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR OCTOBER 8 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER ITEM	OBSERVED TIME	RECORD YEAR	LAST
	VALUE (LST)	VALUE	YEAR

.....

TEMPERATURE (F)

YESTERDAY

MAXIMUM	57	412 PM	MM	MM
MINIMUM	41	1143 PM	MM	MM

PRECIPITATION (IN)

YESTERDAY	0.02	0.00
MONTH TO DATE	0.65	0.00
SINCE OCT 1	0.65	0.00
SINCE JAN 1	21.62	29.97

DEGREE DAYS

HEATING

YESTERDAY	16	12
MONTH TO DATE	101	42
SINCE SEP 1	210	119
SINCE JUL 1	220	159

COOLING

YESTERDAY	0	0
-----------	---	---

MONTH TO DATE	0	1
SINCE SEP 1	64	44
SINCE JAN 1	426	295

.....

WIND (MPH)

HIGHEST WIND SPEED	13	HIGHEST WIND DIRECTION	N (350)
HIGHEST GUST SPEED	18	HIGHEST GUST DIRECTION	S (180)
AVERAGE WIND SPEED	5.3		

SKY COVER

AVERAGE SKY COVER 0.8

WEATHER CONDITIONS

THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.

LIGHT RAIN
 FOG
 HAZE

RELATIVE HUMIDITY (PERCENT)

HIGHEST	100	1100 PM
LOWEST	67	400 PM
AVERAGE	84	

.....

SUNRISE AND SUNSET

OCTOBER 9 2013.....	SUNRISE	720 AM PDT	SUNSET	636 PM PDT
OCTOBER 10 2013.....	SUNRISE	721 AM PDT	SUNSET	634 PM PDT

- INDICATES NEGATIVE NUMBERS.
 R INDICATES RECORD WAS SET OR TIED.
 MM INDICATES DATA IS MISSING.
 T INDICATES TRACE AMOUNT.

[Explanation of the Preliminary Monthly Climate Data \(F6\) Product](#)

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

000

CXUS55 KPQR 091230

CF6UAO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: AURORA STATE OR

MONTH: OCTOBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

TEMPERATURE IN F:					:PCPN:			SNOW:	WIND			:SUNSHINE:			SKY	:PK WND		
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
										12Z	AVG	MX	2MIN					
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	58	42	50	-9	15	0	0.38	M	0	4.0	14	180	M	M	6	1	18	180
2	53	41	47	-11	18	0	0.11	M	0	1.9	9	180	M	M	6	12	13	170
3	59	42	51	-7	14	0	0.00	0.0	0	0.6	8	80	M	M	7	12	9	60
4	65	39	52	-6	13	0	0.00	0.0	0	1.7	8	20	M	M	3	12	9	10
5	72	39	56	-1	9	0	0.00	M	0	0.7	7	20	M	M	0	1	9	20
6	73	40	57	0	8	0	0.00	0.0	0	2.8	12	180	M	M	4	12	15	180
7	62	51	57	1	8	0	0.14	0.0	0	5.4	15	260	M	M	9	1	22	250
8	57	41	49	-7	16	0	0.02	M	0	5.3	13	350	M	M	8	18	18	180
SM	499	335			101	0	0.65		0.0	22.4			M		43			
AV	62.4	41.9								2.8	FASTST		M	M	5	MAX (MPH)		
								MISC	---->	#	15	260				#	22	250

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: AURORA STATE OR

MONTH: OCTOBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 52.1

TOTAL FOR MONTH: 0.65

1 = FOG OR MIST

DPTR FM NORMAL: -5.2	DPTR FM NORMAL: -0.02	2 = FOG REDUCING VISIBILITY
HIGHEST: 73 ON 6	GRTST 24HR 0.47 ON 30- 1	TO 1/4 MILE OR LESS
LOWEST: 39 ON 5, 4		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 0.0 INCH	5 = HAIL
	GRTST 24HR 0.0	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 0	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS

[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 4
MAX 90 OR ABOVE: 0	0.10 INCH OR MORE: 3
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 0
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 0

[HDD (BASE 65)]	
TOTAL THIS MO. 101	CLEAR (SCALE 0-3) 1
DPTR FM NORMAL 38	PTCLDY (SCALE 4-7) 6
TOTAL FM JUL 1 220	CLOUDY (SCALE 8-10) 1
DPTR FM NORMAL 11	

[CDD (BASE 65)]	
TOTAL THIS MO. 0	
DPTR FM NORMAL 0	[PRESSURE DATA]
TOTAL FM JAN 1 426	HIGHEST SLP M ON M
DPTR FM NORMAL 92	LOWEST SLP 29.96 ON 6

[REMARKS]

[Explanation of the Preliminary Monthly Climate Data \(F6\) Product](#)

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WFO Monthly/Daily Climate Data

000

CXUS55 KPQR 011230

CF6UAO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: AURORA STATE OR

MONTH: SEPTEMBER

YEAR: 2013

LATITUDE: 45 15 N

LONGITUDE: 122 46 W

TEMPERATURE IN F:					:PCPN:			SNOW:			WIND			:SUNSHINE:			SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18		
										12Z	AVG	MX	2MIN							
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR		
1	83	57	70	4	0	5	0.00	0.0	0	2.8	10	180	M	M	1		15	190		
2	79	61	70	4	0	5	0.02	0.0	0	2.7	12	230	M	M	7	3	17	240		
3	79	59	69	3	0	4	0.08	0.0	0	1.2	10	350	M	M	3	13	14	340		
4	76	59	68	2	0	3	0.10	0.0	0	2.3	8	340	M	M	7	13	10	350		
5	66	58	62	-4	3	0	1.21	0.0	0	3.9	22	170	M	M	9	13	29	170		
6	71	58	65	-1	0	0	0.78	0.0	0	7.3	15	190	M	M	10	1	22	200		
7	81	55	68	3	0	3	0.00	0.0	0	4.1	10	360	M	M	4	12	14	360		
8	86	57	72	7	0	7	0.00	0.0	0	5.0	15	20	M	M	0		18	10		
9	85	58	72	7	0	7	0.00	0.0	0	3.8	10	30	M	M	2		14	30		
10	92	60	76	11	0	11	0.00	0.0	0	6.0	14	360	M	M	0		18	360		
11	93	59	76	11	0	11	0.00	0.0	0	2.9	9	250	M	M	0		12	230		
12	80	56	68	4	0	3	0.00	0.0	0	2.3	7	160	M	M	1		9	150		
13	76	57	67	3	0	2	0.00	0.0	0	1.6	9	20	M	M	4	1	12	20		
14	78	58	68	4	0	3	0.00	0.0	0	2.9	7	330	M	M	5	1	10	360		
15	69	59	64	0	1	0	0.02	0.0	0	5.3	12	190	M	M	9	13	15	190		
16	71	59	65	2	0	0	0.00	0.0	0	6.1	14	190	M	M	10	8	20	220		
17	68	54	61	-2	4	0	0.29	0.0	0	2.3	12	20	M	M	7	1	14	20		
18	72	51	62	-1	3	0	0.01	0.0	0	2.6	9	30	M	M	4		12	20		
19	78	45	62	0	3	0	0.00	0.0	0	0.7	7	230	M	M	0	8	10	240		
20	75	48	62	0	3	0	0.02	M	0	4.1	18	190	M	M	4		24	180		
21	66	54	60	-2	5	0	0.08	0.0	0	3.1	12	250	M	M	8	1	18	260		
22	61	54	58	-4	7	0	0.57	0.0	0	10.6	28	180	M	M	9	1	39	170		
23	62	53	58	-3	7	0	0.71	M	M	5.3	15	170	M	M	9	1	21	170		
24	60	50	55	-6	10	0	0.26	M	M	3.5	13	170	M	M	10	1	16	190		
25	60	47	54	-7	11	0	0.04	M	0	1.8	8	50	M	M	8	1	9	50		
26	64	46	55	-5	10	0	0.03	M	0	0.6	10	300	M	M	7	12	14	310		
27	57	43	50	-10	15	0	0.22	M	0	10.1	22	190	M	M	9	12	31	220		
28	65	52	59	-1	6	0	1.05	0.0	0	16.7	31	190	M	M	10	1	39	210		
29	57	51	54	-5	11	0	1.52	0.0	0	14.9	30	180	M	M	9	1	38	200		
30	59	50	55	-4	10	0	0.38	0.0	0	11.5	26	180	M	M	9	1	32	180		


```

=====
SM 2169 1628          109  64  7.39      0.0 148.0          M      175
=====
AV 72.3 54.3                4.9 FASTST  M      M      6      MAX(MPH)
                               MISC ----> # 31 190                # 39 170
=====

```

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

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STATION:  AURORA STATE OR
MONTH:    SEPTEMBER
YEAR:     2013
LATITUDE: 45 15 N
LONGITUDE: 122 46 W

```

[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 63.3	TOTAL FOR MONTH: 7.39	1 = FOG OR MIST
DPTR FM NORMAL: 0.1	DPTR FM NORMAL: 5.66	2 = FOG REDUCING VISIBILITY
HIGHEST: 93 ON 11	GRTST 24HR 1.97 ON 5- 6	TO 1/4 MILE OR LESS
LOWEST: 43 ON 27		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 0.0 INCH	5 = HAIL
	GRTST 24HR 0.0	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 0	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
		9 = BLOWING SNOW
		X = TORNADO
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	
MAX 32 OR BELOW: 0	0.01 INCH OR MORE: 19	
MAX 90 OR ABOVE: 2	0.10 INCH OR MORE: 11	
MIN 32 OR BELOW: 0	0.50 INCH OR MORE: 6	
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 3	
[HDD (BASE 65)]		
TOTAL THIS MO. 109	CLEAR (SCALE 0-3) 7	
DPTR FM NORMAL 10	PTCLDY (SCALE 4-7) 10	
TOTAL FM JUL 1 119	CLOUDY (SCALE 8-10) 13	
DPTR FM NORMAL -27		
[CDD (BASE 65)]		
TOTAL THIS MO. 64		
DPTR FM NORMAL 20	[PRESSURE DATA]	
TOTAL FM JAN 1 426	HIGHEST SLP 30.19 ON 27	
DPTR FM NORMAL 92	LOWEST SLP 29.39 ON 29	

[REMARKS]

#FINAL-09-13#

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Monthly)

000
CXUS56 KPQR 011525
CLMUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
825 AM PDT SUN SEP 1 2013

.....
...THE AURORA STATE OR CLIMATE SUMMARY FOR THE MONTH OF AUGUST 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER	OBSERVED VALUE	DATE (S)	NORMAL VALUE	DEPART FROM NORMAL	LAST YEAR`S VALUE	DATE (S)
---------	-------------------	----------	-----------------	--------------------------	----------------------	----------

.....
TEMPERATURE (F)

HIGHEST	93				101	08/04
LOWEST	52				44	08/24
AVG. MAXIMUM	81.7		81.8	-0.1	83.3	
AVG. MINIMUM	57.4		54.7	2.7	54.6	
MEAN	69.6		68.3	1.3	68.9	
DAYS MAX >= 90	4		5.1	-1.1	9	
DAYS MAX <= 32	0		0.0	0.0	0	
DAYS MIN <= 32	0		0.0	0.0	0	
DAYS MIN <= 0	0		0.0	0.0	0	

PRECIPITATION (INCHES)
RECORD

MAXIMUM	MM	MM				
MINIMUM	MM	MM				
TOTALS	0.61		0.66	-0.05		T
DAYS >= .01	7		MM	MM		0
DAYS >= .10	2		MM	MM		0
DAYS >= .50	0		MM	MM		0
DAYS >= 1.00	0		MM	MM		0
GREATEST						
24 HR. TOTAL	0.28	08/28 TO 08/29				

DEGREE_DAYS				
HEATING TOTAL	5	22	-17	15
SINCE 7/1	10	47	-37	40
COOLING TOTAL	154	123	31	147
SINCE 1/1	362	290	72	251

.....

WIND (MPH)

AVERAGE WIND SPEED	3.4		
RESULTANT WIND SPEED/DIRECTION	1/044		
HIGHEST WIND SPEED/DIRECTION	21/170	DATE	08/26
HIGHEST GUST SPEED/DIRECTION	26/190	DATE	08/26

SKY COVER

POSSIBLE SUNSHINE (PERCENT)	MM
AVERAGE SKY COVER	0.30

AVERAGE RH (PERCENT)	66
----------------------	----

WEATHER CONDITIONS. NUMBER OF DAYS WITH

THUNDERSTORM	0	MIXED PRECIP	0
HEAVY RAIN	0	RAIN	2
LIGHT RAIN	7	FREEZING RAIN	0
LT FREEZING RAIN	0	HAIL	0
HEAVY SNOW	0	SNOW	0
LIGHT SNOW	0	SLEET	0
FOG	4	FOG W/VIS <= 1/4 MILE	0
HAZE	0		

- INDICATES NEGATIVE NUMBERS.
R INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T INDICATES TRACE AMOUNT.

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Monthly)

000
CXUS56 KPQR 011510
CLMUAO

CLIMATE REPORT
NATIONAL WEATHER SERVICE PORTLAND OREGON
810 AM PDT THU AUG 1 2013

.....

...THE AURORA STATE OR CLIMATE SUMMARY FOR THE MONTH OF JULY 2013...

CLIMATE NORMAL PERIOD 1981 TO 2010
CLIMATE RECORD PERIOD 9999 TO 9999

WEATHER	OBSERVED VALUE	DATE (S)	NORMAL VALUE	DEPART FROM NORMAL	LAST YEAR`S VALUE	DATE (S)
---------	-------------------	----------	-----------------	--------------------------	----------------------	----------

.....
TEMPERATURE (F)

HIGHEST	92				90	07/08
LOWEST	48				45	07/04
AVG. MAXIMUM	83.7		80.9	2.8	78.9	
AVG. MINIMUM	54.4		55.1	-0.7	54.5	
MEAN	69.1		68.0	1.1	66.7	
DAYS MAX >= 90	7		5.1	1.9	1	
DAYS MAX <= 32	0		0.0	0.0	0	
DAYS MIN <= 32	0		0.0	0.0	0	
DAYS MIN <= 0	0		0.0	0.0	0	

PRECIPITATION (INCHES)

RECORD

MAXIMUM	MM	MM				
MINIMUM	MM	MM				
TOTALS	0.01		0.68	-0.67	0.54	
DAYS >= .01	1		MM	MM	7	
DAYS >= .10	0		MM	MM	1	
DAYS >= .50	0		MM	MM	0	
DAYS >= 1.00	0		MM	MM	0	
GREATEST						

WETS Station : N WILLAMETTE EXP STN, OR6151 Creation Date: 09/09/2002
Latitude: 4517 Longitude: 12245 Elevation: 00150
State FIPS/County(FIPS): 41005 County Name: Clackamas
Start yr. - 1971 End yr. - 2000

-----|
 | Temperature | Precipitation |

Month	(Degrees F.)			(Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have		avg # of days w/.1 or more	avg total snow fall
					less than	more than		
January	47.0	33.5	40.2	6.04	4.05	7.23	13	0.5
February	51.1	34.9	43.0	5.24	3.90	6.13	12	0.3
March	56.1	37.3	46.7	4.28	3.30	4.96	12	0.0
April	60.6	40.2	50.4	3.14	2.15	3.74	9	0.0
May	67.0	45.1	56.0	2.50	1.64	3.00	7	0.0
June	73.3	49.9	61.6	1.76	1.03	2.14	4	0.0
July	80.3	53.3	66.8	0.73	0.22	0.88	1	0.0
August	80.8	53.0	66.9	0.83	0.21	0.98	2	0.0
September	75.8	48.9	62.3	1.79	0.85	2.25	4	0.0
October	64.4	41.9	53.2	3.36	1.77	4.10	7	0.0
November	52.5	37.7	45.1	6.48	4.50	7.71	13	0.1
December	45.8	32.8	39.3	6.44	4.09	7.76	12	0.6
Annual	-----	-----	-----	-----	37.11	46.19	--	----
Average	62.9	42.4	52.6	-----	-----	-----	--	----
Total	-----	-----	-----	42.58	-----	-----	96	1.4

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	1/27 to ----- 340 days	3/ 2 to 11/21 264 days	4/14 to 10/28 197 days
70 percent *	> 365 days > 365 days	2/22 to 11/30 282 days	4/ 7 to 11/ 4 212 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1963-2002 prcp

Station : OR6151, N WILLAMETTE EXP STN
----- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
63M	1.14	4.02	6.48		4.34	1.62	0.81	0.36	1.11	3.09	5.86	4.45	33.28
64I	1.36	0.83	2.93	1.21	0.94	1.67	0.74	0.58	1.49	1.52	7.21	13.84	44.32

65	8.51	M2.07	1.09	3.23	1.30	0.66	0.23	0.99	0.05	2.79	6.63	6.78	34.33
66	7.84	1.92	5.96	1.22	0.93	1.18	1.16	0.31	1.41	2.97	5.62	6.57	37.09
67	6.77	1.53	4.79	2.58	2.12	0.72	0.00	0.00	0.26	5.58	2.04	5.65	32.04
68	4.68	8.20	3.06	2.04	2.99	2.34	0.98	4.17	M2.75	M6.88	7.02M	12.46	57.57
69	7.51	M3.03	M1.45	2.99	1.76	M3.20	0.11	0.08	3.42	M4.69	2.94	M8.53	39.71
70	11.72	M5.12	M2.30	2.36	1.30	M0.31	0.07	0.00	1.38	3.49	6.94	8.92	43.91
71	7.59	3.49	5.59	3.71	1.77	2.92	0.08	0.43	3.51	3.69	6.49	M8.02	47.29
72	6.59	4.78	5.77	3.61	2.65	0.60	0.47	0.65	3.50	0.87	5.07	8.81	43.37
73	4.50	1.96	M2.67	1.28	1.56	1.47	0.01	0.82	2.58	2.94	13.04	10.02	42.85
74	8.24	5.48	6.28	2.23	1.98	0.96	2.31	0.02	0.26	1.62	6.56	6.53	42.47
75	6.84	4.24	2.22	2.46	1.86	1.27	0.65	2.53	0.00	5.61	4.37	6.66	38.71
76	6.32	6.68	2.82	3.00	1.48	0.57	0.95	2.41	1.18	0.85	M1.67	1.48	29.41
77	1.37	M2.80	4.26	0.64	3.82	1.54	0.83	2.69	3.23	2.45	6.61	10.52	40.76
78	5.35	3.59	1.69	3.50	4.52	1.69	0.90	2.08	2.74	0.37	4.92	M3.54	34.89
79	3.45	7.36	3.22	3.35	2.36	0.47	0.82	0.82	3.25	5.35	3.77	6.75	40.97
80	9.99	4.68	3.59	4.07	1.23	2.52	0.14	0.49	1.69	1.67	6.87	11.90	48.84
81	2.01	4.11	3.48	2.29	2.23	4.27	0.19	0.03	2.68	4.14	M5.39	10.27	41.09
82	6.24	6.94	3.12	4.78	0.89	0.86	0.34	0.99	3.61	3.74	5.04	8.92	45.47
83	7.57	9.54	7.18	2.77	2.13	2.60	2.68	2.52	0.86	2.25	9.04	6.33	55.47
84	3.05	4.69	4.46	4.09	4.59	5.35	0.00	0.03	1.99	5.78	12.90	3.68	50.61
85	0.45	3.49	4.54	1.42	0.97	2.48	0.45	0.79	1.93	3.17	5.00	2.46	27.15
86	5.83	7.65	2.95	2.09	2.74	0.38	1.28	0.04	2.93	2.81	6.71	4.13	39.54
87	6.75	4.94	5.55	2.19	1.66	0.30	2.00	0.10	0.53	0.23	2.40	10.55	37.20
88	7.88	1.71	3.73	4.63	2.56	2.55	0.21	0.03	1.25	0.20	9.88	3.28	37.91
89	4.24	3.16	7.02	1.24	2.27	0.91	0.52	1.37	1.34	2.15	3.72	4.15	32.09
90	8.98	4.97	3.42	2.22	1.71	2.94	0.54	1.09	0.50	M6.18	5.00	3.39	40.94
91	2.83	3.69	4.39	4.62	4.58		0.16	0.75	0.30	3.70	7.31	5.53	37.86
92	5.34	5.23	1.46	4.28	0.19	0.63	1.31	0.48	1.88	4.83	5.15	6.71	37.49
93	M2.96	M0.26	5.32	6.30	4.25	M2.20	2.44	0.30	0.00	1.35	1.39	6.90	33.67
94	4.78	6.93	3.58	1.88	1.63	1.57	0.06	0.02	1.12	6.94	8.32	7.70	44.53
95	7.65	M4.45	4.42	5.14	1.84	2.07	M0.60	1.55	1.52	5.63	10.18	7.66	52.71
96	9.09M	12.04	3.91	6.76	4.63	1.05	0.80	0.14	3.06	5.51	11.39	15.72	74.10
97	9.55	3.34	8.59	4.59	2.47	2.97	0.80	1.11	M3.38	M6.25	4.65	3.41	51.11
98	M8.98	5.73	4.91	1.42	5.57	1.27	0.22	0.25	0.90	4.69	10.96	0.54	45.44
99	7.58	9.08	4.68	1.35	2.53	1.23	0.18	0.47	0.05	2.47	7.68	4.35	41.65
0	6.21	5.15	3.46	2.15	2.39	1.40	0.01	0.00		3.21	3.04	3.16	30.18
1	1.55	1.28	3.51	M0.69	1.05	1.67	0.73	1.19	0.69	3.80			16.16
2													

2

APPENDIX D

Wetland Determination Data Sheets

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P1
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Wetter than usual. (0.38 inch rain day of site visit in Aurora.) Lowest, wettest portion of Wetland B (south forested wetland).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>90%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>95</u> x 2 = <u>190</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>205</u> (B) Prevalence Index = B/A = <u>2.05</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus latifolia</u>	<u>5%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>5%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa palustris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Vicia species</u>	<u>1%</u>	<u>No</u>	<u>FAC to UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>6%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>94%</u>				

Remarks: Vegetation is grazed by horses. Oregon ash trees range from 7-24" dbh. Entered by: CMW QC by: SAR

SOIL

Sampling Point: **P1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 3/2	90	7.5YR 3/4	10	C	M & PL	SiL	ORC 0-11
11-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	no ORC

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8</u>	
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>6</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: CMW QC by: SAR
Dry above. Also have geomorphic position and FAC-Neutral test, and more than superficial ORC. Water marks at 14" on trees. Soils pugged from horses.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P2
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): sl. convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>71</u> x 3 = <u>213</u> FACU species <u>32</u> x 4 = <u>128</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>103</u> (A) <u>341</u> (B) Prevalence Index = B/A = <u>3.31</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Festuca arundinacea</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Agrostis capillaris</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Poa compressa</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
6. <u>Plantago lanceolata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Prunella vulgaris</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Vicia species</u>	<u>2%</u>	<u>No</u>	<u>FAC to UPL</u>	
9. <u>Ranunculus repens</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
105% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 3/2	98	7.5YR 3/4	2	C	M	SiL	few ORC 4-5"
11-15	10YR 4/2	90	10YR 3/3	5	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Redox too few in surface to meet F6; redox too faint in subsurface to meet A11. Shovel refusal at 15" due to very dry compacted soils.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >15 _____	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >15 _____	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P3
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>310</u> (B) Prevalence Index = B/A = <u>3.10</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Festuca arundinacea</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>Holcus lanatus</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>		
4. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>		
5. <u>Ranunculus repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
6. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
100% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: **P3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	95	7.5YR 3/4	5	C	PL	SiL	few ORC 0-3"
6-13	10YR 4/1	90	5YR 3/4	10	C	M	SiL	
13-24	10YR 5/1	85	7.5YR 4/6	15	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Many fine roots throughout profile, not oxidized. Surface ORC likely from compaction due to horses.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>24</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry, no seeps. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P4
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>93</u> x 3 = <u>279</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>98</u> (A) <u>299</u> (B) Prevalence Index = B/A = <u>3.05</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u><i>Alopecurus pratensis</i></u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u><i>Festuca arundinacea</i></u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u><i>Hypochaeris radicata</i></u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
4. <u><i>Trifolium repens</i></u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
98% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>2%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 3/2	95	7.5YR 3/3	5	C	M & PL	SiL	0-5 ORC
15-22	10YR 4/2	80	7.5YR 4/6	20	C	M & PL	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Redox is faint (hue 1 value 0 chroma 1) in surface layer.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >22	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >22	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: CMW QC by: SAR
Dry. No secondary indicators. ORC in compacted surface layer.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P5
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Ranunculus repens</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Festuca arundinacea</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: P5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/2	95	7.5YR 3/4	5	C	M	SiL	0-5 ORC
13-23	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >23	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >23	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			

Remarks: Slightly moist 17-23" in probe. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P6
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
Wetland B.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>90%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. <u>Fraxinus latifolia</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>130</u> x 2 = <u>260</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>210</u> (A) <u>500</u> (B) Prevalence Index = B/A = <u>2.38</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Agrostis capillaris</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Festuca arundinacea</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Carex leptopoda</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>80%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>20%</u>				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>

SOIL

Sampling Point: **P7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	few ORC 0-6
6-16	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: compacted soils

Depth (inches): 16

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>16</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>16</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P8
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). 6-12" higher than P7.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>4</u> x 4 = <u>16</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>104</u> (A) <u>316</u> (B) Prevalence Index = B/A = <u>3.04</u>
1. <u>Rubus armeniacus</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
3% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Festuca arundinacea</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Alopecurus pratensis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Holcus lanatus</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Agrostis capillaris</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Cirsium vulgare</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
101% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

SOIL

Sampling Point: **P8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	98	7.5YR 4/6	2	C	PL	SiL	
6-13	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	
13-23	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u>	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>23</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry. No secondary indicators. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P9
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). ~15 feet north of fence in 5-foot wide very subtle linear depression (PHS Wetland A).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>1</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____	Prevalence Index worksheet:	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
3. _____	_____	_____	_____	OBL species	<u>0</u> x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species	<u>0</u> x 2 = <u>0</u>
5. _____	_____	_____	_____	FAC species	<u>100</u> x 3 = <u>300</u>
0% = Total Cover				FACU species	<u>0</u> x 4 = <u>0</u>
Herb Stratum (Plot size: <u>5' r</u>)				UPL species	<u>0</u> x 5 = <u>0</u>
1. <u>Agrostis capillaris</u>	<u>98%</u>	<u>Yes</u>	<u>FAC</u>	Column Totals:	<u>100</u> (A) <u>300</u> (B)
2. <u>Parentucellia viscosa</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.00</u>	
3. <u>Rumex crispus</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
4. _____	_____	_____	_____	1 - Rapid Test for Hydrophytic Vegetation	
5. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%	
6. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹	
7. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
9. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
10. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
100% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: P9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	80	7.5YR 3/4	15	C	M	SiL	
			10YR 3/3	5	C	M		
8-20	10YR 4/2	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> ? <input type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): >20	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): >20	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Slightly moist 8-20" bgs. Only one secondary indicator. PHS reports drainage patterns in their Plot 10. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P10
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Holcus lanatus</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. <u>Alopecurus pratensis</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P11
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>69</u> x 3 = <u>207</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>70</u> (A) <u>208</u> (B) Prevalence Index = B/A = <u>2.97</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Agrostis capillaris</u>	<u>68%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Rorippa curvisiliqua</u>	<u>1%</u>	<u>No</u>	<u>OBL</u>		
3. <u>Alopecurus pratensis</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
70% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>30%</u>					
Hydrophytic Vegetation Present? Yes <u>X</u> No _____					
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>					

SOIL

Sampling Point: **P11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	
10-17	10YR 4/1	80	7.5YR 4/6	20	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5) with subdominants
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>17</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>17</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Small area of surface saturation from recent rain. PHS wetland. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P12
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>96</u> x 3 = <u>288</u> FACU species <u>6</u> x 4 = <u>24</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>102</u> (A) <u>312</u> (B) Prevalence Index = B/A = <u>3.06</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Agrostis capillaris</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Festuca arundinacea</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>		
3. <u>Holcus lanatus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
4. <u>Hypochaeris radicata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>		
5. <u>Plantago lanceolata</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>		
6. <u>Rumex crispus</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
7. <u>Vicia species</u>	<u>1%</u>	<u>No</u>	<u>FAC to UPL</u>		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
103% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

SOIL

Sampling Point: **P12**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	95	7.5YR 3/3	5	C	PL	SiL	
6-15	10YR 3/2	98	7.5YR 3/4	2	C	M	SiL	
15-24	10YR 4/2	90	7.5YR 4/6	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No <u>X</u>
Type: _____	
Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
 Redox too faint in 0-6 and too few in 6-15.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:	Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>>24</u>	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>>24</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Dry throughout. Does not meet FAC-Neutral test with subdominants. Entered by: CMW QC by: SAR

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P13
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>?</u>	No _____	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			
PHS Wetland A.			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>95</u> x 3 = <u>285</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>295</u> (B) Prevalence Index = B/A = <u>2.95</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Agrostis capillaris</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Holcus lanatus</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>Alopecurus pratensis</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>		
4. <u>Phalaris arundinacea</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
100% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>	

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P14
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>16</u> x 4 = <u>64</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>102</u> (A) <u>324</u> (B) Prevalence Index = B/A = <u>3.18</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Agrostis capillaris</u>	<u>65%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
3. <u>Alopecurus pratensis</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Festuca arundinacea</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
5. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
7. <u>Plantago lanceolata</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
8. <u>Convolvulus arvensis</u>	<u>1%</u>	<u>No</u>	<u>NOL</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
102% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____				Entered by: <u>CMW</u> QC by: <u>SAR</u>

SOIL

Sampling Point: **P14**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					SiL	
12-20	10YR 4/2	80	7.5YR 4/6	15	C	M	SiL	
			7.5YR 3/4	5	C	M		
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Redox Depressions (F8)					
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay) Pieces of charcoal 12-20" bgs.								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>20</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>20</u>	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Dry throughout. Entered by: <u>CMW</u> QC by: <u>SAR</u>			

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/1/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P15
 Investigator(s): C. Mirth Walker, Stacy Benjamin, Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1A Aloha silt loam, 0-3% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>3.61" last 2 weeks (Portland); 4.15" above normal for month. 5.18" last 2 weeks (Aurora); 5.66" above normal</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>315</u> (B) Prevalence Index = B/A = <u>3.15</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Agrostis capillaris</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
4. <u>Plantago lanceolata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Trifolium repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				
Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks: _____ Entered by: <u>CMW</u> QC by: <u>SAR</u>				

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/8/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P16
 Investigator(s): C. Mirth Walker and Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____		Yes <u>X</u>	No _____
Wetland Hydrology Present?	Yes <u>X</u>	No _____		Yes <u>X</u>	No _____
Precipitation prior to fieldwork: <u>Portland 0.84" prior week (3.61" previous week); Aurora 0.65" prior week (3.24" previous week) 0.15 / 0.02 day of</u>					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Paired plot to P2 (rechecked P1 and plot was dry to 23 inches bgs).</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Fraxinus latifolia</u>	<u>90%</u>	<u>Yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>90%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Fraxinus latifolia</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>	FACW species <u>110</u> x 2 = <u>220</u>	
2. <u>Crataegus monogyna</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	FAC species <u>16</u> x 3 = <u>48</u>	
3. _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>126</u> (A) <u>268</u> (B)	
<u>21%</u> = Total Cover				Prevalence Index = B/A = <u>2.13</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Poa palustris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Agrostis capillaris</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	<u>X</u> 2 - Dominance Test is >50%	
3. <u>Festuca rubra</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
<u>15%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>85%</u>					
Remarks: <u>Grass grazed, trampled.</u>				Entered by: <u>cmw</u> QC by: <u>sar</u>	

SOIL

Sampling Point: P16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	80	7.5YR 3/4	20	C	M	SiL	no ORC
12-17	10YR 4/2	80	7.5YR 3/4	10	C	M	SiL+	
			7.5YR 4/6	10	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Water marks at 4" on fencepost.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>17</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>17</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: sar

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Rumpf Property in Villebois City/County: Wilsonville / Clackamas Sampling Date: 10/8/2013
 Applicant/Owner: Polygon Northwest Company State: OR Sampling Point: P17
 Investigator(s): C. Mirth Walker and Stacey Reed Section, Township, Range: 15, 3S, 1W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1B Aloha silt loam, 3-6% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>Portland 0.84" prior week (3.61" previous week); Aurora 0.65" prior week (3.24" previous week) 0.15 / 0.02 day of</u>			
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation). Triangle tax lot south of entrance driveway.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>60%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Salix scouleriana</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>80%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>65</u> x 4 = <u>260</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>175</u> (A) <u>570</u> (B) Prevalence Index = B/A = <u>3.26</u>
1. <u>Rubus armeniacus</u>	<u>60%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Rosa pisocarpa</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>70%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Hedera helix</u>	<u>20%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Rubus ursinus</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>25%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>75%</u>				
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>				
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>sar</u>				

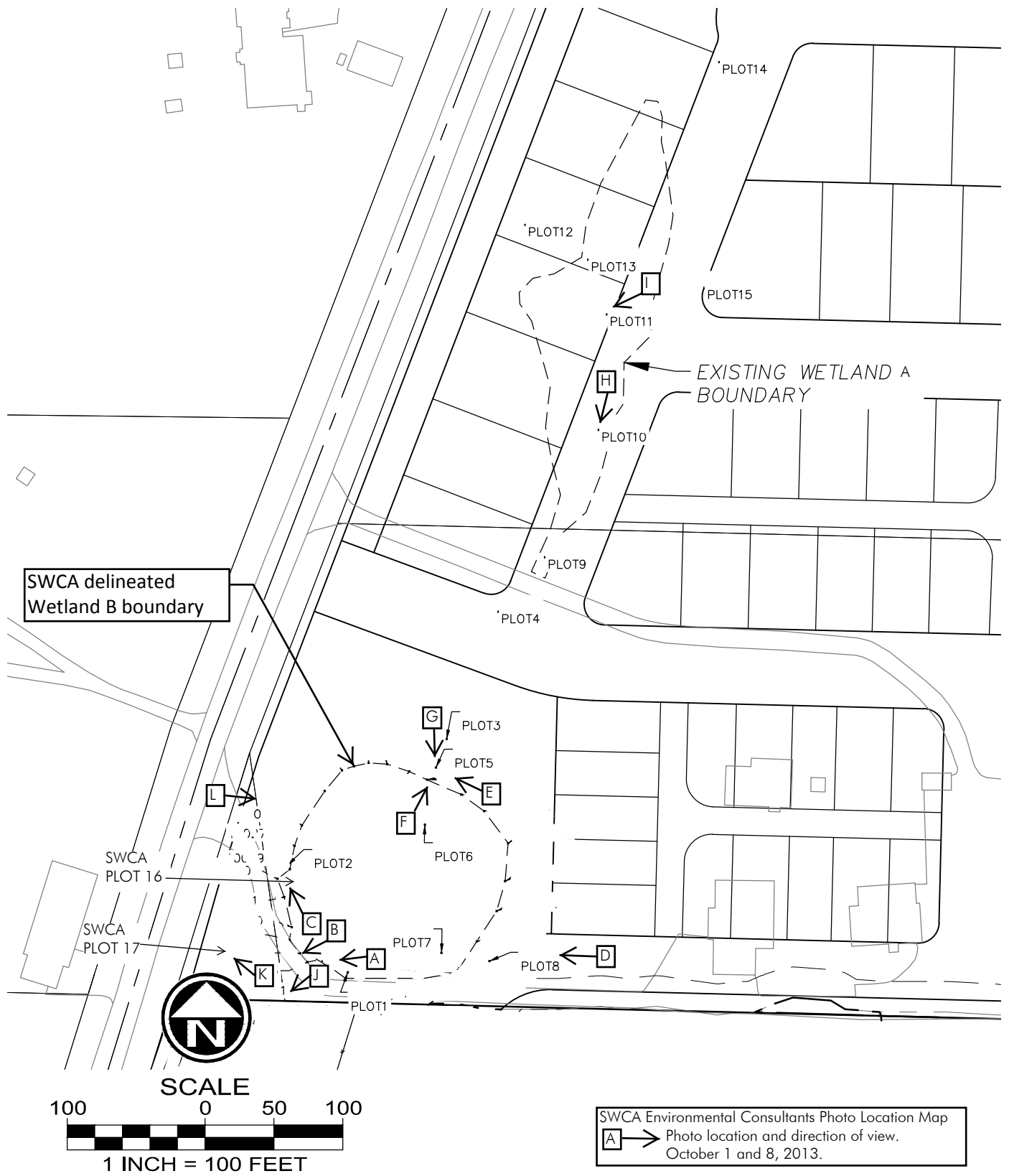
APPENDIX E

Ground-Level Site Photographs

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RUMPF Wetland Delineation

N:\proj\395-027\09 Drawings\06 Survey\Exhibits\395027.Rumpf Wetlands.dwg - SHEET: Letter Oct. 7, 13 - 9:26 AM t2



PACIFIC COMMUNITY DESIGN

PLANNING - ENGINEERING - SURVEYING

(503) 941-9484

395-027



Photo A. View southwest in vicinity of wetland Plot 1 in the south Wetland B, with high water marks on trees and fence posts.



Photo B. View south of buried culvert under entrance driveway.



Photo C. View west of water marks on fence posts gradually decreasing; vertical arrows point to wetland Plot 16 in foreground and upland Plot 2 in background.

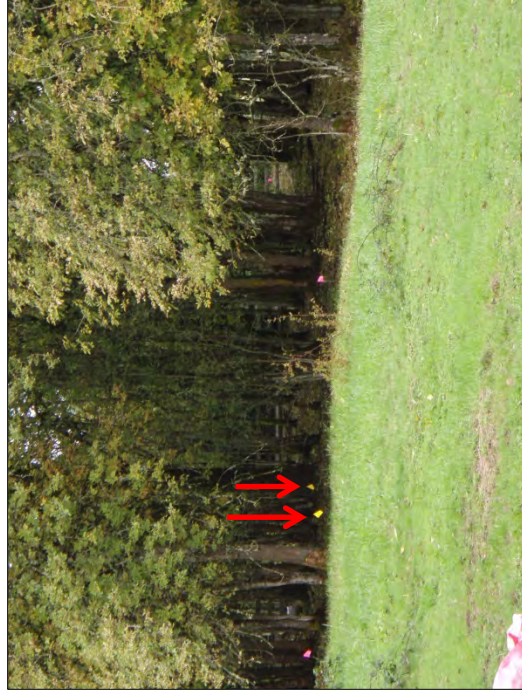


Photo D. View west of upland Plot 8 in foreground (higher elevation w/ blackberry) and wetland Plot 7 in background.

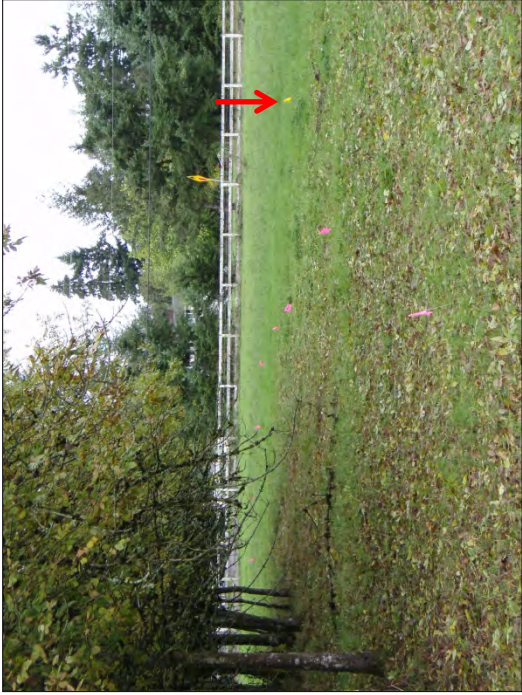


Photo E. View west of upland Plot 5 and wetland boundary.



Photo G. View south into Wetland B near Plot 6.



Photo F. View north of upland Plot 5, Plot 3, and Plot 4, respectively.



Photo H. View south in Wetland A towards wetland Plot 10 in foreground and Plot 9 in background.



Photo I. View of Wetland Plot 11 in Wetland A.



Photo K. View west of upland Plot 17, south of driveway.



Photo J. View south of large Oregon ash tree in upland, south of driveway.



Photo L. View east into horse pasture from entrance driveway.

APPENDIX F

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Section IV
Tentative Plat

IVA
Supporting Compliance Report

**SUPPORTING COMPLIANCE REPORT
TENTATIVE PLAT
PDP 3 NORTH**

SECTION IVA

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I. WILSONVILLE PLANNING & LAND DEVELOPMENT ORDINANCE

SECTION 4.125. VILLAGE (V) ZONE

(.02) PERMITTED USES

Examples of principle uses that are typically permitted:

- A. Single Family Detached Dwellings
- H. Non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar recreational and community uses owned and operated either publicly or by an owners association.

Response: The *Tentative Plat* (see Notebook Section IVB) shows that the proposed Tentative Plat will create lots for development of single family dwellings and tracts for parks and open space. All proposed uses within the subject area are permitted pursuant to this section.

(.05) DEVELOPMENT STANDARDS APPLYING TO ALL DEVELOPMENTS IN THE VILLAGE ZONE

All development in this zone shall be subject to the V Zone and the applicable provisions of the Wilsonville Planning and Land Development Ordinance. If there is a conflict, then the standards of this section shall apply. The following standards shall apply to all development in the V zone:

- A. Block, Alley, Pedestrian and Bicycle Standards:
 - 1. Maximums Block Perimeter: 1,800 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent a block perimeter from meeting this standard.

Response: These standards are addressed within the PDP Compliance Report (see Notebook Section IIIA).

- 2. Maximum spacing between streets for local access: 530 feet, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent street extensions from meeting this standard.

Response: These standards are addressed within the PDP Compliance Report (see Notebook Section IIIA).

- 3. If the maximum spacing for streets for local access exceeds 530 feet, intervening pedestrian and bicycle access shall be provided, with a maximum spacing of 330 feet from those local streets, unless the Development Review Board makes a finding that barriers such as existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions from meeting this standard.

Response: These standards are addressed within the PDP Compliance Report (see Notebook Section IIIA).

- B. Access:** All lots with access to a public street, and an alley, shall take vehicular access from the alley to a garage or parking area, except as determined by the City Engineer.

Response: All of the lots within the proposed PDP that have frontage on a public street and an alley will take vehicular access from an alley to a garage or parking area.

Table V-1 Development Standards

Response: The attached *Tentative Plat* (see Notebook Section IIIB) depicts proposed lot sizes and dimensions. All of the lots will be developed with single family dwelling units. All of the lots meet applicable requirements, as addressed below. No buildings are proposed with this application. Final compliance with these standards will be reviewed at building permit submittal.

Single-Family Dwellings

Minimum lot size: 2,250 square feet

Minimum lot width: 35 feet

Minimum lot depth: 50 feet

Response: All lots within the proposed tentative plat meet the minimum lot size requirement and meet the minimum lot width and depth specified for Small, Medium, Standard, and Large lots in the approved SAP North *Architectural Pattern Book*, with allowed variations for site features, such as road alignment or site topography.

Allowed variations are requested for Lots 8, 9, and 54, where road curvatures limit the width of lot frontage. Lot 8 has 58 feet of street frontage and Lot 9 has 44.3 feet of street frontage, resulting from the street corner knuckle effect on the front of these lots. However, lot width at the front building elevation will be at least 60 feet as future dwellings on these lots will be 50 feet in width with 5-foot minimum side yard setbacks. In addition, at the rear lot line, the width of these lots exceeds 60 feet. Lot 54 has approximately 56 of street frontage, as it is a corner lot located at the intersection of an angled street; SW Belfast Avenue is angled with a southwestern to northeastern orientation and intersects with SW Barcelona that has a west to east orientation. As a result, Lot 54 has a narrower lot width at the front lot line than the rear lot line (lot width at the rear is 91.6 feet wide). However, Lot 54 will have approximately 64 feet of distance between side lot lines at the front building elevation.

In addition, Small lots utilize the +/-32-40' typical lot width specified in the SAP North Pattern Book. Lots 38 and 39 are approximately 46 feet in width as they utilize the typical 10-foot street side yard in addition to the +/-32-40' typical lot width standard for Smalls, as shown in the SAP North Pattern Book.

(.07) GENERAL REGULATIONS - OFF-STREET PARKING, LOADING & BICYCLE PARKING

Table V-2: Off-Street Parking Requirements

Category	Min. Vehicle Spaces	Max. Vehicle Spaces	Bicycle Short Term	Bicycle Long Term
Single Family Detached Dwelling Units	1.0 / DU	NR	NR	NR

Response: Each of the homes will provide a minimum of a two-car garage in compliance with this standard.

(.08) OPEN SPACE

Open space shall be provided as follows:

- A. In all residential developments and in mixed-use developments where the majority of the developed square footage is to be in residential use, at least twenty-five percent (25%) of the area shall be open space, excluding street pavement and surface parking. In multi-phased developments, individual phases are not required to meet the 25% standard as long as an approved Specific Area Plan demonstrates that the overall development shall provide a minimum of 25% open space. Required front yard areas shall not be counted towards the required open space area. Required rear yard areas and other landscaped areas that are not within required front or side yards may be counted as part of the required open space.
- B. Open space area required by this Section may, at the discretion of the Development Review Board, be protected by a conservation easement or dedicated to the City, either rights in fee or easement, without altering the density or other development standards of the proposed development. Provided that, if the dedication is for public park purposes, the size and amount of the proposed dedication shall meet the criteria of the City of Wilsonville standards. The square footage of any land, whether dedicated or not, which is used for open space shall be deemed a part of the development site for the purpose of computing density or allowable lot coverage. See SROZ provisions, Section 4.139.10.
- C. The Development Review Board may specify the method of assuring the long-term protection and maintenance of open space and/or recreational areas. Where such protection or maintenance are the responsibility of a private party or homeowners' association, the City Attorney shall review and approve any pertinent bylaws, covenants, or agreements prior to recordation.

Response: The Parks *Master Plan* for Villebois states that there are 58.42 acres of parks and 101.31 acres of open space for a total of 159.73 acres within Villebois, approximately 33%. SAP North includes parks and open space areas consistent with *Master Plan*. PDP 3N includes parks and open space areas consistent with the *Master Plan* and the SAP North Amendment, as described in more detail in the PDP compliance report (see Section IIIA).

(.09) STREET & ACCESS IMPROVEMENT STANDARDS

A. Except as noted below, the provisions of Section 4.177 apply within the Village zone:

1. General Provisions:

a. All street alignment and access improvements shall conform to the Villebois Village Master Plan, or as refined in the Specific Area Plan, Preliminary Development Plan, or Final Development Plan and the following standards:

Response: The street alignment and access improvements are consistent with the *Villebois Village Master Plan* and the concurrent SAP North Amendment.

i. All street improvements shall conform to the Public Works Standards and shall provide for the continuation of streets through proposed developments to adjoining properties or subdivisions, according to the Master Plan.

Response: All street improvements within this Preliminary Development Plan will comply with the applicable Public Works Standards. The street system within this Preliminary Development Plan is designed to provide for the continuation of streets within Villebois and to adjoining development according to the *Master Plan*. The street system is illustrated on *Sheet 7 - Circulation Plan* in Notebook Section IIIB.

ii. All streets shall be developed with curbs, landscape strips, bikeways or pedestrian pathways, according to the Master Plan.

Response: All streets within this Preliminary Development Plan will be developed with curbs, landscape strips, sidewalks, and bikeways or pedestrian pathways as depicted on *Sheet 7 - Circulation Plan* in Notebook Section IIIB and in accordance with the *Master Plan*.

2. Intersections of streets

a. Angles: Streets shall intersect one another at angles not less than 90 degrees, unless existing development or topography makes it impractical.

b. Intersections: If the intersection cannot be designed to form a right angle, then the right-of-way and paving within the acute angle shall have a minimum of thirty (30) foot centerline radius and said angle shall not be less than sixty (60) degrees. Any angle less than ninety

(90) degrees shall require approval by the City Engineer after consultation with the Fire District.

Response: The *Tentative Plat* located in Section IVB of this Notebook demonstrates that all proposed streets will intersect at angles consistent with the above standards. See also Notebook Section IIIB - Reduced Drawings.

- c. **Offsets:** Opposing intersections shall be designed so that no offset dangerous to the traveling public is created. Intersections shall be separated by at least:
 - i. 1000 ft. for major arterials
 - ii. 600 ft. for minor arterials
 - iii. 100 ft. for major collector
 - iv. 50 ft. for minor collector

Response: The *Tentative Plat* located in Notebook Section IIIB demonstrates that opposing intersections on public streets are offset, as appropriate, so that no danger to the traveling public is created.

- d. **Curb Extensions:**
 - i. Curb extensions at intersections shall be shown on the Specific Area Plans required in subsection 4.125(.18)(C) through (F), below, and shall:
 - ii. Not obstruct bicycle lanes on collector streets.
 - iii. Provide a minimum 20 foot wide clear distance between curb extensions all local residential street intersections shall have, shall meet minimum turning radius requirements of the Public Works Standards, and shall facilitate fire truck turning movements as required by the Fire District.

Response: Curb extensions are shown on *Sheet 7 - Circulation Plan* in Notebook Section IIIB. PDP 3N does not include any collector streets or bike lanes. The attached drawings illustrate that all street intersections will have a minimum 20 foot wide clear distance between curb extensions on all local residential street intersections.

- 3. **Street grades shall be a maximum of 6% on arterials and 8% for collector and local streets. Where topographic conditions dictate, grades in excess of 8%, but not more than 12%, may be permitted for short distances, as approved by the City Engineer, where topographic conditions or existing improvements warrant modification of these standards.**

Response: *Sheet 5 - Grading Plan* in Notebook Section IIIB demonstrates that proposed streets can comply with this standard.

4. Centerline Radius Street Curves:

The minimum centerline radius street curves shall be as follows:

- a. Arterial streets: 600 feet, but may be reduced to 400 feet in commercial areas, as approved by City Engineer.
- b. Collector streets: 600 feet, but may be reduced to conform with the Public Works Standards, as approved by the City Engineer.
- c. Local streets: 75 feet

Response: The *Tentative Plat* (see Notebook Section IVB) demonstrates that all streets will comply with the above standards.

5. Rights-of-way:

- a. See (.09) (A), above.

Response: Proposed rights-of-way are shown on the *Tentative Plat*, located in Section IVB of this Notebook. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with recordation of a final plat in accordance with Section 4.177.

6. Access drives.

- a. See (.09) (A), above.
- b. 16 feet for two-way traffic.

Response: Access drives (alleys) will be paved at least 16-feet within a 20-foot tract, as shown on *Sheet 7 - Circulation Plan* in Notebook Section IIIB. In accordance with Section 4.177, all access drives will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions.

7. Clear Vision Areas

- a. See (.09) (A), above.

Response: Clear vision areas will be provided and maintained in compliance with the Section 4.177.

8. Vertical clearance:

- a. See (.09) (A), above.

Response: Vertical clearance will be provided and maintained in compliance with the Section 4.177.

9. Interim Improvement Standard:

- a. See (.09) (A), above.

Response: An interim street section improvement will be provided on Grahams Ferry Road to create consistency with the street improvements previously completed

with phased development of SAP North and SAP South. Additionally, improvements on SW Tooze Road are planned to be provided by the City. No other interim street improvements are proposed.

(.18) VILLAGE ZONE DEVELOPMENT PERMIT PROCESS

G. Preliminary Development Plan Approval Process:

1. An application for approval of a Preliminary Development Plan for a development in an approved SAP shall:
 - f) Include a preliminary land division (concurrently) per Section 4.400, as applicable.

Response: This request is for a Tentative Subdivision Plat. This section includes a Supporting Compliance Report, the proposed Tentative Plat, draft CC&R's, a copy of the certification of liens & assessments form, and the subdivision name approval from the County Surveyor's Office.

SECTION 4.177. STREET IMPROVEMENT STANDARDS

Response: Proposed rights-of-way are shown on the *Tentative Plat* in Notebook Section IIIB. Rights-of-way will be dedicated and a waiver of remonstrance against the formation of a local improvement district will be recorded with the final plat.

Reduced drawings located in Notebook Section IIIB demonstrate that all proposed access drives (alleys) within the Preliminary Development Plan area will have a minimum improvement width of 16 feet and will provide two-way travel. All access drives (alleys) will be constructed with a hard surface capable of carrying a 23-ton load. Easements for fire access will be dedicated as required by the fire department. All access drives will be designed to provide a clear travel lane free from any obstructions.

Clear vision areas will be maintained in accordance with the standards of Subsection 4.177(.01)(I). Vertical clearance will be maintained over all streets and access drives in accordance with Subsection 4.177(.01)(J).

LAND DIVISIONS

SECTION 4.210. APPLICATION PROCEDURE

- A. Preparation of Tentative Plat. The Planning Staff shall provide information regarding procedures and general information having a direct influence on the proposed development, such as elements of the Comprehensive Plan, existing and proposed streets, road and public utilities. The applicant shall cause to be prepared a tentative plat, together with improvement plans and other supplementary material as specified in this Section. The Tentative Plat shall be prepared by an Oregon licensed professional land surveyor or engineer. An affidavit of the services of each surveyor or engineer shall be furnished as part of the submittal.

Response: A *Tentative Plat* has been prepared by an Oregon licensed professional engineer as required. The *Tentative Plat* can be seen in Section IVB of this Notebook. Improvement plans can be seen in Notebook Section IIIB. The Introductory Narrative located in Section IA includes a listing of the services provided by each design team member.

B. Tentative Plat Submission. The purpose of the Tentative Plat is to present a study of the proposed subdivision to the Planning Department and Development Review Board and to receive approval recommendations for revisions before preparation of a final Plat. The design and layout of this plan plat shall meet the guidelines and requirements set forth in this Code. The Tentative Plat shall be submitted to the Planning Department with the following information:

1. Site development application form completed and signed by the owner of the land or a letter of authorization signed by the owner. A preliminary title report or other proof of ownership is to be included with the application form.
2. Application fees as established by resolution of the City Council.

Response: Copies of the application form and the application fee are included in Notebook Sections IB and IC, respectively.

3. Ten (10) copies and one (1) sepia or suitable reproducible tracing of the Tentative Plat shall be submitted with the application. Paper size shall be eighteen inch (18”) by twenty-four inch (24”), or such other size as may be specified by the City Engineer.

Response: The balance of the 10 copies of the *Tentative Plat* (see Notebook Section IIIB) will be provided when the application is determined complete; three (3) of which have been provided with initial submittal.

4. Name of the subdivision. No subdivision shall duplicate or resemble the name of any other subdivision in Clackamas or Washington County. Names may be checked through the county offices.

Response: The name of the proposed subdivision of PDP 3N is “Calais at Villebois” (see Notebook Section IVE for documentation of subdivision name approval from the Clackamas County Surveyor’s Office).

5. Names, address, and telephone numbers of the owners and applicants, and engineer or surveyor.

Response: The names, addresses and telephone numbers of the owner, applicant, engineer and surveyor are listed in the Introductory Narrative, which can be seen in Notebook Section IA, and are listed on the *Cover Sheet* in Notebook Section IIIB.

6. Date, north point and scale drawing.

7. Location of the subject property by Section, Township, and Range.
8. Legal road access to subject property shall be indicated as City, County, or other public roads.
9. Vicinity map showing the relationship to the nearest major highway or street.
10. Lots: Dimensions of all lots, minimum lot size, average lot size, and proposed lot and block numbers.
11. Gross acreage in proposed plat.

Response: The above information is provided on the plan sheets located in Notebook Section IIIB. The location of the subject property by Section, Township and Range and the gross acreage of the proposed plat are also listed in the Introductory Narrative, located in Notebook Section IA, and are listed on the *Cover Sheet* in Notebook Section IIIB.

12. Proposed uses of the property, including sits, if any, for multi-family dwellings, shopping centers, churches, industries, parks, and playgrounds or other public or semi-public uses.

Response: The proposed plat does not include any multi-family dwelling sites, shopping centers, churches, or industries. Park and open space areas are indicated on the plan sheets located in Notebook Section IIIB. Proposed uses within the subject park and open space areas are detailed on the FDP Plans included in Notebook Section VIIB.

13. Improvements: Statement of the improvements to be made or installed including streets, sidewalks, lighting, tree planting, and times such improvements are to be made or completed.

Response: Proposed improvements are shown on the plan sheets in Notebook Section IIIB. *Sheet 7 - Circulation Plan & Street Sections* shows proposed streets and sidewalks. *Sheet 11 - Street Tree/Lighting Plan* shows proposed street trees and proposed street lights.

14. Trees. Locations, types, sizes, and general conditions of all existing trees, as required in Section 4.600.

Response: The requirements of Section 4.600 can be seen in Section VI of this Notebook. Additionally, *Sheet 10 - Tree Preservation Plan* in Notebook Section IIIB shows existing tree locations, types, sizes and general conditions, pursuant to the requirements of Section 4.600.

15. Utilities such as electrical, gas, telephone, on and abutting the tract.

Response: *Sheet 6 - Composite Utility Plan* in Notebook Section IIIB shows existing and proposed utilities.

16. **Easements:** Approximate width, location, and purpose of all existing and proposed easements on, and known easements abutting the tract.
17. **Deed Restrictions:** Outline of proposed deed restrictions, if any.
18. **Written Statement:** Information which is not practical to be shown on the maps may be shown in separate statements accompanying the Tentative Plat.
19. **If the subdivision is to be a “Planned Development,”** a copy of the proposed Home Owners Association By-Laws must be submitted at the time of submission of the application. The Tentative Plat shall be considered as the Stage I Preliminary Plan. The proposed By-Laws must address the maintenance of any parks, common areas, or facilities.

Response: *Sheet 2 - Existing Conditions* (see Notebook Section IIIB) shows the approximate width, location, and purpose of all existing easements. The attached *Tentative Plat* (see Notebook Section IVB) shows proposed easements as applicable to the subject site. No deed restrictions are proposed at this time. A draft of the CC&R’s are attached as Notebook Section IVC.

20. **Any plat bordering a stream or river shall indicate areas subject to flooding and shall comply with the provisions of Section 4.172.**

Response: The proposed plat areas do not border a stream or river.

21. **Proposed use or treatment of any property designated as open space by the City of Wilsonville.**

Response: The proposed plat includes a portion of Open Space 2 and a separate open space area in the southwestern site corner. These areas will be retained in tracts that will be owned and maintained by the homeowners association. Proposed use of the open space tracts is shown in the FDP plans included in Section VIIB of this Notebook.

22. **A list of the names and addresses of the owners of all properties within 250 feet of the subject property, printed on self-adhesive mailing labels. The list shall be taken from the latest available property ownership records of the Assessor’s Office of the affected county.**

Response: The required mailing list has been submitted with this application. A copy is provided in Notebook Section ID.

23. **A completed “liens and assessments” form, provided by the City Finance Department.**

Response: A copy of this form is provided in Notebook Section IVD.

24. Locations of all areas designated as a Significant Resource Overlay Zone by the City, as well as any wetlands shall be shown on the tentative plat.

Response: *Sheet 2 - Existing Conditions* in Notebook Section IIIB shows the location of the SROZ and Impact Area boundaries. The SROZ will be retained with Open Space 2 in a tract as shown on the attached *Tentative Plat* (see Notebook Section IVB), which will be owned and maintained by the homeowners association.

25. Locations of all existing and proposed utilities, including but not limited to domestic water, sanitary sewer, storm drainage, streets, and any private utilities crossing or intended to serve the site. Any plans to phase the construction or use of utilities shall be indicated.

Response: *Sheet 2 - Existing Conditions* shows all existing utilities. *Sheet 6 - Composite Utility Plan* shows all proposed utilities. *Sheet 5 - Grading Plan* shows proposed streets and storm drainage facilities. These plan sheets can be seen in Notebook Section IIIB.

26. A traffic study, prepared under contract with the City, shall be submitted as part of the tentative plat application process, unless specifically waived by the Community Development Director.

Response: A copy of the Traffic Impact Analysis is attached in Notebook Section IIID.

C. Action on proposed tentative plat:

1. Consideration of tentative subdivision plat. The Development Review Board shall consider the tentative plat and the reports of City staff and other agencies at a regular Board meeting no more than ninety (90) days after tentative plat application has been accepted as complete by the City. Final action on the proposed tentative plat shall occur within the time limits specified in Section 4.013. The tentative plat shall be approved if the Development Review Board determines that the tentative plat conforms in all respects to the requirements of this Code.

Response: The *Tentative Plat* (see Notebook Section IVB) is included with this application for review by the Development Review Board.

2. Consideration of tentative partition plat. The Planning Director shall review and consider any proposed land partition plat through the procedures for Administrative Reviews specified in Section 4.030 and 4.035.

Response: This request is for a Tentative Subdivision Plat. This code section does not apply.

3. The Board shall, by resolution, adopt its decision, together with findings and a list of all Conditions of Approval or required changes to be reflected on the Final Plat

Response: Any Conditions of Approval adopted by the Board shall be reflected on the Final Plat.

4. Board may limit content of deed restrictions. In order to promote local, regional and state interests in affordable housing, the Board may limit the content that will be accepted within proposed deed restrictions or covenants. In adopting conditions of approval for a residential subdivision or condominium development, the Board may prohibit such things as mandatory minimum construction costs, minimum unit sizes, prohibitions or manufactures housing, etc.

Response: The applicant recognizes the authority of the Board to limit the content of the deed restrictions or covenants.

5. Effect of Approval. After approval of a tentative plat, the applicant may proceed with final surveying, improvement construction and preparation of the final plat. Approval shall be effective for a period of two (2) years, and if the final plat is not submitted to the Planning Department within such time, the tentative plat shall be submitted again and the entire procedure shall be repeated for consideration of any changes conditions which may exist. Except, however, that the Development Review Board may grant a time extension as provided in Section 4.023.

Response: After approval of the Tentative Plat, a final plat will be prepared and submitted to the Planning Department within two years if an extension is not provided.

- D. Land division phases to be shown. Where the applicant intends to develop the land in phases, the schedule for such phasing shall be presented for review at the time of the tentative plat. In acting on an application for tentative plat approval, the Planning Director or Development Review Board may set time limits for the completion of the phasing schedule which, if not met, shall result in an expiration of the tentative plat approval.

Response: The PDP is proposed to be executed in one (1) phase.

- E. Remainder tracts to be shown as lots or parcels. Tentative plats shall clearly show all effected property as part of the application for land division. All remainder tracts, regardless of size, shall be shown and counted among the parcels or lots of the division.

Response: The *Tentative Plat* (see Notebook Section IVB) illustrates the entirety of effected property is included in lots and tracts.

SECTION 4.236. GENERAL REQUIREMENTS - STREETS.

(.01) **Conformity to the Master Plan Map:** Land divisions shall conform to and be in harmony with the Transportation Master Plan (Transportation Systems Plan), the bicycle and Pedestrian Master Plan, the Parks and Recreation Master Plan, the Official Plan or Map and especially to the Master Street Plan.

Response: The proposed land division complies with the concurrent Specific Area Plan - North Amendment and generally complies with the *Villebois Village Master Plan*, as demonstrated in the PDP Compliance Report (see Notebook Section IIIA), and thereby conforms to the applicable Master Plans.

(.02) **Relation to Adjoining Street System.**

- A. A land division shall provide for the continuation of the principal streets existing in the adjoining area, or of their proper projection when adjoining property is not developed, and shall be of a width not less than the minimum requirements for streets set forth in these regulations. Where, in the opinion of the Planning Director or Development Review Board, topographic conditions make such continuation or conformity impractical, an exception may be made. In cases where the Board or Planning Commission has adopted a plan or plat of a neighborhood or area of which the proposed land division is a part, the subdivision shall conform to such adopted neighborhood or area plan.
- B. Where the plat submitted covers only a part of the applicant's tract, a sketch of the prospective future street system of the unsubmitted part shall be furnished and the street system of the part submitted shall be considered in the light of adjustments and connections with the street system of the part not submitted.
- C. At any time when an applicant proposes a land division and the Comprehensive Plan would allow for the proposed lots to be further divided, the city may require an arrangement of lots and streets such as to permit a later resubdivision in conformity to the street plans and other requirements specified in these regulations.

Response: Plan sheets in Notebook Section IIIB illustrate street design will meet the minimum requirements set forth by this Section. The street system within PDP 3 North will provide connections to principle streets of adjoining areas. The Tentative Plat covers the entirety of PDP 3 North.

(.03) **All streets shall conform to the standards set forth in Section 4.177 and the block size requirements of the zone.**

Response: Previous sections of this report have demonstrated compliance with the standards of Section 4.177 and the applicable block size requirements.

(.04) **Creation of Easements:** The Planning Director or Development Review Board may approve an easement to be established without full compliance with these regulations, provided such an easement is the only reasonable method by which a portion of a lot large enough to allow partitioning into two (2) parcels may be provided with vehicular access and adequate utilities. If the proposed lot is large enough to divide into more than two (2) parcels, a street dedication may be required. Also, within a Planned Development, cluster settlements may have easement driveways for any number of dwelling units when approved by the Planning Director or Development Review Board.

Response: Any necessary easements will be identified on the final plat.

(.05) **Topography:** The layout of streets shall give suitable recognition to surrounding topographical conditions in accordance with the purpose of these regulations.

Response: *Sheet 5 - Grading Plan* in Notebook Section IIIB demonstrates that the layout of streets has given recognition to surrounding topographic conditions.

(.06) **Reserve Strips:** The Planning Director or Development Review Board may require the applicant to create a reserve strip controlling the access to a street. Said strip is to be placed under the jurisdiction of the City Council, when the Director or Board determine that a strip is necessary:

- A. To prevent access to abutting land at the end of a street in order to assure the proper extension of the street pattern and the orderly development of land lying beyond the street; or
- B. To prevent access to the side of a street on the side where additional width is required to meet the right-of-way standards established by the City; or
- C. To prevent access to land abutting a street of the land division but not within the tract or parcel of land being divided; or
- D. To prevent access to land unsuitable for building development.

Response: Reserve strips will be provided as appropriate.

(.07) **Future Expansion of Street:** When necessary to give access to, or permit a satisfactory future division of, adjoining land, streets shall be extended to the boundary of the land division and the resulting dead-end street may be approved without a turn-around. Reserve strips and street plugs shall be required to preserve the objective of street extension.

Response: Streets that will be expanded in the future will occur in compliance with this standard.

(.08) **Existing Streets:** Whenever existing streets adjacent to or within a tract are of inadequate width, additional right-of-way shall conform to the designated width in this Code or in the Transportation Systems Plan.

Response: Rights-of-way will be dedicated in accordance with the *Villebois Village Master Plan* and the Transportation System Plan.

(.09) Street Names: No street names will be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and numbers shall conform to the established name system in the City, and shall be subject to the approval of the City Engineer.

Response: No street names will be used that duplicate or could be confused with the names of existing streets. Street names and numbers will conform to the established name system in the City, as approved by the City Engineer.

SECTION 4.237. GENERAL REQUIREMENTS - OTHER.

(.01) Blocks:

- A. The length, width, and shape of blocks shall be designed with due regard to providing adequate building sites for the use contemplated, consideration of needs for convenient access, circulation, control, and safety of pedestrian, bicycle, and motor vehicle traffic, and recognition of limitations and opportunities of topography.
- B. **Sizes:** Blocks shall not exceed the sizes and length specified for the zone in which they are located unless topographical conditions or other physical constraints necessitate larger blocks. Larger blocks shall only be approved where specific findings are made justifying the size, shape, and configuration.

Response: The PDP Compliance Report (see Notebook Section IIIA) demonstrates compliance with the applicable block requirements. The street system proposed in this land division conforms to the street system in the concurrent SAP North Amendment.

(.02) Easements:

- A. **Utility lines.** Easements for sewers, drainage, water mains, electrical lines or other public utilities shall be dedicated wherever necessary. Easements shall be provided consistent with the City's Public Works Standards, as specified by the City Engineer or Planning Director. All the utility lines within and adjacent to the site shall be installed with underground services within the street and to any structures. All utilities shall have appropriate easements for construction and maintenance purposes.
- B. **Water Courses.** Where a land division is traversed by a water course, drainage way, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of the water course, and such further width as will be adequate for the purposes of conveying storm water and allowing for

maintenance of the facility or channel. Streets or parkways parallel to water courses may be required.

Response: The final plat will include the appropriate easements.

(.03) **Pedestrian and bicycle pathways.** An improved public pathway shall be required to transverse the block near its middle if that block exceeds the length standards of the zone in which it is located.

- A. Pathways shall be required to connect to cul-de-sacs to pass through unusually shaped blocks.
- B. Pathways required by this subsection shall have a minimum width of ten (10) feet unless they are found to be unnecessary for bicycle traffic, in which case they are to have a minimum width of six (6) feet.

Response: Any mid-block pathways required due to block size will be provided in conformance with this standard.

(.04) **Tree planting.** Tree planting plans for a land division must be submitted to the Planning Director and receive the approval of the Director or Development Review Board before the planning is begun. Easements or other documents shall be provided, guaranteeing the City the right to enter the site and plant, remove, or maintain approved street trees that are located on private property.

Response: *Sheet 10 - Street Tree/Lighting Plan* in Notebook Section IIIB shows proposed street tree planting.

(.05) **Lot Size and shape.** The lot size, width, shape and orientation shall be appropriate for the location of the land division and for the type of development and use contemplated. Lots shall meet the requirements of the zone where they are located.

- A. In areas that are not served by public sewer, an on-site sewage disposal permit is required from the City. If the soil structure is adverse to on-site sewage disposal, no development shall be permitted until sewer service can be provided.
- B. Where property is zoned or deeded for business or industrial use, other lot widths and areas may be permitted at the discretion of the Development Review Board. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.
- C. In approving an application for a Planned Development, the Development Review Board may waive the requirements of this section and lot size, shape, and density shall conform to the Planned Development conditions of approval.

Response: Proposed lot sizes, widths, shapes and orientations are appropriate for the proposed development and are in conformance with the Village Zone requirements as demonstrated by this report.

(.06) **Access.** The division of land shall be such that each lot shall have a minimum frontage on a public street, as specified in the standards of the relative zoning districts. This minimum frontage requirement shall apply with the following exceptions:

- A. A lot on the outer radius of a curved street or facing the circular end of a cul-de-sac shall have frontage of not less than twenty-five (25) feet upon a street, measured on the arc.
- B. The Development Review Board may waive lot frontage requirements where in its judgment the waiver of frontage requirements will not have the effect of nullifying the intent and purpose of this regulation or if the Board determines that another standard is appropriate because of the characteristics of the overall development.

Response: The proposed lots comply with the applicable access requirements of the Village Zone as demonstrated in previous sections of this report.

(.07) **Through lots.** Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries or adjacent non-residential activity or to overcome specific disadvantages of topography and orientation. A planting screen easement of at least ten (10) feet, across which there shall be no access, may be required along the line of lots abutting such a traffic artery or other disadvantageous use. Through lots with planting screens shall have a minimum average depth of one hundred (100) feet. The Development Review Board may require assurance that such screened areas be maintained as specified in Section 4.176.

Response: No through lots are proposed by this application.

(.08) **Lot side lines.** The side lines of lots, as far as practicable for the purpose of the proposed development, shall run at right angles to the street upon which the lots face.

Response: All side lines of lots will run at right angles to the street upon which the lots face.

(.09) **Large lot land divisions.** In dividing tracts which at some future time are likely to be re-divided, the location of lot lines and other details of the layout shall be such that re-division may readily take place without violating the requirements of these regulations and without interfering with the orderly development of streets. Restriction of buildings within future street locations shall be made a matter of record if the Development Review Board considers it necessary.

Response: This request does not include any tracts which may be divided at a future time.

(.10) **Building line.** The Planning Director or Development Review Board may establish special building setbacks to allow for the future redivision or other development of the property or for other reasons specified in the findings supporting the decision. If special building setbacks lines are established for the land division, they shall be shown on the final plat.

Response: No building lines are proposed by this application.

(.11) **Build-to line.** The Planning Director or Development Review Board may establish special build-to lines for the development, as specified in the findings and conditions of approval for the decision. If special build-to lines are established for the land division, they shall be shown on the final plat.

Response: No build-to lines are proposed by this application.

(.12) **Land for public purposes.** The Planning Director or Development Review Board may require property to be reserved for public acquisition, or irrevocably offered for dedication, for a specified period of time.

Response: This land division does not include land to be dedicated for public purposes except for the dedication of street right-of-way.

(.13) **Corner lots.** Lots on street intersections shall have a corner radius of not less than ten (10) feet.

Response: All lots on street intersections will have a corner radius of not less than ten (10) feet. This is demonstrated on the *Tentative Plat* in Notebook Section IVB.

SECTION 4.262. IMPROVEMENTS - REQUIREMENTS.

(.01) **Streets.** Streets within or partially within the development shall be graded for the entire right-of-way width, constructed and surfaced in accordance with the Transportation Systems Plan and City Public Works Standards. Existing streets which abut the development shall be graded, constructed, reconstructed, surfaced or repaired as determined by the City Engineer.

Response: *Sheet 5 - Grading Plan* in Notebook Section IIIB of this Notebook, shows compliance with this standard.

(.02) **Curbs.** Curbs shall be constructed in accordance with standards adopted by the City.

Response: Curbs will be constructed in accordance with City standards.

(.03) **Sidewalks.** Sidewalks shall be constructed in accordance with standards adopted by the City.

Response: Sidewalks will be constructed in accordance with City standards.

(.04) **Sanitary sewers.** When the development is within two hundred (200) feet of an existing public sewer main, sanitary sewers shall be installed to serve each lot or parcel in accordance with standards adopted by the City. When the development is more than two hundred (200) feet from an existing public sewer main, the City Engineer may approve an alternate sewage disposal system.

Response: *Sheet 6 - Composite Utility Plan* in Notebook Section IIIB illustrates proposed sanitary sewer lines.

(.05) **Drainage.** Storm drainage, including detention or retention systems, shall be provided as determined by the City Engineer.

Response: *Sheet 5 - Grading Plan* (see Notebook Section IIIB) illustrates the proposed storm drainage facilities. A supporting utility report is provided (see Notebook Section IIIC) that demonstrates that the proposed storm drainage facilities will meet City standards.

(.06) **Underground utility and service facilities.** All new utilities shall be subject to the standards of Section 4.300 (Underground Utilities). The developer shall make all necessary arrangements with the serving utility to provide the underground services in conformance with the City's Public Works Standards.

Response: Proposed utilities will be placed underground pursuant to Section 4.300 and City Public Works Standards.

(.07) **Streetlight standards.** Streetlight standards shall be installed in accordance with regulations adopted by the City.

Response: Proposed streetlights are shown on *Sheet 10 - Street Tree/Lighting Plan* in Notebook Section IIIB. Streetlights will be installed in accordance with City standards.

(.08) **Street signs.** Street name signs shall be installed at all street intersections and dead-end signs at the entrance to all dead-end streets and cul-de-sacs in accordance with standards adopted by the City. Other signs may be required by the City Engineer.

Response: Street name and dead-end signs will be installed in accordance with City standards.

(.09) **Monuments.** Monuments shall be placed at all lot and block corners, angle points, points of curves in streets, at intermediate points and shall be of such material, size, and length as required by State Law. Any monuments that are disturbed before all improvements are completed by the developer and accepted by the City shall be replaced to conform to the requirements of State Law.

Response: Monuments will be placed at all lot and block corners, angle points, points of curves in streets, at intermediate points and will be of such material, size, and length as required by State Law.

(.10) Water. Water mains and fire hydrants shall be installed to serve each lot in accordance with City standards.

Response: *Sheet 6 - Composite Utility Plan* in Notebook Section IIIB illustrates that water mains and fire hydrants will be installed to serve each lot in accordance with City standards.

II. CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable requirements of the City of Wilsonville Planning & Land Development Ordinance for the requested Tentative Subdivision Plat. Therefore, the applicant respectfully requests approval of this application.

IVB
Tentative Plat

N:\proj\395-027\09 Drawings\03 Planning\Sheets-PDP\395027.dwg - SHEET: Layout1 Mar. 25, 14 - 2:35 PM jik



LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK



POLYGON NW COMPANY



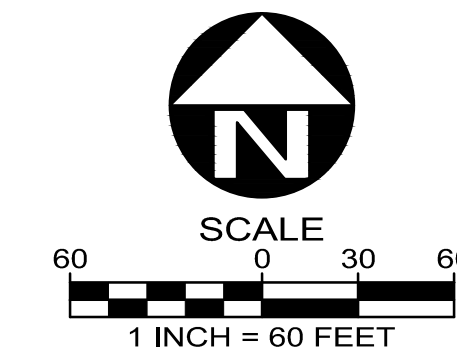
OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N VILLEBOIS

Preliminary Development Plan

Preliminary Plat

DATE 1/31/14



IVC
DRAFT CC&R's

PRELIMINARY DRAFT
TO BE MODIFIED

After Recording Return To:
Ball Janik LLP
101 SW Main Street, Suite 1100
Portland, OR 97204-3219
Attn.: Barbara Radler

**DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS
FOR**

THIS DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR _____ is made and executed on this ___ day of _____ 20___ by _____, a _____.

Declarant is the owner of the real property located in the City of Wilsonville, Clackamas County, Oregon and legally described on the attached Exhibit A. Declarant desires to establish a planned community on the property known as "_____" which shall also be part of the master planned development known as "Villebois," which was established and is governed by the Master Plan approved by the City of Wilsonville.

NOW THEREFORE, Declarant hereby declares that the real property described on the attached Exhibit A shall be held, sold and conveyed subject to the covenants, conditions and restrictions declared below, which shall run with the real property and shall benefit and be binding upon all parties having or acquiring any right, title or interest in the real property or any part thereof.

1. **DEFINITIONS**

The terms specified below shall have the following meanings when used in this Declaration:

1.1 **ACC**. "ACC" shall mean the Architectural Control Committee of the Association formed pursuant to Section 12.

1.2 **Articles**. "Articles" shall mean the Articles of Incorporation of the Association filed with the Corporation Division of the Oregon Secretary of State, as amended from time to time.

1.3 **Assessment**. "Assessment" shall mean any assessment levied against one or more Owners by the Association for payment of expenses relating to the Property and shall include Regular Assessments, Special Assessments, Limited Assessments and Reserve Assessments as those terms are defined herein.

PRELIMINARY DRAFT
TO BE MODIFIED

1.4 Association. "Association" shall mean _____ Homeowners Association, an Oregon nonprofit mutual benefit corporation, formed for the purposes set forth in this Declaration, the Bylaws and the Articles.

1.5 Association Landscaping. "Association Landscaping" shall mean all landscaping and all irrigation systems and utilities pertaining to landscaping located in the Common Areas and the front yard areas of the Lots, including all grass, sod, ground cover, flower and plant beds, planter strips, trees, shrubs, bushes and other plantings located in the front yard areas of the Lots, but excluding all sidewalks, driveways, fencing and other non-landscaping improvements located in the front yard areas of the Lots. The front yard areas of the Lots include those portions of the Lots located between the front of the Homes and any public or private street.

1.6 Board. "Board" shall mean the duly elected Board of Directors of the Association.

1.7 Bylaws. "Bylaws" shall mean the Bylaws of the Association, as amended from time to time. The Bylaws shall be adopted pursuant to ORS 94.625 and recorded in the official records of Clackamas County, Oregon.

1.8 City. "City" shall mean the City of Wilsonville, Oregon.

1.9 Common Areas. "Common Areas" shall mean those portions of the Property legally described on the attached Exhibit B which shall be owned by the Association for the common benefit of the Owners.

1.10 Common Maintenance Areas. "Common Maintenance Areas" shall mean the Common Areas and any other property that the Association is required to maintain pursuant to this Declaration or that the Board deems necessary or appropriate for the Association to maintain for the common benefit of the Owners, including without limitation, those areas described in Section 11.1.

1.11 Declarant. "Declarant" shall mean _____, a _____, and its successors and assigns who are designated as such in writing by Declarant and who consent in writing to the transfer or assumption of any rights or obligations of Declarant under this Declaration or the Bylaws. If less than all of Declarant's rights and obligations under this Declaration or the Bylaws are transferred to a successor or assign, then the successor or assign shall only be deemed a Declarant with respect to those rights or obligations that are specifically assigned or assumed by the successor or assign. One or more persons or entities may be a Declarant.

1.12 Declaration. "Declaration" shall mean this Declaration of Covenants, Conditions and Restrictions for _____, as amended from time to time in accordance with its terms.

PRELIMINARY DRAFT
TO BE MODIFIED

- 1.13 Design Guidelines. "Design Guidelines" shall mean the design guidelines described in Section 13.
- 1.14 Home. "Home" shall mean a dwelling unit located on a Lot and any associated Improvements.
- 1.15 Improvement. "Improvement" shall mean every structure or improvement of any kind, including without limitation, buildings, sidewalks, driveways, fences, walls, works of art, trees, hedges, plantings and other landscaping, changes in exterior color or shape, site work (such as, without limitation, excavation, grading and utility improvements), and all other product of construction efforts (such as, without limitation, alterations, renovations and reconstruction) on or with respect to the Property or any portion thereof.
- 1.16 Limited Assessment. "Limited Assessment" shall mean an assessment levied against an Owner by the Association for costs and expenses incurred by the Association for corrective action performed pursuant to this Declaration that is required as a result of the willful or negligent actions or omissions of the Owner or the Owner's tenants, family members, guests, contractors, or invitees. "Limited Assessment" also includes assessments for a common expense or any part of a common expense that benefits fewer than all of the Lots, as determined in the sole discretion of the Board.
- 1.17 Lot. "Lot" shall mean each of Lots 1 through 81, inclusive, as depicted on the Plat.
- 1.18 Master Plan. "Master Plan" shall mean the Master Plan of Villebois approved by the City.
- 1.19 Member. "Member" shall mean each member of the Association and shall include every Owner of a Lot. There shall be two (2) classes of membership in the Association, Class A and Class B, as described in Section 3.3 below.
- 1.20 Nonprofit Corporation Act. "Nonprofit Corporation Act" shall mean the Oregon Nonprofit Corporation Act (ORS 65.001 to 65.990), as amended from time to time.
- 1.21 Operation and Maintenance Agreement. "Operation and Maintenance Agreement" shall mean the Villebois Operation and Maintenance Agreement between the City and Declarant executed in connection with the recordation of the Plat.
- 1.22 Owner. "Owner" shall mean any person or entity, including Declarant, at any time owning a Lot, including any vendee under a recorded land sale contract to whom possession has passed, but does not include a tenant or holder of a leasehold interest, a person holding only a security interest in a Lot or a vendor under a recorded land sale contract who has surrendered possession.

PRELIMINARY DRAFT
TO BE MODIFIED

1.23 Pattern Book. "Pattern Book" shall mean the design requirements for each area within Villebois adopted and applied by the City and which will be a condition to the City's approving building permits.

1.24 Planned Community Act. "Planned Community Act" shall mean the Oregon Planned Community Act (ORS 94.550 to 94.783), as amended from time to time.

1.25 Plat. "Plat" shall mean the Plat of _____ recorded in the official records of Clackamas County, Oregon on _____, 20____ as Document No. _____ and any amendments thereto.

1.26 Property. "Property" shall mean the real property located in the City of Wilsonville, Clackamas County, Oregon and legally described on the attached Exhibit A.

1.27 Regular Assessment. "Regular Assessment" shall mean an assessment by the Association against all Owners to provide for the payment of all estimated normal expenses of the Association for the performance of the Association's duties as provided in this Declaration or the Bylaws.

1.28 Reserve Assessment. "Reserve Assessment" shall mean an assessment by the Association against all Owners to establish and maintain the reserve funds pursuant to Section 6.

1.29 Special Assessment. "Special Assessment" shall mean an assessment against all Owners in the event that the Regular Assessment for any particular year is or will become inadequate to meet the expenses of the Association.

1.30 Special Declarant Rights. "Special Declarant Rights" shall mean those rights reserved for Declarant in Section 15.

1.31 Turnover Meeting. "Turnover Meeting" shall mean the meeting of the Owners called pursuant to the Bylaws for the purpose of turning over control of the Association to the Class A Members.

1.32 Villebois. "Villebois" shall mean all of the property subject to the Master Plan.

2. DECLARATION

2.1 Property Covered. The property that is covered by and is hereby made subject to this Declaration is the Property.

2.2 Purpose. The purpose of this Declaration is to provide for the maintenance, restoration, repair, improvement and upkeep of the Common Maintenance Areas and to set forth other terms and conditions governing the use and enjoyment of the Property.

PRELIMINARY DRAFT
TO BE MODIFIED

2.3 Declaration. The Property shall be subject to all of the conditions, covenants, restrictions, and provisions contained in this Declaration, which shall benefit and burden each Lot and all other portions of the Property. Such conditions, covenants, restrictions, and provisions shall be binding on all parties having any right, title or interest in or to the Property, or any part thereof, and each of their respective heirs, personal representatives, successors and assigns. The Property shall be a Class I planned community as defined in the Planned Community Act and shall be subject to all of the terms and provisions of the Planned Community Act. The Property shall be known as “_____.”

2.4 Improvements. Declarant does not agree to build any particular Improvements on the Property, but may elect, at Declarant’s option, to build any such Improvements. Declarant elects not to limit Declarant’s rights to add Improvements not described in this Declaration.

3. THE ASSOCIATION

3.1 Organization. Declarant shall, concurrently with the execution and recording of this Declaration, organize the Association as a nonprofit mutual benefit corporation pursuant to the Nonprofit Corporation Act under the name “_____ Homeowners Association” The Articles shall provide for the Association’s perpetual existence, but in the event the Association is at any time dissolved, whether inadvertently or deliberately, it shall automatically be succeeded by an unincorporated association of the same name. All of the property, powers and obligations of the Association existing immediately prior to its dissolution shall thereupon automatically vest in the successor unincorporated association. Such vesting shall thereafter be confirmed as evidenced by appropriate conveyances and assignments by the Association to the successor unincorporated association. To the greatest extent possible, any successor unincorporated association shall be governed by the Articles and Bylaws as if they had been drafted to constitute the governing documents of the unincorporated association.

3.2 Membership. Every Owner of a Lot shall, immediately upon creation of the Association and thereafter during the entire period of such Owner’s ownership of a Lot, be a Member of the Association. Such membership shall commence, exist and continue simply by virtue of such ownership, shall expire automatically upon termination of such ownership, and need not be confirmed or evidenced by any certificate or acceptance of membership.

3.3 Voting Rights. The Association shall have the following two (2) classes of voting membership:

3.3.1 Class A Members. Class A Members shall be all Owners other than Declarant (except that beginning on the date on which the Class B membership is converted to Class A membership, and thereafter, Class A Members shall be all Owners, including Declarant). Class A Members shall be entitled to one (1) vote for each Lot owned. When more than one (1) person holds an interest in a Lot, all such persons shall be Members. However, only one (1) vote shall be exercised for the Lot. The vote for the Lot shall be exercised as the Owners of the Lot

PRELIMINARY DRAFT
TO BE MODIFIED

determine among themselves. If the Owners of the Lot cannot agree upon how to exercise the vote, then the vote for that Lot shall be disregarded in determining the proportion of votes with respect to the particular matter at issue.

3.3.2 Class B Members. The Class B Member shall be Declarant. The Class B Member shall be entitled to three (3) votes for each Lot owned. The Class B membership shall cease and be converted to Class A membership on the election in writing by Declarant to terminate the Class B membership.

3.4 Powers and Obligations. The Association shall have, exercise and perform all of the following powers, duties and obligations:

3.4.1 Declaration. The powers, duties and obligations granted to the Association by this Declaration, including, without limitation, the authority to levy Assessments against the Owners for the costs of operating and managing the Association and performing the Association's responsibilities under this Declaration and the Bylaws, as well as the operating costs and expenses of the ACC.

3.4.2 Statutory Powers. The powers and obligations of a nonprofit corporation pursuant to the Nonprofit Corporation Act, and of a homeowners association pursuant to ORS 94.630, as either may be amended from time to time, except as provided otherwise by this Declaration or the Bylaws.

3.4.3 General. Any additional or different powers, duties and obligations necessary or desirable for the purpose of carrying out the functions of the Association pursuant to this Declaration and the Bylaws or otherwise promoting the general benefit of the Members. The powers and obligations of the Association may from time to time be amended, repealed, enlarged or restricted by changes to this Declaration made in accordance with the provisions herein, accompanied by changes to the Articles or Bylaws made in accordance with such instruments, as applicable, and with the Planned Community Act and Nonprofit Corporation Act.

3.5 Liability. Neither the Association, members of the Board, officers of the Association nor members of committees established under or pursuant to the Bylaws shall be liable to any Owner for any damage, loss, injury or prejudice suffered or claimed on account of any action or failure to act by the Association or any Board member, officer or committee member, provided that the Association, Board member, officer or committee member acted or failed to act, in good faith, within the scope of his or her authority, and in a manner reasonably believed to be in the best interest of the Association and its Members, with regard to the act or omission at issue.

3.6 Interim Board. Declarant shall have the right to appoint an interim Board consisting of one (1) to three (3) directors, who shall serve as the Board until replaced by Declarant or until their successors have been elected by the Owners at the Turnover Meeting.

PRELIMINARY DRAFT
TO BE MODIFIED

3.7 Transitional Advisory Committee. Declarant shall form a transitional advisory committee as provided in the Bylaws to provide for the transition of administrative responsibility for the Association from Declarant to the Class A Members.

3.8 Association Rules and Regulations. The Board from time to time may adopt, modify, or revoke such rules and regulations governing the conduct of persons and the operation and use of the Lots and Common Areas as it may deem necessary or appropriate in order to assure the safe, peaceful and orderly use and enjoyment of the Property, without unduly infringing on the privacy or enjoyment of any Owner or occupant of any part of the Property. A copy of the rules and regulations, upon adoption, and a copy of each amendment, modification or revocation thereof, shall be delivered by the Board promptly to each Owner and shall be binding upon all Owners and occupants of all Lots upon the date of delivery. The method of adoption of such rules shall be as provided in the Bylaws.

4. ALLOCATION OF COMMON PROFITS AND EXPENSES

4.1 Method of Allocation. The common profits of the Association shall be distributed among, and the common expenses of the Association shall be charged to, the Lots on an equal basis, except as provided in Section 5.4 below. The common expenses of the Association may be assessed on a monthly, quarterly or annual basis as determined by the Board.

4.2 No Exception. No Owner may claim exemption from liability for contribution toward the common expenses of the Association by waiving his or her use or enjoyment of the Common Areas or by abandoning his or her Lot. No Owner may claim an offset against such liability for failure of the Association or the Board to perform its obligations.

5. ASSESSMENTS

5.1 Creation of Lien and Personal Obligation of Assessments. Declarant, for each Lot it owns, does hereby covenant, and each Owner of a Lot by acceptance of a conveyance thereof, whether or not so expressed in the conveyance, shall be deemed to covenant to pay to the Association all Assessments or other charges as may be fixed, established and collected from time to time in the manner provided in this Declaration or the Bylaws. Such Assessments and charges, together with any interest, expenses or attorneys' fees imposed pursuant to Section 7.4, shall be a charge on the land and shall be a continuing lien upon the Lot against which the Assessment or charge is made. Assessments, charges and other costs shall also be the personal obligation of the person who was the Owner of the Lot at the time when the Assessment or charge becomes due. Such liens and personal obligations shall be enforced in the manner set forth in Section 7 below.

PRELIMINARY DRAFT
TO BE MODIFIED

5.2 Regular Assessments.

5.2.1 Commencement. Regular Assessments for each Lot shall commence upon the sale of the Lot to an Owner other than a Declarant. Regular Assessments shall not be levied against Declarant-owned Lots.

5.2.2 Amount of Regular Assessments. The Regular Assessments shall be based upon an annual budget prepared by the Board with respect to projected expenses of the Association, including, without limitation, the following:

- (a) maintenance, repair, replacement, and upkeep of the Common Maintenance Areas;
- (b) premiums for all insurance policies that the Association is required or permitted to maintain pursuant to the Bylaws;
- (c) any deficits remaining from the previous fiscal year of the Association;
- (d) reserves for the major maintenance, repair and replacement of the Common Maintenance Areas and the Improvements located thereon for which the Association has maintenance responsibility and such other reasonable contingency reserves as may be established from time to time at the discretion of the Board;
- (e) costs related to the preparation, review and update of the reserve study and maintenance plan described in Section 6; and
- (f) such other and further costs, expenses, obligations, and liabilities as the Board, in its discretion, may incur for the management, operation, and maintenance of the Property and the Association in accordance with this Declaration and the Bylaws.

5.2.3 Allocation of Regular Assessments. The Regular Assessments shall be allocated equally among all Lots subject to assessment pursuant to Section 5.2.1.

5.3 Special Assessments. In addition to the Regular Assessments, the Association shall have the authority to levy Special Assessments to satisfy any actual or projected deficiency between the expenses of the Association and the amounts realized through Regular Assessments; provided, however, that prior to the Turnover Meeting, any special assessment for capital improvements or additions shall be approved by not less than fifty percent (50%) of the total voting power of the Association, determined on the basis of one vote per Lot notwithstanding the special voting rights of Declarant under Section 3.3.2 hereof. Special Assessments shall be allocated equally among all Lots. Special Assessments are payable as the Board may from time to time determine, but no sooner than thirty (30) days after mailing notice thereof to the Owners.

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5.4 Limited Assessments. The Association shall have the authority levy against any Owner a Limited Assessment equal to the costs and expenses incurred by the Association, including legal fees, for corrective action performed pursuant to this Declaration or the Bylaws that is required as a result of the willful or negligent actions or omissions of the Owner or the Owner's tenants, family members, guests, contractors, or invitees, or for a common expense or any part of a common expense that benefits a particular Lot or Lots rather than all the Lots, as determined in the sole discretion of the Board.

5.5 Reserve Assessments. The Association shall have the authority to levy Reserve Assessments necessary to fund the reserve account created under Section 6. The Reserve Assessments for each Lot shall commence upon the sale of the Lot to an Owner other than a Declarant. Reserve Assessments shall not be levied against Declarant-owned Lots. The Reserve Assessments shall be allocated equally among all Lots subject to assessment pursuant to this Section 5.5.

5.6 Statement of Account. Upon the request of an Owner or an Owner's agent, for the benefit of a prospective purchaser, the Board shall make and deliver a written statement of any unpaid Assessments against the Owner's Lot through the date specified in the statement and the purchaser in that case shall not be liable for any unpaid assessments against the Lot that are not included in the statement provided by the Board. The Association is not required to provide a statement of outstanding Assessments if the Association has commenced litigation by filing a complaint against the Owner and the litigation is pending when the statement would otherwise be due.

6. RESERVE ACCOUNT; RESERVE STUDY AND MAINTENANCE PLAN

6.1 Reserve Account. Declarant shall establish a reserve account in the name of the Association for the major maintenance, repair and replacement, in whole or in part, of the Common Maintenance Areas and any Improvements located in, on, or under the Common Maintenance Areas for which the Association has maintenance responsibility pursuant to this Declaration, including exterior painting, if the Common Maintenance Areas include any exterior painted surfaces, that will normally require major maintenance, repair or replacement in more than one (1) year and fewer than thirty (30) years. The reserve account need not include those items that could reasonably be funded from the maintenance fund or for which one or more Owners are responsible for maintenance or replacement under this Declaration or the Bylaws. The reserve account shall be funded by the Reserve Assessments. The reserve funds shall be kept separate from other funds of the Association and may be used only for maintenance, repair, and replacement of the Common Maintenance Areas for which reserves have been established as specified in this Section 6.1. However, after the Turnover Meeting, the Board may borrow funds from the reserve account to meet high seasonal demands on the regular operating funds or to meet other unexpected increases in expenses. Funds borrowed to meet unexpected increases in expenses under this Section shall be repaid from Regular or Special Assessments if the Board has adopted a resolution, which may be an annual continuing resolution, authorizing the

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borrowing of funds. Not later than the adoption of the budget for the following year, the Board shall adopt by resolution a written payment plan providing for repayment of the borrowed funds within a reasonable period. The Board shall administer the reserve fund and may adjust the amount of the Reserve Assessments to reflect changes in current maintenance, repair or replacement costs over time as indicated by the reserve study or update (as discussed in Section 6.2 below), and may provide for other reserve items that the Board, in its discretion, deems appropriate. If, after reviewing the reserve study or reserve study update, the Board determines that the reserve account will be adequately funded for the following year, then the Board may vote to reduce or eliminate funding of the reserve account for that particular year. Additionally, following the Turnover Meeting, on an annual basis, the Board, with the approval of all Owners, may elect not to fund the reserve account for the following year regardless of whether or not the reserve account is fully funded. Any funds established for any of the purposes mentioned in this Section shall be deemed to be a reserve fund notwithstanding that it may not be so designated by the Board. The amount of the reserve fund shall constitute an asset of the Association and shall not be refunded or distributed to any Owner. An Owner may treat his or her outstanding share of the reserve fund as a separate item in a sales contract.

6.2 Reserve Study. The Board shall annually conduct a reserve study, or review and update an existing study, of the Common Maintenance Areas and other reserve items set forth in Section 6.1 to determine the requirements of the reserve fund described in Section 6.1. The reserve study shall: (a) identify all items for which reserves are or will be established; (b) include the estimated remaining useful life of each item as of the date of the reserve study; and (c) include for each item, as applicable, an estimated cost of maintenance, repair and replacement at the end of the item's useful life.

6.3 Maintenance Plan. The Board shall prepare a maintenance plan for the maintenance, repair and replacement of all property for which the Association has maintenance, repair or replacement responsibility under this Declaration, the Bylaws or the Planned Community Act. The maintenance plan shall: (a) describe the maintenance, repair and replacement to be conducted; (b) include a schedule for the maintenance, repair and replacement; (c) be appropriate for the size and complexity of the maintenance, repair and replacement responsibility of the Association; and (d) address issues that include, but are not limited to, warranties and the useful life of the items for which the Association has maintenance, repair and replacement responsibility. The Board shall review and update the maintenance plan as necessary.

7. ENFORCEMENT

7.1 Default in Payment of Assessments; Enforcement of Lien. If an Assessment or any other charge levied under this Declaration or the Bylaws is not paid within ten (10) days after its due date, such Assessment or charge shall become delinquent and shall bear interest from the due date until paid at the rate set forth in Section 7.4 below and, in addition, the

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Association may exercise any or all of the following remedies as allowed under the Planned Community Act:

7.1.1 Lien. The Association shall have a lien against each Lot for any Assessment levied against the Lot and any fines or other charges imposed under this Declaration or the Bylaws against the Owner of the Lot from the date on which the Assessment, fine or charge is due. The provisions regarding the attachment, notice, recordation and duration of liens established on real property under ORS 94.709 shall apply to the Association's lien. The lien shall be foreclosed in accordance with the provisions regarding the foreclosure of liens under ORS 94.709 through 94.719. The Association, through its duly authorized agents, may bid on the Lot at a foreclosure sale, and may acquire and hold, lease, mortgage and convey the Lot.

7.1.2 Suit or Action. The Association may bring an action to recover a money judgment for unpaid Assessments, fines and charges under this Declaration without foreclosing or waiving the lien described in Section 7.1.1. Recovery on any such action, however, shall operate to satisfy the lien, or the portion thereof, for which recovery is made.

7.1.3 Fines. In addition to any other remedies available to the Association hereunder and subject to the requirements of ORS 94.630(1)(n), the Association shall have the right to impose reasonable fines upon an Owner who violates the Declaration, Bylaws or any rules and regulations of the Association, in the manner and amount the Board deems appropriate in relation to the violation.

7.1.4 Other Remedies. The Association shall have any other remedy available to it by law or in equity.

7.2 Notification of First Mortgagee. Upon the advance written request of the first mortgagee of any Lot, the Board shall notify the first mortgagee of any default in the performance of the terms of this Declaration by the Lot's Owner that is not cured within sixty (60) days.

7.3 Subordination of Lien to First Mortgages. The Association's lien for the Assessments and other charges provided for in this Declaration shall be subordinate to the lien of any first mortgage or deed of trust of record. The sale or transfer of any Lot shall not affect the Association's lien. However, the sale or transfer of a Lot pursuant to the foreclosure of a first mortgage lien or the execution of a deed in lieu of foreclosure of a first mortgage lien shall extinguish the Association's lien with respect to Assessments and other charges that became due prior to such sale or transfer. No sale, foreclosure or transfer of a Lot shall extinguish the personal obligation of the Owner who owned the Lot at the time the Assessment or other charge became due.

7.4 Interest, Expenses and Attorneys' Fees. Any amount not paid to the Association when due in accordance with this Declaration shall bear interest from the due date until paid at a

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rate of twelve percent (12%) per annum, or at such other rate as may be established by the Board, but not to exceed the lawful rate of interest under the laws of the State of Oregon. A late charge may be charged for each delinquent Assessment in an amount established from time to time by resolution of the Board. If the Association files a notice of lien, the lien amount shall also include the recording fees associated with filing the notice, and a fee for preparing the notice of lien established from time to time by resolution of the Board. If the Association brings any suit or action to enforce this Declaration, or to collect any money due hereunder or to foreclose a lien, the defaulting Owner shall pay to the Association all costs and expenses incurred by the Association in connection with such suit or action, including a foreclosure title report, and the prevailing party in such suit or action shall recover such amount as the court may determine to be reasonable as attorneys' fees at trial and upon any appeal or petition for review thereof.

7.5 Nonexclusiveness and Accumulation of Remedies. An election by the Association to pursue any remedy provided in this Section 7 for a violation of this Declaration shall not prevent the concurrent or subsequent exercise of any other remedy permitted hereunder. The remedies provided in this Declaration are not exclusive, but shall be in addition to all other remedies, including actions for damages and suits for injunctions and specific performance, that are available under applicable law to the Association. In addition, any aggrieved Owner may bring an action against another Owner or the Association to recover damages or to enjoin, abate, or remedy any violation of this Declaration by appropriate legal proceedings.

8. PROPERTY RIGHTS AND EASEMENTS

8.1 Owners' Use and Occupancy. Except as otherwise expressly provided in this Declaration, the Bylaws, the Plat or any easement, covenant or any other instrument of record, the Owner of a Lot shall be entitled to the exclusive use and benefit of his or her Lot. Declarant and any representative of the Association authorized by the Association may at any reasonable time, upon reasonable notice to the Owner, enter upon any Lot for the purpose of determining whether or not the use of and/or the Improvements on the Lot are then in compliance with this Declaration, the Bylaws, the Design Guidelines or the rules and regulations of the Association. No such entry shall be deemed to constitute a trespass or otherwise create any right of action in the Owner of the Lot. Declarant or the Association may grant or assign easements over or with respect to any Lot to municipalities or other utilities performing utility services and to communications companies.

8.2 Owners' Easements of Enjoyment. Subject to any restrictions contained in this Declaration, the Bylaws, the Plat, the Operation and Maintenance Agreement or any easement, covenant or other instrument of record, every Owner and the Owner's family members, tenants, guests, and invitees shall have a right and easement of enjoyment in and to the Common Areas, which easement shall be appurtenant to and shall pass with the title to every Lot. Use of the Common Areas shall not result in unreasonable disturbance of the Owners and occupants of the

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other Lots and shall be subject to the rules and regulations as may be adopted by the Board from time to time pursuant to Section 3.8.

8.3 Title to Common Areas. Declarant shall convey fee title to the Common Areas to the Association free and clear of liens and encumbrances no later than the Turnover Meeting.

8.4 Extent of Owners' Rights. The rights and use of enjoyment in the Property shall be subject to the following easements and all other provisions of this Declaration:

8.4.1 Association's and Owners' Easements. Declarant reserves for itself and grants to the Association and the Board and their duly authorized agents and representatives for the benefit of the Association and all Owners of Lots within the Property the following easements:

(a) An easement under and upon the Common Areas, for installation and maintenance of power, gas, electric, sewer, water and other utility and communication lines and other utility and communication lines and services installed by Declarant or with the approval of the Board;

(b) An easement under and upon the Common Areas, for construction, maintenance, repair, and use of the Common Areas and any Improvements thereon;

(c) The right to have access to the Common Areas and to all Lots as may be necessary for the installation, maintenance, repair, upkeep or replacement of the Common Maintenance Areas, for determining whether or not the use of and/or the Improvements on a Lot are then in compliance with this Declaration, the Bylaws, the Design Guidelines or the rules and regulations of the Association, or to make emergency repairs thereon necessary for the public safety or to prevent damage to the Common Maintenance Areas or to another Lot or Home. In case of an emergency originating in or threatening any Lot or Home or the Common Maintenance Areas, each Owner hereby grants the right of entry to any person authorized by the Board or the Association, whether or not the Owner is present at the time;

(d) Such easements as are necessary to perform the duties and obligations of the Association set forth in this Declaration, the Bylaws and Articles, as the same may be amended or supplemented;

(e) Each Lot shall have an easement over any adjoining Lot as may be required to perform maintenance, repair or reconstruction of the Home located on the benefited Lot. The Owner of the benefited Lot shall be responsible for restoring any damage to the burdened Lot resulting from such use and shall indemnify and hold harmless the owner of the burdened Lot for, from and against any damage, claim, loss or liability resulting from such use; and

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(f) Pursuant to ORS 94.733(3), each Lot, Home and all Common Areas shall have an easement over all adjoining Lots, Homes and the Common Areas for the purpose of accommodating any present or future encroachment as a result of engineering errors, construction, reconstruction, repairs, settlement, shifting, or movement of any portion of the Property, or any other similar cause, and any encroachment due to building overhang or projection. There shall be valid easements for the maintenance of the encroaching Lots, Homes and the Common Areas so long as the encroachments shall exist, and except as otherwise provided, the rights and obligations of Owners shall not be altered in any way by the encroachment, nor shall the encroachment be construed to be encumbrances affecting the marketability of title to any Lot, Home or Common Areas.

8.4.2 Declarant's Easements. So long as Declarant owns any Lot, and in addition to any other easements to which Declarant may be entitled, Declarant reserves an easement over, under and across the Common Areas in order to carry out development, construction, sales and rental activities necessary or convenient for the development of the Property or the sale or rental of Lots and for such other purposes as may be necessary or convenient for discharging Declarant's obligations or for exercising any of Declarant's rights hereunder.

8.4.3 Utility and Other Municipal Easements. Declarant or the Association may (and, to the extent required by law, shall) grant or assign easements to municipalities or other utilities performing utility services and to communications companies, and the Association may grant free access thereon to police, fire, and other public officials and to employees of utility companies and communications companies serving the Property.

8.4.4 Villebois Easements. All Common Area parks and trail systems with the Property may be used and enjoyed by the owners and occupants of other portions of Villebois on the same basis as the Owners. Such use shall be subject to all conditions and restrictions set forth in this Declaration, which may be enforced as provided in this Declaration. Such owners and occupants shall pay, indemnify and hold harmless the Association and all Owners for, from and against any damage, loss, claim or liability arising out of such use.

8.4.5 Transfer of the Common Areas. The Association may not sell, transfer or grant a security interest in any portion of the Common Areas unless the Owners holding at least eighty percent (80%) of the total voting power of the Association, including eighty percent (80%) of the votes not held by Declarant, and the Class B Member, if any, approve the sale, transfer or grant of security interest. A sale, transfer or grant of security interest in any portion of the Common Areas in accordance with this Section 8.4.5 may provide that the Common Areas so conveyed shall be released from any restrictions imposed on such Common Areas by this Declaration or the Bylaws. No such sale, transfer, or grant of security interest may, however, deprive any Lot of such Lot's right of access or support without the written consent of the Owner of such Lot.

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8.4.6 Authority to Grant Easements and Other Property Interests in Common Areas. The Association may execute, acknowledge and deliver leases, easements, rights of way, licenses, and other similar interests affecting the Common Areas and consent to vacation of roadways within and adjacent to the Common Areas. Except for those matters described in ORS 94.665(4)(b), which the Board may approve without Owner consent, the granting of any interest pursuant to this Section 8.4.6 must be approved by at least seventy-five percent (75%) of the Owners present at a meeting of the Association or with the consent of at least seventy-five percent (75%) of all Owners solicited by any means the Board determines is reasonable. If a meeting is held to conduct the vote, the meeting notice shall include a statement that the approval of the granting of an interest in the Common Areas will be an item of business on the agenda of the meeting.

8.5 Maintenance and Reconstruction Easements. An easement is hereby reserved in favor of the Association and its successors, assigns, contractors, agents, and employees over and across each Lot, for purposes of accomplishing the repair and restoration of the Common Maintenance Areas pursuant to Section 14.

9. GENERAL PROVISIONS FOR AND RESTRICTIONS ON USE OF LOTS

9.1 Each Lot, including the Home and all other Improvements located thereon, shall be maintained in a clean and attractive condition, in good repair, and in such a manner as not to create a fire hazard.

9.2 No Lot shall be used except for residential purposes. No building shall be erected, altered, placed, or permitted to remain on any Lot other than one detached single-family dwelling and a private garage or carport. The Home and any other Improvements on a Lot shall comply with all applicable City height restrictions.

9.3 A greenhouse of noncommercial type, or a garden tool shed or other residential accessory buildings or improvements, may be erected, provided that these types of Improvements are of an acceptable architectural design (as determined by the ACC in accordance with Section 12), shall have the exterior painted and, if such structure is separate from the Home, shall be located within the fenced-in patio or courtyard. Such accessory buildings or improvements shall comply with applicable requirements of the City. All Homes shall provide a garage or carport sufficient to accommodate a minimum of two (2) vehicles.

9.4 All garbage, trash, cuttings, refuse, garbage and refuse containers, oil tanks, clothes lines or other service facilities, stored trailers, and recreational vehicles ("RV's") shall be screened from the view of neighboring Homes and from the Common Areas in a manner approved by the ACC. No RV's shall be visibly parked on a Lot for more than five (5) continuous days in a calendar month. The intent of this provision is to minimize the negative visual impact caused by the visible parking or storage of RV's.

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9.5 No noxious or offensive activity shall take place on any Lot, nor shall anything be done or placed on any Lot that interferes with or jeopardizes enjoyment of other Lots or within the Property.

9.6 If any tree, shrub, or other vegetation blocks or substantially obscures the view from any Home, the Owner of the Home may petition the ACC for the trimming, topping, or removal of such tree, shrub, or other vegetation. Upon receipt of such petition, the ACC shall investigate the matter and make a determination in writing whether such view is actually blocked or substantially obscured. If the ACC makes such a determination, the Owner of the offending tree, shrub, or other vegetation shall have ten (10) days from the date the ACC made such determination to elect whether the offending tree, shrub, or other vegetation should be trimmed, topped, or entirely removed. If the offending tree, shrub, or other vegetation is not part of the Association Landscaping, then the Owner of the Lot on which the offending tree, shrub, or other vegetation is located shall bear sole responsibility for the entire cost of such trimming, topping, or removal and shall be solely responsible for obtaining any approvals from the City prior to proceeding with topping or removal.

9.7 The maintenance and replacement (if removed) of trees planted in the rear and side yards of all Lots shall be the responsibility of each Owner; provided, that no tree may be removed without the prior approval of the ACC and any required governmental approvals. Customary trimming and pruning in accordance with professional arboriculture industry standards of trees shall be permitted in the rear and side yards of the Lots without prior approval.

9.8 All fences, walls, hedges, landscaping and other Improvements installed on any Lot shall comply with the City vision clearance requirements and height restrictions. Owners who desire a fence are encouraged to use the same or similar material in style as fencing in the areas near the Property. Prior to construction, design of all fences, hedges or walls must be approved in writing by the ACC.

10. GENERAL RESTRICTIONS ON USE OF PROPERTY

10.1 Common Areas. No person shall construct or reconstruct any Improvements, or alter or refinish any Improvements, make any excavation or fill, make any change in the natural or existing surface drainage, or install a utility line in the Common Areas without the prior written approval of the Board or a duly appointed committee to which the Board has delegated such responsibility and, if required, the City.

10.2 Association Landscaping. No person shall remove, alter, modify or replace any Association Landscaping without the prior written approval of the Board or a duly appointed committee to which the Board has delegated such responsibility and, if required, the City.

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11. MAINTENANCE OBLIGATIONS

11.1 Association Maintenance Obligations. The Association shall be responsible for the maintenance, repair, upkeep and replacement of the following Common Maintenance Areas:

(a) Tracts A, C, D, E, G, J and L, as shown on the Plat, including all paved street surfaces, mountable curbs, street signs, lighting, landscaping, irrigation systems and other Improvements located thereon, to be maintained as private streets and/or alleys;

(b) Tracts B, F, H, I, K, M and N, as shown on the Plat, including all landscaping, irrigation systems, sidewalks, lighting and other Improvements located thereon, to be maintained as a recreational areas, parks, open space tracts and/or linear/buffer tracts;

(c) The Association Landscaping;

(d) [Include City-owned park tract to be maintained by Association??];

(e) All entry monument signage for the Property, including any landscaping, lighting and irrigation systems related thereto;

(f) All cluster mailboxes serving the Lots; and

(g) Any other area determined by the Board to be in the interest of the Association to maintain.

The Association shall regularly inspect, maintain, repair and keep the Common Maintenance Areas in good condition and provide for all necessary services and cause all acts to be done which may be necessary or proper to assure the maintenance of the Common Maintenance Areas. The Association shall perform all maintenance obligations set forth in this Declaration or the Bylaws, any maintenance manual provided by Declarant or the maintenance plan described Section 6 above and shall employ all other commonly accepted maintenance practices intended to prolong the life of the materials and construction of Improvements within the Common Maintenance Areas. Additionally, the Association shall be responsible for performing all maintenance required of the "Obligor" under the Operation and Maintenance Agreement.

11.2 Owner's Maintenance Obligations. Except to the extent Association Landscaping is maintained by the Association, each Owner shall maintain his or her Lot and the Improvements located thereon in a clean and attractive condition, in good repair and in such a fashion as not to create a hazard of any kind. Such maintenance shall include, without limitation, painting or staining, repair, replacement and care of roofs, gutters, downspouts, surface water drainage, walks, driveways, landscaping and other exterior Improvements. In addition, each Owner shall keep his or her Lot free of trash and other unsightly materials. The provisions of the preceding sentence include the areas between the property line of any Lot and

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the nearest curb, including sidewalks and street trees unless otherwise included in the Association Landscaping.

11.3 Damage or Destruction By Owner. If damage to the Common Maintenance Areas, including any Improvements located thereon, beyond ordinary wear and tear is directly attributable to an Owner or the family members, invitees, licensee, or guest of an Owner, then that Owner shall be responsible for the cost of repairing the damage and the Association may levy a Limited Assessment against the Owner for the repair cost.

12. ARCHITECTURAL CONTROL COMMITTEE

12.1 Creation of Committee. The ACC with the powers and authority described in this Section 12 shall be created as a committee of the Association. The ACC shall have three (3) members, who shall be appointed by Declarant until the Turnover Meeting, after which the ACC members shall be appointed by the Board and shall serve at the pleasure of the Board. Members of the ACC must be Owners. Board members may also serve as ACC members. Appointed members of the ACC shall remain in office until new members are appointed by the Board unless they sooner resign or are disqualified.

12.2 Operations. The members of the ACC shall elect a chairperson, who shall conduct all meetings and shall provide for reasonable notice to each member of the ACC prior to any meeting. The notice shall set forth the time and place of the meeting. Notice may be waived by any member.

12.3 Majority Action. The affirmative vote of a majority of the members of the ACC shall govern its actions and constitute the act of the ACC. A quorum of the ACC shall consist of a majority of the ACC members. The ACC may render its decision only by written instrument setting forth the action taken by the members consenting thereto.

12.4 Review Procedures. If the ACC fails to provide written approval or disapproval of plans and specifications within thirty (30) days after such complete plans and specifications have been submitted, approval of the ACC shall not be required and the related covenants shall be deemed to have been satisfied, unless within twenty (20) days of receipt of the complete plans and specifications, the ACC notifies the Owner of the ACC's intention to extend the approval period by an additional fifteen (15) days to a total of forty-five (45) days after receipt of complete plans and specifications. The ACC shall, from time to time, adopt application forms and rules specifying those requirements necessary to constitute a complete application.

12.5 Approval of Plans by ACC. No Home, building, garage, structure, or other Improvement of any kind or nature, including, without limitation, landscaping, shall be commenced, erected, placed, or altered on any Lot until the construction plans and specifications, and a plan showing the nature, shape, height, materials, and colors, together with detailed plans showing the proposed location of the same on the particular building site and

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proposed landscaping has been submitted to and approved in writing by the ACC. All such Improvements and alterations shall be in conformance with the Design Guidelines, the Pattern Book adopted by the City for each area within Villebois and all other applicable governmental laws, ordinances, conditions of approval, rules and regulations. To the extent that the requirements contained in the Pattern Book or in any applicable governmental laws, ordinances, rules and regulations may be in conflict with the Design Guidelines, the more restrictive standard shall apply. Complete plans and specifications for approval by the ACC must include all material required by the rules of the ACC as provided in Section 12.4 above. In no case shall any plans and specifications be accepted for approval that are inconsistent with the requirements of Section 9.2. The ACC may approve or disapprove plans and specifications as submitted or may approve such plans and specifications with specific conditions to such approval.

12.6 Damages Inadequate. Damages are hereby declared to be inadequate compensation for any breach of the covenants, conditions, and restrictions imposed by this Declaration. Declarant, the ACC, or any Owner may, by appropriate proceedings, enjoin, abate, and remedy any such breach and the continuance

12.7 Nuisance. The result of every act of omission or commission or the violation thereof, whether such covenants, conditions, and restrictions are violated in whole or in part, shall constitute a nuisance, and every remedy allowed by law or equity against such nuisance, either public or private, shall be applicable against every such result and may be exercised by Declarant, the ACC, or by any Owner, and may be prohibited or enjoined.

12.8 Non-Waiver. The provisions contained in this Declaration shall inure to the benefit of and be enforceable by Declarant, the ACC, or any Owner, and each of their legal representatives, heirs, successors, and assigns. Failure by Declarant, the ACC or any Owner or their legal representatives, heirs, successors, and assigns to enforce any of the provisions contained herein shall in no event be deemed a waiver of the right to do so thereafter.

12.9 Estoppel Certificate. Within fifteen (15) business days after an Owner delivers a written request to the ACC, the ACC shall provide the Owner with an estoppel certificate executed by a member of the ACC. The estoppel certificate shall state whether or not the Improvements located on the Lot owned by the requesting Owner comply with the provisions of this Declaration. If the estoppel certificate indicates that the Improvements are not in compliance, then it shall identify the specific non-conforming Improvements and set forth with particularity the nature of the noncompliance. Any purchaser in due course from the Owner, and any mortgagee, beneficiary, or secured party having any interest in the Lot and any associated Improvements, may rely on the estoppel certificate with respect to the matters set forth therein, and the estoppel certificate shall be conclusive as between the ACC, all Owners, and such purchaser, mortgagee, beneficiary, or secured party.

12.10 Defenses. The issuance of an estoppel certificate as described in Section 12.9 shall constitute an absolute defense to claims brought against an Owner pursuant to this Section

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12 with respect to matters within the purview of the ACC, where the Improvement at issue was in existence at the time of the issuance of the estoppel certificate.

12.11 Liability. The ACC shall use reasonable judgment in accepting or disapproving all plans and specifications submitted to it. Neither the ACC nor any individual ACC member shall be liable to any person for any official act of the ACC in connection with submitted plans and specifications, except to the extent the ACC or any individual ACC member acted with malice or wrongful intent. Approval by the ACC does not necessarily assure approval by any governmental authority. Notwithstanding that the ACC has approved plans and specifications, neither the ACC nor any of its members shall be responsible or liable to any Owner, occupant, builder, developer, or contractor with respect to any loss, liability, claim, or expense which may arise by reason of such approval. Review or analysis of structural, geophysical, engineering, or other similar considerations shall be outside the scope of the ACC's review. Neither the Board, the ACC, or any agent thereof, nor Declarant or any of its members, managers, employees, agents, or consultants, shall be responsible in any way for any defects in any plans or specifications submitted, revised, or approved in accordance with the provisions of this Declaration, nor for any structural or other defects in any work done according to such plans and specifications. The Association shall indemnify, hold harmless, and defend the ACC and its members in any suit or proceeding which may arise by reason of any of the ACC's decisions, provided that the ACC members acted in good faith, within the scope of their authority, and in a manner reasonably believed to be in the best interest of the Association and its Members. The Association shall use reasonable efforts to procure errors and omissions insurance coverage with respect to the ACC members, in accordance with the provisions of the Bylaws.

12.12 Activities of Declarant. This Section 12 shall not apply to the activities of Declarant or its affiliates.

13. DESIGN GUIDELINES

13.1 Paint Requirement. The exterior of any Home erected on a Lot shall be fully completed and painted within one (1) year after construction of the Home has commenced.

13.2 Designs, Materials, and Construction Quality. The external designs and materials of all Homes shall harmonize with each other and shall be reasonably harmonious with those employed on the Homes on other Lots. All auxiliary buildings on a Lot shall be of the same general design and materials as the Home on the Lot. The primary exterior color tone of all buildings shall blend with the natural environment. Bright, unnatural exterior colors are prohibited, except for limited use as trim and accent panels. All Homes, auxiliary buildings, fences, retaining walls, and other Improvements shall comply with the requirements of the Pattern Book and shall be constructed in a good, quality manner in accordance with locally accepted professional building practices.

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13.3 Home Size. The ground floor area of each Home, exclusive of one story open porches, garages, and carports, shall not be less than that required by the City Building Code.

13.4 Foundations. All structures erected shall have full, concrete masonry or concrete or wooden piers and piling foundations as approved by the City and designed to accommodate the surrounding terrain. Foundations and exterior walls of all buildings shall be finished in a suitable and customary manner for each such type of building.

13.5 Height Restrictions. All Homes and other Improvements constructed on the Lots shall comply with the applicable City height restrictions. Any height adjustment granted by the City shall be approved by the ACC, unless the ACC determines that the building will unreasonably restrict the view of neighboring Lots.

13.6 Environmental Conditions. Owners shall insure that design and construction of structures in the Property shall properly withstand environmental conditions, including the protection of the flora on the Property.

13.7 Factory Built Homes. All Homes shall be constructed on the Lots. Mobile homes, factory built homes, or manufactured homes shall not be permitted. Notwithstanding the foregoing, panels constructed off-site but assembled on the Lot shall be permitted.

13.8 Additional Design Guidelines. The ACC shall have the authority, but not the obligation, to promulgate and issue, and thereafter to amend from time to time, additional design guidelines supplementing and/or interpreting, but not contradicting, the design guidelines set forth in this Section 13 or elsewhere in this Declaration. Such guidelines shall be supplied in writing to all Owners and shall be fully binding upon all parties as if set forth in this Declaration and shall be applied by the ACC in reviewing and approving or denying proposed improvements or modifications. The ACC shall take into account any proposed building site envelope in order to minimize any impact on neighboring Lots and shall have authority to establish and modify guidelines as necessary or convenient to further this purpose.

13.9 Activities of Declarant. This Section 13 shall not apply to the activities of Declarant or its affiliates.

14. CASUALTY AND CONDEMNATION

14.1 Casualty. The Owner of each Home shall repair, reconstruct, and rebuild the damaged or destroyed portions of his or her Home to substantially the same condition that existed prior to the damage or destruction. In the event of damage to or destruction of the Common Areas or Association Landscaping, the Association shall repair and restore the damaged portion of the Common Areas, unless the holders of at least 75% of the Class A Member voting power of the Association and the Class B Member, if any, agree that the damaged or destroyed portions shall not be repaired or restored. All repair, reconstruction,

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rebuilding, or restoration shall begin within six (6) months following the damage or destruction and shall be diligently pursued to completion within twelve (12) months following the damage or destruction, unless work is delayed by causes beyond the reasonable control of the Owner or the Association, as the case may be. If the proceeds of the insurance policies held by the Association are insufficient to fund the full cost of repair and/or restoration of the Common Areas or Association Landscaping, the difference between the amount of such proceeds and such cost shall be charged to all Owners by means of a Special Assessment.

14.2 Condemnation. If any part of the Common Areas are taken by any authority having the power of condemnation or eminent domain (or shall be sold under threat of condemnation), each Owner shall be entitled to notice of such event. The Association shall represent the Owners in negotiations with the condemning authority. The condemnation award shall be applied first to restoration of the Common Areas not taken (unless holders of at least 75% of the Class A Member voting power of the Association and the Class B Member, if any, agree that the remaining Common Areas shall not be restored) and then to such other purposes as the Board may determine in its discretion (including payment to the Owners).

15. SPECIAL DECLARANT RIGHTS

15.1 Declarant shall have the following Special Declarant Rights:

15.1.1 Responsibility and control of the ACC and the Association until the Turnover Meeting, including the right to appoint, remove and replace members of the Board and the ACC.

15.1.2 The right to maintain a sales and management office on the Property.

15.1.3 The right to reserve easement and access rights across the Common Areas for use of future development.

15.1.4 The right to construct Improvements in the Common Areas, whether or not such Improvements are described in this Declaration.

15.1.5 The right to approve amendments to this Declaration and the Bylaws prior to the Turnover Meeting and for a period of ten (10) years thereafter regardless of whether Declarant still owns a Lot.

15.1.6 The right to approve Special Assessments for capital improvements or additions for so long as Declarant owns a Lot.

15.1.7 The right to receive notice of and to attend all Owner meetings and Board meetings for a period of ten (10) years following the Turnover Meeting regardless of whether Declarant still owns a Lot. Meeting notices to Declarant shall be given in the same manner as notices to the Owners; provided, however, that any notice of a Board meeting that is posted at

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the Property pursuant to the Bylaws must also be given to Declarant by mail or any other delivery method described in Section 17.4 within the time period prescribed in the Bylaws.

15.1.8 The right to review and make copies of all inspection, maintenance and other records of the Association regardless of whether the Turnover Meeting has occurred or Declarant still owns a Lot.

15.1.9 The rights of Declarant under the Planned Community Act, including but not limited to those under ORS 94.550(21), and all other rights reserved for Declarant elsewhere in this Declaration or in the Bylaws.

16. DISPUTE RESOLUTION.

16.1 Required Procedure. To the fullest extent allowed by law, all claims, controversies, or disputes, whether they are statutory, contractual, tort claims, and/or counterclaims between or among Declarant, Declarant's successors and assigns, the Association, and/or Owner(s) (collectively, the "Parties" and individually, a "Party") which arise out of or are related to the Property, the Lots, the Homes, the Planned Community Act, this Declaration, the Bylaws, the Articles, the Design Guidelines or the rules and regulations of the Association, or which relate to the interpretation or breach of the Planned Community Act, this Declaration or the Bylaws, the Articles, the Design Guidelines or the rules and regulations of the Association (collectively referred to as "Claims") shall be resolved in accordance with the procedures specified herein. Except as otherwise required by the Planned Community Act, the following matters are excluded from this dispute resolution clause and do not constitute Claims: (i) judicial or non-judicial foreclosure or any other action or proceeding to enforce assessments, fines, interest or a trust deed, mortgage, Association lien, or land sale contract; (ii) a forcible entry and detainer action; (iii) actions by the Association or any Owner related to removal of a structure or other condition that violates this Declaration, the Bylaws, the Design Guidelines or any rules and regulations of the Association; (iv) actions for the appointment of a receiver; (v) provisional remedies such as injunctions or the filing of a lis pendens; or (vi) the filing or enforcement of a mechanic's lien. The filing of a notice of pending action (lis pendens) or the application to any court having jurisdiction thereof for the issuance of any provisional process remedy described in Rules 79 through 85 of the Oregon Rules of Civil Procedure (or corresponding federal statutory remedies), including a restraining order, attachment, or appointment of receiver, shall not constitute a waiver of the right to mediate or arbitrate under this Section, nor shall it constitute a breach of the duty to mediate or arbitrate. The proceeds resulting from the exercise of any such remedy shall be held by the Party obtaining such proceeds for disposition as may be determined by an agreement of the Parties pursuant to a mediation or by the arbitration award.

16.2 Negotiated Resolution. The Parties will seek a fair and prompt negotiated resolution of Claims and shall meet at least once to discuss and seek to resolve such Claims, but if this is not successful, all Claims shall be resolved by mediation, in small claims court, or by binding arbitration as set forth in Sections 16.3, 16.4 or 16.5, as applicable.

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16.3 Mediation. Prior to mediation of any Claim, the Parties shall endeavor to resolve disputes through the process set forth in Section 16.2 above. All Claims that are not resolved by such process shall be subject to mediation as a condition precedent to arbitration or the filing of a small claims complaint. The request for mediation may be made concurrently with the filing of a demand for arbitration as set forth in Section 16.5 below, but, in such event, mediation shall proceed in advance of arbitration, which shall be stayed pending mediation for a period of sixty (60) days from the date of filing, unless stayed for a longer period by agreement of the parties. All mediation shall be in Clackamas County, Oregon with any dispute resolution program available that is in substantial compliance with the standards and guidelines adopted under ORS 36.175, as it may be amended. The foregoing requirement does not apply to circumstances in which irreparable harm to a Party will occur due to delay or litigation or an administrative proceeding initiated to collect assessments, other than assessments attributable to fines.

16.4 Small Claims. All Claims that have not been resolved by mediation and which are within the jurisdiction of the Small Claims Department of the Circuit Court of the State of Oregon shall be brought and determined there, and all Parties shall be deemed to have waived their right to a jury trial with respect to such Claims.

16.5 Arbitration. Prior to arbitration of any Claim, the Parties shall endeavor to resolve disputes through the processes set forth in Section 16.2, 16.3 and 16.4 above, as applicable. All Claims that have not been resolved by such processes shall be resolved by binding arbitration. Such arbitration shall be conducted by and pursuant to the then effective arbitration rules of Construction Arbitration Services, Inc., or another reputable arbitration service selected by Declarant. If Declarant is not a Party to such dispute, the arbitration service shall be selected by the Board. Any judgment upon the award rendered pursuant to such arbitration may be entered in any court having jurisdiction thereof.

16.6 No Attorneys' Fees. Unless otherwise specifically provided for in this Declaration, the Bylaws or the Planned Community Act, no party in the arbitration, mediation or other proceeding shall be entitled to recover costs or attorneys' fees in connection therewith. To the fullest extent allowed by law and except for Claims in an amount less than or equal to \$7,500, no Claim shall be initiated by the Association without approval from the Owners holding seventy-five percent (75%) of the total voting power of the Association. The foregoing vote requirement shall not be required to institute or respond to the following: (i) actions to collect delinquent Assessments, fines or other charges under the Declaration, these Bylaws or any rules and regulations adopted by the Association; (ii) actions initiated by the Association prior to the Turnover Meeting; (iii) actions challenging ad valorem taxation or condemnation proceedings; (iv) actions initiated against any contractor or vendor hired by the Association or supplier of goods and services to the Association; (v) the defense of claims filed against the Association or the assertion of counterclaims in proceedings instituted against it (except for non-mandatory counterclaims); (vi) actions by the Association to appoint a receiver; or (vii) actions to summarily abate, enjoin and remove a structure or condition that violates this Declaration, the Bylaws, the Design Guidelines or any rules and regulations of the Association.

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TO BE MODIFIED

16.7 Confidentiality. The Parties shall keep all discussions of disputes, all settlements and arbitration awards and decisions confidential and shall not disclose any such information, whether directly or indirectly, to any third parties unless compelled to do so by an order of a court of competent jurisdiction. The Parties agree that if a Party breaches its confidentiality obligation then the other Party or Parties to the dispute shall be entitled to seek and obtain any and all equitable remedies, including injunctive relief and specific performance and each Party hereby waives any claim or defense that the other Party has an adequate remedy at law for any such breach and the Parties agree that the aggrieved Party shall not be required to post any bond or other security in connection with any such equitable relief.

17. MISCELLANEOUS

17.1 Term. The covenants, conditions and restrictions of this Declaration shall run for a term of thirty (30) years from the date this Declaration is recorded, after which time they shall be automatically extended for successive periods of ten (10) years each, unless amended, modified or terminated by a vote of the Owners holding at least seventy-five percent (75%) of the total voting power of the Association.

17.2 Amendment and Repeal.

17.2.1 This Declaration, or any provision thereof, as from time to time in effect with respect to all or any part of the Property, may be amended or repealed by the vote or written consent of Owners holding at least seventy-five percent (75%) of the total voting power of the Association and the written consent of Declarant prior to the Turnover Meeting and for a period of ten (10) years thereafter. To the extent any amendment relates to the preservation or maintenance of the Common Areas, such amendment shall also be approved by the zoning administrator of the City.

17.2.2 Upon approval of an amendment as provided herein, the president and secretary of the Association shall execute an instrument amending this Declaration and certifying that the amendment was adopted in accordance with this Declaration and ORS 94.590, which certification shall be properly acknowledged in the manner of acknowledgment of deeds, and the Board, or other duly appointed and authorized persons, shall record the instrument amending this Declaration.

17.2.3 In no event shall an amendment to this Declaration create, limit or diminish any Special Declarant Rights without Declarant's written consent. Additionally, no amendment to this Declaration shall change the boundaries of a Lot, any uses to which a Lot is restricted, the method for determining liability for common expenses, the method for determining the right to common profits or the method of determining voting rights unless the Owners of the affected Lots unanimously consent to the amendment.

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TO BE MODIFIED

17.3 Regulatory Amendments. Notwithstanding the provisions of Section 17.2, until the Turnover Meeting, Declarant shall have the right to amend this Declaration or the Bylaws without any other Owner approval in order to comply with the requirements of any applicable statute, ordinance, regulation or guideline of the Federal Housing Administration, the Veterans Administration, the Farmers Home Administration of the United States, the Federal National Mortgage Association, the Government National Mortgage Association, the Federal Home Loan Mortgage Corporation, any department, bureau, board, commission or agency of the United States or the State of Oregon, or any corporation wholly owned, directly or indirectly, by the United States or the State of Oregon that insures, guarantees or provides financing for a planned community or lots in a planned community.

17.4 Notices. Any notices permitted or required to be delivered as provided herein shall be in writing and may be delivered by: (i) messenger service (or hand delivery); (ii) overnight courier service; (iii) regular U.S. Mail; or (iv) electronic mail, facsimile transmission or any other form of electronic communication acceptable to the Board and permissible under the Planned Community Act. Notices delivered by messenger service (or hand delivery), overnight courier service or regular U.S. Mail shall be sent to each Member's mailing address last appearing on the books of the Association. Notices delivered by facsimile or email shall be sent to the Member's email address or facsimile number last appearing on the books of the Association. Notwithstanding the foregoing, electronic mail, facsimile or other form of electronic communication may not be used to give notice of: (i) failure to pay an assessment; (ii) foreclosure of an Association lien under ORS 94.709; or (iii) an action the Association may take against a Member. Additionally, a Member may decline to receive notice by electronic mail, facsimile or other form of electronic communication by giving written notice thereof to the Board. Notices shall be deemed given on the date the notices are sent in accordance with the procedures outlined herein.

17.5 Right of Enforcement. Except as otherwise provided herein, each Owner of a Lot shall have the right to enforce any or all of the provisions of this Declaration. Additionally, the provisions of this Declaration relating to the preservation and maintenance of the Common Areas shall be deemed to be for the benefit of the City as well as the Association and Owners and the City may enforce such provisions by appropriate proceedings at law or in equity, or may cause such maintenance to be performed, the costs of which shall be a lien upon the Property.

17.6 Remedies Cumulative. Each remedy provided herein is cumulative and not exclusive.

17.7 Joint Owners. If two or more persons share the ownership of any Lot, regardless of the form of ownership, the responsibility of such persons to comply with this Declaration shall be a joint and several responsibility and the act or consent of any one or more of the co-Owners shall constitute the act or consent of the entire ownership interest; provided, however, that if the co-Owners disagree among themselves as to the manner in which any vote or right of consent held by them shall be exercised with respect to a pending matter, any co-Owner may deliver

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TO BE MODIFIED

written notice of such disagreement to the Association, and the vote or right of consent involved shall then be disregarded completely in determining the proportion of votes or consents given with respect to such matter.

17.8 Lessees and Other Invitees. Lessees, invitees, contractors, family members and other persons entering the Property under rights derived from an Owner shall comply with all of the provisions of this Declaration restricting or regulating the Owner's use, improvement or enjoyment of such Owner's Lot and other areas within the Property. The Owner shall be responsible for ensuring such compliance and shall be liable for any failure of compliance by such persons in the same manner and to the same extent as if the failure had been committed by the Owner.

17.9 Non-Waiver. The failure to enforce any of the provisions of this Declaration at any time shall not constitute a waiver of the right to subsequently enforce such provision.

17.10 Restrictions Construed Together. All of the provisions of this Declaration shall be liberally construed together to promote and effectuate the general plan and scheme of the Property.

17.11 Restrictions Severable. Each of the provisions of this Declaration shall be deemed independent and severable, and the invalidity or partial invalidity of any provision or portion thereof shall not affect the validity or enforceability of any other provision.

17.12 Singular Includes Plural. Unless the context requires a contrary construction, the singular shall include the plural and the plural the singular; and the masculine, feminine or neuter shall each include the masculine, feminine and neuter.

17.13 Captions. All captions and titles used in this Declaration are intended solely for convenience of reference and shall not affect that which is set forth in any of the provisions hereof.

*(Remainder of Page Intentionally Left Blank;
Signature Page Follows)*

PRELIMINARY DRAFT
TO BE MODIFIED

EXHIBIT A

Legal Description of Property

Lots 1 through 81, inclusive, and Tracts A through N, inclusive, of _____,
Clackamas County, Oregon, the plat of which was recorded in the official records of Clackamas
County, Oregon on _____, 20__ as Document No. _____.

PRELIMINARY DRAFT
TO BE MODIFIED

EXHIBIT B

Legal Description of Common Areas

Tracts A through N, inclusive, _____, Clackamas County, Oregon, the plat of which was recorded in the official records of Clackamas County, Oregon on _____, 20__ as Document No. _____.

IVD
Copy of Certification of
Assessments & Liens



29799 SW Town Center Loop E
Wilsonville, Oregon 97070
(503) 682-1011
(503) 682-1015 Fax

CERTIFICATION OF ASSESSMENTS AND LIENS

"It is the policy of the City of Wilsonville that no permits of any kind shall either be issued or application processed for any applicant who owes or for any property for which there is any payment which is past due owing to the City of Wilsonville until such time as said sums owed are paid." (Resolution #796)

Project/Property Address: 28100 SW Grahams Ferry Road (TL 1205);
No site address for TL 1200

Aka Tax Lot(s) Tax Lots 1200 & 1205 on Map(s) Township 3 South, Range 1 West, Section 15

Applicant: Polygon Northwest Company (Fred Gast)

Address: 109 E. 13th Street, Vancouver, WA 98660

Property Owner: Villebois, LLC

Address: 1022 SW Salmon Street, Ste 450
Portland, Oregon 97205

In reference to the above, the City of Wilsonville records show that the following amount is due to the City:

Principal Amnt Due \$ 0 Current Non-Current

Comments: No liens at this time

Dated: 1/16/14

Finance Department: Vain N Helwig

(This certification shall be null and void 120 days following the Finance Department date of signature)



29799 SW Town Center Loop E
Wilsonville, Oregon 97070
(503) 682-1011
(503) 682-1015 Fax

CERTIFICATION OF ASSESSMENTS AND LIENS

"It is the policy of the City of Wilsonville that no permits of any kind shall either be issued or application processed for any applicant who owes or for any property for which there is any payment which is past due owing to the City of Wilsonville until such time as said sums owed are paid." (Resolution #796)

Project/Property Address: 11800 SW Tooze Road (TL 1202)

Aka Tax Lot(s) Tax Lot 1202 on Map(s) Township 3 South, Range 1 West, Section 15

Applicant: Polygon Northwest Company (Fred Gast)

Address: 109 E. 13th Street, Vancouver, WA 98660

Property Owner: Charles & Carolyn Taber

Address: 11800 SW Tooze Road, Wilsonville, OR 97070

In reference to the above, the City of Wilsonville records show that the following amount is due to the City:

Principal Amnt Due \$ 0 Current Non-Current

Comments: No liens at this time

Dated: 1/16/14

Finance Department: Vain N Helin

(This certification shall be null and void 120 days following the Finance Department date of signature)

IVE
Subdivision Name Approval

Stacy Connery

From: Fuller, Debbie [DebbieFul@co.clackamas.or.us]
Sent: Wednesday, January 15, 2014 7:49 AM
To: Stacy Connery
Subject: RE: Plat Name Reservation Request for Calais at Villebois

Hello Stacy,

Your request to reserve the plat name of "Calais at Villebois" has been approved.

Debbie Fuller | Office Manager
DTD - Engineering/County Surveyor
Development Services Building
☎: 503-742-4492 | 📠: 503-742-4481 | ✉: debbieful@co.clackamas.or.us

Office Hours: Monday - Friday, 7:30 am-4:30 pm
2nd and 3rd floor LOBBY HOURS are Monday-Friday 8:00 am-3:00 pm

From: Stacy Connery [<mailto:stacy@pacific-community.com>]
Sent: Monday, January 13, 2014 2:17 PM
To: Fuller, Debbie
Subject: Plat Name Reservation Request for Calais at Villebois

Hi Debbie,

Attached is a plat name reservation request for "Calais at Villebois" for the proposed development of tax lots 1200, 1202 & 1205 on tax map 3 1W 15. The subject property will be developed as part of Villebois and is located directly north of the "Tonquiu Woods at Villebois" phases. The subject tax lots are circled in red on the attached tax map. Please let me know if you have any questions and whether this name can be approved for reservation.

Thank you,
Stacy Connery, AICP
(503) 828-5052



12564 SW Main Street
Tigard, OR 97223

 Please consider the environment before printing this e-mail

Section V
Zone Change

VA
Supporting Compliance Report

**SUPPORTING COMPLIANCE REPORT
ZONE CHANGE
PDP 3 NORTH**

SECTION VIA

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I. CITY OF WILSONVILLE COMPREHENSIVE PLAN

RESIDENTIAL DEVELOPMENT - IMPLEMENTATION MEASURES

IMPLEMENTATION MEASURE 4.1.4

Response: The subject site is part of the *Villebois Village Master Plan*, which is comprised of a variety of housing opportunities of varying densities. There are 13 different housing types within Villebois Village, ranging from apartments to estate lots. Villebois Village includes opportunities for affordable, senior and community housing. Compliance with this Implementation Measures was addressed with the *Villebois Village Master Plan*. The land use plan for the subject area was determined to be consistent with the *Villebois Village Master Plan*.

COMPACT URBAN DEVELOPMENT - IMPLEMENTATION MEASURES

IMPLEMENTATION MEASURE 4.1.6.A

Development in the “Residential - Village” Map area shall be directed by the Villebois Village Concept Plan (depicting the general character of proposed land uses, transportation, natural resources, public facilities, and infrastructure strategies), and subject to relevant Policies and Implementation Measures in the Comprehensive Plan; and implemented in accordance with the Villebois Village Master Plan, the “Village” Zone District, and any other provisions of the Wilsonville Planning and Land Development Ordinance that may be applicable.

Response: This application is submitted along with a Preliminary Development Plan for PDP 3N. PDP 3N (see Notebook Section III) demonstrates compliance with SAP North, which was determined to be generally consistent with the *Villebois Village Master Plan*. Section I of this report demonstrates compliance with the City of Wilsonville’s Comprehensive Plan and Section II demonstrates compliance with Wilsonville’s Land Development Code.

IMPLEMENTATION MEASURE 4.1.6.C

The “Village” Zone District shall be applied in all areas that carry the Residential - Village Plan Map Designation.

Response: This application proposes a zone change to “Village” for the subject property area, which is included in the “Residential-Village” Comprehensive Plan Map Designation (Area B).

IMPLEMENTATION MEASURE 4.1.6.D

The “Village” Zone District shall allow a wide range of uses that benefit and support an “urban village”, including conversion of existing structures in the core area to provide flexibility for changing needs of service, institutional, governmental and employment uses.

Response: The subject property is an area that is approximately 15.16 acres within Villebois Village. The plan for subject property includes single family residential lots and park and open space areas. The ‘Introductory Narrative’ (see Notebook Section IA) lists the proposed range of residential units which are interspersed to provide a mix of housing. The proposed residential land use and housing types in this area are

consistent with those portrayed in the *Villebois Village Master Plan*, which this regulation is intended to implement.

II. CITY OF WILSONVILLE LAND DEVELOPMENT ORDINANCE

SECTION 4.029 ZONING CONSISTENT WITH THE COMPREHENSIVE PLAN

If a development, other than a short-term temporary use, is proposed on a parcel or lot which is not zoned in accordance with the comprehensive plan, the applicant must receive approval of a zone change prior to, or concurrently with the approval of an application for a Planned Development.

Response: This application is being requested concurrent with a PDP application and Tentative Plat for the site in conformance with the code. The PDP application materials are provided in Section III of this Notebook and the Tentative Plat application materials are provided in Section IV.

SECTION 4.110 ZONING - ZONES

(.01) The following Base Zones are established by this Code:

- H. Village, which shall be designated “V” [per Section 4.125 enabling amendments (File No. 02PC08)]

Response: A concurrent application has been submitted for annexation of the subject property from Clackamas County to the City. The area has a City of Wilsonville Comprehensive Plan designation of “Residential - Village.” The site is currently zoned Rural Residential Farm Forest 5-Acre. This request is for a zone change to “Village,” which is permitted within the area designated “Residential - Village” on the Comprehensive Plan Map.

SECTION 4.125 VILLAGE (V) ZONE

(.01) The Village (V) zone is applied to lands within the Residential Village Comprehensive Plan Map designation. The Village zone is the principal implementing tool for the Residential Village Comprehensive Plan designation. It is applied in accordance with the *Villebois Village Master Plan* and the Residential Village Comprehensive Plan designation as described in the Comprehensive Plan.

Response: The subject property lies within the area designated “Residential - Village” on the Comprehensive Plan Map. The property is a portion of *Villebois Village*. This request is for a zone change to V - Village to guide the development of PDP 3N.

(.02) Permitted Uses

Response: The Preliminary Development Plan (see Notebook Section III) proposes uses that are consistent with the permitted land uses within the Village zone. The PDP (see Notebook Section III) states that the proposed development will create lots for single family residential homes as well as parks and open spaces. These uses are permitted under the Village zone.

(.18) Village Zone Development Permit Process

B. Unique Features and Processes of the Village (V) Zone

- 2. ...Application for a zone change shall be made concurrently with an application for PDP approval...**

Response: The application for a zone change is being made concurrent with an application for PDP approval (see Notebook Section III).

SECTION 4.197 ZONE CHANGES AND AMENDMENTS TO THIS CODE - PROCEDURES.

(.02) In recommending approval or denial of a proposed zone map amendment, the Planning Commission or Development Review Board shall at a minimum, adopt findings addressing the following criteria:

- A. That the application before the Commission or Board was submitted in accordance with the procedures set forth in Section 4.008 or, in the case of a Planned Development, Section 4.140; and**

Response: This application has been submitted in accordance with the procedures set forth in Section 4.140, which requires that:

- *All parcels of land exceeding two (2) acres in size that are to be used for residential, commercial or industrial development, shall, prior to the issuance of building permit: 1. Be zoned for planned development; and*
- *Zone change and amendment to the zoning map are governed by the applicable provisions of the Zoning Sections, inclusive of Section 4.197.*

This zone change application will establish the appropriate zone for this development and will be governed by the appropriate Zoning Sections.

- B. That the proposed amendment is consistent with the Comprehensive Plan map designation and substantially complies with the applicable goals, policies and objectives, set forth in the Comprehensive Plan Text; and**

Response: The subject area is designated Residential Village on the Comprehensive Plan Map. Therefore, application of the Village Zone is consistent with the Comprehensive Plan. Compliance with the Comprehensive Plan is addressed in Section I of this Report.

- C. In the event that the subject property, or any portion thereof, is designated as “Residential” on the City’s Comprehensive Plan Map; specific findings shall be made addressing substantial compliance with Implementation Measure 4.1.4.b, d, e, q, and x of Wilsonville’s Comprehensive Plan text; and**

Response: Compliance with Implementation Measure 4.1.4 is addressed in Section I of this Report.

- D. That the existing primary public facilities, i.e., roads and sidewalks, water, sewer and storm sewer are available and are of adequate size to serve the proposed development; or, that adequate facilities can be provided in conjunction with project development. The Planning Commission and Development Review Board shall utilize any and all means to insure that all primary facilities are available and are adequately sized; and

Response: The Preliminary Development Plan compliance report and the plan sheets (see Notebook Section III) demonstrate that the existing primary public facilities are available and can be provided in conjunction with the project. Section IIIC of this Notebook includes supporting utility and drainage reports. A Traffic Impact Analysis is attached in Notebook Section IIID.

- E. That the proposed development does not have a significant adverse effect upon Significant Resource Overlay Zone areas, an identified natural hazard, or an identified geologic hazard. When Significant Resource Overlay Zone areas or natural hazard, and/ or geologic hazard are located on or about the proposed development, the Planning Commission or Development Review Board shall use appropriate measures to mitigate and significantly reduce conflicts between the development and identified hazard or Significant Resource Overlay Zone; and

Response: A SRIR was submitted and approved with PDP 2N for the proposed SROZ impacts. This application includes a SRIR Addendum (see Notebook Section IIIG), which verifies previously approved areas and includes information for two (2) additional impact areas. As demonstrated in the SRIR Addendum, the total amount of SROZ impacts remains in compliance with the SROZ standards and approved mitigation areas. Additionally, the PDP Supporting Compliance Report (see Notebook Section IIIA) addressed Section 4.139, indicating the proposed development does not have a significant adverse effect on the SROZ area. The site does not contain natural or geologic hazard areas.

- F. That the applicant is committed to a development schedule demonstrating that the development of the property is reasonably expected to commence within two (2) years of the initial approval of the zone change; and

Response: The applicant is committed to a schedule demonstrating that the development of the subject property is reasonably expected to commence within two (2) years of the initial approval of the zone change.

- G. That the proposed development and use(s) can be developed in compliance with the applicable development standards or appropriate conditions are attached to insure that the project development substantially conforms to the applicable development standards.

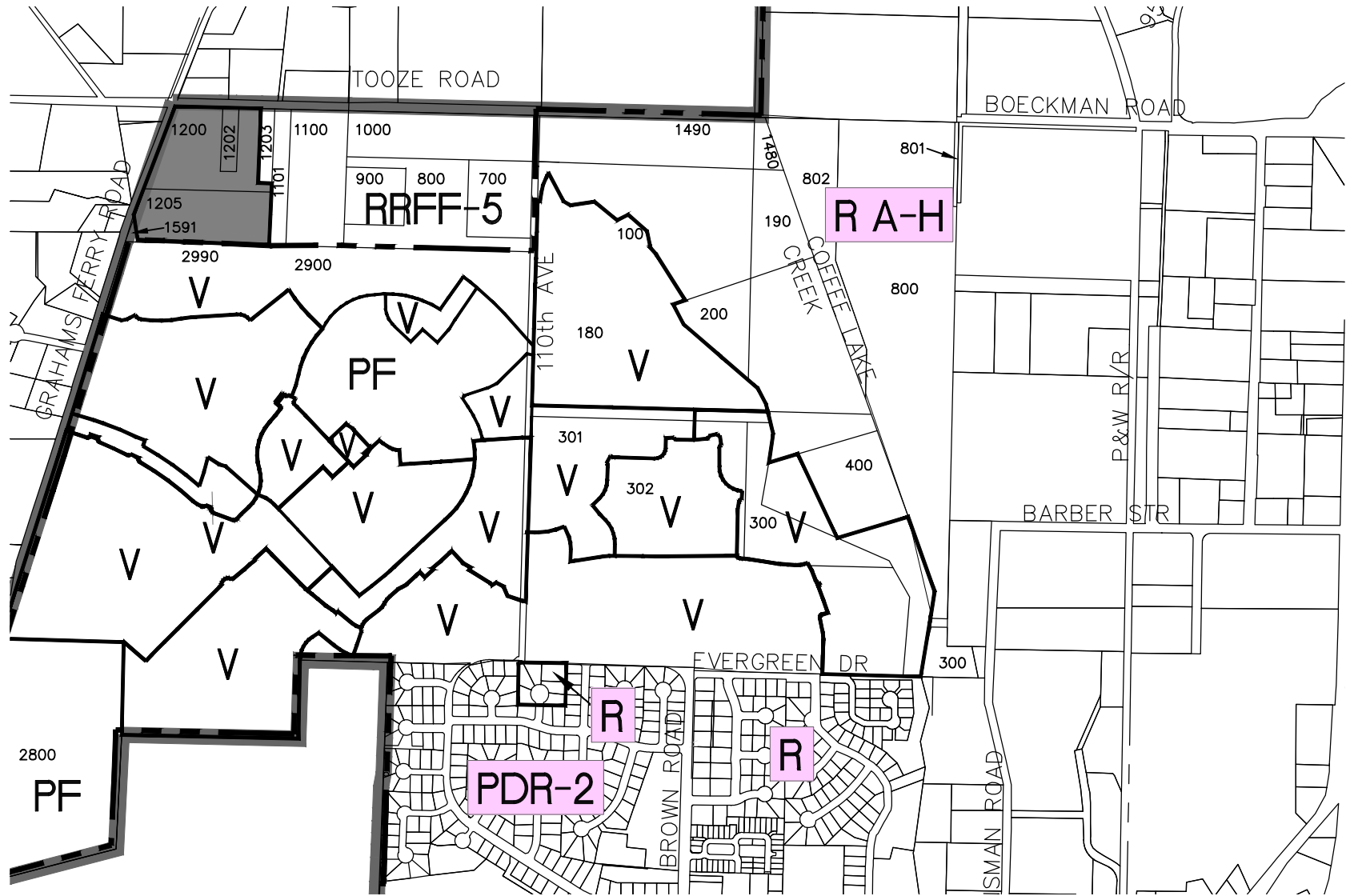
Response: The proposed development can be developed in compliance with the applicable development standards, as demonstrated by this report and the Preliminary

Development Plan (Notebook Section III) and Tentative Plat (Notebook Section IV) applications.





III. PROPOSAL SUMMARY & CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable requirements of the City of Wilsonville Planning & Land Development Ordinance for the requested Zone Change. Therefore, the applicant requests approval of this application.

VB
Zone Change Map



LEGEND

-  SUBJECT AREA – PROPOSED VILLAGE (V) ZONE (15.16 AC) (ALSO PROPOSED CITY ANNEXATION)
-  ZONE LINE
-  EXISTING UGB
-  EXISTING CITY BOUNDARY
- PF** EXISTING ZONING DESIGNATION



1" = 1000'

PROPOSED ZONE MAI
AMENDMENT

VC
Legal Description & Sketch



EXHIBIT "A"

January 20, 2014

LEGAL DESCRIPTION

Job No. 395-027

The land described in Document No. 2007-047567 and Document No. 73-30403, Clackamas County Deed Records, being in the Northwest Quarter of Section 15, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon, more particularly described as follows:

COMMENCING at the Northeast corner of Tract "DD" of plat of "Tonquin Woods at Villebois No. 4";

thence along the northerly plat line of said plat, North 88° 34'09" West, a distance of 37.22 feet to the POINT OF BEGINNING;

thence continuing along said northerly plat line, North 88° 34'09" West, a distance of 862.08 feet to the Southeast corner of the property described in Document No. 2000-050326;

thence along the northeasterly line of said property, North 09° 12'39" West, a distance of 166.59 feet to a point on the easterly right-of-way line of SW Grahams Ferry Road;

thence along said easterly right-of-way line, North 17° 14'42" East, a distance of 15.88 feet to an angle point;

thence continuing along said easterly right-of-way line, North 21° 00'47" East, a distance of 753.50 feet to a point on the southerly right-of-way line of SW Tooze Road;

thence along said southerly right-of-way line, South 88° 34'09" East, a distance of 558.80 feet to the Northwest corner of the property described in Document No. 73-30518;

thence along the westerly line of said property, South 02° 14'46" West, a distance of 483.82 feet to the Southwest property corner of said property;

thence along the southerly line of said property, South 88° 22'03" East, a distance of 89.82 feet to a point on the westerly line of Parcel 2, Partition Plat No. 1994-182;

thence along said westerly parcel line, South 02° 14'46" West, a distance of 404.88 feet to the POINT OF BEGINNING.

Containing 15.164 acres, more or less.

Basis of bearings being the plat of "Tonquin Woods at Villebois No. 4", Clackamas County Plat Records.

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JULY 9, 2002 TRAVIS C. JANSEN 57751

RENEWS: 6/30/2015

N:\proj\395-027\08 Drawings\06 Survey\Legals\395027 Rumpf Zone Change.dwg - SHEET: Legal Desc Jan. 20, 14 - 2:42 PM tcj

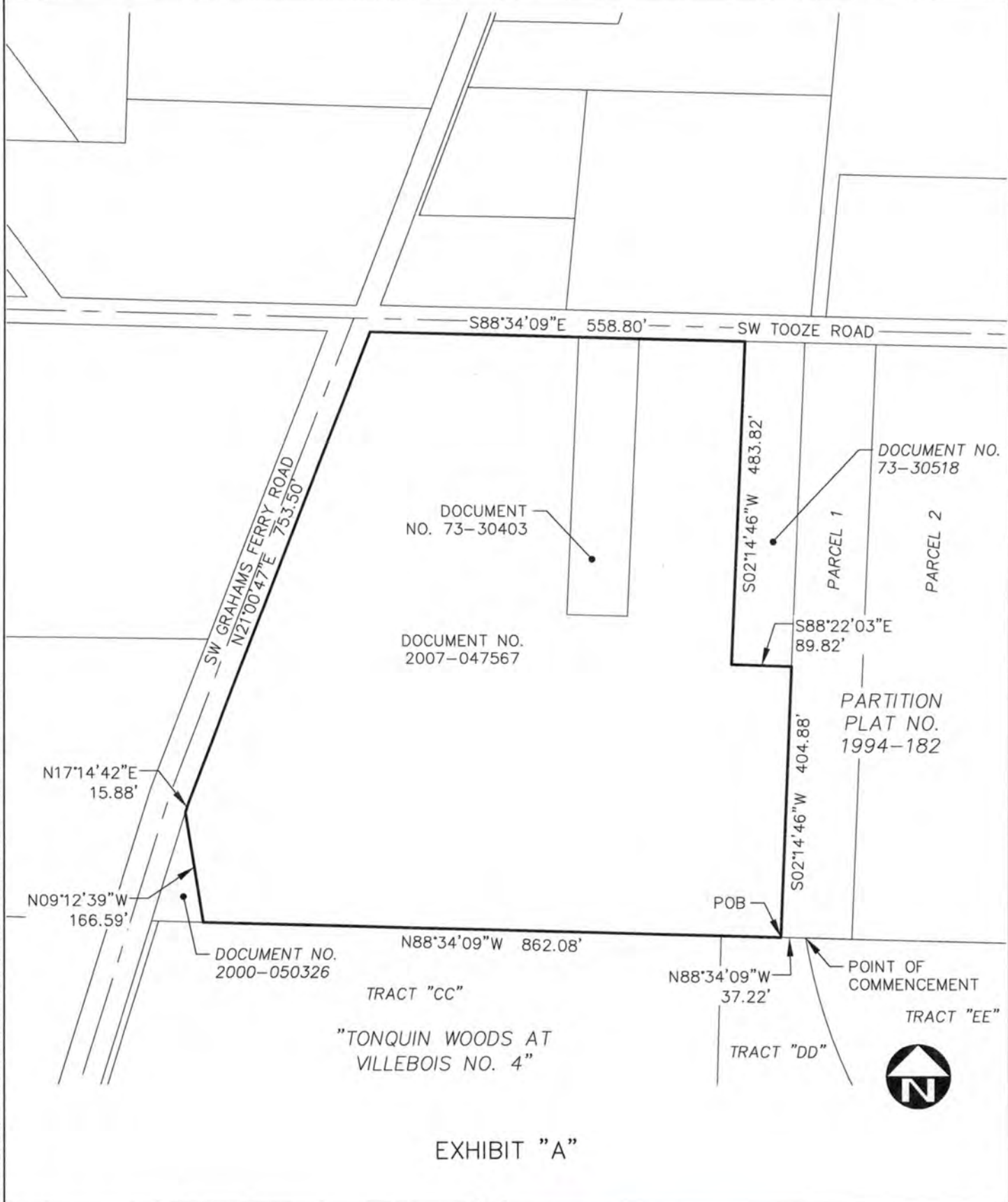


EXHIBIT "A"

DRAWN BY: CLL DATE: 1/20/14
 REVIEWED BY: TCJ DATE: 1/20/14
 PROJECT NO.: 395-027
 SCALE: 1"=200'
 PAGE 2 OF 2



12564 SW Main St
 Tigard, OR 97223
 [T] 503-941-9484
 [F] 503-941-9485

Section VI

Tree Removal Plan

VIA
Supporting Compliance Report

**SUPPORTING COMPLIANCE REPORT
TYPE “C” TREE REMOVAL PLAN/PERMIT
PDP 3N**

SECTION VIA

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I. WILSONVILLE PLANNING AND LAND DEVELOPMENT ORDINANCE

SECTION 4.610.10. STANDARDS FOR TREE REMOVAL, RELOCATION OR REPLACEMENT

(.01) Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:

- A. **Standard for the Significant Resource Overlay Zone.** The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this chapter.

Response: Proposed tree removal is shown on the *Tree Preservation Plan* (see Notebook Section VIC) and described in the Tree Report (see Notebook Section VIB). The subject site includes Significant Resource Overlay Zone (SROZ) area along the southern property line. This report addresses compliance with the standards of WC 4.610 for trees inventoried within and outside of the SROZ areas within the subject site.

- B. **Preservation and Conservation.** No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a principle shall be equal in concern and importance as other design principles.

Response: The attached Tree Report (see Notebook Section VIB), prepared by Morgan Holen of Morgan Holen & Associates LLC, includes a tree inventory indicating the common and species names, DBH, condition, and recommended treatment of on-site trees. Trees within the retained wetland were not included in the inventory as they are not impacted by the proposed development.

As shown on the *Existing Conditions Plan* (see Notebook Exhibit IIIB), the majority of the site is pasture with trees concentrated around existing residential dwellings, the northwestern site corner, and the retained wetland located in the southwestern site corner. Existing trees within these areas are preserved to the extent feasible while the locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas. Trees located within the wetland area to be retained and within the SROZ area will be preserved within open space tracts. The majority of trees proposed for removal are in “Poor” condition or “Moderate” condition. Trees with a “Good” rating are retained to the extent feasible. No trees with a rating of “Important” are present within the subject site.

Proposed tree removal is shown on the *Tree Preservation Plan* (see Notebook Section VIC). The *Tree Preservation Plan* depicts the ranking of existing trees and whether they will be retained, removed, or likely removed. The determination to remove trees was based upon an assessment of which trees were necessary to remove due to the poor or hazardous health of the tree, whether or not they interfered with the health of other trees, and whether removal is necessary for utility work or the construction of residential dwellings. Trees proposed for removal are located in areas planned for residential lots, utilities, streets, and alleys.

- C. **Development Alternatives.** Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.

Response: The preservation of existing on-site trees was carefully considered in the planning of site improvements. The *Tree Preservation Plan* (see Section VIC) depicts the trees that are to be retained, to be removed, and likely to be removed during construction. As described above, the majority of the site is pasture with trees located around existing residential dwellings, within the retained wetland in the southwestern site corner, and the northwestern site corner. Existing trees within these areas are preserved to the extent feasible while the locations of residential lots, street improvements, alleys, and utilities were generally planned within existing pasture areas.

- D. **Land Clearing.** Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.

Response: The clearing of land will be limited to areas designated as dedicated right-of-way and areas necessary for the construction of streets, utilities, and residential buildings. *Sheet 5 - Grading Plan* in Notebook Section IIIB depicts the extent of grading activities proposed on the site.

- E. **Residential Development.** Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.

Response: A Pattern Book was developed for the general design of residential structures within SAP - North. As guided by the Pattern Book, homes are designed to blend into the landscape as much as feasible. The design of homes within this phase will be developed in accordance with the Pattern Book for SAP - North. This is assured through review of compliance with the Pattern Book at the time of Building Permit application.

- F. **Compliance with Statutes and Ordinances.** The proposed activity shall comply with all applicable statutes and ordinances.

Response: The development in PDP 3N will comply with all applicable statutes and ordinances.

- G. **Relocation or Replacement.** The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not removed, in accordance with WC 4.620.10.

Response: No relocation of trees is proposed. Tree replacement will occur in accordance with the necessary provisions from WC 4.620.00 and WC 4.620.10, as addressed below. As shown in the Tree Report prepared by Morgan Holen of Morgan Holen & Associates LLC (see Section VIB), the tree mitigation proposed with the planting of street trees and trees within park and open space areas exceeds the required amount of mitigation of one (1) tree replanted per each tree removed.

H. **Limitation.** Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.

1. **Necessary for Construction.** Where the applicant has shown to the satisfaction of the reviewing authority that removal or transplanting is necessary for the construction of a building, structure or other site improvement and that there is no feasible and reasonable location alternative or design option on-site for a proposed building, structure or other site improvement; or a tree is located too close to an existing or proposed building or structures, or creates unsafe vision clearance.
2. **Disease, Damage, or Nuisance, or Hazard.** Where the tree is diseased, damaged, or in danger of falling, or presents a hazard as defined in WC 6.208, or is a nuisance as defined in WC 6.200 it seq., or creates unsafe vision clearance as defined in this code.
3. **Interference.** Where the tree interferes with the healthy growth of other trees, existing utility service or drainage, or utility work in a previously dedicated right-of-way, and it is not feasible to preserve the tree on site.
4. **Other.** Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.

Response: Morgan Holen of Morgan Holen & Associates LLC has prepared a Tree Report (see Notebook Section VIB) for PDP 3N. The attached Tree Report includes a tree inventory, which indicates the tree common name and species name, DBH, condition, and recommended treatment (i.e. retain or remove). The determination to remove trees was based upon an assessment of what trees were necessary to remove due to the poor or hazardous health of the tree, whether or not they interfered with the health of other tree, and whether removal is necessary for utility work or the construction of residential dwellings.

The attached *Tree Preservation Plan* (see Notebook Section VIC) illustrates trees proposed to be removed, likely to be removed, and to be retained, and their respective rating of important, good, moderate, or poor condition. Where tree removal is “necessary for construction,” tree removal is needed for site grading in areas where public utilities, street and sidewalk improvements, alleys, or residential lots are planned (see *Sheet 5 - Grading and Erosion Plan* in Notebook Section IIIB).

I. **Additional Standards for Type C Permits.**

1. **Tree Survey.** For all site development applications reviewed under the provisions of Chapter 4 Planning and Zoning, the developer shall provide a Tree Survey before site development as required by WC 4.610.40 , and provide a Tree Maintenance and Protection Plan, unless specifically exempted by the Planning Director or DRB, prior to initiating site development.

Response: The *Tree Preservation Plan* (see Notebook Section VIC) and the *Tree Report* (see Notebook Section VIB) provide a tree survey with the location, species and health of each tree in the PDP area.

2. **Platted Subdivisions.** The recording of a final subdivision plat whose preliminary plat has been reviewed and approved after the effective date of Ordinance 464 by the City and that conforms with this subchapter shall include a *Tree Survey and Maintenance and Protection Plan*, as required by this subchapter, along with all other conditions of approval.

Response: The final subdivision plat will include this information, as necessary.

3. **Utilities.** The City Engineer shall cause utilities to be located and placed wherever reasonably possible to avoid adverse environmental consequences given the circumstances of existing locations, costs of placement and extensions, the public welfare, terrain, and preservation of natural resources. Mitigation and/or replacement of any removed trees shall be in accordance with the standards of this subchapter.

Response: *Sheet 6 - Composite Utility Plan* (see Notebook Section IIIB) for the site has been designed to minimize the impact upon the environment to the extent feasible given existing conditions. Any trees to be removed due to the placement of utilities will be replaced and/or mitigated in accordance with the provisions in this subchapter.

- J. **Exemption.** Type D permit applications shall be exempt from review under standards D, E, H and I of this subsection.

Response: This application requests a Type C Tree Removal Permit; therefore this standard is not applicable.

SECTION 4.610.40. TYPE C PERMIT

- (.01) Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of the subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process, and any changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.

Response: This application includes a request for approval of a Type “C” Tree Removal Plan for approval by the Development Review Board so that a Tree Removal Permit may be issued. Proposed tree removal is identified on the *Tree Preservation Plan* (see Notebook Section VIC).

(.02) The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:

A. A plan, including a topographical survey bearing the stamp and signature of a qualified, registered professional containing all the following information:

1. Property Dimensions. The shape and dimensions of the property, and the location of any existing and proposed structure or improvement.

2. Tree Survey. The survey must include:

a) An accurate drawing of the site based on accurate survey techniques at a minimum scale of one inch (1”) equals one hundred feet (100’) and which provides a) the location of all trees having six inches (6”) or greater d.b.h. likely to be impacted, b) the spread of canopy of those trees, c) the common and botanical name of those trees, and d) the approximate location and name of any other trees on the property.

b) A description of the health and condition of all trees likely to be impacted on the site property. In addition, for trees in a present or proposed public street or road right-of-way that are described as unhealthy, the description shall include recommended actions to restore such trees to full health. Trees proposed to remain, to be transplanted or to be removed shall be so designated. All trees to remain on the site are to be designated with metal tags that are to remain in place throughout the development. Those tags shall be numbered, with the numbers keyed to the tree survey map that is provided with the application.

c) Where a stand of twenty (20) or more contiguous trees exist on a site and the applicant does not propose to remove any of those trees, the required tree survey may be simplified to accurately show only the perimeter area of that stand of trees, including its drip line. Only those trees on the perimeter of the stand shall be tagged, as provided in “b”, above.

d) All Oregon white oaks, native yews, and any species listed by either the state or federal government as rare or endangered shall be shown in the tree survey.

3. Tree Protection. A statement describing how trees intended to remain will be protected during development, and where

protective barriers are necessary, that they will be erected before work starts. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute “barriers”.

4. **Easements and Setbacks.** Location and dimension of existing and proposed easements, as well as all setback required by existing zoning requirements.
5. **Grade Changes.** Designation of grade proposed for the property that may impact trees.
6. **Cost of Replacement.** A cost estimate for the proposed tree replacement program with a detailed explanation including the number, size, and species.
7. **Tree Identification.** A statement that all trees being retained will be identified by numbered metal tags, as specified in subsection “A,” above in addition to clear identification on construction documents.

Response: The *Tree Preservation Plan* (see Notebook Section VIC) identifies trees proposed for removal. The *Tree Preservation Plan* provides information required by WC 4.610.40(.02). In addition, Morgan Holen of Morgan Holen & Associates LLC has prepared a Tree Report (see Notebook Section VIB) that provides information required by WC 4.610.40(.02).

SECTION 4.620.00. TREE RELOCATION, MITIGATION, OR REPLACEMENT

(.01) Requirement Established. A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal.

Response: No relocation of trees is proposed. Tree replacement will occur in accordance with the necessary provisions from WC 4.620.00 and WC 4.620.10. The tree mitigation proposed with the planting of street trees and trees within park and open space areas complies with the required amount of mitigation.

(.02) Basis For Determining Replacement. The permit grantee shall replace removed trees on a basis of one (1) tree replaced for each tree removed. All replacement trees must measure two inches (2”) or more in diameter. Alternatively, the Planning Director or Development Review board may require the permit grantee to replace removed trees on a per caliper inch basis, based on a finding that the large size of the trees being removed justifies an increase in the replacement trees required. Except, however, that the Planning Director or Development Review Board may allow the use of replacement Oregon white oaks and other uniquely valuable trees with a smaller diameter.

Response: The attached Tree Report (see Notebook Section VIB), prepared by Morgan Holen of Morgan Holen & Associates LLC, includes mitigation analysis for planting replacement trees. Trees to be removed will be replaced in accordance with this criterion.

(.03) **Replacement Tree Requirements.** A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

- A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree species list supplied by the City, and shall be state Department of Agriculture nursery Grade No. 1 or better.
- B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two (2) years after the planting date.
- C. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced.
- D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat.

Response: The attached Tree Report (see Notebook Section VIB), prepared by Morgan Holen of Morgan Holen & Associates LLC, includes mitigation analysis for planting replacement trees. All trees to be planted will meet the requirements of this standard.

(.04) All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade.

Response: All trees to be planted will meet the requirements of this standard.

(.05) **Replacement Tree Location.**

- A. **City Review Required.** The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation, and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed
- B. **Relocation or Replacement Off-Site.** When it is not feasible or desirable to relocate or replace trees on-site, relocation or replacement may be made at another location - approved by the city.

Response: Trees will be replaced on-site within the same general area as the trees removed. Tree replacement areas are shown on the *Street Tree / Lighting Plan* (see Notebook Section IIIB).

(.06) **City Tree Fund.** Where it is not feasible to relocate or replace trees on site or at another approved location in the City, the Tree Removal Permit grantee shall pay into the City Tree Fund, which fund is hereby created, an amount of money approximately the value as defined by this subchapter, of the replacement trees that would otherwise be required by this subchapter. The City shall use the City Tree Fund for the purpose of producing, maintaining and preserving wooded areas and heritage trees, and for planting trees within the City.

Response: All trees removed will be replaced within PDP 3 North on a one-for-one basis. Therefore, payment to the City Tree Fund is not necessary.

(.07) Exception. Tree replacement may not be required for applicants in circumstances where the Director determines that there is good cause to not so require. Good cause shall be based on a consideration of preservation of natural resources, including preservation of mature trees and diversity of ages of trees. Other criteria shall include consideration of terrain, difficulty of replacement and impact on adjacent property.

Response: No exception to the tree replacement requirements is requested with this application.

SECTION 4.620.10. TREE PROTECTION DURING CONSTRUCTION

- (.01)** Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:
- A.** All trees required to be protected must be clearly labeled as such.
 - B.** **Placing Construction Materials Near Tree.** No person may conduct any construction activity likely to be injurious to a tree designated to remain, including, but not limited to, placing solvents, building material, construction equipment, or depositing soil, or placing irrigated landscaping, within the drip line, unless a plan for such construction activity has been approved by the Planning Director or Development Review Board based upon the recommendations of an arborist.
 - C.** **Attachments to Trees During Construction.** Notwithstanding the requirement of WC 4.620.10(1)(A), no person shall attach any device or wire to any protected tree unless needed for tree protection.
 - D.** **Protective Barrier.** Before development, land clearing, filling or any land alteration for which a Tree Removal Permit is required, the developer shall erect and maintain suitable barriers as identified by an arborist to protect remaining trees. Protective barriers shall remain in place until the City authorizes their removal or issues a final certificate of occupancy, whichever occurs first. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic Tape or similar forms of markers do not constitute “barriers”. The most appropriate and protective barrier shall be utilized. Barriers are required for all trees designated to remain, except in the following cases.
 - 1.** Rights-of-ways and Easements.
 - 2.** Any property area separate from the construction or land clearing area onto which no equipment may venture.

Response: Trees to be retained will be protected to the greatest extent possible during construction as described in the attached Tree Report (see Notebook Section VIB). Additional details about tree protection during construction will be provided with the construction drawings.

SECTION 4.620.20. MAINTENANCE AND PROTECTION STANDARDS

(.01) The following standards apply to all activities affecting trees, including, but not limited to, tree protection as required by a condition of approval on a site development application brought under this chapter or as required by an approved Tree Maintenance and Protection Plan.

- A. Pruning activities shall be guided by the most recent version of the ANSI 300 Standards for Tree, Shrub and Other Woody Plant Maintenance.
- B. Topping is prohibited
 - 1. Exception from this section may be granted under a Tree Removal Permit if necessary for utility work or public safety.

Response: The attached Tree Report (see Notebook Section VIB) addresses tree protection standards. If pruning or topping is determined to be necessary in the future, it will occur in accordance with WC 4.620.20.

SECTION 4.640.00. APPLICATION REVIEW PROCEDURES

(.03) Reviewing Authority

- B. Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council.

Response: This application includes *Tree Preservation Plans*, located in Notebook Section VIC for review by the Development Review Board. The Applicant is requesting that the Development Review Board approve this plan so that a Tree Removal Permit may be issued.

II. CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable criteria of the City of Wilsonville Land Development Ordinance for the requested review of the Type “C” Tree Removal Plan and Permit. Therefore, the applicant respectfully requests approval of this application.

VIB
Tree Report

**Villebois PDP 3 North – Wilsonville, Oregon
Tree Maintenance and Protection Plan
January 30, 2014**

MHA1405

Purpose

This Tree Maintenance and Protection Plan for the Villebois Preliminary Development Plan (PDP) 3 North project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code, Section 4.610.40. This arborist report describes the existing trees located on the project site, as well as recommendations for tree removal, retention, mitigation, and protection. This report is based on observations made by International Society of Arboriculture (ISA) Certified Arborist and Qualified Tree Risk Assessor Morgan Holen (PN-6145A) during a site visit conducted on January 28, 2014.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Polygon Northwest Company to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with development, and to develop a tree maintenance and protection plan for the project. The site is planned for residential development. A site plan was provided by Pacific Community Design illustrating the location of trees and tree survey point numbers, and potential construction impacts.

Visual Tree Assessment (VTA¹) was performed on individual trees located across the site, except for a group of approximately 113 Oregon ash (*Fraxinus latifolia*) trees located with the wetland boundaries that are planned for preservation during construction. Trees were evaluated in terms species, size, general condition, and potential construction impacts, and treatment recommendations include retain, remove for construction or because of poor or hazardous condition, or likely to be removed due to construction impacts. Following the inventory fieldwork, we coordinated with Pacific Community Design to discuss and finalize treatment recommendations based on the proposed site plan.

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site.

General Description

The Villebois PDP 3 North project site includes the Rumpf and Taber properties located east of Graham's Ferry Road and south of Tooze Road. Both properties have existing homes and open pastures. The existing trees are scattered across the site, but numerous trees are found around the Taber's home and in the wetland on the Rumpf property.

In all, 41 trees measuring 6-inches and larger in diameter were inventoried including 18 tree species. Table 1 provides a summary of the count of trees by species. A complete description of individual trees is provided in the enclosed tree data.

¹ Visual Tree Assessment (VTA): The standard process of visual tree inspection whereby the inspector visually assesses the tree from a distance and up close, looking for defect symptoms and evaluating overall condition and vitality.

Table 1. Count of Trees by Species – Villebois PDP 3 North, Wilsonville, OR.

Common Name	Species Name	Total	%
Atlas cedar	<i>Cedrus atlantica</i>	1	2.44%
black locust	<i>Robinia Pseudoacacia</i>	1	2.44%
blue spruce	<i>Populus trichocarpa</i>	1	2.44%
dogwood	<i>Cornus spp.</i>	1	2.44%
Douglas-fir	<i>Pseudotsuga menziesii</i>	9	21.95%
English hawthorn	<i>Crataegus monogyna</i>	1	2.44%
European white birch	<i>Betula pendula</i>	2	4.88%
fruit	unknown	11	26.83%
giant sequoia	<i>Sequoiadendron giganteum</i>	1	2.44%
ginkgo	<i>Ginkgo biloba</i>	1	2.44%
lodgepole pine	<i>Pinus contorta</i>	3	7.32%
mimosa	<i>Albizia julibrissin</i>	1	2.44%
Norway maple	<i>Acer platanoides</i>	1	2.44%
Oregon white oak	<i>Quercus garryana</i>	1	2.44%
ponderosa pine	<i>Pinus ponderosa</i>	3	7.32%
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	1	2.44%
red maple	<i>Acer rubrum</i>	1	2.44%
western redcedar	<i>Thuja plicata</i>	1	2.44%
Total		41	100%

The tree inventory includes one (2.44%) Oregon white oak, but no native yews (*Taxus spp.*) or any species listed by either the state or federal government as rare or endangered were found on the site. The Oregon white oak, tree # 17236, is located in the northwest corner of the project site. This tree has codominant stems that are actively separating from one another; there is an obvious seam running from the open cavity to the ground and advanced stem and basal decay (photo 1).



Photo 1. Tree #17239, an Oregon white oak, has codominant stems actively separating from one another and a hollow with advanced decay.

Using the International Society of Arboriculture Best Management Practices for Tree Risk Assessment (2011), this tree has an *imminent* likelihood of failure and *high* likelihood of impacting a target, which means that the likelihood of failure and impact is *very likely*; considering that the consequences would be *significant*, this tree has *high* risk potential. Removal of this Oregon white oak is recommended because of hazardous condition and no reasonable risk abatement options are feasible. However, it is the property owner’s responsibility to determine the threshold level of risk they are willing to accept and Polygon is planning to retain this tree.

Tree Plan Recommendations

As described in the enclosed tree inventory data, individual trees were assigned a general condition rating as defined by the Villebois Specific Area Plan North Community Elements Book:

P: Poor Condition

M: Moderate Condition

G: Good Condition

I: Important Condition

Note that none of the trees were classified as “Important”, however trees #10478, a 61-inch diameter giant sequoia (*Sequoiadendron giganteum*), and #10499, a 27-inch diameter Douglas-fir, both classified in “Good” condition, were noted as being in excellent condition with long live crowns and no major defects.

In addition to the 113 non-inventoried Oregon ash trees located within the wetland boundaries that are planned for preservation, seven (17.1%) of the 41 inventoried trees are planned for preservation, 26 (63.4%) are planned for removal, and eight (19.5%) trees in good condition are likely to be removed. Table 2 provides a summary of the count of trees by general condition rating and treatment recommendation.

Table 2. Count of Trees by Treatment Recommendation and General Condition Rating.

Treatment Recommendation	General Condition Rating			Total
	P	M	G	
Retain		2	5	7 (17.1%)
Remove	8	13	5	26 (63.4%)
Likely to be Removed			8	8 (19.5%)
Total	8 (19.5%)	15 (36.6%)	18 (43.9%)	41 (100%)

Of the 26 trees planned for removal, 17 (65%) are recommended for removal because of condition and nine (35%) are recommended for removal for the purposes of construction, including five trees in good condition.

The eight trees classified as likely to be removed shall be accounted for as removed for the purposes of mitigation, but re-evaluated during construction in terms of long-term sustainability, and retained or removed at that time. These trees will be protected during construction, but if the arborist determines that a tree is not sustainable with construction impacts, the arborist shall submit a brief memorandum to the City documenting the change in treatment recommendation to seek written authorization to

proceed with removal and mitigation. If a tree likely to be removed is successfully protected throughout construction, no mitigation will be required for the tree.

Mitigation Requirements

All 41 inventoried trees are 6-inches or larger in diameter, including seven trees planned for retention with protection throughout construction and 34 trees planned for removal because of condition and/or construction or are likely to be removed because of construction. Removal of these 34 trees requires mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, 34 trees measuring at least 2-inch in diameter shall be planted as mitigation for tree removal.

Tree Protection Standards

Trees designated for retention will need special consideration to assure their protection during construction. We highly recommend a preconstruction meeting with the owner, contractors, and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

- **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines. Fences shall be 6-foot high steel on concrete blocks or orange plastic construction fencing on metal stakes. The project arborist shall determine the exact location and type of tree protection fencing. Trees located more than 30-feet from construction activity shall not require fencing.
- **Tree Protection Zone.** Without authorization from the Project Arborist, none of the following shall occur beneath the dripline of any protected tree:
 1. Grade change or cut and fill;
 2. New impervious surfaces;
 3. Utility or drainage field placement;
 4. Staging or storage of materials and equipment; or
 5. Vehicle maneuvering.

Root protection zones may be entered for tasks like surveying, measuring, and, sampling. Fences must be closed upon completion of these tasks.

- **Pruning.** Pruning may be needed to provide for overhead clearance and to remove dead and defective branches for safety. The project arborist can help identify where pruning is necessary once trees recommended for removal have been removed and the site is staked and prepared for construction. Tree removal and pruning shall be performed by a Qualified Tree Service.
- **Excavation.** Excavation beneath the dripline of protected trees shall be avoided if alternatives are feasible. Otherwise, the project arborist shall provide on-site consultation during all excavation activities beneath the dripline of protected trees. Excavation immediately adjacent to roots larger than 2-inches in diameter within the root protection zone of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, major roots shall be protected by tunneling or other means to avoid destruction or damage. Exceptions can be made if, in the opinion of the project arborist, unacceptable damage will not occur to the tree. Where soil grade changes affect the root protection area, the grade

line should be meandered wherever practicable. This will require on-site coordination to ensure a reasonable balance between engineering, construction, and the need for tree protection.

- **Surfacing.** If surfacing is proposed beneath the dripline of protected trees, coordinate with the project arborist to provide recommendations for adjustments to protection fencing and to monitor construction in the tree protection zone. Avoid excavation and use a modified profile to build up from existing grade (Figure 1). The profile includes a layer of permeable geotextile fabric on the ground surface and crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials. If excavation is necessary, work shall be performed under arborist supervision.

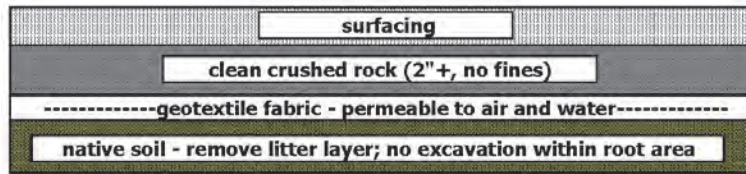


Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

- **Landscaping.** Following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the dripline of protected trees, but not directly against tree trunks. Shrubs and ground covers may be planted within tree protection areas. If irrigation is used, use drip irrigation only beneath the driplines of protected trees.
- **Quality Assurance.** The project arborist should supervise proper execution of this plan during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City on a regular basis throughout construction.

Summary

In summary, seven trees are planned for retention with construction (in addition to the approximately 113 Oregon ash trees located within the wetland boundaries), an additional eight trees will be protected but are likely to be removed during construction, and 26 trees are recommended for removal either because of condition or for the purposes of construction. The 26 trees planned for removal will require mitigation on a one-for-one basis and the eight trees likely to be removed will require mitigation if removed.

Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Villebois PDP 3 North project. Please contact us if you have questions or need any additional information.

Thank you,
Morgan Holen & Associates, LLC

Morgan E. Holen, Owner
ISA Certified Arborist, PN-6145A
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: Villebois PDP 3 North – Tree Data 1-28-14

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10442	17236	Oregon white oak	<i>Quercus garryana</i>	60		M	codominant stems at 6' coming apart; advanced decay; high risk; remove for hazardous condition	retain
10443	17237	English hawthorn	<i>Crataegus monogyna</i>	16		M	invasive species, poor structure	remove - construction
10444	17238	black locust	<i>Robinia pseudoacacia</i>	18		G	invasive species, dead branches	remove - construction
10463		Douglas-fir	<i>Pseudotsuga menziesii</i>	45		M	poor crown structure, dead and broken branches	remove - construction
10464		Douglas-fir	<i>Pseudotsuga menziesii</i>	26	24	G	codom branches, some included bark, appears stable	retain
10465		ponderosa pine	<i>Pinus ponderosa</i>	19	12	M	poor crown structure; retain with adjacent trees only	retain
10466		Atlas cedar	<i>Cedrus atlantica</i>	27	20	G	numerous leaders	retain
10467		lodgepole pine	<i>Pinus contorta</i>	10		M	small crown, sequoia pitch moth	remove - condition
10468		lodgepole pine	<i>Pinus contorta</i>	9		P	poor crown structure, sequoia pitch moth	remove - condition
10469		lodgepole pine	<i>Pinus contorta</i>	9		P	dead branches, poor crown structure, sequoia pitch moth	remove - condition
10470		ginkgo	<i>Ginkgo biloba</i>	8	8	G	no major defects	retain
10471		Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	G	few broken branches	likely to be removed
10472		blue spruce	<i>Picea pungens</i>	15		M	twig dieback, suspect adelgid	remove - condition
10473		Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	11	G	no major defects	remove - construction
10473.1		dogwood	<i>Cornus spp.</i>	6	14	G	prune dominant trees for crown clearance if retained	likely to be removed
10474		ponderosa pine	<i>Pinus ponderosa</i>	21	12	G	multiple leaders, sequoia pitch moth	likely to be removed
10475		western redcedar	<i>Thuja plicata</i>	28	16	G	no major defects	likely to be removed
10476		ponderosa pine	<i>Pinus ponderosa</i>	21	10	M	multiple leaders, sequoia pitch moth, prune if retained	remove - construction
10477		Norway maple	<i>Acer platanooides</i>	20	22	G	invasive species	remove - construction

Tree No.	Point No.	Common Name	Species Name	DBH*	C-Rad^	Cond [#]	Condition & Comments	Treatment
10478		giant sequoia	<i>Sequoiadendron giganteum</i>	61	16	G	excellent condition, long live crown, no major defects	remove - construction
10479		mimosa	<i>Albizia julibrissin</i>	20		P	codom stems at 1' coming apart, advanced basal and stem decay	remove - hazardous
10480		red maple	<i>Acer rubrum</i>	15	18	G	scaffold branch with included bark	likely to be removed
10481		Douglas-fir	<i>Pseudotsuga menziesii</i>	25	22	G	broken top	likely to be removed
10482		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	18	G	few dead twigs	likely to be removed
10483		Douglas-fir	<i>Pseudotsuga menziesii</i>	22	16	G	no major defects	likely to be removed
10484		fruit	unknown	20		M	poor crown structure	remove - condition
10485		fruit	unknown	10		M	poor crown structure	remove - condition
10486		fruit	unknown	5,6,8,9		M	poor crown structure	remove - condition
10487		fruit	unknown	10,14		M	poor crown structure	remove - condition
10488		fruit	unknown	13		G	no major defects	remove - construction
10489		Douglas-fir	<i>Pseudotsuga menziesii</i>	33		M	codom stems, included bark, seam	remove - hazardous
10490		Douglas-fir	<i>Pseudotsuga menziesii</i>	2*32	24	G	codom at 4', some included bark, appears stable	retain
10491		European white birch	<i>Betula pendula</i>	2*12		P	invasive species, poor structure	remove - condition
10492		European white birch	<i>Betula pendula</i>	8,2*12		P	invasive species, poor structure	remove - condition
10493		fruit	unknown	8		P	branch and stem decay	remove - condition
10494		fruit	unknown	10		P	branch and stem decay	remove - condition
10495		fruit	unknown	8		P	stem decay, small live crown	remove - condition
10496		fruit	unknown	12		M	no major defects	remove - construction
10497		fruit	unknown	8		M	poor crown structure	remove - condition
10498		fruit	unknown	7		M	no major defects	remove - condition
10499		Douglas-fir	<i>Pseudotsuga menziesii</i>	27	20	G	excellent condition, long live crown, no major defects	retain

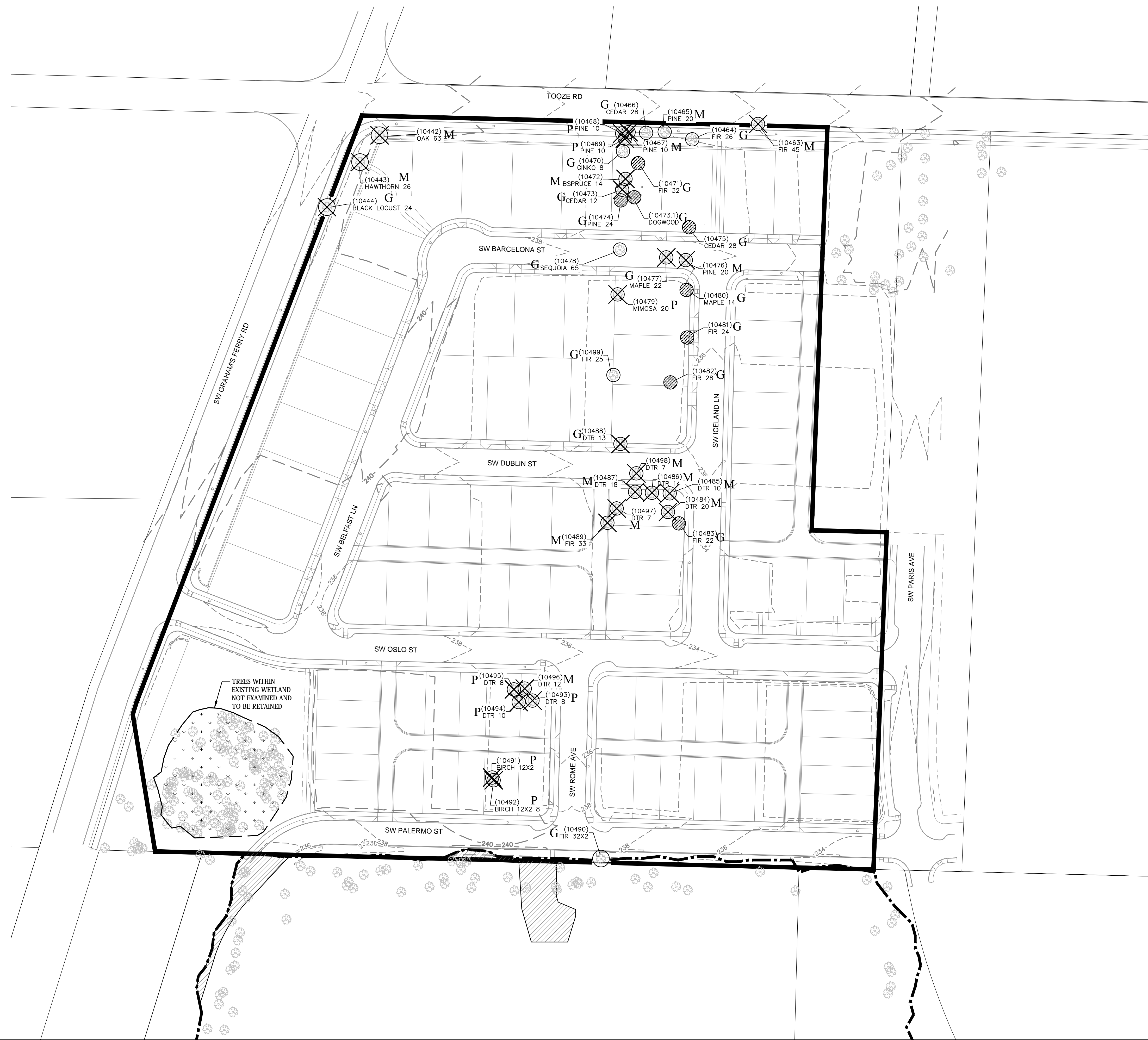
*DBH: Diameter at Breast Height (measured 4.5-feet above ground level in inches); trees with multiple trunks splitting below DBH are measured separately and individual trunk measurements are separated

^C-Rad: Crown Radius, the distance from the center of the tree to the edge of the dripline (measured in feet)

#Condition Codes: I-Important; G-Good; M-Moderate; P-Poor

VIC
Tree Preservation Plan

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LEGEND:

- I IMPORTANT
- G GOOD
- M MODERATE
- P POOR
- NE NOT EXAMINED
- (Symbol: Circle with dot) EXISTING TREES TO REMAIN
- (Symbol: Circle with cross-hatch) EXISTING TREES LIKELY TO BE REMOVED
- (Symbol: Circle with X) EXISTING TREES TO BE REMOVED
- (Symbol: Hatched rectangle) SROZ ENCROACHMENT AREA
- (Symbol: Dashed rectangle) CREATED SROZ AREA
- (Symbol: Dashed line) SROZ BOUNDARY LINE

NOTES

ALL CONSTRUCTION AND GRADING WITHIN TREE PROTECTION ZONE IS TO BE COMPLETED UNDER DIRECT SUPERVISION OF PROJECT ARBORIST. CONTACT: MORGAN HOLAN PHONE: 503-646-4349

THE INTENT OF THE PLAN IS TO RETAIN AND INCORPORATE THE MAXIMUM QUANTITY OF TREES WITH IMPORTANT, GOOD, AND MODERATE CLASSIFICATIONS. THE FOLLOWING CLASSIFICATION SYSTEM WAS USED:

CLASSIFICATION METHOD:
TREES WERE RATED BASED ON THE FOLLOWING CONSIDERATIONS:

1. HEALTH
2. SPECIES (NATIVES WITH HABITAT AND ECOSYSTEM VALUE)
3. COMPATIBILITY WITH DEVELOPMENT
4. FORM / VISUAL INTEREST / MATURE SIZE

TREES RANKED AS IMPORTANT WERE RATED HIGH IN ALL FOUR AREAS.

TREES IN THE GOOD CATEGORY HAD GOOD HEALTH AND WERE A DESIRABLE SPECIES, BUT HAD IRREGULAR FORM OR LESS COMPATIBILITY WITH DEVELOPMENT.

TREES IN THE MODERATE CATEGORY HAD GOOD TO MODERATE HEALTH AND FORM, BUT WERE A LESS DESIRABLE SPECIES OR MAY BE LESS COMPATIBLE WITH DEVELOPMENT.

TREES IN THE POOR CATEGORY HAD POOR HEALTH AND/OR SUBSTANTIAL DAMAGE.

NOTES:

1. THE INFORMATION PROVIDED WITHIN THE PROJECT BOUNDARY IS BASED ON AN ON-SITE EVALUATION OF THE EXISTING TREES BY ARBORIST MORGAN HOLAN AND WAS PROVIDED IN A TREE REPORT DATE JANUARY 28, 2014 INCLUDED WITH THE APPLICATION MATERIALS.
2. RETAINED TREES WITHIN THE WETLAND HAVE NOT BEEN EXAMINED.

TREES WITHIN EXISTING WETLAND NOT EXAMINED AND TO BE RETAINED



POLYGON NW COMPANY



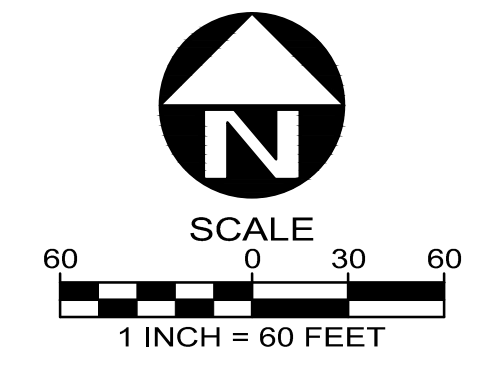
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PDP 3N
VILLEBOIS**

**Preliminary
Development Plan**

**Tree
Preservation
Plan**

DATE 1/31/14



Section VII

Final Development Plan

VIIA
Supporting Compliance Report

SUPPORTING COMPLIANCE REPORT
FINAL DEVELOPMENT PLAN - 3 NORTH
(INCLUDES CHILD PLAY AREA DEFERRED WITH PDP 2N)

SECTION VIIA

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I. WILSONVILLE PLANNING & LAND DEVELOPMENT ORDINANCE

SECTION 4.125. VILLAGE (V) ZONE

(.02) Permitted Uses

Examples of principle uses that typically permitted:

- H. Non-commercial parks, plazas, playgrounds, recreational facilities, community buildings and grounds, tennis courts, and other similar recreational and community uses owned and operated either publicly or by an owners association.

Response: The parks and open space areas include non-commercial parks to be owned and operated by a homeowners association. Therefore, proposed park and open space uses within PDP 3N are permitted.

(.07) General Regulations - Off-Street Parking, Loading & Bicycle Parking

Response: Amenities planned within PDP 3N park and open areas do not require off-street parking. Therefore, this section does not apply.

(.08) Open Space.

Response: The PDP Compliance Report (see Notebook Section IIIA) demonstrates parks and open space areas comprise approximately 33% of Villebois and that PDP 3N is consistent with SAP North. This FDP is submitted concurrently with PDP 3N, and is therefore consistent with the parks and open space area in PDP 3N.

(.09) Street and Access Improvement Standards.

Response: The Supporting Compliance Report for the PDP (see Notebook Section IIIA) demonstrates that streets and access improvement standards are met. This code section does not apply to the proposed parks and open space areas, except to assure that vision clearance standards are met in proposed planting schemes for these areas. Proposed landscaping is sited to meet vision clearance standards (see Notebook Section VIIB).

(.10) Sidewalk and Pathway Improvement Standards.

Response: This code section refers directly to code Section 4.176, which is addressed in subsequent sections of this report.

(.11) Landscaping, Screening and Buffering

- A. Except as noted below, the provisions of Section 4.176 shall apply in the Village zone:
 - 1. Streets in the Village zone shall be developed with street trees as described in the Community Elements Book.

Response: The applicable provisions of Section 4.176 are addressed in the subsequent sections of this report. The PDP provides information regarding street trees for the proposed streets (see Notebook Section IIIB). This FDP application reflects the provision of street trees consistent with that shown in the PDP application.

(.12) Master Signage and Wayfinding

Response: The SAP North *Signage & Wayfinding Plan* indicates the provision of Secondary Site Identifier at the site entrance from Grahams Ferry Road. The attached PDP plans (see Notebook Section IIIB) and FDP plans (see Notebook Section VIIB) show provision of the 'Secondary Site Identifier' with the future construction of the site entrance.

(.14) Design Standards Applying to the Village Zone

A. The following design standards implement the Design Principles found in (.13), above, and enumerate the architectural details and design requirements applicable to buildings and other features within the Village (V) zone. The Design Standards are based primarily on the features, types, and details of the residential traditions in the Northwest, but are not intended to mandate a particular style or fashion. All development within the Village zone shall incorporate the following:

2. Building and site design shall include:

b. Materials, colors and architectural details executed in a manner consistent with the methods included in an approved Architectural Pattern Book, Community Elements Book or approved Village Center Design.

Response: The materials proposed for the parks of the subject PDP are consistent with the approved SAP North *Community Elements Book* as shown in the FDP Approval Criteria section of this report. The SAP - North *Architectural Pattern Book* is not applicable to the proposed park uses. The FDP plans (see Notebook Section VIIB) and PDP plans include the locations of mailbox kiosks. The design and location of mailbox kiosks will be consistent with the *Community Elements Book*. An alternate mailbox kiosk elevation is provided in Notebook Section VIIC.

f. The protection of existing significant trees as identified in an approved Community Elements Book.

Response: The design of the parks will protect existing significant trees consistent with the Tree Protection component of the *Community Elements Book* and *Sheet 10 - Tree Preservation Plan* (see Notebook Section IIIB). The FDP plans (Notebook Section VIIB) show retention of existing significant trees.

g. A landscape plan in compliance with Sections 4.125(.07) and (.11), above.

Response: A detailed landscape plan is provided with this FDP application in accordance with the requirements of Section 4.125 (.07) and (.11), 4.176(.09), and 4.440(.01)B (see attached plans in Notebook Section VIIB).

3. Lighting and site furnishings shall be in compliance with the approved Community Elements Book.

Response: Lighting and site furnishings as identified in the approved *Community Elements Book* for SAP - North are addressed in the FDP Approval Criteria section of this report. The FDP plans include the locations of mailbox kiosks (see Exhibit VIIB). Mailbox kiosks will be located and designed consistent with the SAP North *Community Elements Book*. An alternate mailbox kiosk elevation is provided in Notebook Section VIIC.

(.18) Village Zone Development Permit Process

L. Final Development Plan Approval Procedures (Equivalent to Site Design Review):

1. Unless an extension has been granted by the Development Review Board as enabled by Section 4.023, within two (2) years after the approval of a PDP, an application for approval of a FDP shall:
 - a. Be filed with the City Planning Division for the entire FDP, or when submission of the PDP in phases has been authorized by the development Review Board, for a phase in the approved sequence.
 - b. Be made by the owner of all affected property or the owner's authorized agent.
 - c. Be filed on a form prescribed by the City Planning Division and filed with said division and accompanied by such fee as the City Council may prescribe by resolution.
 - d. Set forth the professional coordinator and professional design team for the project.

Response: This application has been made by the owner and applicant of the affected property and has been filed on the prescribed form and accompanied by the prescribed fee (copies of the application form and fee payment are included in Notebook Sections IB and IC). The professional coordinator and professional design team for the project are listed in the Introductory Narrative (see Notebook Section IA).

M. FDP Application Submittal Requirements:

1. An application for approval of a FDP shall be subject to the provisions of Section 4.034.

Response: Section 4.034(.08), states that "Applications for development approvals within the Village zone shall be reviewed in accordance with the standards and procedures set forth in Section 4.125." The proposed FDP is reviewed in accordance with the standards and procedures set forth in Section 4.125, as demonstrated by this report.

N. FDP Approval Procedures

1. An application for approval of a FDP shall be subject to the provisions of Section 4.421.

Response: The provisions of Section 4.421 are addressed in the following sections of this report.

O. FDP Refinements to an Approved Preliminary Development Plan

Response: This FDP is submitted for review and approval concurrent with the PDP. Thus, the FDP is consistent with the PDP and does not propose any refinements or amendments to the PDP.

P. FDP Approval Criteria

1. An application for approval of a FDP shall be subject to the provisions of Section 4.421.

Response: The provisions of Section 4.421 are addressed in the following sections of this report.

2. An application for an FDP shall demonstrate that the proposal conforms to the applicable Architectural Pattern Book, Community Elements Book, Village Center Design and any other conditions of a previously approved PDP.

Response: This FDP addresses parks and landscaping within PDP 3N. The *Architectural Pattern Book* is not applicable to this FDP because no architecture is proposed. The Village Center Design is not applicable as the FDP is outside the Village Center. The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request. Conformance of the proposed FDP with the *Community Elements Book* for SAP - North Phase 3 is demonstrated as follows.

LIGHTING MASTER PLAN

Response: The lighting shown on the attached plans (see Notebook Section VIIB) is consistent with the Lighting Master Plan Diagram shown on page 4 of the *Community Elements Book* for SAP North. The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

CURB EXTENSIONS

Response: PDP 3N will be developed with curb extensions shown on the Curb Extension Concept Plan Diagram located on page 5 of the *Community Elements Book* for SAP - North. The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

STREET TREE MASTER PLAN

Response: The location and species of street trees shown on the attached plans (see Notebook Section VIIB) is consistent with the Street Tree Master Plan Diagram and List shown on pages 7-10 of the *Community Elements Book*. These tree species will be planted along the perimeter of the parks in the FDP where streets are located. The FDP is submitted for review and approval concurrent with the PDP;

therefore, there are no conditions of a previously approved PDP that apply to this request

SITE FURNISHINGS

Response: The furnishings shown on the attached plans (see Notebook Section VIIB) were selected to maintain the identity and continuity of Villebois. The site furnishings shown in the parks are consistent with those described in the Site Furnishings Concept shown on pages 13-15 of the *Community Elements Book*.

The FDP plans include the locations of mailbox kiosks (see Notebook Section VIIB). Mailbox kiosks will be located and designed consistent with the SAP - North *Community Elements Book* and other areas of SAP - North. An alternate mailbox kiosk elevation is provided in Notebook Section VIIC.

The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

PLAY STRUCTURES

Response: The FDP plans include the location of the play structure within the proposed pocket park (see Notebook Section VIIB), which will be consistent with the design shown in the *Community Elements Book* on Page 17. The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

TREE PROTECTION

Response: The Tree Protection component shown on page 18 of the *Community Elements Book* for SAP - North describes the goal, policies, and implementation measures that were used to promote the protection of existing trees in the design of the PDP area. Tree preservation and removal is shown in conjunction with the concurrent PDP and Tree Removal Plan applications (see Notebook Sections III and Section VI, respectively). The proposed FDP, which includes numerous landscape tracts, is consistent with the tree protection shown in PDP and Tree Removal Plan. The FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

PLANT LIST

Response: The *Community Elements Book* for SAP - North contains a Plant List (pages 19-21) of non-native and native trees, shrubs, and herbs/grasses for species to be used within Villebois. The attached plans (see Notebook Section VIIB) list the plants that will be planted in the proposed parks. The proposed plantings are consistent with the Plant List in the SAP - North *Community Elements Book*. Additionally, the FDP is submitted for review and approval concurrent with the PDP; therefore, there are no conditions of a previously approved PDP that apply to this request.

GENERAL DEVELOPMENT REGULATIONS

SECTION 4.156. SIGN REGULATIONS

Response: The amended SAP North *Signage & Wayfinding Plan* indicates the provision of 'Secondary Site Identifier' with the site entrance on Grahams Ferry Road. The attached PDP plans (see Notebook Section IIIB) and FDP plans (see Notebook Section VIIB) show the provision of the 'Secondary Site Identifier' with the future entrance construction.

SECTION 4.176. LANDSCAPING, SCREENING & BUFFERING

(.02) Landscaping and Screening Standards.

Response: Parks will be landscaped as illustrated on the FDP plans (see Notebook Section VIIB). Streets and public right-of-way improvements, including street trees, are reviewed with the PDP (see Notebook Section III). This FDP consistently reflects street trees shown in the PDP.

(.03) Landscape Area.

Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable.

Response: FDP plans (see Notebook Section VIIB) illustrate compliance with this standard with landscaping provided in parks and open spaces and along streets and lot frontages.

(.04) Buffering and Screening.

Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

- A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.
- B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.
- C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

- D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.
- E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.
- F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.

Response: None of the above-listed areas or uses exist within the proposed parks. Therefore, no buffering or screening is required in relation to the FDP.

(.05) Sight-Obscuring Fence or Planting.

The use for which a sight-obscuring fence or planting is required shall not begin operation until the fence or planting is erected or in place and approved by the City. A temporary occupancy permit may be issued upon a posting of a bond or other security equal to one hundred ten percent (110%) of the cost of such fence or planting and its installation. (See Sections 4.400 to 4.470 for additional requirements.)

Response: No sight-obscuring fence or planting is required in this FDP area.

(.06) Plant Materials.

- A. Shrubs and Ground Cover. All required ground cover plants and shrubs must be of sufficient size and number to meet these standards within three (3) years of planting. Non-horticultural plastic sheeting or other impermeable surface shall not be placed under mulch. Surface mulch or bark dust are to be fully raked into soil of appropriate depth, sufficient to control erosion, and are confined to areas around plantings. Areas exhibiting only surface mulch, compost or barkdust are not to be used as substitutes for plants areas.
 - 1. Shrubs. All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10" to 12" spread.

Response: As shown on the attached plans (see Notebook Section VIIB) all shrubs will be equal to or better than 2-gallon size with a 10 to 12 inch spread. All shrubs will be well branched and typical of their type as described in current AAN standards.

- 2. Ground cover. Shall be equal to or better than the following depending on the type of plant materials used: Gallon containers spaced at 4 feet on center minimum, 4" pot spaced 2 feet on center minimum, 2-1/4" pots spaced at 18

inch on center minimum. No bare root planting shall be permitted. Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. Where wildflower seeds are designated for use as a ground cover, the City may require annual re-seeding as necessary.

Response: As shown on the attached plans (see Notebook Section VIIB) all ground covers will be at least 4" pots and spaced appropriately. These plants will be installed as required.

3. Turf or lawn in non-residential developments. Shall not be used to cover more than ten percent (10%) of the landscaped area, unless specifically approved based on a finding that, due to site conditions and availability of water, a larger percentage of turf or lawn area is appropriate. Use of lawn fertilizer shall be discouraged. Irrigation drainage runoff from lawns shall be retained within lawn areas.

Response: The subject FDP area is within a residential development; therefore this criterion does not apply.

4. Plant materials under trees or large shrubs. Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations.

Response: FDP plans (see Notebook Section VIIB) show the provision of appropriate plant materials beneath canopies of trees and/or large shrubs, only within parks that are not SROZ areas in OS-2 or the retained wetland.

- B. Trees. All trees shall be well-branched and typical of their type as described in current American Association of Nurserymen (AAN) Standards and shall be balled and burlapped. The trees shall be grouped as follows:

1. Primary trees which define, outline or enclose major spaces, such as Oak, Maple, Linden, and Seedless Ash, shall be a minimum of 2" caliper.
2. Secondary trees which define, outline or enclose interior areas, such as Columnar Red Maple, Flowering Pear, Flame Ash, and Honeylocust, shall be a minimum of 1-3/4" to 2" caliper.
3. Accent trees which, are used to add color, variation and accent to architectural features, such as Flowering Pear and Kousa Dogwood, shall be 1-3/4" minimum caliper.
4. Large conifer trees such as Douglas Fir or Deodar Cedar shall be installed at a minimum height of eight (8) feet.

5. **Medium-sized conifers such as Shore Pine, Western Red Cedar or Mountain Hemlock shall be installed at a minimum height of five to six (5 to 6) feet.**

Response: As shown on the attached plans (see Notebook Section VIIB), proposed tree species have been selected from the Villebois Plant List in the *Community Elements Book*. All proposed trees meet the minimum 2” caliper code requirement or the minimum height requirement for conifers as appropriate. All proposed trees will be well-branched, typical of their type as described in current AAN, and balled and burlapped.

- C. **Where a proposed development includes buildings larger than twenty-four (24) feet in height or greater than 50,000 square feet in footprint area, the Development Review Board may require larger or more mature plant materials:**

Response: This standard does not apply to the subject FDP as no buildings are proposed in the parks.

- D. **Street Trees.**

Response: Notebook Section III is the Preliminary Development Plan. Review of streets and rights-of-way, including street trees, occurs with the PDP. Street trees shown in the plans for this FDP are consistent with those shown in the PDP application. Additionally, compliance with the Street Tree Master Plan is demonstrated in the PDP Supporting Compliance Report (see Notebook Section IIIA).

- E. **Types of Plant Species.**

1. **Existing landscaping or native vegetation may be used to meet these standards, if protected and maintained during the construction phase of the development and if the plant species do not include any that have been listed by the City as prohibited. The existing native and non-native vegetation to be incorporated into the landscaping shall be identified.**

Response: As shown on the attached plans (see Notebook Section VIIB), there are existing trees in the FDP area to be retained. The existing trees will be protected and maintained during the construction phase and are incorporated into the landscaping as appropriate.

2. **Selection of plant materials. Landscape materials shall be selected and sited to produce hardy and drought-tolerant landscaping. Selection shall be based on soil characteristics, maintenance requirements, exposure to sun and wind, slope and contours of the site, and compatibility with other vegetation that will remain on the site. Suggested species lists for street trees, shrubs and groundcovers shall be provided by the City of Wilsonville.**

Response: All proposed landscaping materials are selected from the Villebois Plant List in the *Community Elements Book*. Specific materials were selected to best meet the site characteristics of the subject property.

3. Prohibited plant materials. The City may establish a list of plants that are prohibited in landscaped areas. Plants may be prohibited because they are potentially damaging to sidewalks, roads, underground utilities, drainage improvements, or foundations, or because they are known to be invasive to native vegetation.

Response: No plant materials listed as “Prohibited Plant Species” on the Villebois Plant List are included in the proposed landscaping.

F. Tree Credit.

Response: Tree credits are not applicable to this FDP application.

- G. Exceeding Standards. Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.

- H. Compliance with Standards. The burden of proof is on the applicant to show that proposed landscaping materials will comply with the purposes and standards of this Section.

Response: The attached plans (see Notebook Section VIIB) and this report demonstrate that the proposed landscaping complies with the standards of the Wilsonville Development Code and the *Community Elements Book*.

(.07) Installation and Maintenance.

- A. Installation. Plant materials shall be installed to current industry standards and shall be properly staked to assure survival. Support devices (guy wires, etc.) shall not be allowed to interfere with normal pedestrian or vehicular movement.
- B. Maintenance. Maintenance of landscaped areas is the on-going responsibility of the property owner. Any landscaping installed to meet the requirements of this Code, or any condition of approval established by a City decision-making body acting on an application, shall be continuously maintained in a healthy, vital and acceptable manner. Plants that die are to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. Failure to maintain landscaping as required in this Section shall constitute a violation of this Code for which appropriate legal remedies, including the revocation of any applicable land development permits, may result.
- C. Irrigation. The intent of this standard is to assure that plants will survive the critical establishment period when they are most vulnerable due to a lack of watering and also to assure that water is not wasted through unnecessary or inefficient irrigation. Approved irrigation system plans shall specify one of the following:

1. A permanent, built-in, irrigation system with an automatic controller. Either a spray or drip irrigation system, or a combination of the two, may be specified.
2. A permanent or temporary system designed by a landscape architect licensed to practice in the State of Oregon, sufficient to assure that the plants will become established and drought-tolerant.
3. Other irrigation system specified by a licensed professional in the field of landscape architecture or irrigation system design.
4. A temporary permit issued for a period of one year, after which an inspection shall be conducted to assure that the plants have become established. Any plants that have died, or that appear to the Planning Director to not be thriving, shall be appropriately replaced within one growing season. An inspection fee and a maintenance bond or other security sufficient to cover all costs of replacing the plant materials shall be provided, to the satisfaction of the Community Development Director. Additionally, the applicant shall provide the City with a written license or easement to enter the property and cause any failing plant materials to be replaced.

Response: Plants will be installed and maintained properly. A permanent-built-in irrigation system with an automatic controller will be installed underground to irrigate the proposed landscaping areas. Additional details about the irrigation system will be provided with construction plans.

- D. **Protection.** All required landscape areas, including all trees and shrubs, shall be protected from potential damage by conflicting uses or activities including vehicle parking and the storage of materials.

Response: The attached planting plans demonstrate that all landscape areas will be protected from potential damage by vehicle travel along streets and alleys.

(.08) Landscaping on Corner Lots.

All landscaping on corner lots shall meet the vision clearance standards of Section 4.177. If high screening would ordinarily be required by this Code, low screening shall be substituted within vision clearance areas. Taller screening may be required outside of the vision clearance area to mitigate for the reduced height within it.

Response: All landscaping at corners will meet the vision clearance standards of Section 4.177.

(.09) Landscape Plans.

Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type,

installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated. Landscape plans shall divide all landscape areas into the following categories based on projected water consumption for irrigation:

- A. High water usage areas (+/- two (2) inches per week): small convoluted lawns, lawns under existing trees, annual and perennial flower beds, and temperamental shrubs;
- B. Moderate water usage areas (+/- one (1) inch per week): large lawn areas, average water-using shrubs, and trees;
- C. Low water usage areas (Less than one (1) inch per week, or gallons per hour): seeded field grass, swales, native plantings, drought-tolerant shrubs, and ornamental grasses or drip irrigated areas.
- D. Interim or unique water usage areas: areas with temporary seeding, aquatic plants, erosion control areas, areas with temporary irrigation systems, and areas with special water-saving features or water harvesting irrigation capabilities.
These categories shall be noted in general on the plan and on the plant material list.

Response: The attached plans (see Notebook Section VIIB) include the required information listed in Section 4.176(.09).

(.10) Completion of Landscaping.

The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages. In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review.

Response: The applicant does not anticipate deferring the installation of plant materials. Should it be necessary to defer installation of plant materials, the applicant will apply for a temporary permit.

(.11) Street Trees Not Typically Part of Site Landscaping.

Street trees are not subject to the requirements of this Section and are not counted toward the required standards of this Section. Except, however, that the Development Review Board may, by granting a waiver or variance, allow for special landscaping within the right-of-way to compensate for a lack of appropriate on-site locations for landscaping. See subsection (.06), above, regarding street trees.

Response: Street trees are not counted toward the required standards of this Section.

(.12) Mitigation and Restoration Plantings.

Response: No additional tree removal is proposed with the FDP. The PDP includes a concurrent Tree Removal Plan (see Notebook Section VI), which addresses required tree mitigation.

SECTION 4.177. STREET IMPROVEMENT STANDARDS

(.01) Except as specifically approved by the Development Review Board, all street and access improvements shall conform to the Street System Master Plan, together with the following standards:

H. Access drives and lanes.

Response: The proposed parks are accessible from the adjacent street rights-of-way and/or pathways as shown on the attached plans. All streets and alleys accommodate 2-way traffic.

I. Corner or clear vision area.

- 1. A clear vision area shall be maintained on each corner of property at the intersection of any two streets, a street and a railroad or a street and a driveway. No structures, plantings, or other obstructions that would impede visibility between the height of 3- inches and 10 feet shall be allowed within said area. Measurements shall be made from the top of the curb, or, when there is no curb, from the established street center line grade. However, the following items shall be exempt:**
 - a. Light and utility poles with a diameter less than 12 inches.**
 - b. An existing tree, trimmed to the trunk, 10 feet above the curb.**
 - c. Official warning or street sign.**
 - d. Natural contours where the natural elevations are such that there can be no cross-visibility at the intersection and necessary excavation would result in an unreasonable hardship on the property owner or deteriorate the quality of the site.**

Response: Landscaping at the corners of the parks will be less than 30 inches in height to assure that visibility is not blocked.

SECTION 4.178. SIDEWALK & PATHWAY STANDARDS

(.01) Sidewalks. All sidewalks shall be concrete and a minimum of five (5) feet in width, except where the walk is adjacent to commercial storefronts. In

such cases, they shall be increased to a minimum of ten (10) feet in width.

Response: All sidewalks and pathways in the subject FDP area are at least 5 feet in width and concrete.

(.03) Pavement surface.

- A. All bike paths shall be paved with asphalt to provide a smooth riding surface. Where pathways are adjacent to and accessible from improved public streets, the Public Works Director may require a concrete surface. At a minimum the current AASHTO "Guide for the Development of Bicycle Facilities" and the State "Oregon Bicycle Plan" shall be used to design all bicycle facilities within the City of Wilsonville. Any deviation from the AASHTO, ODOT, and City standards will require approval from the City Engineer prior to implementation of the design.
- B. To increase safety, all street crossings shall be marked and should be designed with a change of pavement such as brick or exposed aggregate. All arterial crossings should be signalized.
- C. All pathways shall be clearly posted with standard bikeway signs.
- D. Pedestrian and equestrian trails may have a gravel or sawdust surface if not intended for all weather use.

Response: There are no bicycle pathways in this FDP area. Details about sidewalks in the public right-of-way were addressed in the PDP application (see Notebook Section III). No Major or Minor pathways are identified on the subject property. Nature trails in OS-2 will be consistent with this Section.

(.06) Pathway Clearance.

- A. Vertical clearance of at least 8 feet 6 inches shall be maintained above the surface of all pathways. The clearance above equestrian trails shall be a minimum of ten feet.
- B. All landscaping, signs and other potential obstructions shall be set back at least (1) foot from the edge of the pathway surface. No exposed rock should be permitted within two (2) feet of the path pavement and all exposed earth within two (2) feet of the pavement shall be planted with grass, sod or covered with 2" of barkdust.

Response: As shown on the attached plans, all potential obstructions are at least one foot from the edge of the pathway surfaces, and vertical clearance will be maintained.

SITE DESIGN REVIEW

SECTION 4.400. PURPOSE.

- (.01) Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site**

development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefore.

Response: No buildings are proposed within park areas. The SAP North *Signage & Wayfinding Plan* indicates the provision of ‘Secondary Site Identifier’ with the site entrance from Grahams Ferry Road, as well as the continuation of Enhanced Full View or Partial View Fence with Landscaping along Grahams Ferry Road. The attached PDP plans (see Notebook Section IIIB) and FDP plans (see Notebook Section VIIB) show provision of the ‘Secondary Site Identifier’ with the future entrance construction. The FDP plans include the locations of mailbox kiosks (see Exhibit VIIB). Mailbox kiosks will be located and designed consistent with the SAP - North *Community Elements Book* and other areas of SAP - North. An alternate mailbox kiosk elevation is provided in Notebook Section VIIC.

The proposed landscaping within the parks is designed in compliance with the standards for the rest of Villebois, so the entire development will have a cohesive, harmonious appearance, creating a desirable place of residence and adding to the overall quality of life in the City.

(.02) The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:

A. Assure that Site Development Plans are designed in a manner that insures proper functioning of the site and maintains a high quality visual environment.

Response: The parks in the FDP area have been designed to assure proper functioning of the site and to maintain an aesthetically pleasing environment. The proposed landscaping and park design will add to the quality of the environment as well as the functioning of the site.

B. Encourage originality, flexibility and innovation in site planning and development, including the architecture, landscaping and graphic design of said development;

Response: The FDP includes landscaping as shown on the attached plans (see Notebook Section VIIB), which will enhance the visual environment of the site. Pedestrian connections to sidewalks, trails, and adjacent residences will be provided to enhance the site’s connectivity to surrounding uses.

C. Discourage monotonous, drab, unsightly, dreary and inharmonious developments;

Response: The FDP area will include landscaping as shown on the attached plans (see Notebook Section VIIB). Landscaping will consist of an appropriate mixture of ground cover, shrubs, and trees selected from the Villebois Plant List to create a

harmonious appearance throughout the larger Villebois development. The proposed landscaping will contribute to an interesting and aesthetically appealing development.

- D. **Conserve the City's natural beauty and visual character and charm by assuring that structures, signs and other improvements are properly related to their sites, and to surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to exterior appearances of structures, signs and other improvements;**

Response: The parks will incorporate landscaping that makes sense for a Pacific Northwest community, while matching the City's natural beauty and visual character.

- E. **Protect and enhance the City's appeal and thus support and stimulate business and industry and promote the desirability of investment and occupancy in business, commercial and industrial purposes;**

Response: The parks, along with their pedestrian connections to adjacent residences and streets, will help to maintain the appeal of Villebois as a unique and attractive community in which to live, work, and recreate. Residents of Villebois will stimulate the local economy by opening new businesses and thus creating jobs and by spending money in existing businesses.

- F. **Stabilize and improve property values and prevent blighted areas and, thus, increase tax revenues;**

Response: The proposed parks will create neighborhood amenities that will help to maintain property values in this new community. A Home Owners Association will ensure that these areas are properly maintained over time.

- G. **Insure that adequate public facilities are available to serve development as it occurs and that proper attention is given to site planning and development so as to not adversely impact the orderly, efficient and economic provision of public facilities and services.**

Response: The process used to plan for Villebois incorporates a tiered system that originates at the *Villebois Village Master Plan*. The *Master Plan* shows how facilities, including parks and open space, are distributed and available to residents throughout Villebois. *Figure 5 - Parks & Open Space Plan* of the *Master Plan* shows that approximately 33% of Villebois will be in parks and open space. Phase 3 North is consistent with the amount of parks and open space originally shown for the subject site on SAP North, as demonstrated in the PDP (see Notebook Section III). This FDP is consistent with the PDP and SAP - North, and therefore, complies with this criterion.

- H. **Achieve the beneficial influence of pleasant environments for living and working on behavioral patterns and, thus, decrease the cost of governmental services and reduce opportunities for crime through careful consideration of physical design and site layout under**

defensible space guidelines that clearly define all areas as either public, semi-private, or private, provide clear identity of structures and opportunities for easy surveillance of the site that maximize resident control of behavior -- particularly crime;

Response: The *Villebois Village Master Plan* shows that the community will include a variety of housing options (living) and the Village Center will contain places for employment (working). This FDP shows a living environment in Phase 3 North that is enhanced by proximity to park and open space areas. Residents who will surround the parks and open spaces will provide on-going surveillance and control.

- I. **Foster civic pride and community spirit so as to improve the quality and quantity of citizen participation in local government and in community growth, change and improvements;**

Response: The design of the Villebois Village has been created to develop a community that is truly unique. The City, as well as the Applicant, has been working in partnership with nearby residents, property owners, and local and regional governments to create a complete, livable, pedestrian-oriented community that will be an asset to the City of Wilsonville and Portland region. This partnership has generated citizen participation in the project and the unique design shall foster civic pride and community spirit amongst the residents of Villebois.

- J. **Sustain the comfort, health, tranquility and contentment of residents and attract new residents by reason of the City's favorable environment and, thus, to promote and protect the peace, health and welfare of the City.**

Response: The design of the Villebois Village revolves around three guiding principles: connectivity, diversity, and sustainability. These principles are intended to sustain the comfort, health, tranquility, and contentment of Villebois residents, while also promoting and protecting the peace, health and welfare of the City. *Connectivity* refers to creating connections between Villebois neighborhoods and between Villebois and other parts of the City and region for multiple modes of transportation. *Diversity* includes multiple choices of housing styles, housing affordability, recreation, employment, goods and services, and infrastructure for transportation. *Sustainability* involves the protection of natural resources and open space, energy conservation, and storm and rainwater management.

SECTION 4.421. CRITERIA AND APPLICATION OF DESIGN STANDARDS.

- (.01) The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the

Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)

- A. **Preservation of Landscape.** The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

Response: As shown in the attached plans (see Notebook Section VIIB), proposed plant materials are drawn from the Villebois Plant List, which includes native species, to ensure consistency of general appearance within the Villebois community.

- B. **Relation of Proposed Buildings to Environment.** Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide proper buffering from less intensive uses in accordance with Sections 4.171 and 4.139 and 4.139.5. The achievement of such relationship may include the enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

Response: Chapter 3 of the *Villebois Village Master Plan* takes into account scenic views, topography, existing vegetation, and other natural features in the design and location of parks and open spaces in the Villebois development. The FDP conforms to the *Villebois Village Master Plan* with respect to the natural environment. The FDP area does not include any steep slopes or flood plains. A Significant Resource Impact Report was submitted with PDP 2N that included encroachments and mitigation within OS-2. A SRIR Addendum (see Notebook Section IIIG) is provided that verifies the FDP is consistent with the impacts previously reviewed and approved. Existing trees within the parks are largely retained, as reviewed in the concurrent PDP and Tree Removal Plan applications (see Notebook Sections III and VI, respectively).

- C. **Drives, Parking and Circulation.** With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of access points, general interior circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.

Response: No driveways or parking areas are proposed or required with this FDP. The parks included in the FDP are all accessible from adjacent streets and pathways, as shown on the FDP plans (see Notebook Section VIIB).

- D. **Surface Water Drainage.** Special attention shall be given to proper site surface drainage so that removal of surface waters will not

adversely affect neighboring properties of the public storm drainage system.

Response: Surface water drainage is addressed in the PDP application (see Notebook Section III). The FDP is consistent with grading and drainage shown in the PDP. This system has been carefully designed so as not to adversely affect neighboring properties.

- E. **Utility Service.** Any utility installations above ground shall be located so as to have an harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.

Response: The PDP application addresses utility installation (see Notebook Section III). The FDP is consistent with the PDP.

- F. **Advertising Features.** In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.

Response: No advertising features are proposed in this FDP.

- G. **Special Features.** Exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.

Response: This FDP does not propose any exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures or other accessory areas and structures. Compliance with Section 4.176 is addressed earlier in this report.

- (.02) The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures.

Response: No accessory buildings or structures are proposed.

- (.03) The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.

Response: Compliance with the purpose of Section 4.400 has been addressed earlier in this report.

SECTION 4.440. PROCEDURE.

(.01) Submission of Documents.

A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:

- A. A site plan, drawn to scale, showing the proposed layout of all structures and other improvements including, where appropriate, driveways, pedestrian walks, landscaped areas, fences, walls, off-street parking and loading areas, and railroad tracks. The site plan shall indicate the location of entrances and exits and direction of traffic flow into and out of off-street parking and loading areas, the location of each parking space and each loading berth and areas of turning and maneuvering vehicles. The site plan shall indicate how utility service and drainage are to be provided.
- B. A Landscape Plan, drawn to scale, showing the location and design of landscaped areas, the variety and sizes of trees and plant materials to be planted on the site, the location and design of landscaped areas, the varieties, by scientific and common name, and sizes of trees and plant materials to be retained or planted on the site, other pertinent landscape features, and irrigation systems required to maintain trees and plant materials. An inventory, drawn at the same scale as the Site Plan, of existing trees of 4" caliper or more is required. However, when large areas of trees are proposed to be retained undisturbed, only a survey identifying the location and size of all perimeter trees in the mass in necessary.
- C. Architectural drawings or sketches, drawn to scale, including floor plans, in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures and other improvements as they will appear on completion of construction. Floor plans shall also be provided in sufficient detail to permit computation of yard requirements based on the relationship of indoor versus outdoor living area, and to evaluate the floor plan's effect on the exterior design of the building through the placement and configuration of windows and doors.
- D. A Color Board displaying specifications as to type, color, and texture of exterior surfaces of proposed structures. Also, a phased development schedule if the development is constructed in stages.
- E. A sign plan, drawn to scale, showing the location, size, design, material, color and methods of illumination of all exterior signs.
- F. The required application fee.

Response: Notebook Section VII B includes FDP plans that meet the requirements of Section 4.440 (.01). A copy of the application fee submitted is included in Notebook Section IC. Architectural drawings, etc., and a color board are not required as no buildings are proposed with this FDP.

SECTION 4.450. INSTALLATION OF LANDSCAPING.

(.01) All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant.

Response: The applicant understands that they must provide a security to guarantee installation of the proposed landscaping.

(.02) Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code.

Response: The applicant understands that changes to the landscape plan included in this application cannot be made without official action of the Planning Director or the Development Review Board.

(.03) All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval.

Response: The applicant understands that they are responsible for the ongoing maintenance of the proposed landscaping.

(.04) If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City's development review process, that removal or modification must first be approved through the procedures of Section 4.010.

Response: This FDP does not include the addition of landscaping for any existing development; therefore this criterion does not apply.

II. CONCLUSION

This Supporting Compliance Report demonstrates compliance with the applicable requirements of the City of Wilsonville Planning & Land Development Ordinance for the requested Final Development Plan. Therefore, the applicant requests approval of this application.

VIIB
Reduced Drawings

PHASE 3 NORTH VILLEBOIS FINAL DEVELOPMENT PLAN

TL 1200, 1202, 1205, & A PORTION OF 2995, TOWNSHIP 3 SOUTH, RANGE 1 WEST, SECTION 15 W.M.
CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
109 E. 13TH ST.
VANCOUVER, WA 98660
[P] 503-221-1920
CONTACT: FRED GAST

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
Tigard, OR 97223
[P] 503-941-9484
CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: JESSIE KING, PE

SURVEYOR:

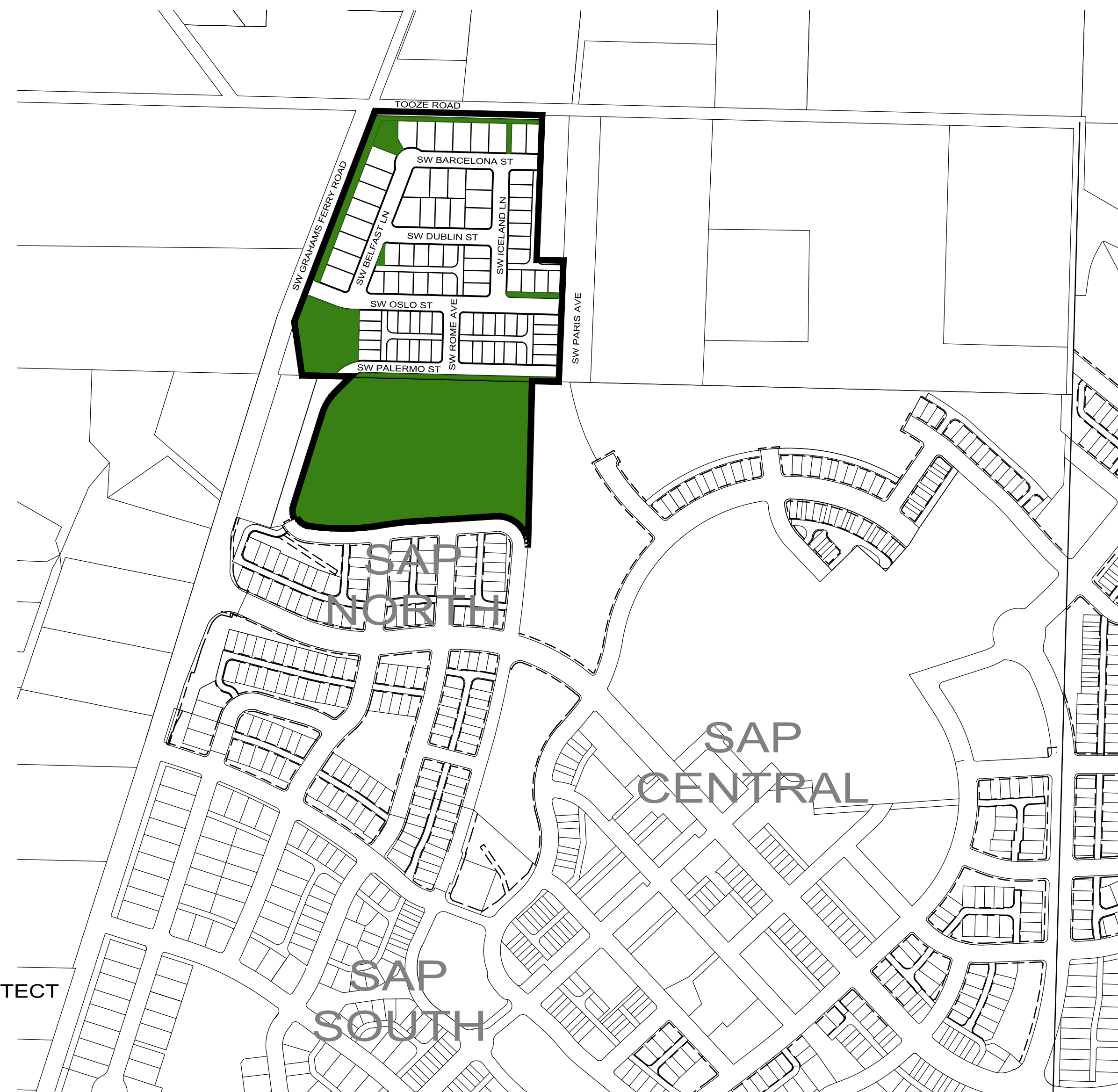
PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

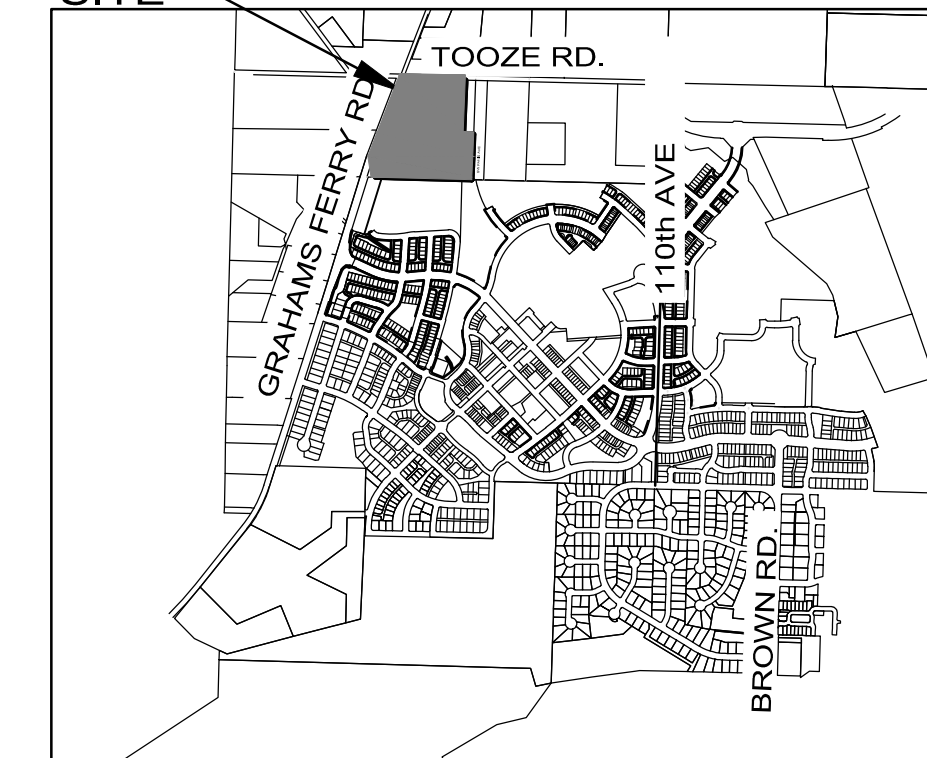
OTTEN LANDSCAPE ARCHITECTS, INC.
3933 SW KELLY AVE, SUITE B
PORTLAND, OR 97239
[P] 503-972-0311
CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
15575 SW SEQUOIA PARKWAY, SUITE 100
PORTLAND, OR 97224
[P] 503-968-8787
CONTACT: CRAIG WARE, PE



PROJECT SITE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

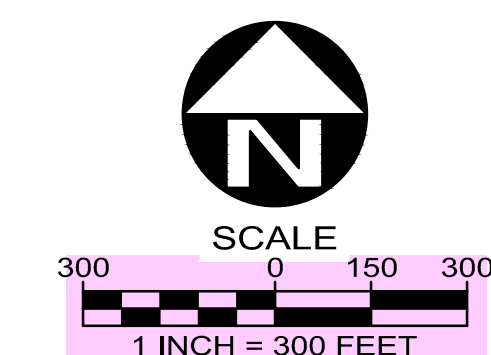
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- L1.0 LANDSCAPE PLAN
- L2.0 LANDSCAPE PLAN
- L3.0 LANDSCAPE PLAN
- L4.0 LANDSCAPE PLAN
- L5.0 LANDSCAPE DETAILS & SPECIFICATIONS



POLYGON NW COMPANY



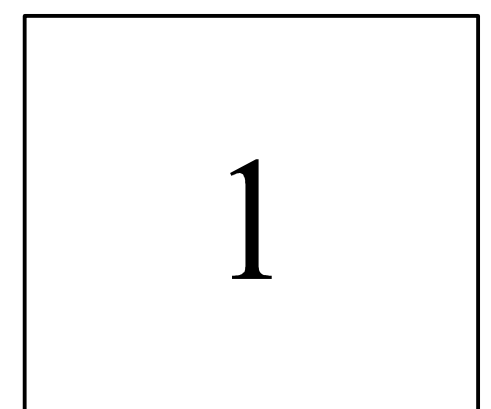
OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N
VILLEBOIS

Final
Development
Plan

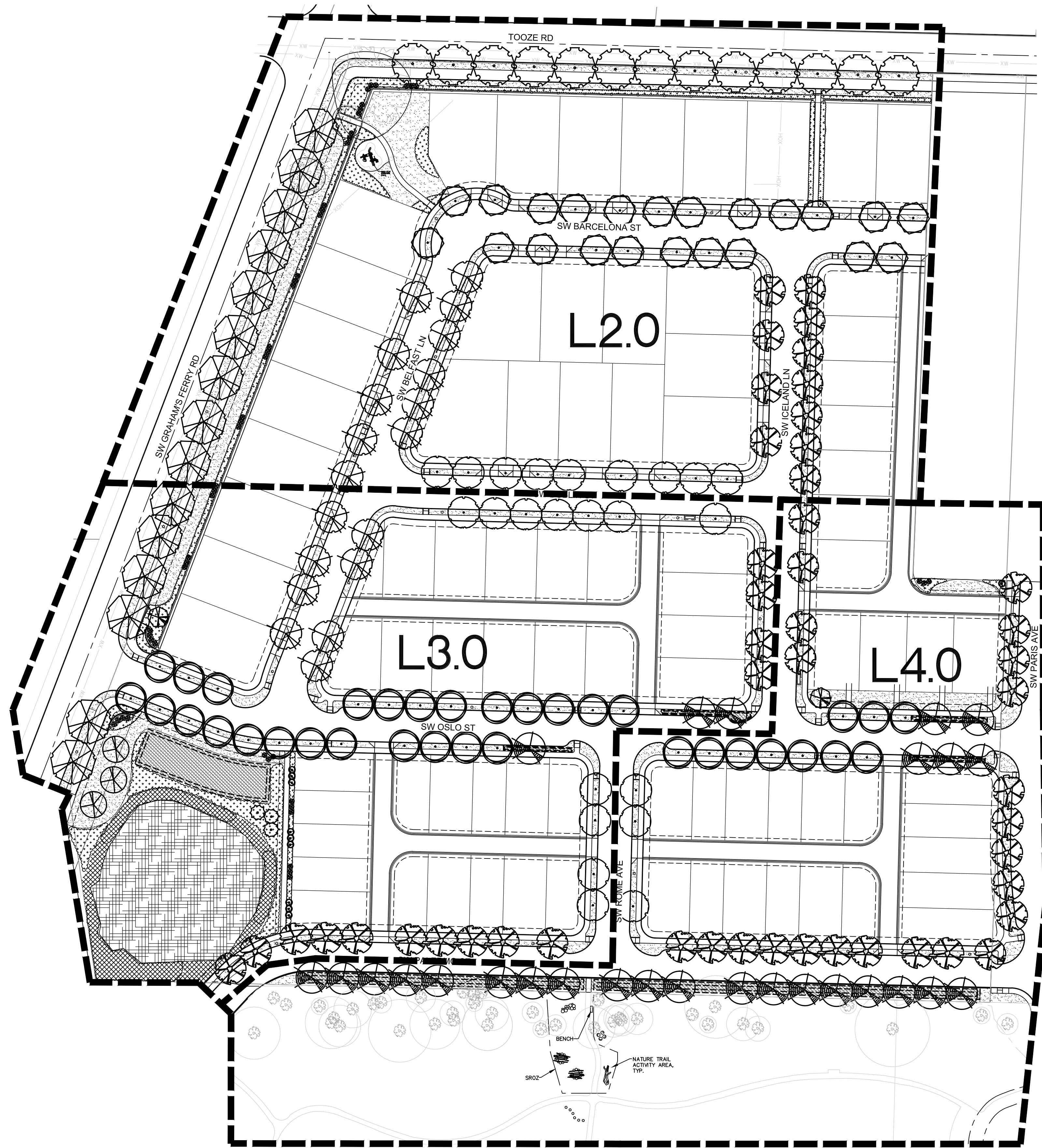
Cover Sheet

DATE 1/31/14



SUGGESTED PLANT LIST:

SYM.	LATIN NAME/ Common Name	SIZE	SPACING
STREET TREES			
	ACER X FREMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA Red Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA 'GREEN VASE' Green Vase Zelkova	2" cal.	30' o.c.
	Shade Tree Quercus rubra Fagus sylvatica Acer rubrum	2" cal.	As shown
	Small Columnar or Ornamental Trees Malus 'Snowdrift' Stewartia pseudocamellia Magnolia stellata 'Royal Star' Acer circinatum	1 3/4" cal.	As shown
	Conifer Tree Pseudotsuga menziesii Calocedrus decurrens	8' ht. 5-6' ht.	As shown
	Large Flowering Shrub Hamamelis mollis 'Coombe Wood' Viburnum plic. tom. 'Mariesii' Syringa microphylla 'Superba' Hydrangea macrophylla 'Nikko Blue'	5 gal.	5-6' o.c.
	Medium Ornamental Shrubs Abelia grandiflora 'Edward Goucher' Berberis thunbergii Ilex crenata Euonymus japonica 'Silver Princess' Lonicera nitida Pieris 'Forest Flame' Rhododendron Spiraea bumalda 'Anthony Waterer' Weigela florida Mahonia aquifolium	2-5 gal.	3-4' o.c.
	Native Shrub/ Groundcover Cornus stolonifera Symphoricarpos albus Arctostaphylos uva-ursi Mahonia repens	1 gal.	3'-5' o.c.
	Lawn Fine Seed Lawn	Seed	5 lbs./ 1,000 sq.ft.
	Existing Wetland		
	Water Quality Facility		
	To be Planted per City of Wilsonville Standards:	Trees: 6' ht./ 1.5" cal.	
	3 Evergreen trees/ 1,000 SF	Shrubs: 1 gal.	
	2 Deciduous trees/ 1,000 SF		
	30 Shrubs/ 1,000 SF		
	1 Wetland Plant/	Aquatic Plants:	
	2 SF Pond Emergent Zone	Plugs	

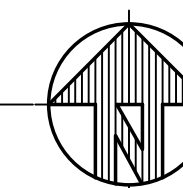


GENERAL NOTES:

- Contractor is to verify all plant quantities.
- Adjust plantings in the field as necessary.
- Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. System is to be design/build by Landscape Contractor. Guarantee system for a minimum one year. Show drip systems as alternate bid only.
- All plants are to be fully foliated, well branched and true to form.

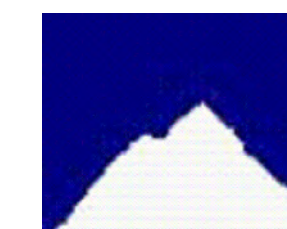
OVERALL LANDSCAPE PLAN

SCALE 1" = 60'-0"



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GEODESIGN, INC

PHASE 3
NORTH
VILLEBOIS

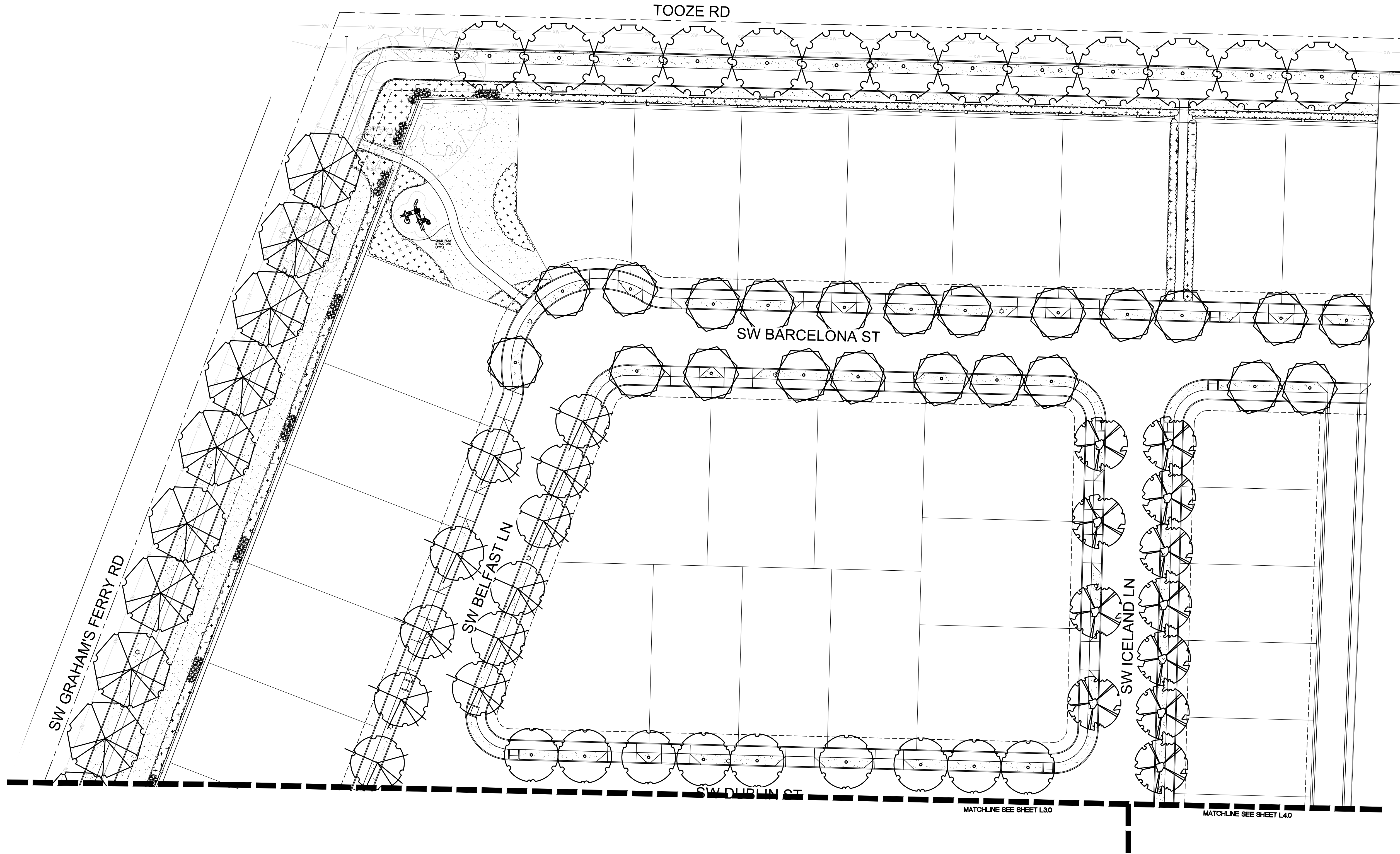
Preliminary
Development Plan

Landscape
Plan

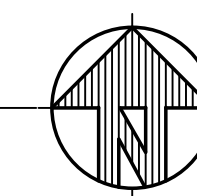
DATE 1/20/13

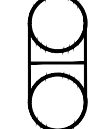
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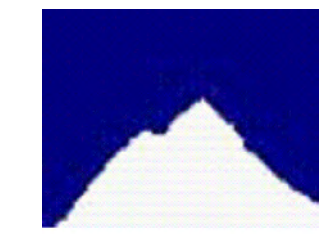
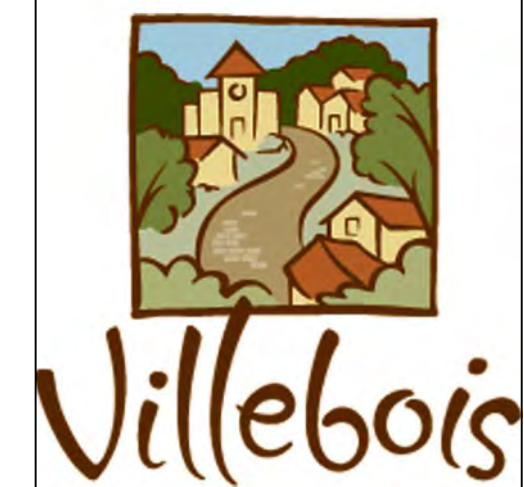
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LANDSCAPE PLAN
SCALE 1" = 30'-0"



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GEODESIGN, INC.

**PHASE 3
NORTH
VILLEBOIS**

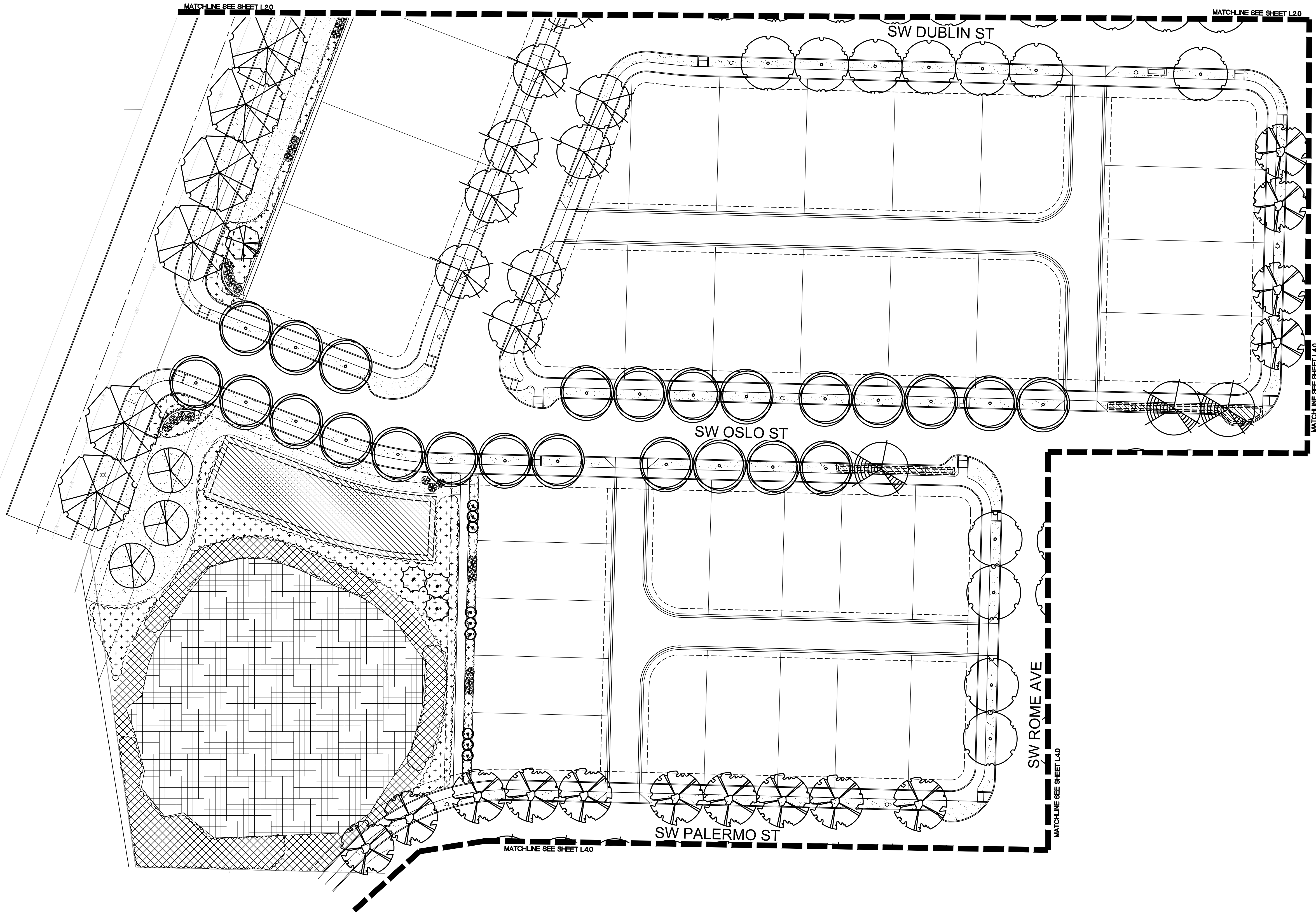
Preliminary
Development Plan

Landscape
Plan

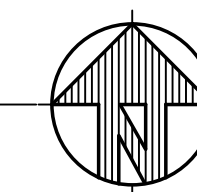
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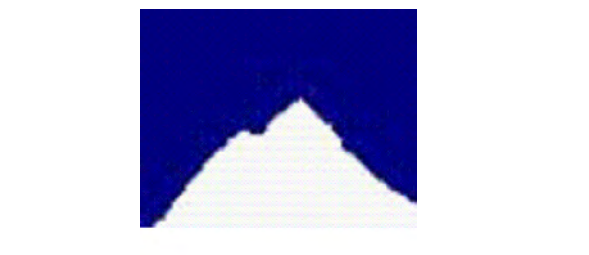
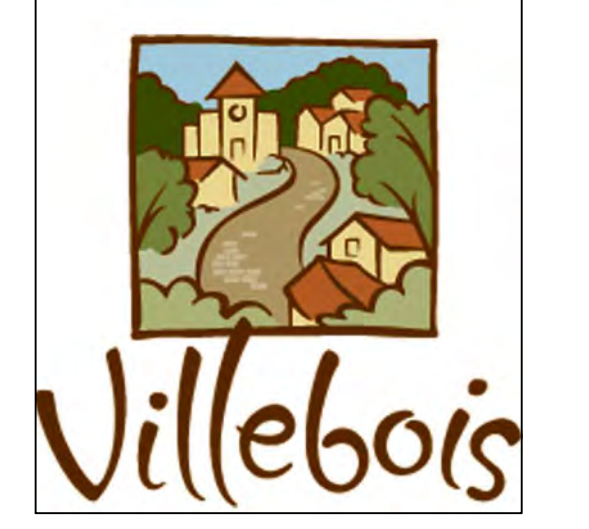
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LANDSCAPE PLAN
 SCALE 1" = 30'-0"



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**PHASE 3
 NORTH
 VILLEBOIS**

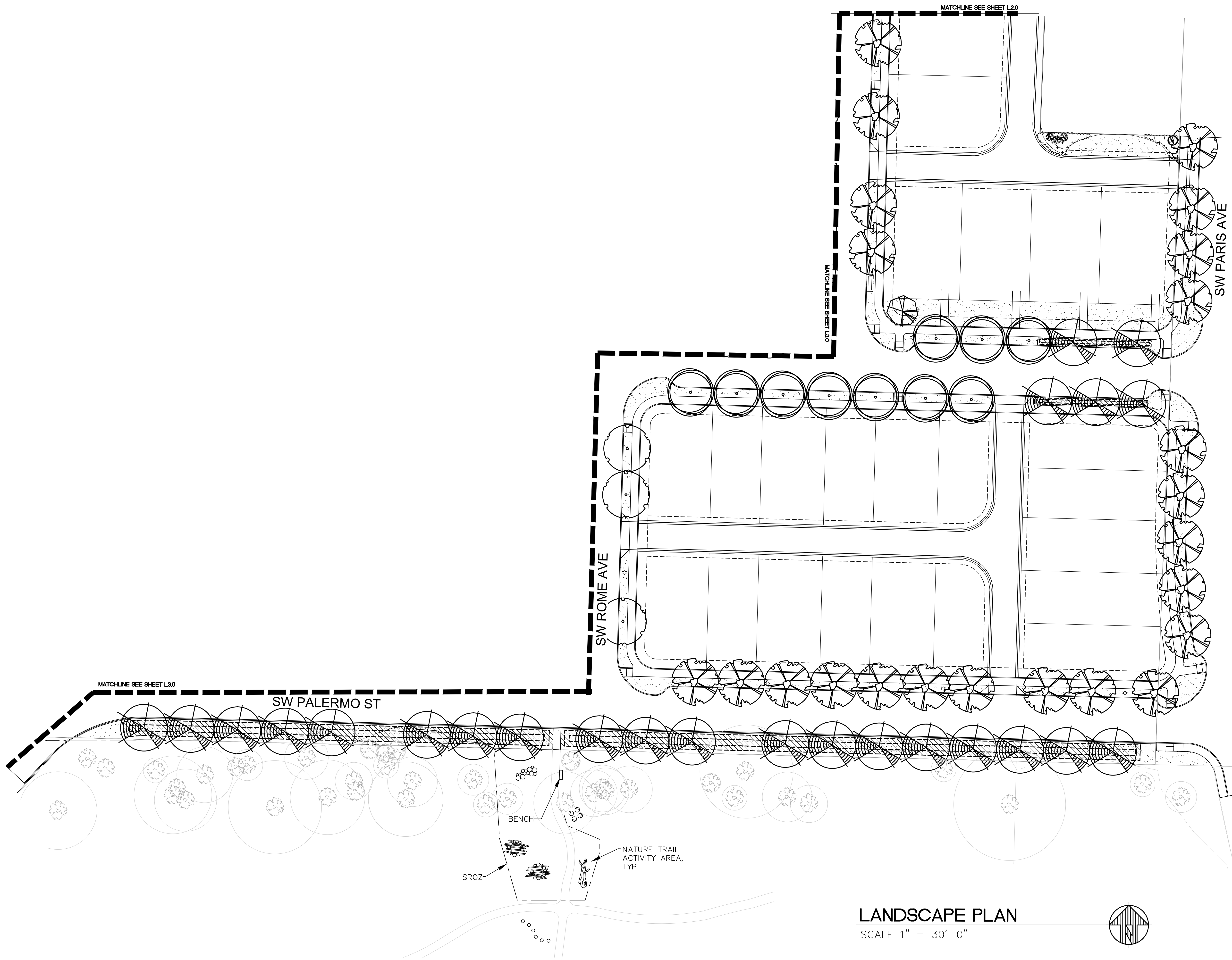
**Preliminary
 Development Plan**

**Landscape
 Plan**

DATE 1/20/13

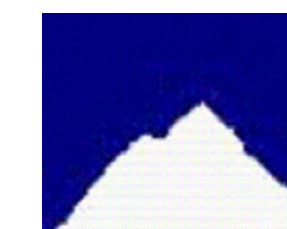
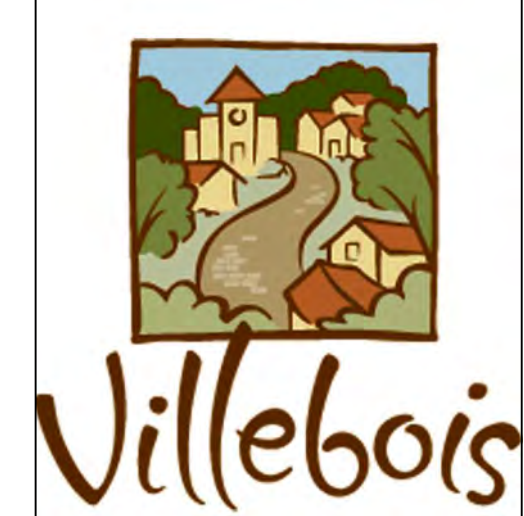
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 3 OF 5

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LANDSCAPE PLAN
SCALE 1" = 30'-0"

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**PHASE 3
NORTH
VILLEBOIS**

**Preliminary
Development Plan**

**Landscape
Plan**

DATE 1/20/13

L4.0

OUTLINE SPECIFICATIONS PLANTING AND SEEDING:

GENERAL: All plants shall conform to all applicable standards of the latest edition of the "American Association of Nurserymen Standards", A.N.S.I. Z60.1 – 1973. Meet or exceed the regulations and laws of Federal, State, and County regulations, regarding the inspection of plant materials, certified as free from hazardous insects, disease, and noxious weeds, and certified fit for sale in Oregon.

The apparent silence of the Specifications and Plans as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first quality are to be used. All interpretations of these Specifications shall be made upon the basis above stated.

Landscape contractor shall perform a site visit prior to bidding to view existing conditions.

PERFORMANCE QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary horticultural practices and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this section.

NOTIFICATION: Give Landscape Architect minimum of 2 days advance notice of times for inspections. Inspections at growing site does not preclude Landscape Architect's right of rejection of deficient materials at project site. Each plant failing to meet the above mentioned "Standards" or otherwise failing to meet the specified requirements as set forth shall be rejected and removed immediately from the premises by the Contractor and at his expense, and replaced with satisfactory plants or trees conforming to the specified requirements.

SUBSTITUTIONS: Only as approved by the Landscape Architect or the Owner's Representative.

GUARANTEE AND REPLACEMENT: All plant material shall be guaranteed from final acceptance for one full growing season or one year, whichever is longer. During this period the Contractor shall replace any plant material that is not in good condition and producing new growth (except that material damaged by severe weather conditions, due to Owner's negligence, normally unforeseen peculiarities of the planting site, or lost due to vandalism). Guarantee to replace, at no cost to Owner, unacceptable plant materials with plants of same variety, age, size and quality as plant originally specified. Conditions of guarantee on replacement plant shall be same as for original plant.

Landscape Contractor shall keep on site for Owner's Representative's inspection, all receipts for soil amendment and topsoil deliveries.

PROTECTION: Protect existing roads, sidewalks, and curbs, landscaping, and other features remaining as final work. Verify location of underground utilities prior to doing work. Repair and make good any damage to service lines, existing features, etc. caused by landscaping installation.

PLANT QUALITY ASSURANCE: Deliver direct from nursery. Maintain and protect roots of plant material from drying or other possible injury. Store plants in shade and protect them from weather immediately upon delivery, if not to be planted within four hours.

Nursery stock shall be healthy, well branched and rooted, formed true to variety and species, full foliated, free of disease, injury, defects, insects, weeds, and weed roots. Trees shall have straight trunks, symmetrical tips, and have an intact single leader. Any trees with double leaders will be rejected upon inspection. All Plants: True to name, with one of each bundle or lot tagged with the common and botanical name and size of the plants in accordance with standards of practice of the American Association of Nurserymen, and shall conform to the Standardized Plant Names, 1942 Edition.

Container grown stock: Small container-grown plants, furnished in removable containers, shall be well rooted to ensure healthy growth. **Grow container plants in containers a minimum of one year** prior to delivery, with roots filling container but not root bound. Bare root stock: Roots well-branched and fibrous. Balled and burlapped (B&B): Ball shall be of natural size to ensure healthy growth. Ball shall be firm and the burlap sound. No loose or made ball will be acceptable.

TOPSOIL AND FINAL GRADES: Landscape Contractor is to verify with the General Contractor if the on site topsoil is or is not conducive to proper plant growth. Supply alternate bid for imported topsoil.

Landscape Contractor is to supply and place 12" of topsoil in planting beds and 6" in lawn areas. If topsoil stockpiled on site is not conducive to proper plant growth, the Landscape Contractor shall import the required amount. Landscape Contractor is to submit samples of the imported soil and/or soil amendments to the Landscape Architect. The topsoil shall be a sandy loam, free of all weeds and debris inimical to lawn or plant growth.

Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated. Planting bed grades shall be approximately 3" below adjacent walks, paving, finished grade lines, etc., to allow for bark application. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

CITY OF WILSONVILLE WATER QUALITY FACILITY SPECIFICATIONS:

SOIL PREPARATION: Remove all nonnative plant materials, including plants, roots, and seeds prior to adding topsoils. Till the sub-grade in these areas to a depth of at least four inches. Water Quality Swale area shall be over-excavated and filled to final grade with 4 inches of topsoil in areas where topsoil has been removed or not adequate. Topsoil shall be tested for the following characteristics provide a good growing medium:

- A) Texture
- B) Fertility
- C) Microbial

Incorporate 2" garden compost, free of conventional fertilizer, to a depth of 4" on all areas of the water quality facility. **DO NOT** apply fertilizer to the Water Quality Facility.

TIMING: Plantings should be installed between February 1 and May 1 or between October 1 and November 15. Bare root stock shall be installed only from December 15 through April 15. When plantings must be installed outside these times, additional measures may be needed to assure survival.

EROSION CONTROL: Grading, soil preparation, and seeding shall be performed during optimal weather conditions and at low flow levels to minimize sediment impacts. Site disturbance shall be minimized and desirable vegetation retained, where possible. Slopes shall be graded to support the establishment of vegetation. Where seeding is used for erosion control, an appropriate native grass, Regreen (or its equivalent), or sterile wheat shall be used to stabilize slopes until permanent vegetation is established. Biodegradable fabrics (coir, coconut or approved jute matting (minimum 1/4" square holes) may be used to stabilize slopes and channels. Fabrics such as burlap may be used to secure plant plugs in place and to discourage floating upon inundation.

A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the swale cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Use high density jute matting in the treatment area (GeoJute Plus or approved equal). In all other areas use low density jute matting (EconoJute or approved equal). Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated on civil plans. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

HERBICIDES: Removal of invasive non-native species is required by hand for the entire wetland buffer area. If necessary, excessive weed growth may be treated with Rodeo or Garlon 3-A (or approved equals) in strict accordance with the manufacturer's instructions.

FERTILIZER: Do not apply fertilizer to any plantings within the Wetland Buffer or Water Quality Facilities.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Loosen and remove twine binding and burlap from top one-half of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with native soil mix while working each layer to eliminate voids.

MULCHING: Trees, shrubs, and groundcovers planted in upland areas shall be mulched a minimum of 3" in depth and 18" in diameter, to retain moisture and discourage weed growth around newly installed plant material. Appropriate mulches are made from composted bark or leaves that have not been chemically treated. The use of mulch in frequently inundated areas shall be limited, to avoid any possible water quality impacts including the leaching of tannins and nutrients, and the migration of mulch into waterways.

WILDLIFE PROTECTION: Appropriate measures shall be taken to discourage wildlife browsing. Biodegradable plastic mesh tubing, or other substitute approved by the City, shall be placed around individual trees and shrubs to prevent browsing by wildlife, including beaver, nutria, deer, mice and voles.

SEED: Bluetag grass seed conforming to applicable State laws. No noxious weed seeds. Submit Guaranteed analysis.

Moist Area Seed Mix: To contain 47% Blue Wildry, 40% Meadow Barley, 10% Tufted Hairgrass, 2% Western Mannagrass and 1% American Sloughgrass (Hobbs & Hopkins Pro-Time 840 Native Wetland Mix) Sow Seed at 20-40 lbs./acre.

Dry Area Seed Mix: To contain 60% Blue Wildry, 30% Meadow Barley and 10% Native California Brome (Hobbs & Hopkins Pro-Time 400 Native Grass Mix) Sow Seed at 15-30 lbs./acre.

IRRIGATION: Is to be provided as per a separate plan design/build by Landscape Contractor. Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. Guarantee system for a minimum one year.

MAINTENANCE: The permittee is responsible for the maintenance of this facility for a minimum of two years following the acceptance of the facility by the City of Wilsonville. The City's authorized representative shall inspect the condition of all landscaping located within the water quality facility, at the end of the of the first year of the post-construction period. The authorized representative shall provide a report describing any deficiencies to the applicant.

If, at any time during the warranty period, the landscaping falls below 90% survival of trees and shrubs or 90% aerial coverage, the Owner shall remove the undesirable vegetation and reinstall all deficient planting at the next appropriate time. Prior to replanting, the cause of the plant loss shall be determined and corrected. The two-year maintenance period shall begin again from the date of replanting.

Water Quality Facility is to be kept free of debris and maintained to insure water flow and proper functioning. Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance.

CLEAN-UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.

PLANTING SPECIFICATIONS:

HERBICIDES: Prior to soil preparation, all areas showing any undesirable weed or grass growth shall be treated with Round-up in strict accordance with the manufacturer's instructions. Nuisance plant removal in Open Space 2 shall be done by hand, cutting/pulling out at the base. Limited spot application of approved herbicide directly on the cut area of the stem is acceptable.

SOIL PREPARATION: Work all areas by rototilling to a minimum depth of 8". Remove all stones (over 1 1/2" size), sticks, mortar, large clumps of vegetation, roots, debris, or extraneous matter turned up in working. Soil shall be of a homogeneous fine texture. Level, smooth and lightly compact area to plus or minus .10 of required grades.

In groundcover areas add 2" of compost (or as approved) and fill in to the top 6" of soil.

PLANTING HOLE: Lay out all plant locations and excavate all soils from planting holes to 2 1/2 times the root ball or root system width. Loosen soil inside bottom of plant hole. Dispose of any "subsoil" or debris from excavation. Check drainage of planting hole with water, and adjust any area showing drainage problems.

SOIL MIX: Prepare soil mix in each planting hole by mixing:
2 part native topsoil (no subsoil)
1 part compost (as approved)

Thoroughly mix in planting hole and add fertilizers at the following rates:
Small shrubs - 1/8 lb./ plant
Shrubs - 1/3 to 1/2 lb./ plant
Trees - 1/3 to 1 lb./ plant

FERTILIZER: For trees and shrubs use Commercial Fertilizer "A" Inorganic (5-4-3) with micro-nutrients and 50% slow releasing nitrogen. For initial application in fine seed lawn areas use Commercial Fertilizer "B" (8-16-8) with micro-nutrients and 50% slow-releasing nitrogen. For lawn maintenance use Commercial Fertilizer "C" (22-16-8) with micro-nutrients and 50% slow-releasing nitrogen. **DO NOT** apply fertilizer to Water Quality Swale.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Place 6" minimum, lightly compacted layer of prepared planting soil under root system. Loosen and remove twine binding and burlap from top 1/2 of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with soil mix while working each layer to eliminate voids.

When approximately 2/3 full, water thoroughly, then allow water to soak away. Place remaining backfill and dish surface around plant to hold water. Final grade should keep root ball slightly above surrounding grade, not to exceed 1". Water again until no more water is absorbed. Initial watering by irrigation system is not allowed.

STAKING OF TREES: Stake or guy all trees. Stakes shall be 2" X 2" (nom.) quality tree stakes with point. They shall be of Douglas Fir, clear and sturdy. Stake to be minimum 2/3 the height of the tree, not to exceed 8'-0". Drive stake firmly 1'-6" below the planting hole. Tree ties for deciduous trees shall be "Chainlock" (or better). For Evergreen trees use "Gro-Straight" Tree Ties (or a reinforced rubber hose and guy wires) with guy wires of a minimum 2 strand twisted 12 ga. wire. Staking and guying shall be loose enough to allow movement of tree while holding tree upright.

MULCHING OF PLANTINGS: Mulch planting areas with dark, aged, medium grind fir or hemlock bark (aged at least 6 months) to a depth of 2" in ground cover areas and 2 1/2" in shrub beds. Apply evenly, not higher than grade of plant as it came from the nursery, and rake to a smooth finish. Water thoroughly, then hose down planting area with fine spray to wash leaves of plants.

FINE LAWN AREAS: In fine lawn area apply Commercial Fertilizer Mix "B" at 4.5 lbs. Per 1,000 sq.ft. and rake into soil surface. Establish an even, fine textured seedbed meeting grades, surfaces and texture. Sow seed with a mechanical spreader at the uniform rates as noted below. Rake seed lightly to provide cover.

ROUGH SEED AREA: In rough seeded area, establish an evenly graded seedbed. Sow seed with a mechanical spreader at the uniform rates as noted below. Rake seed lightly to provide cover.

SEED: Bluetag grass seed conforming to applicable State laws. No noxious weed seeds. Submit Guaranteed analysis.

Fine Lawn Seed Mix: To contain 50% Top Hat Perennial Ryegrass, 30% Derby Supreme Ryegrass, 20% Longfellow Chewings Fescue (Hobbs and Hopkins Pro-Time 303 Lawn Mix or as approved) Sow Seed at 5 lbs. / 1000 sq. ft.

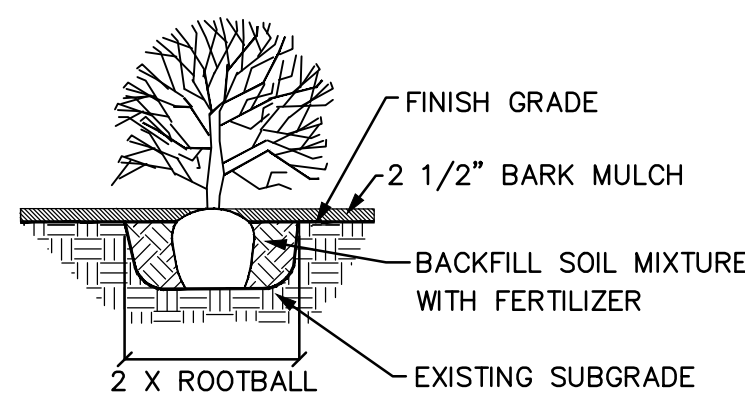
Rough Seed Mix: To Contain: 60% Perennial Ryegrass, 15% Eureka Hard Fescue, and 20% Herbaceous Plants and Clover (Hobbs and Hopkins Pro-Time 705 PDX, or approved equal). Sow at 2 lbs. Per 1,000 sq.ft.

MAINTENANCE OF SEEDED AREAS:

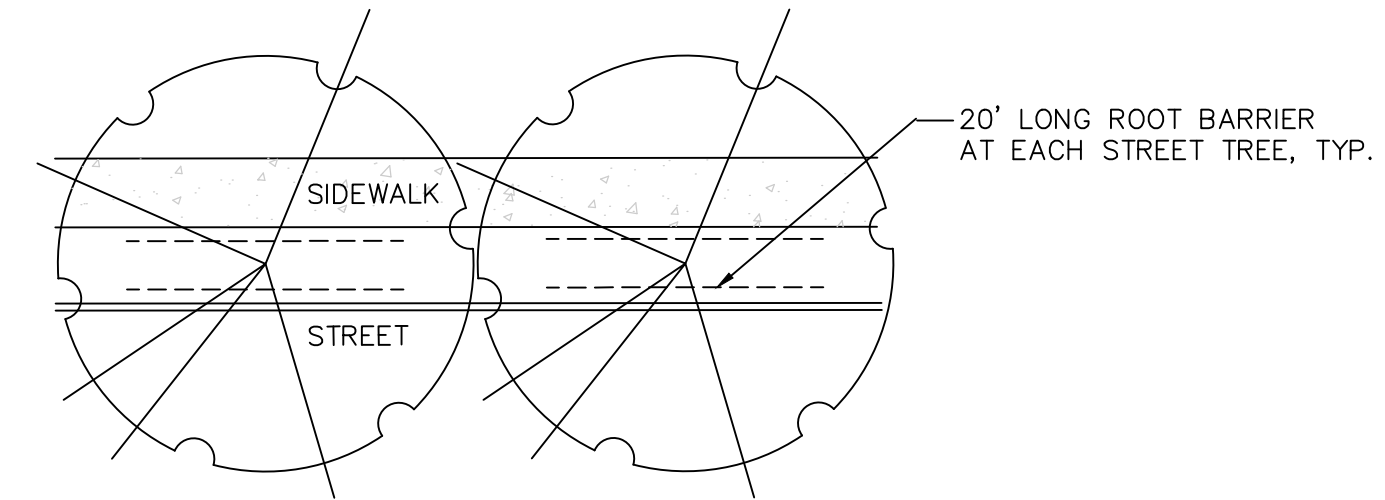
Fine Lawn Areas: The lawn areas shall be maintained by watering, mowing, reseeding, and weeding for a minimum of 60 days after seeding. After 30 days, or after the second mowing, apply Commercial Fertilizer Mix "C" at 5 lbs. per 1,000 sq. ft. Mow and keep at 1 1/2" to 2" in height. Remove clippings and dispose of off site.

GENERAL MAINTENANCE: Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance. Replace plants not in normal healthy condition at the end of this period. Water, weed, cultivate, mulch, reset plants to proper grade or upright position, remove dead wood and do necessary standard maintenance operations. Irrigate when necessary to avoid drying out of plant materials, and to promote healthy growth.

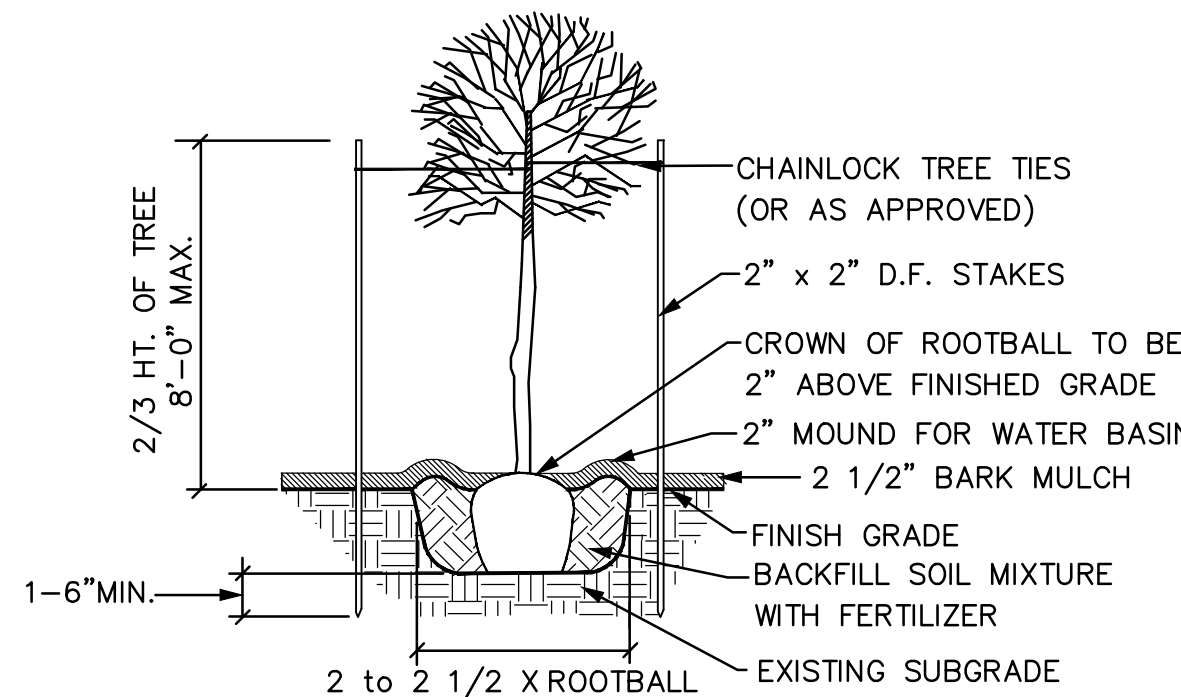
CLEAN-UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.



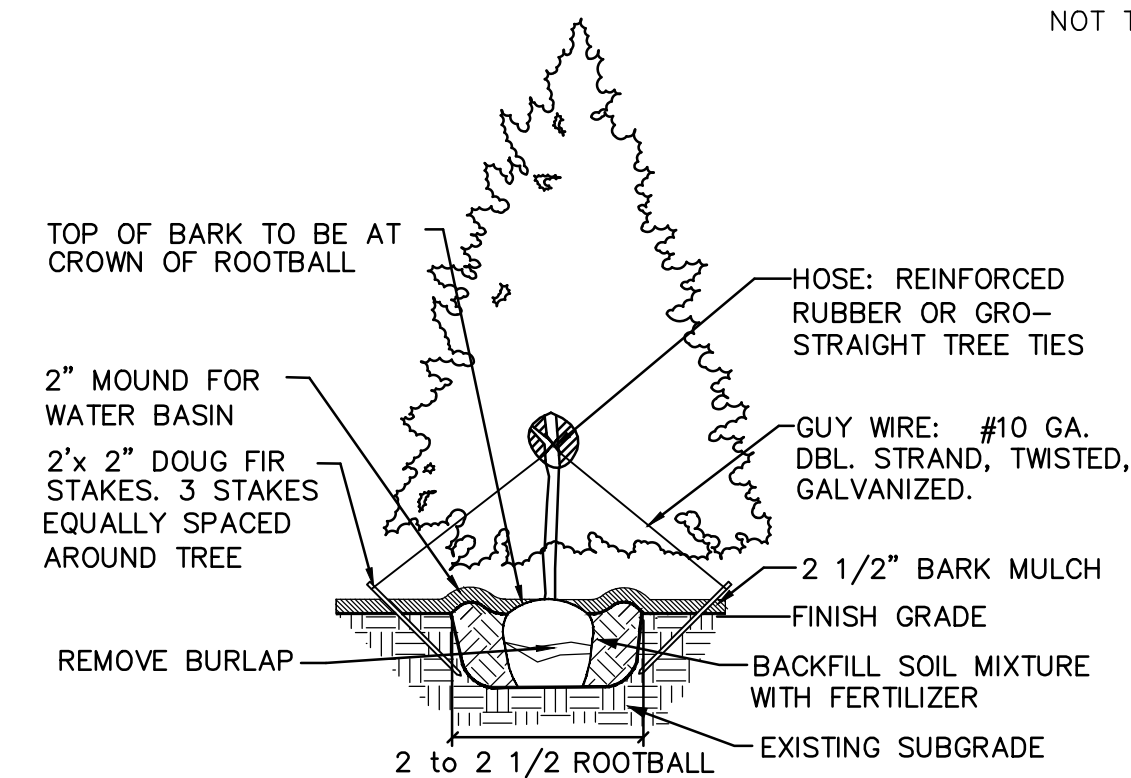
SHRUB PLANTING DETAIL
NOT TO SCALE



ROOT BARRIER DETAIL
NOT TO SCALE

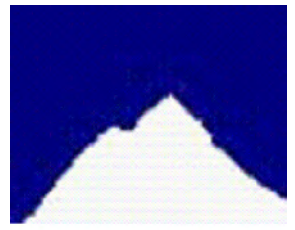
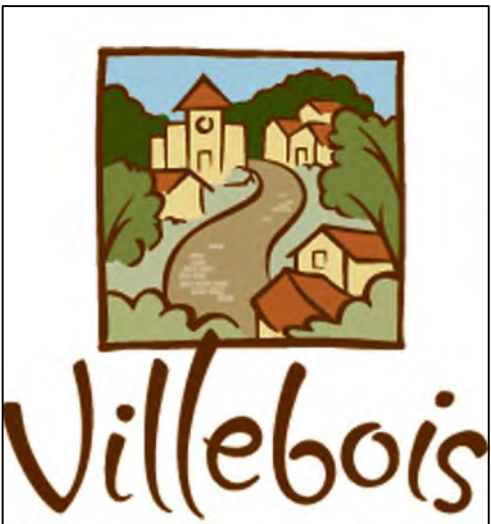


DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



EVERGREEN TREE STAKING DETAIL
NOT TO SCALE

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POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PHASE 3
NORTH
VILLEBOIS**

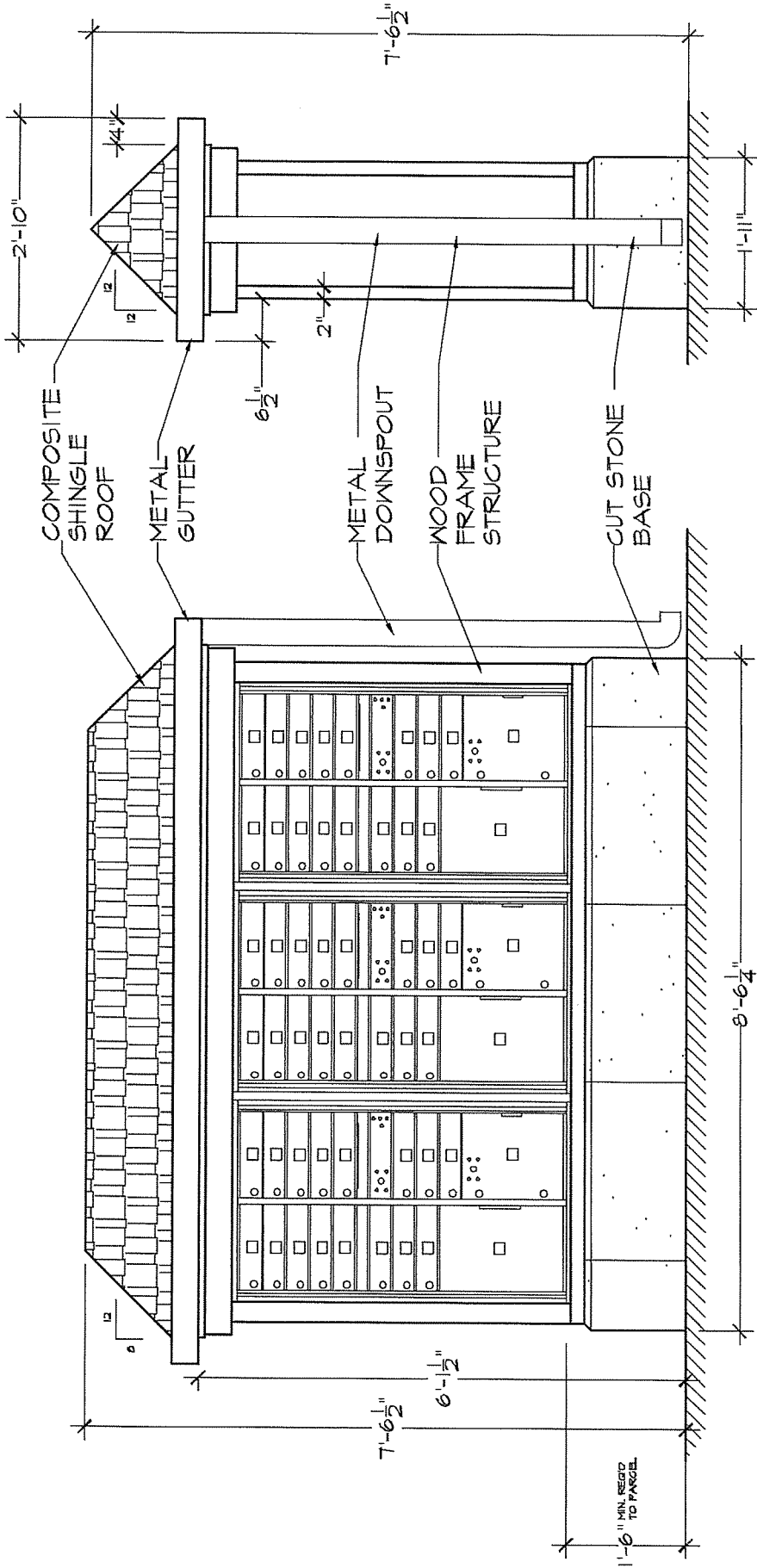
**Preliminary
Development Plan**

**Landscape
Details &
Specifications**

DATE 1/20/13

L5.0

VIIC
Sample Mailbox Elevations



FRONT ELEVATION

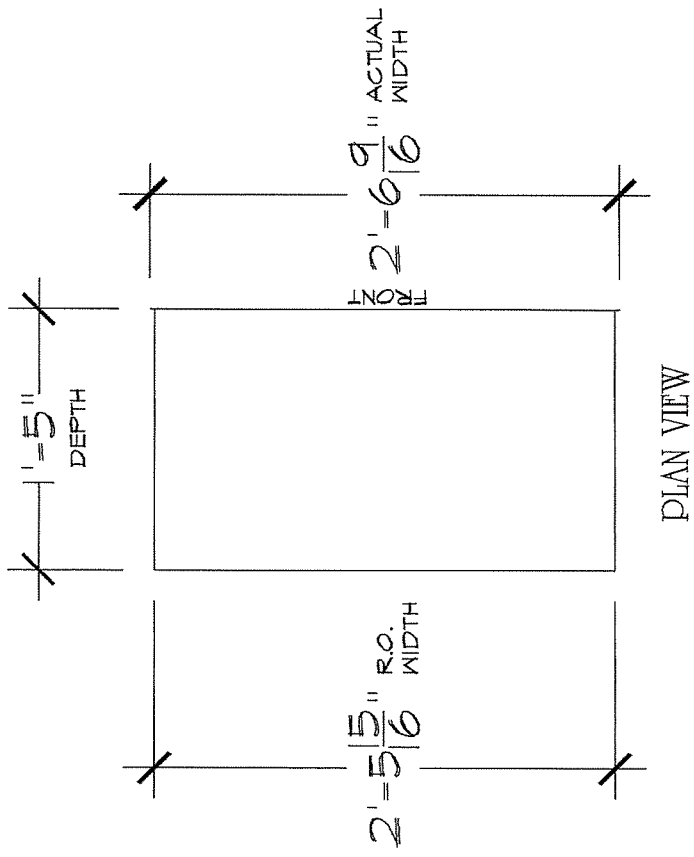
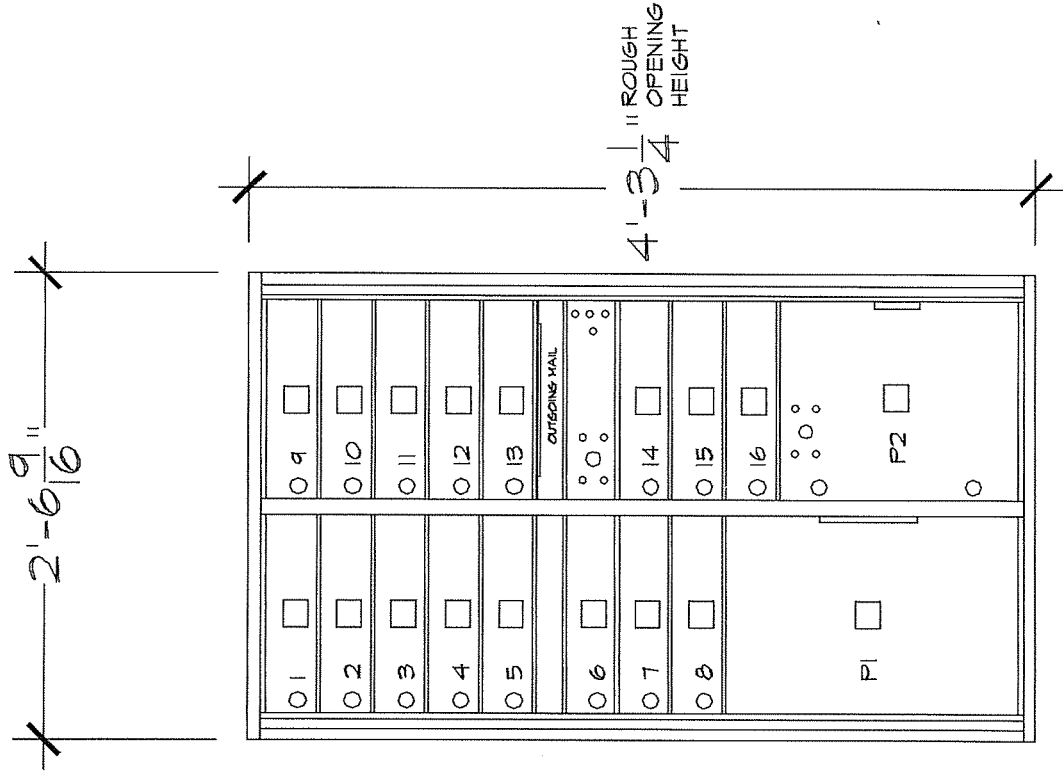
SIDE ELEVATION

VILLEBOIS MAIL BOX STRUCTURE

UPDATED ELEVATIONS PER NEW USDS REQUIREMENTS

SCALE: 1/2"=1'-0"

MANUFACTURER: AUTH-FLORENCE
 HORIZONTAL MAILBOX SYSTEMS
 4CC12-16



VILLEBOIS MAIL BOX STRUCTURE
 UPDATED ELEVATIONS PER NEW USPS REQUIREMENTS
 SCALE: 1"=1'-0"

MANUFACTURER: AUTH-FLORENCE
 HORIZONTAL MAILBOX SYSTEMS
 4CCT2-16

PHASE 3 NORTH VILLEBOIS PRELIMINARY DEVELOPMENT PLAN

TL 1200, 1202 & 1205, TOWNSHIP 3 SOUTH, RANGE 1 WEST, SECTION 15 W.M.
CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
109 E. 13TH ST.
VANCOUVER, WA 98660
[P] 503-221-1920
CONTACT: FRED GAST

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
Tigard, OR 97223
[P] 503-941-9484
CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: JESSIE KING, PE

SURVEYOR:

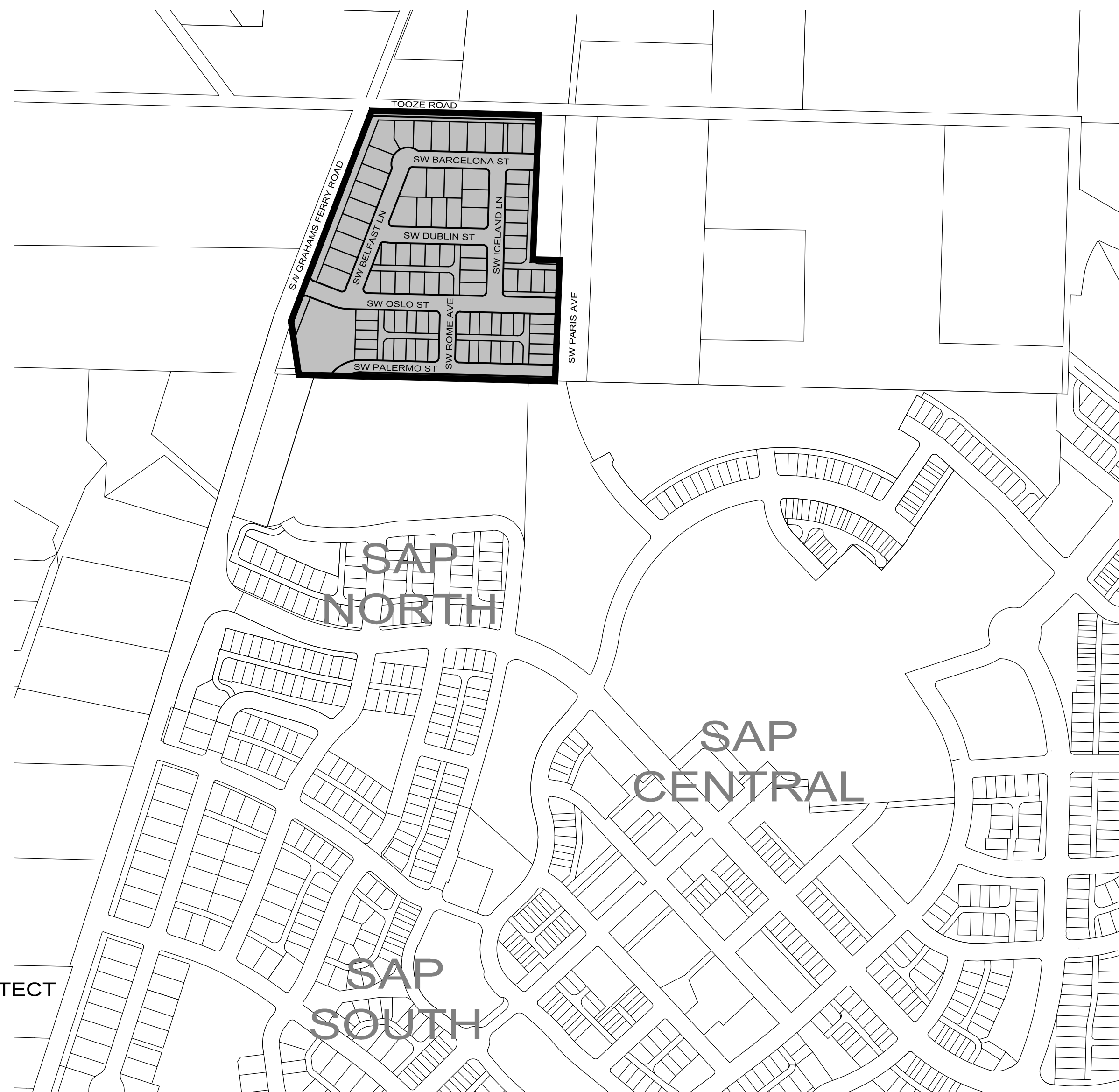
PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

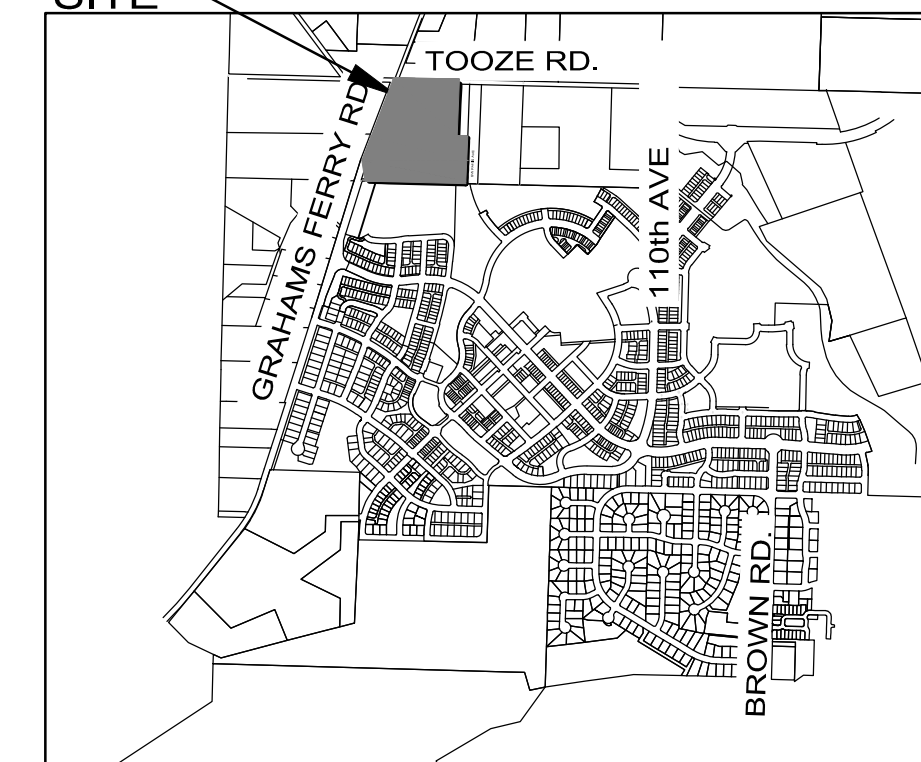
OTTEN LANDSCAPE ARCHITECTS, INC.
3933 SW KELLY AVE, SUITE B
PORTLAND, OR 97239
[P] 503-972-0311
CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
15575 SW SEQUOIA PARKWAY, SUITE 100
PORTLAND, OR 97224
[P] 503-968-8787
CONTACT: CRAIG WARE, PE



PROJECT SITE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

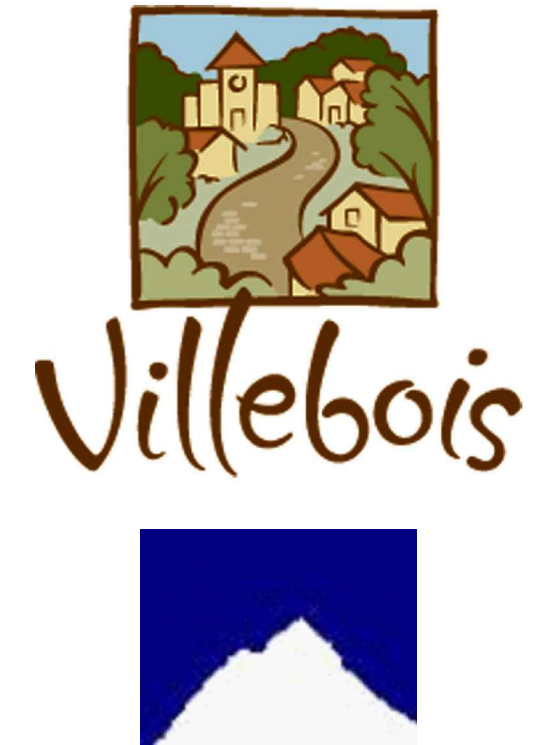
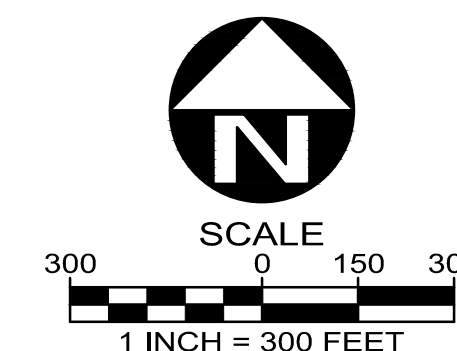
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- 2 EXISTING CONDITIONS
- 3 AERIAL PHOTOGRAPH
- 4 PRELIMINARY PLAT
- 5 GRADING PLAN
- 6 COMPOSITE UTILITY PLAN
- 7 CIRCULATION PLAN & STREET SECTIONS
- 8 SITE/LAND USE PLAN
- 9 TYPICAL LOT PLANS
- 10 TREE PRESERVATION PLAN
- 11 STREET TREE PLAN
- 12 SROZ PLAN



POLYGON NW COMPANY

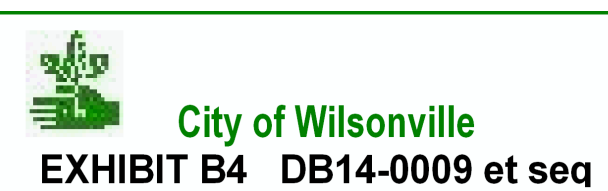


OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

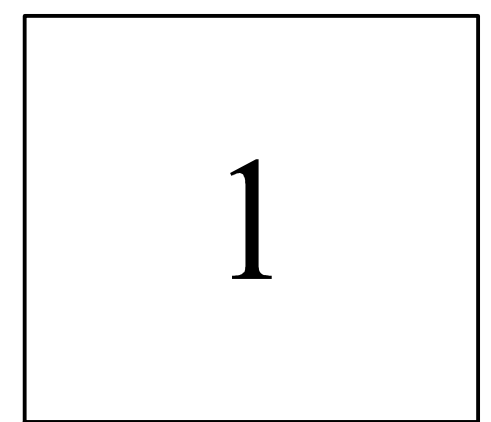
PDP 3N
VILLEBOIS

Preliminary
Development Plan

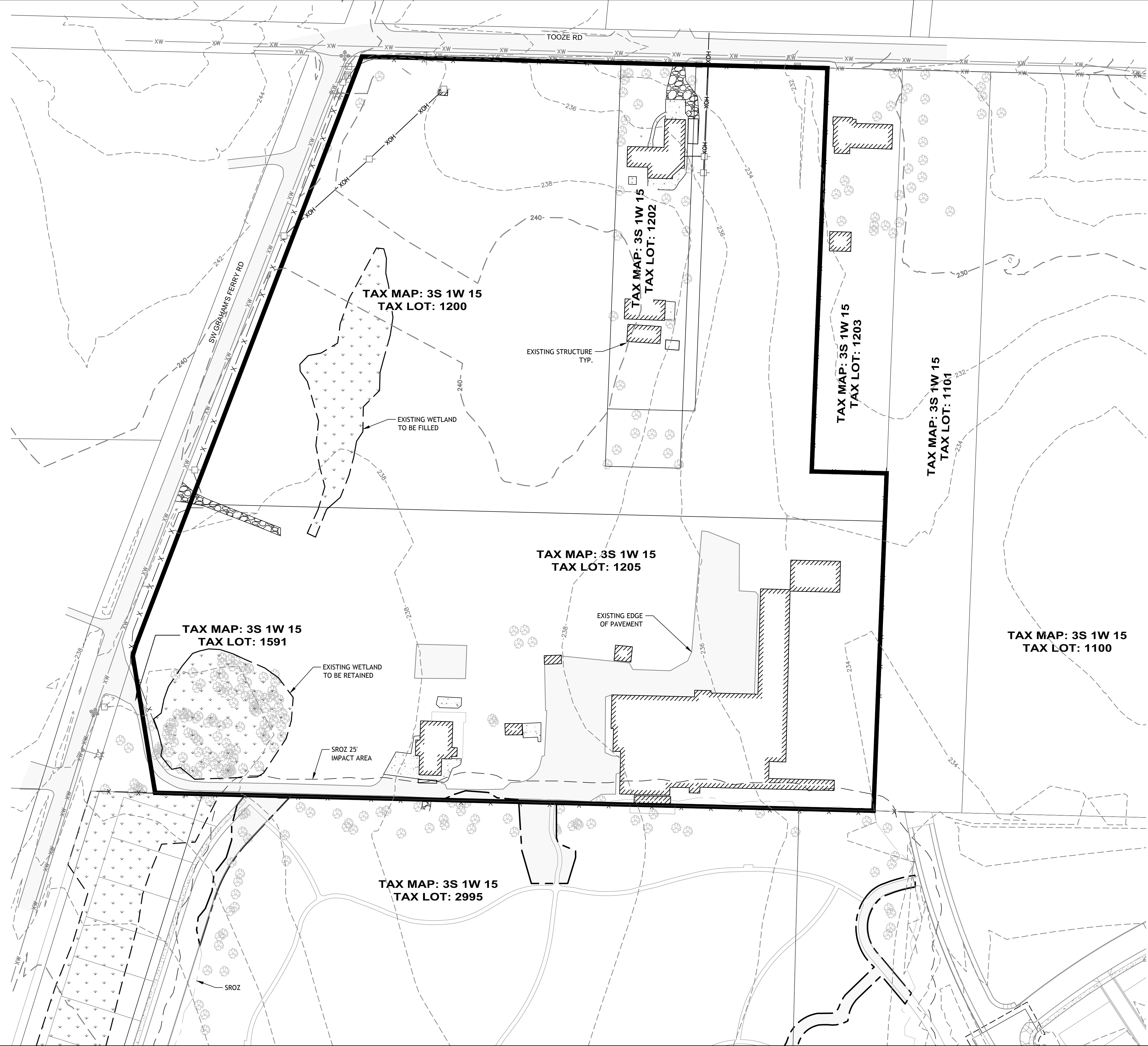
Cover Sheet



DATE 1/31/14



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LEGEND

---	EASEMENT LINES
---	EXISTING RIGHT-OF-WAY
---	EXISTING CENTERLINE
---	EXISTING PROPERTY LINE
---	EXISTING BOUNDARY LINE
---	EXISTING SIDEWALK
---	EX 1-FOOT CONTOURS
---	EX 5-FOOT CONTOURS
---	EX SANITARY SEWER
---	EX SANITARY DRAIN
---	EX STORM DRAIN
---	EX WATER LINE
---	EX GAS LINE
---	EX BURIED POWER LINE
---	EX OVERHEAD POWER LINE
---	EX CABLE TV LINE
---	EX TELEPHONE LINE
---	EX SANITARY MANHOLE
---	EX SANITARY CLEANOUT
---	EX STORM MANHOLE
---	EX AREA DRAIN
---	EX CURB INLET
---	EX STORM CLEANOUT
---	EX FIRE HYDRANT
---	EX WATER METER
---	EX WATER VALVE
---	EX BLOW-OFF
---	EX AIR RELEASE VALVE
---	EX GAS VALVE
---	EX CABLE RISER
---	EX TELEPHONE RISER
---	EX LIGHT POLE
---	EXISTING FENCE
---	EX TREES



Villebois



POLYGON NW COMPANY



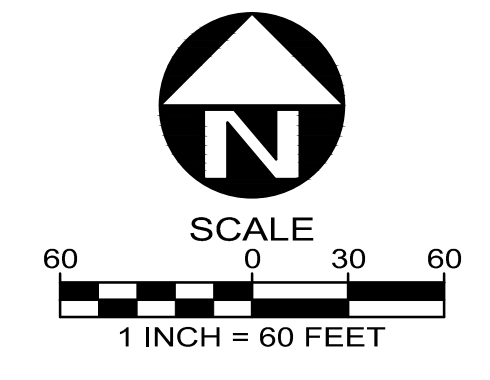
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

PDP 3N
VILLEBOIS

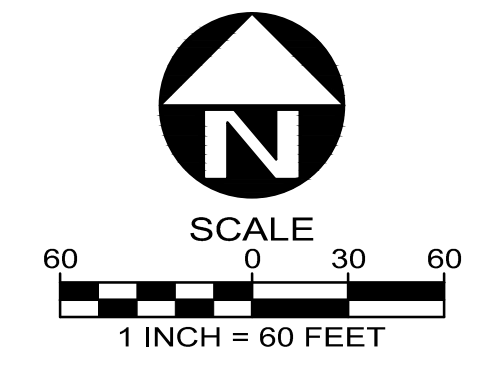
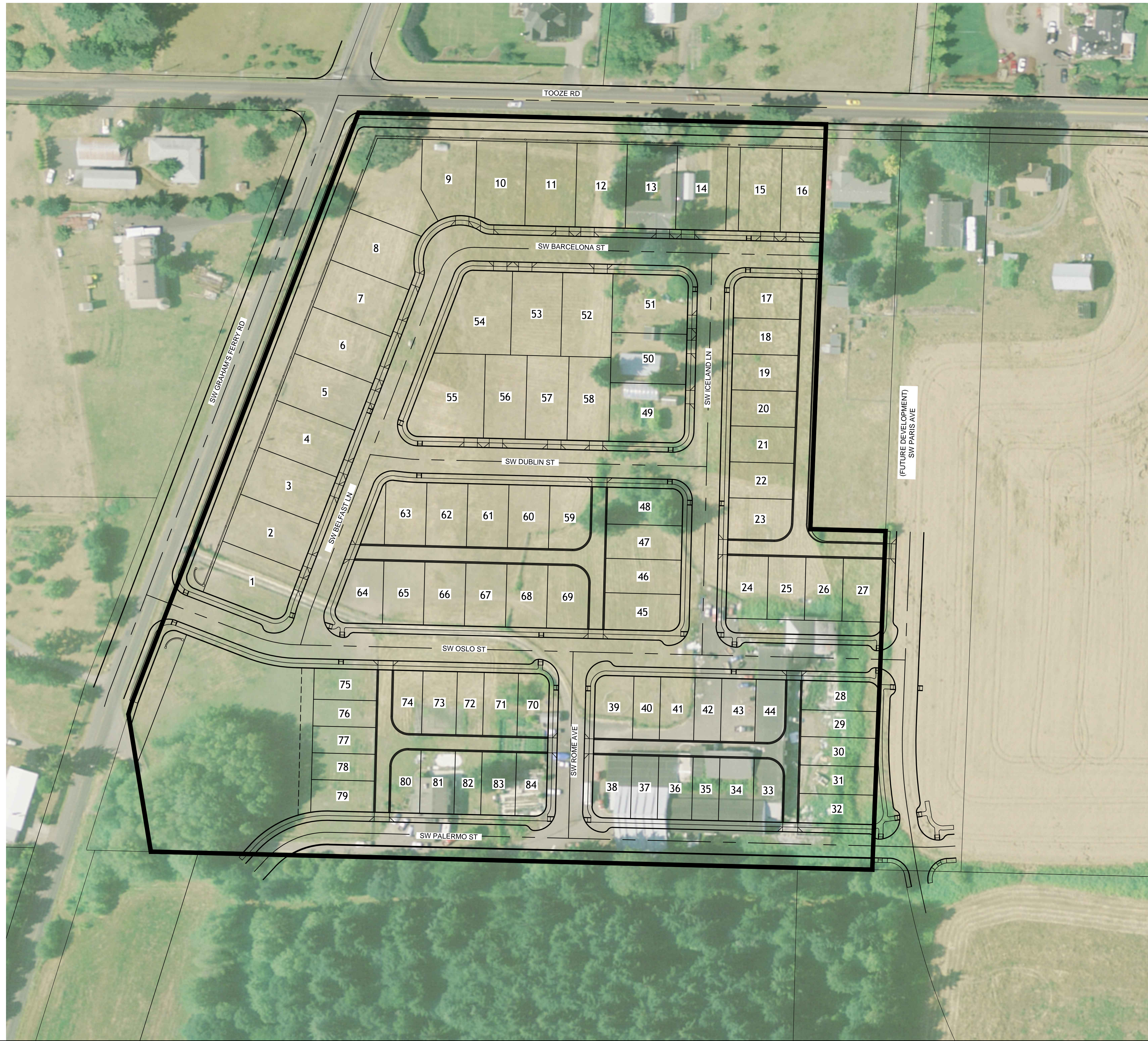
Preliminary
Development Plan

Existing
Conditions

DATE 1/31/14



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Villebois



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GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Plan

Aerial
Photograph

DATE 1/31/14

3

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LEGEND:

	PDP BOUNDARY
SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK



POLYGON NW COMPANY



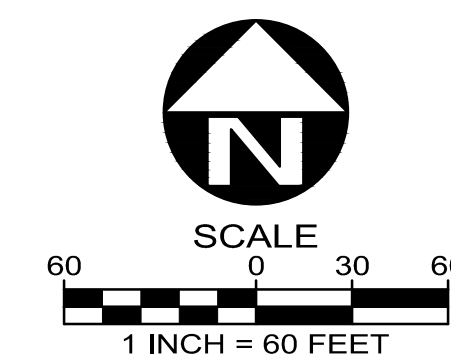
OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

**PDP 3N
VILLEBOIS**

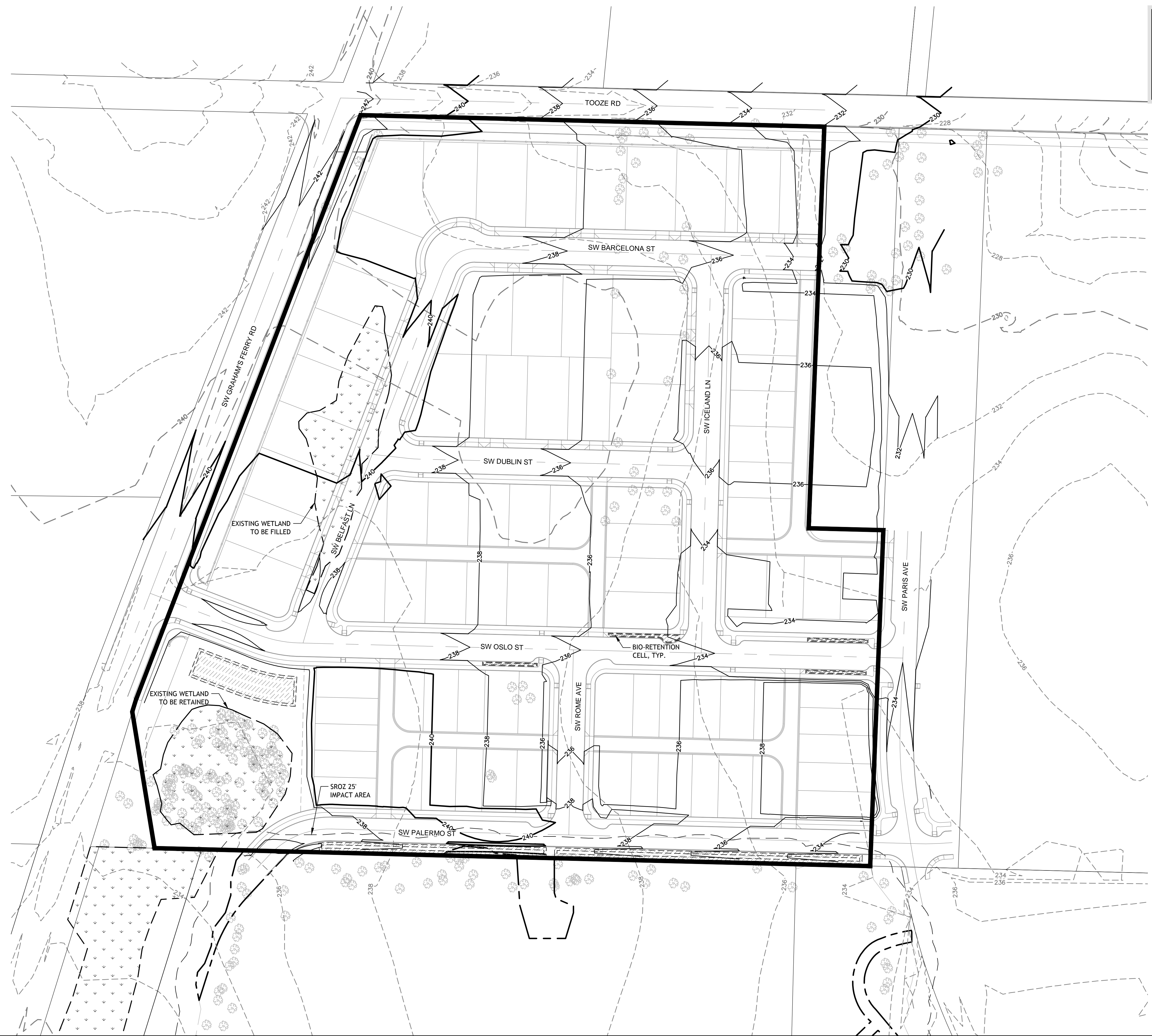
**Preliminary
Development Plan**

**Preliminary
Plat**

DATE 1/31/14

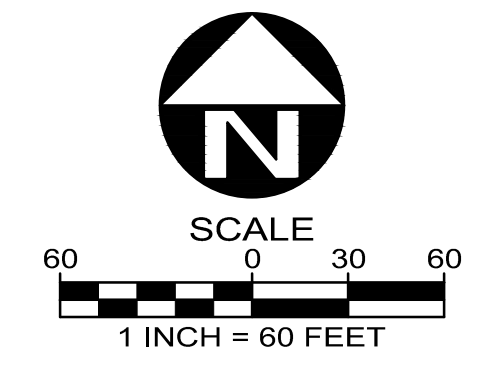


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LEGEND:

— 198 —	FUTURE 2-FT CONTOUR
— 200 —	FUTURE 10-FT CONTOUR
— 224 —	PROPOSED 2-FT CONTOUR
— 230 —	PROPOSED 10-FT CONTOUR



Villebois



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GEODESIGN, INC

PDP 3N
VILLEBOIS

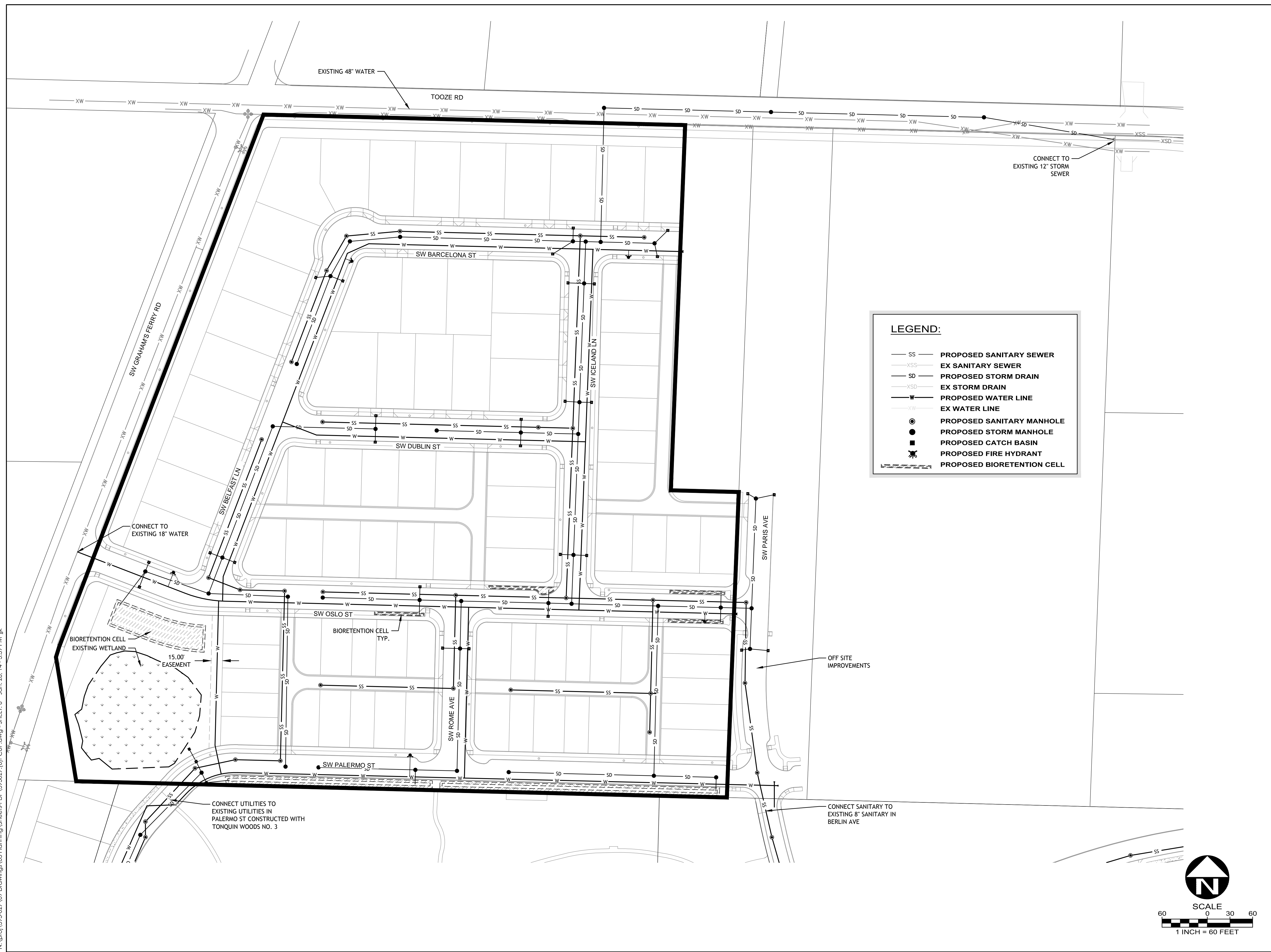
Preliminary
Development Plan

Grading
Plan

DATE 1/31/14

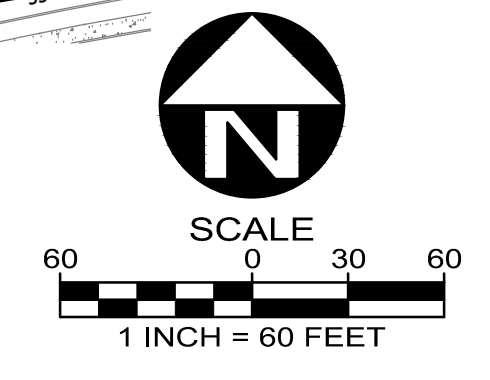
5

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LEGEND:

- SS — PROPOSED SANITARY SEWER
- XSS — EX SANITARY SEWER
- SD — PROPOSED STORM DRAIN
- XSD — EX STORM DRAIN
- W — PROPOSED WATER LINE
- XW — EX WATER LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- ⚡ PROPOSED FIRE HYDRANT
- ▨ PROPOSED BIORETENTION CELL



POLYGON NW COMPANY
 Pacific Community Design
 OTTEN LANDSCAPE ARCHITECTS, INC
 GEODESIGN, INC

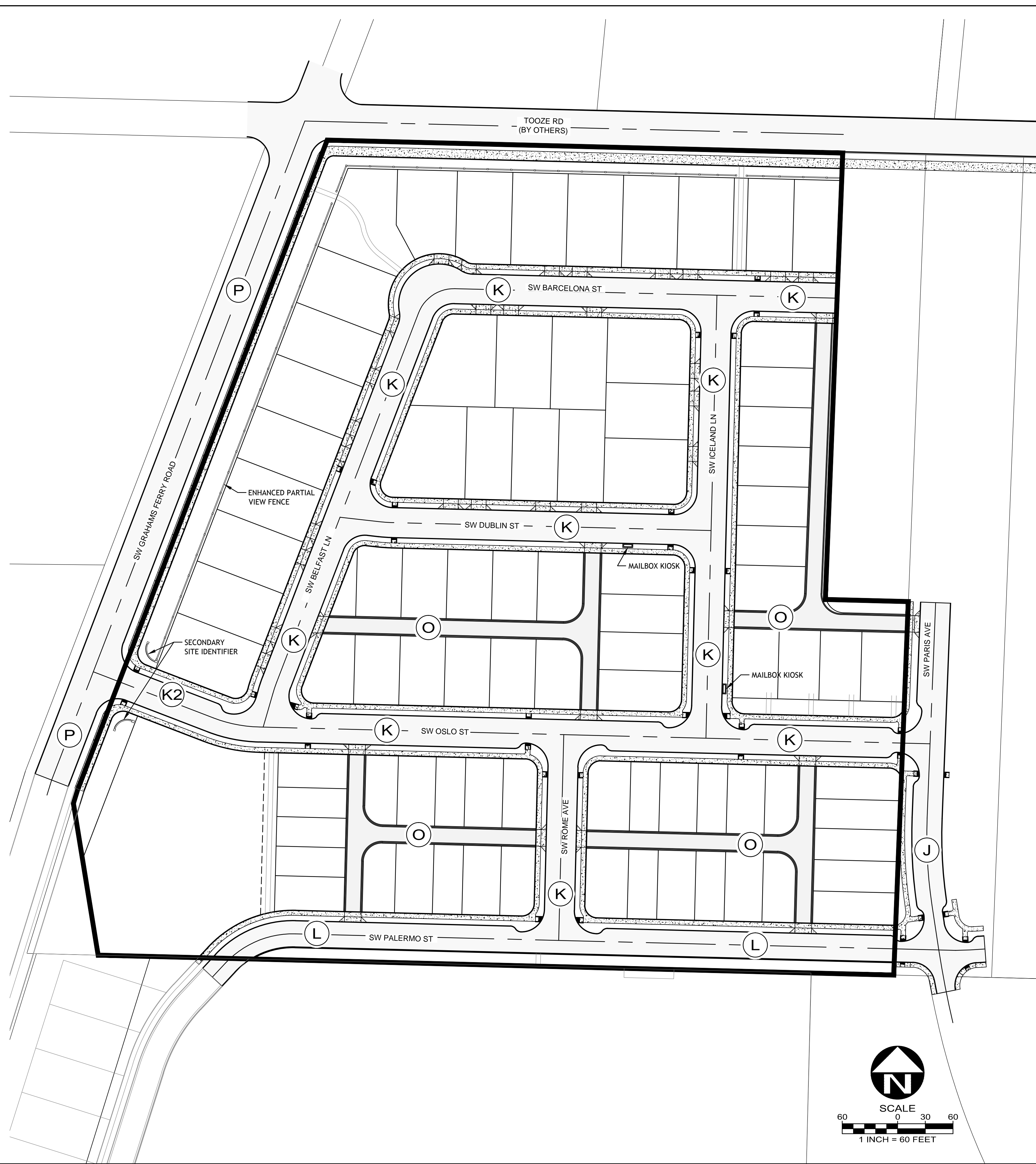
PDP 3N
 VILLEBOIS

Preliminary
 Development Plan

Composite
 Utility
 Plan

DATE 1/31/14

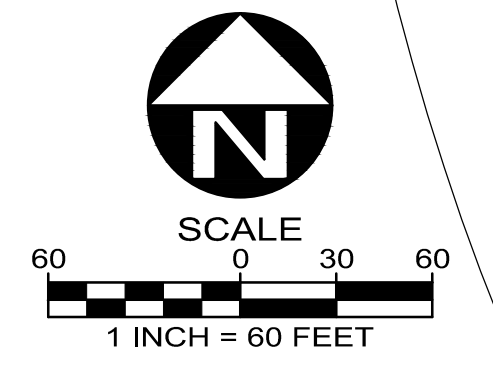
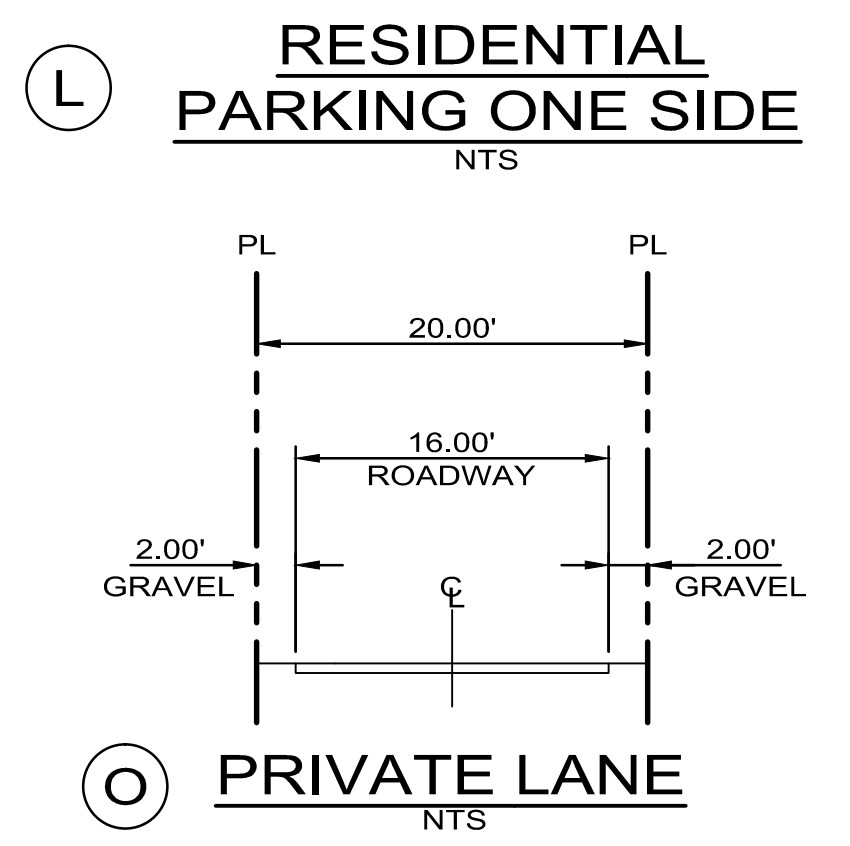
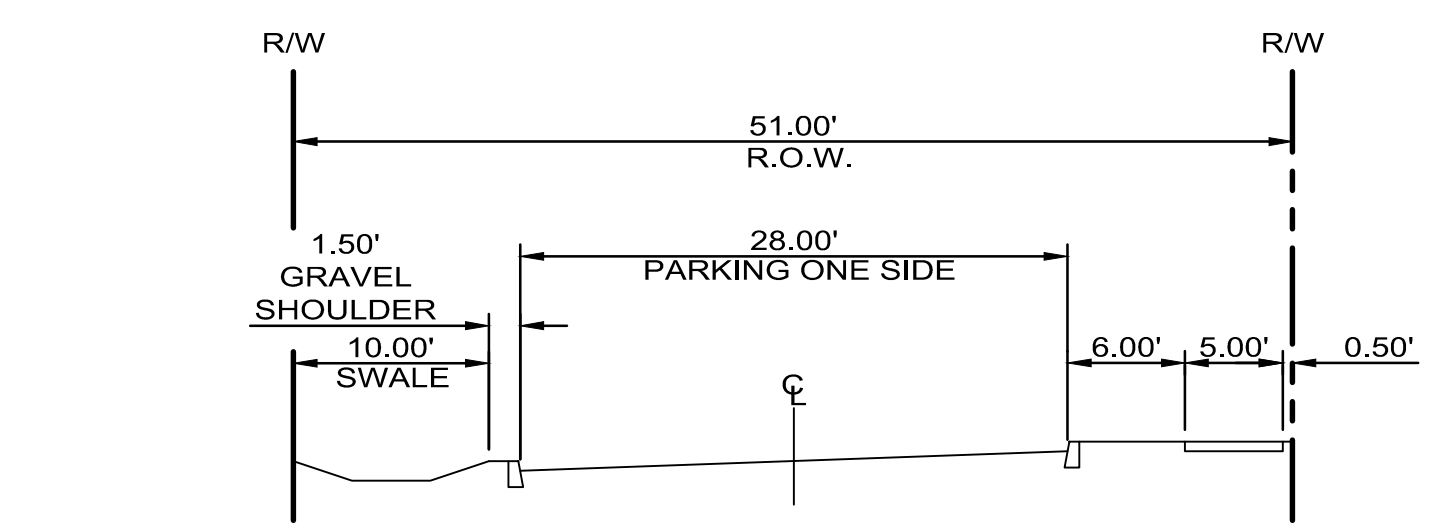
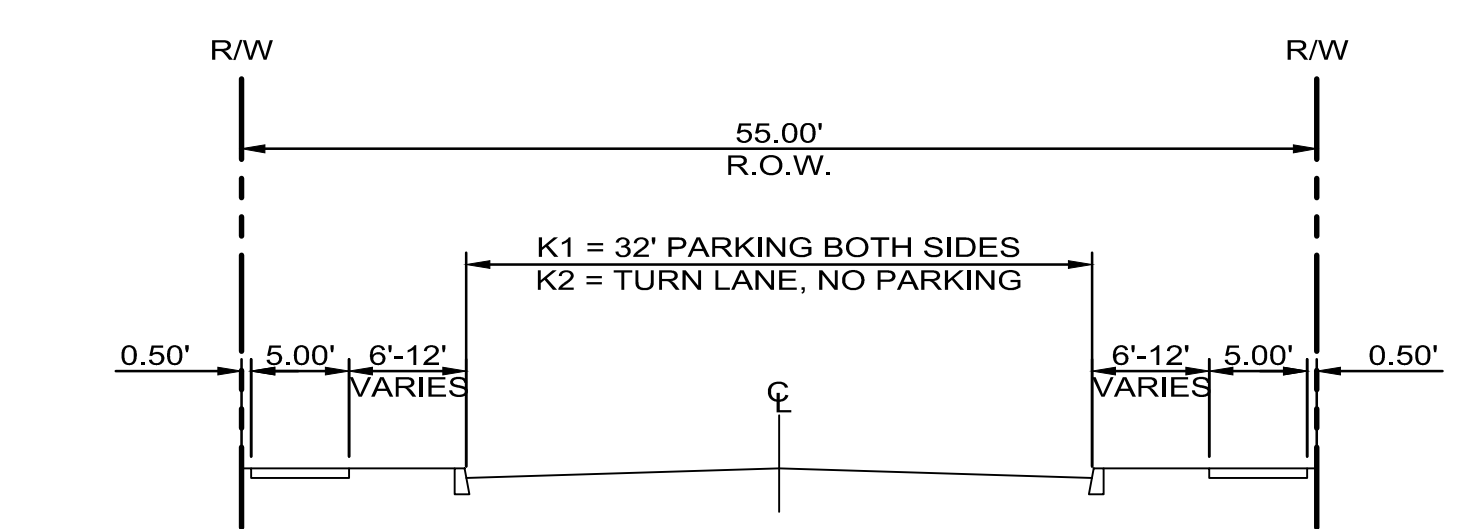
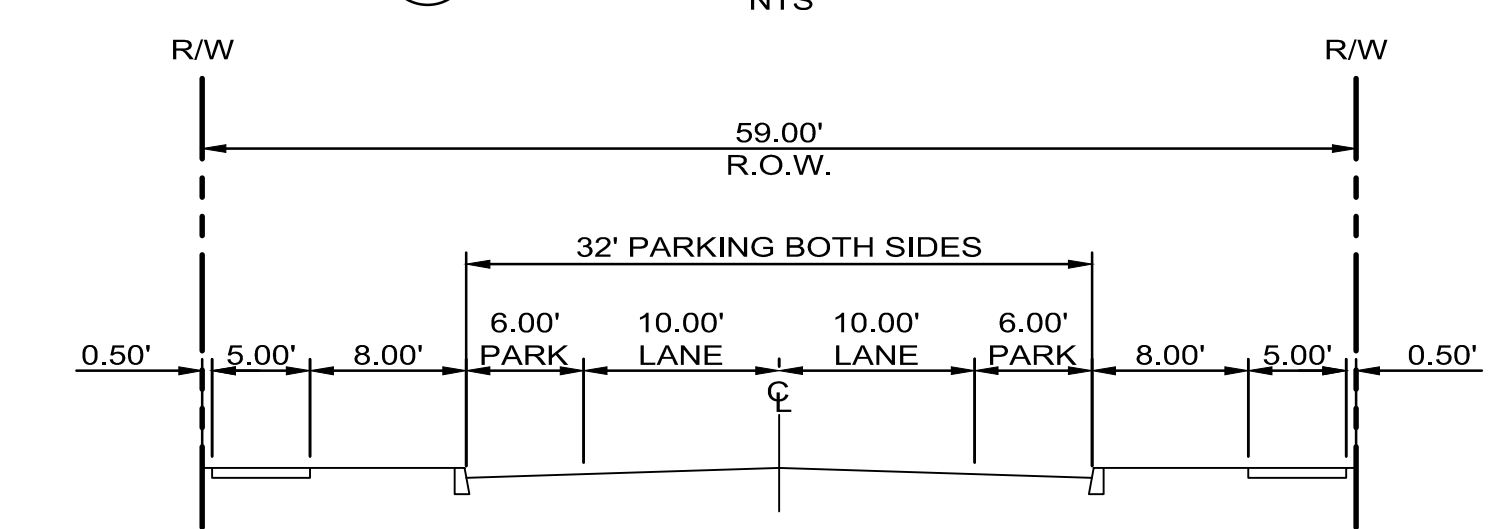
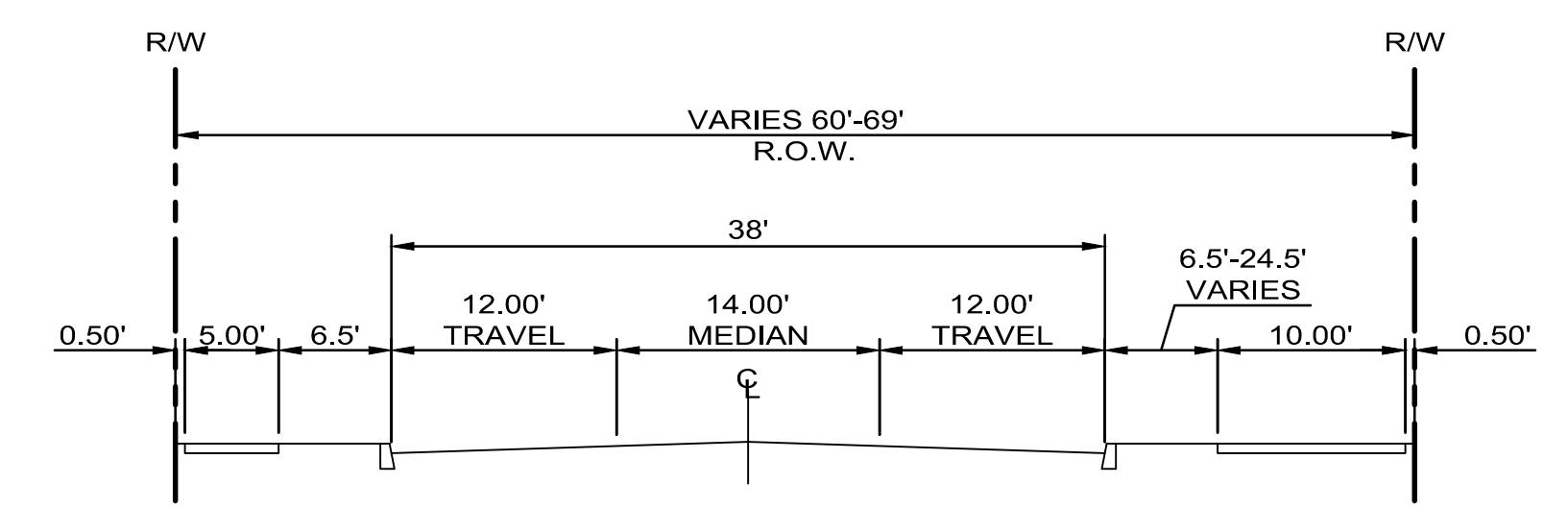
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LEGEND:

(P) ROAD SECTION TYPE
SEE THIS SHEET FOR DETAILS

— PROJECT BOUNDARY LINE



POLYGON NW COMPANY

Pacific Community Design

OTTEN LANDSCAPE ARCHITECTS, INC
GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Plan

Circulation
Plan &
Street Sections

DATE 1/31/14

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LEGEND:

SM	SMALL LOTS
M	MEDIUM LOTS
STD	STANDARD LOTS
LG	LARGE LOTS
OS	OPEN SPACE
L/G	LINEAR GREEN
PP	POCKET PARK

LOT COUNT:

32	SMALL LOTS
26	MEDIUM LOTS
3	STANDARD LOTS
23	LARGE LOTS
84	TOTAL

LAND AREA TABLE:

TOTAL AREA:	15.16 AC
PUBLIC STREETS:	4.49 AC
OPEN SPACE / PARK AREAS:	2.03 AC
LOTS & ALLEYS:	8.64 AC
AVG. DENSITY PER NET ACRE:	84 / 8.64 = 9.72 UNITS / AC

FOR TYPICAL LOT PLANS
SEE SHEET 9.



Villebois



POLYGON NW COMPANY



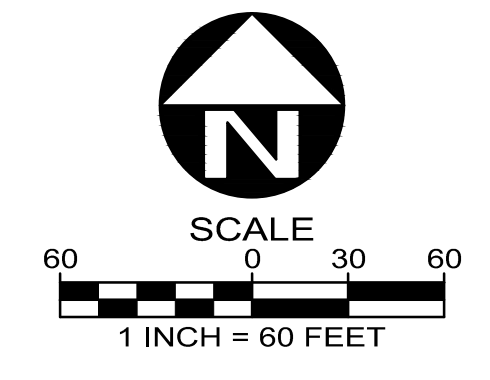
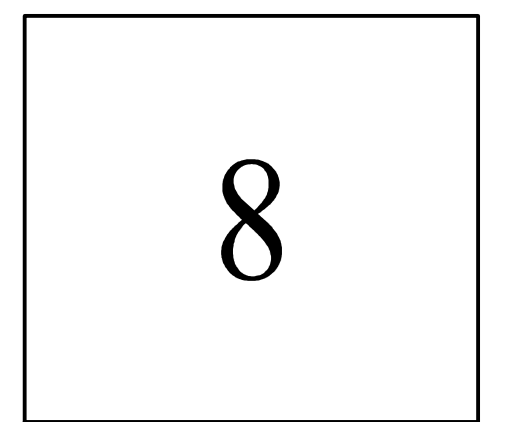
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GEODESIGN, INC.

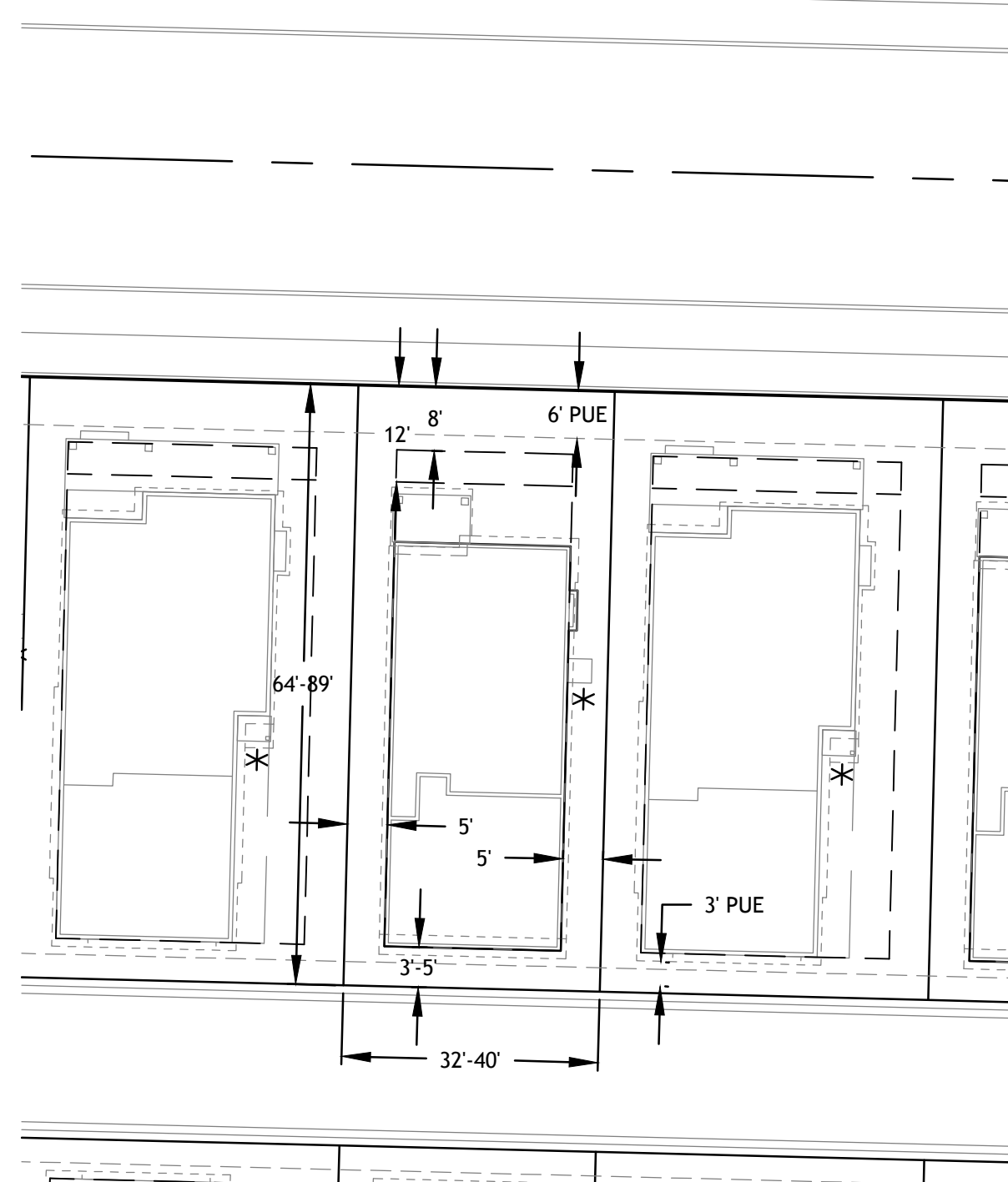
PDP 3N
VILLEBOIS

Preliminary
Development Plan

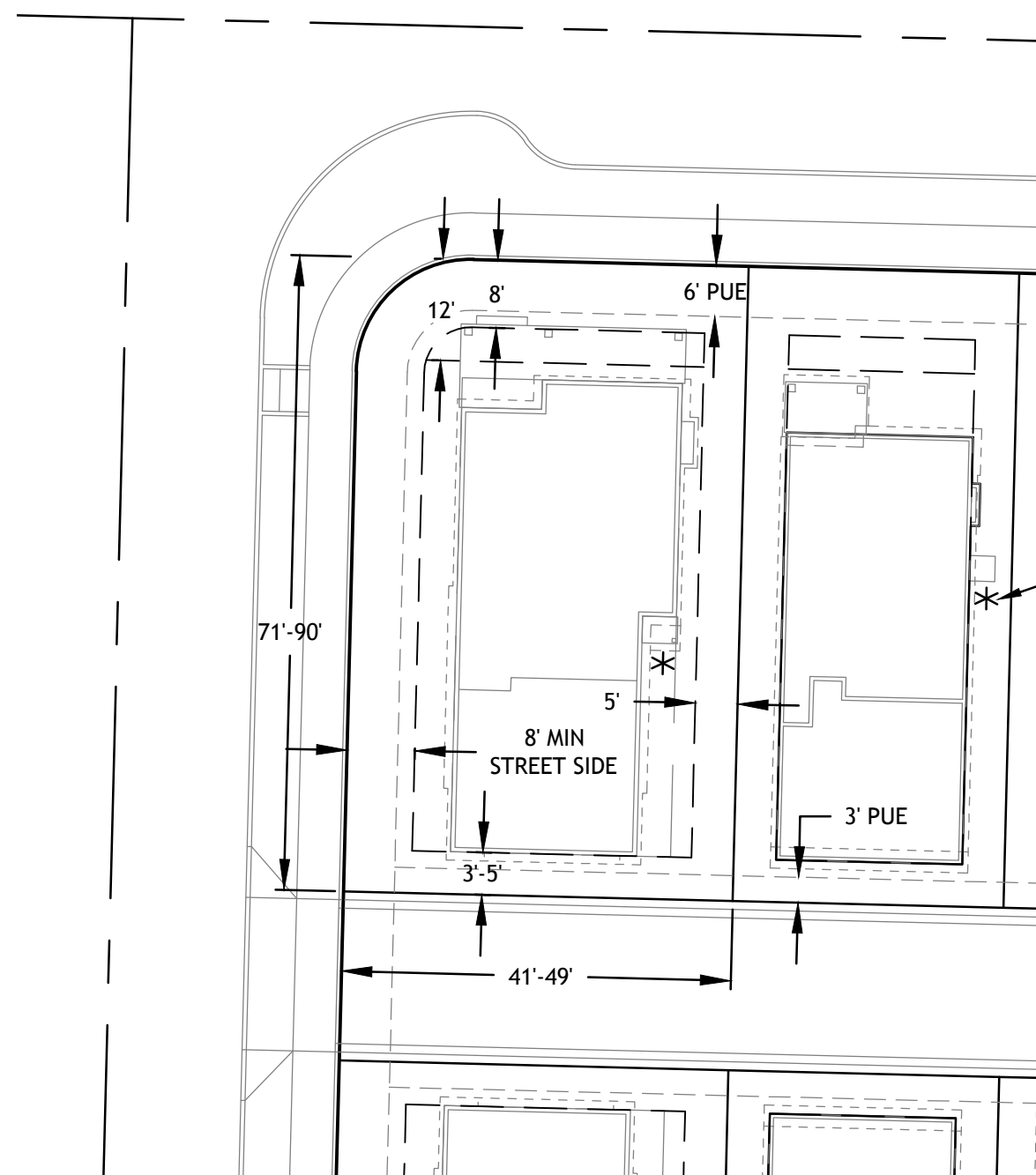
Site/Land Use
Plan

DATE 1/31/14



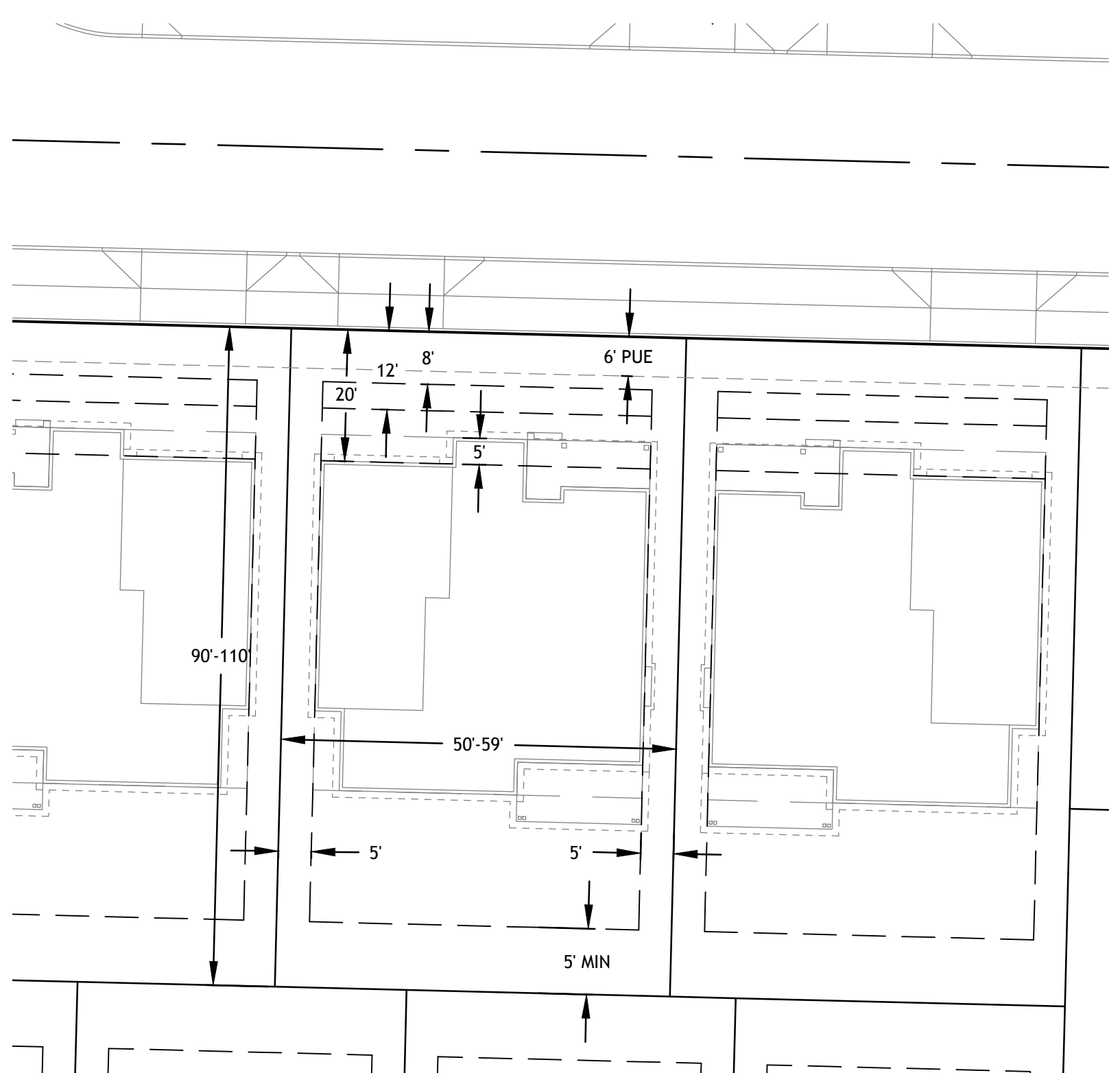


SMALL LOT
SCALE: 1"=20'

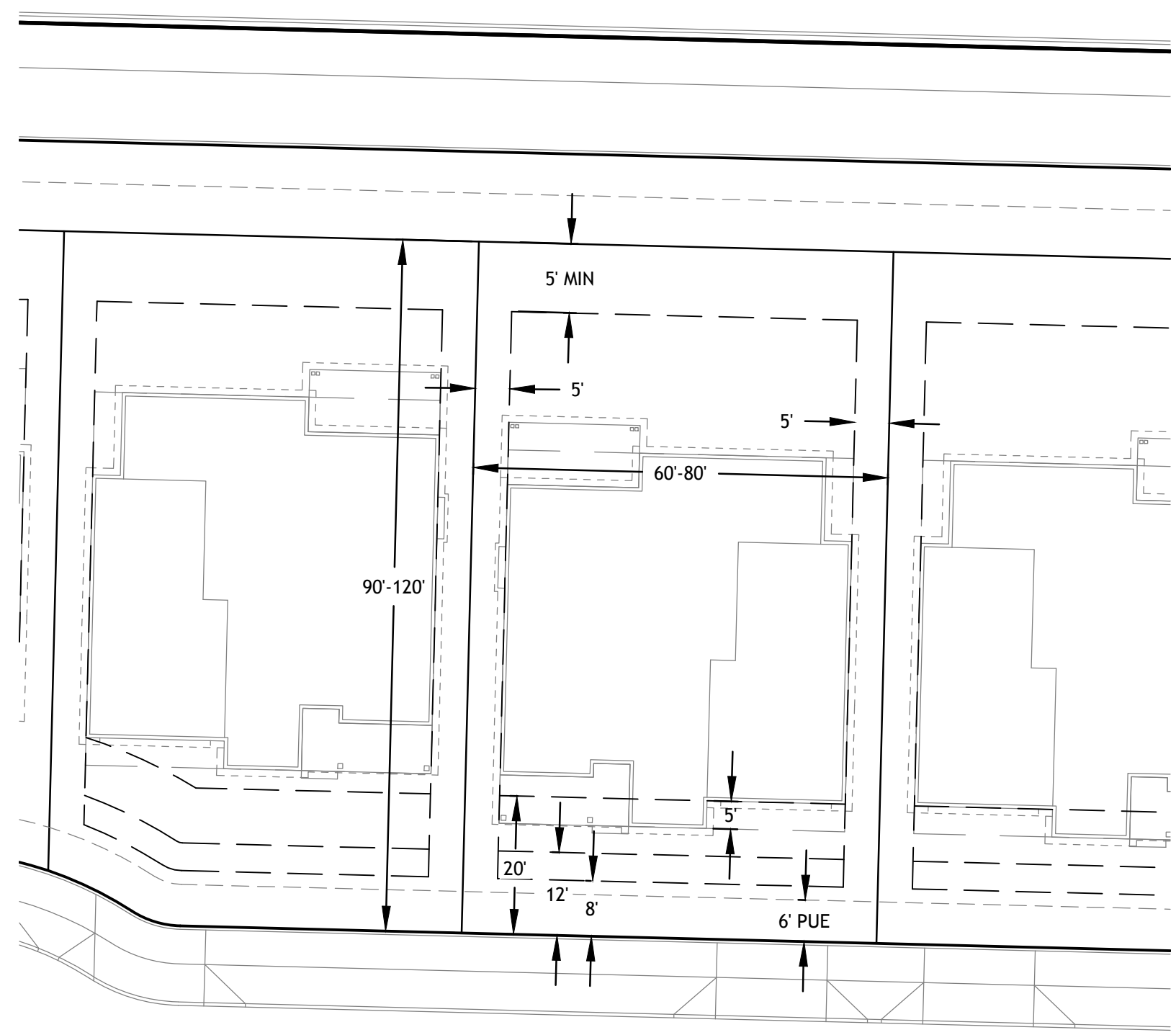


MEDIUM LOT
SCALE: 1"=20'

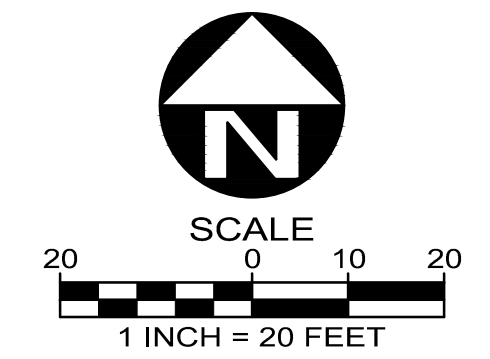
ASTERISK DENOTES
ACTIVE SIDE OF HOUSE
TYP.



STANDARD LOT
SCALE: 1"=20'



LARGE LOT
SCALE: 1"=20'



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GEODESIGN, INC

PDP 3N
VILLEBOIS

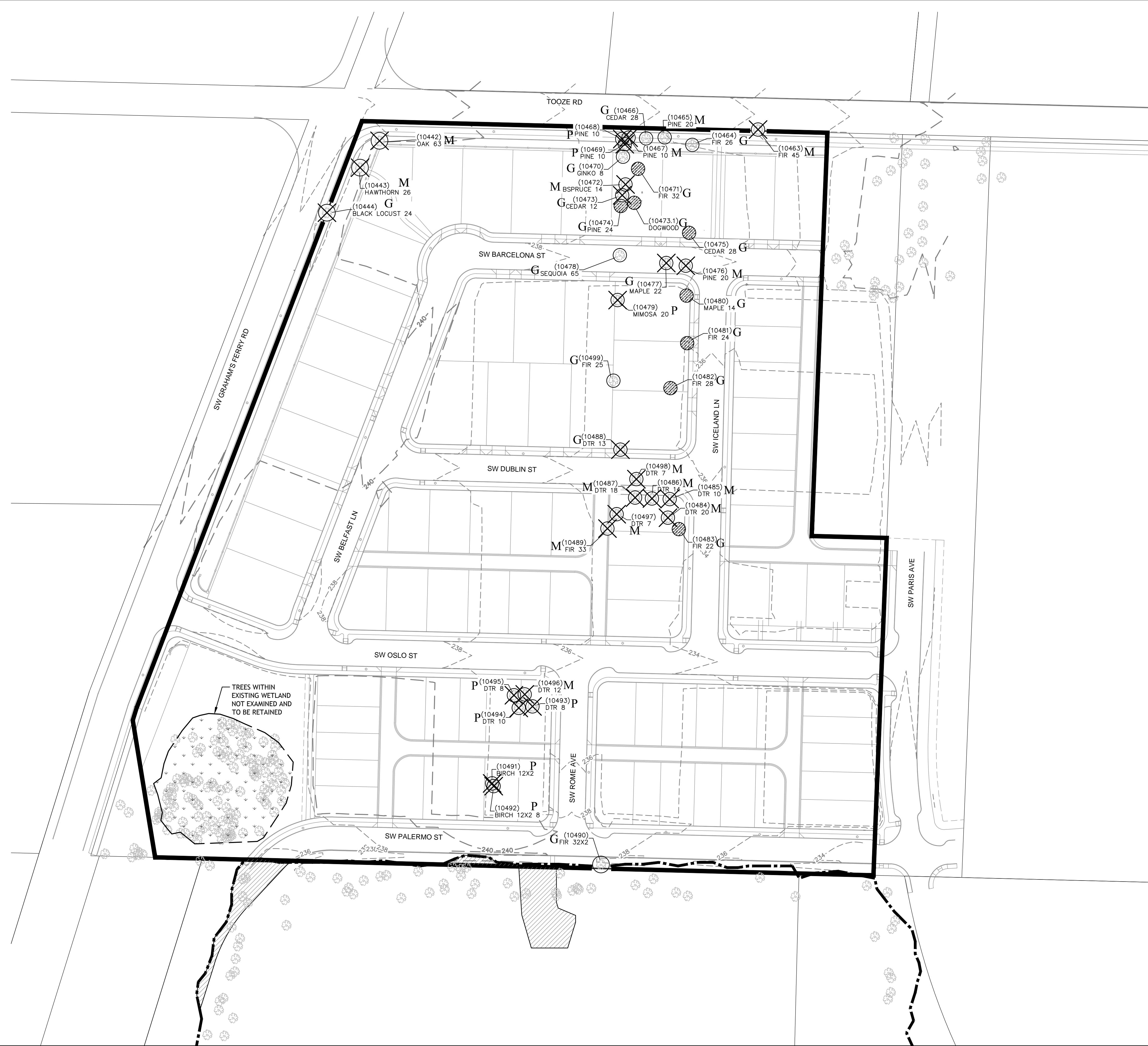
Preliminary
Development Plan

Typical
Lot Plans

DATE 1/31/14

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LEGEND:

- I IMPORTANT
- G GOOD
- M MODERATE
- P POOR
- NE NOT EXAMINED
- (Symbol: Circle with dot) EXISTING TREES TO REMAIN
- (Symbol: Circle with cross-hatch) EXISTING TREES LIKELY TO BE REMOVED
- (Symbol: Circle with X) EXISTING TREES TO BE REMOVED
- (Symbol: Hatched rectangle) SROZ ENCROACHMENT AREA
- (Symbol: Dashed rectangle) CREATED SROZ AREA
- (Symbol: Dashed line) SROZ BOUNDARY LINE

NOTES

ALL CONSTRUCTION AND GRADING WITHIN TREE PROTECTION ZONE IS TO BE COMPLETED UNDER DIRECT SUPERVISION OF PROJECT ARBORIST. CONTACT: MORGAN HOLAN PHONE: 503-646-4349

THE INTENT OF THE PLAN IS TO RETAIN AND INCORPORATE THE MAXIMUM QUANTITY OF TREES WITH IMPORTANT, GOOD, AND MODERATE CLASSIFICATIONS. THE FOLLOWING CLASSIFICATION SYSTEM WAS USED:

CLASSIFICATION METHOD:
TREES WERE RATED BASED ON THE FOLLOWING CONSIDERATIONS:

1. HEALTH
2. SPECIES (NATIVES WITH HABITAT AND ECOSYSTEM VALUE)
3. COMPATIBILITY WITH DEVELOPMENT
4. FORM / VISUAL INTEREST / MATURE SIZE

TREES RANKED AS IMPORTANT WERE RATED HIGH IN ALL FOUR AREAS.

TREES IN THE GOOD CATEGORY HAD GOOD HEALTH AND WERE A DESIRABLE SPECIES, BUT HAD IRREGULAR FORM OR LESS COMPATIBILITY WITH DEVELOPMENT.

TREES IN THE MODERATE CATEGORY HAD GOOD TO MODERATE HEALTH AND FORM, BUT WERE A LESS DESIRABLE SPECIES OR MAY BE LESS COMPATIBLE WITH DEVELOPMENT.

TREES IN THE POOR CATEGORY HAD POOR HEALTH AND/OR SUBSTANTIAL DAMAGE.

NOTES:

1. THE INFORMATION PROVIDED WITHIN THE PROJECT BOUNDARY IS BASED ON AN ON-SITE EVALUATION OF THE EXISTING TREES BY ARBORIST MORGAN HOLAN AND WAS PROVIDED IN A TREE REPORT DATE JANUARY 28, 2014 INCLUDED WITH THE APPLICATION MATERIALS.
2. RETAINED TREES WITHIN THE WETLAND HAVE NOT BEEN EXAMINED.

TREES WITHIN EXISTING WETLAND NOT EXAMINED AND TO BE RETAINED



POLYGON NW COMPANY



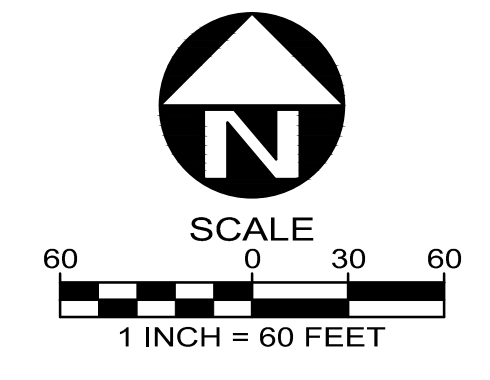
OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PDP 3N
VILLEBOIS**

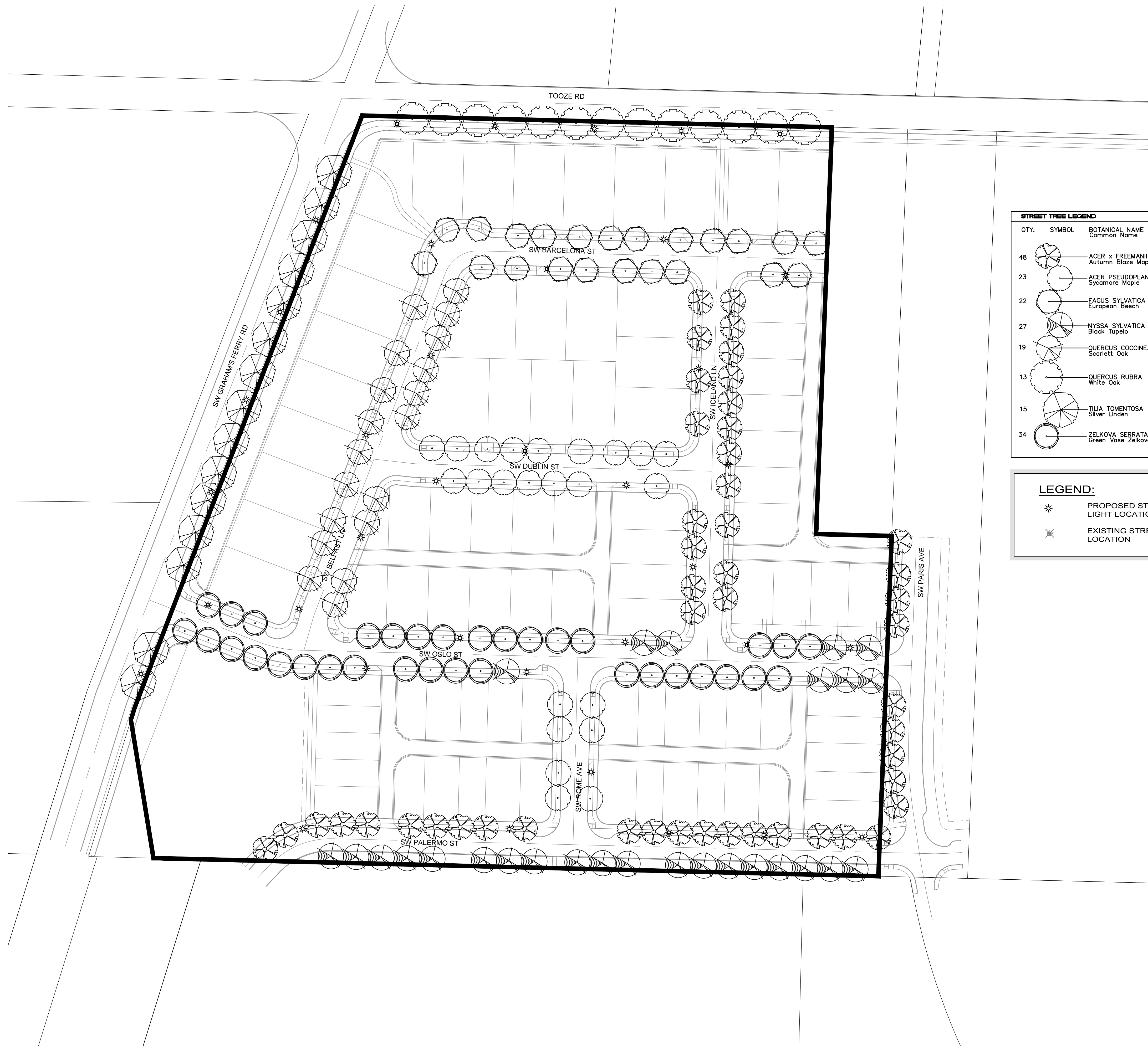
**Preliminary
Development Plan**

**Tree
Preservation
Plan**

DATE 1/31/14

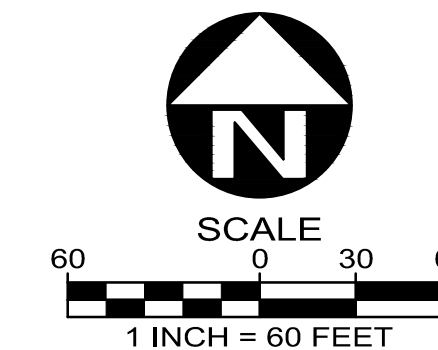


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QTY.	SYMBOL	BOTANICAL NAME Common Name	SIZE	SPACING
48		ACER x FREEMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
23		ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
22		FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
27		NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
19		QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
13		QUERCUS RUBRA White Oak	2 1/2" cal.	40' o.c.
15		TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
34		ZELKOVA SERRATA 'GREEN VASE' Green Vase Zelkova	2" cal.	30' o.c.

LEGEND:	
	PROPOSED STREET LIGHT LOCATION
	EXISTING STREET LIGHT LOCATION



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GEODESIGN, INC

PDP 3N
VILLEBOIS

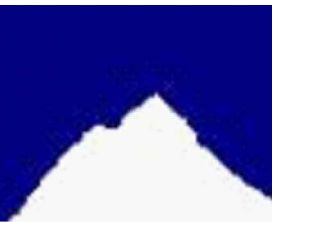
Preliminary
Development Plan

Street Tree
Plan

DATE 1/31/14



Villebois



POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC

PDP 3N
VILLEBOIS

Preliminary
Development Plan

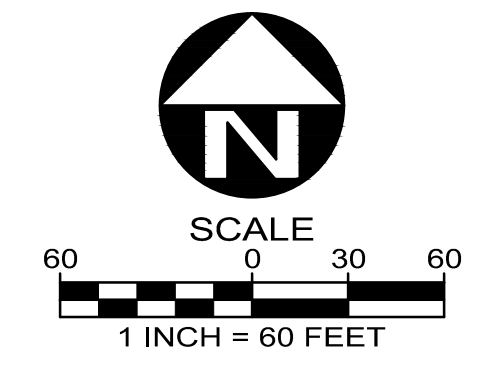
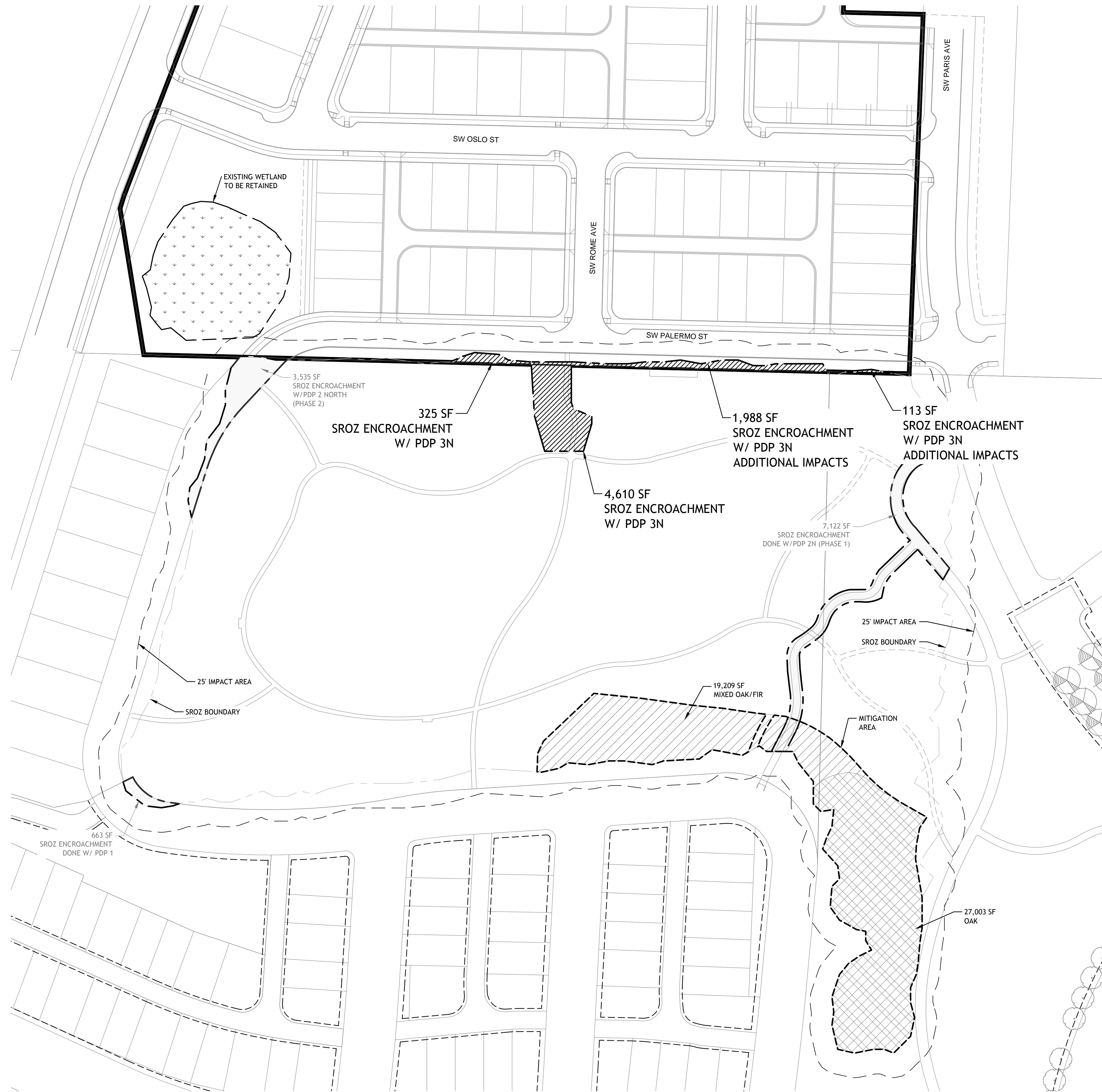
SROZ
Plan

DATE 1/31/14

12

SROZ ENCROACHMENTS AND MITIGATION

AREA OF LIMITED CONFLICT USE	430,988 SF
TOTAL AREA OF IMPACT PREVIOUSLY APPROVED	16,255 SF = 3.7%
PDP 3N ADDED AREAS OF IMPACT	1,988 SF + 113 SF
ADJUSTED TOTAL IMPACT AREA	18,356 SF = 4.3%
ADJUSTED MITIGATION AREA REQUIRED AT 2.5:1 RATIO	45,890 SF
PREVIOUSLY APPROVED MITIGATION AREA TO BE PROVIDED	46,212 SF



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PHASE 3 NORTH VILLEBOIS FINAL DEVELOPMENT PLAN

TL 1200, 1202, 1205, & A PORTION OF 2995, TOWNSHIP 3 SOUTH, RANGE 1 WEST, SECTION 15 W.M.
CITY OF WILSONVILLE, OREGON

APPLICANT:

POLYGON NORTHWEST COMPANY
109 E. 13TH ST.
VANCOUVER, WA 98660
[P] 503-221-1920
CONTACT: FRED GAST

PLANNER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
Tigard, OR 97223
[P] 503-941-9484
CONTACT: STACY CONNERY, AICP

CIVIL ENGINEER:

PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: JESSIE KING, PE

SURVEYOR:

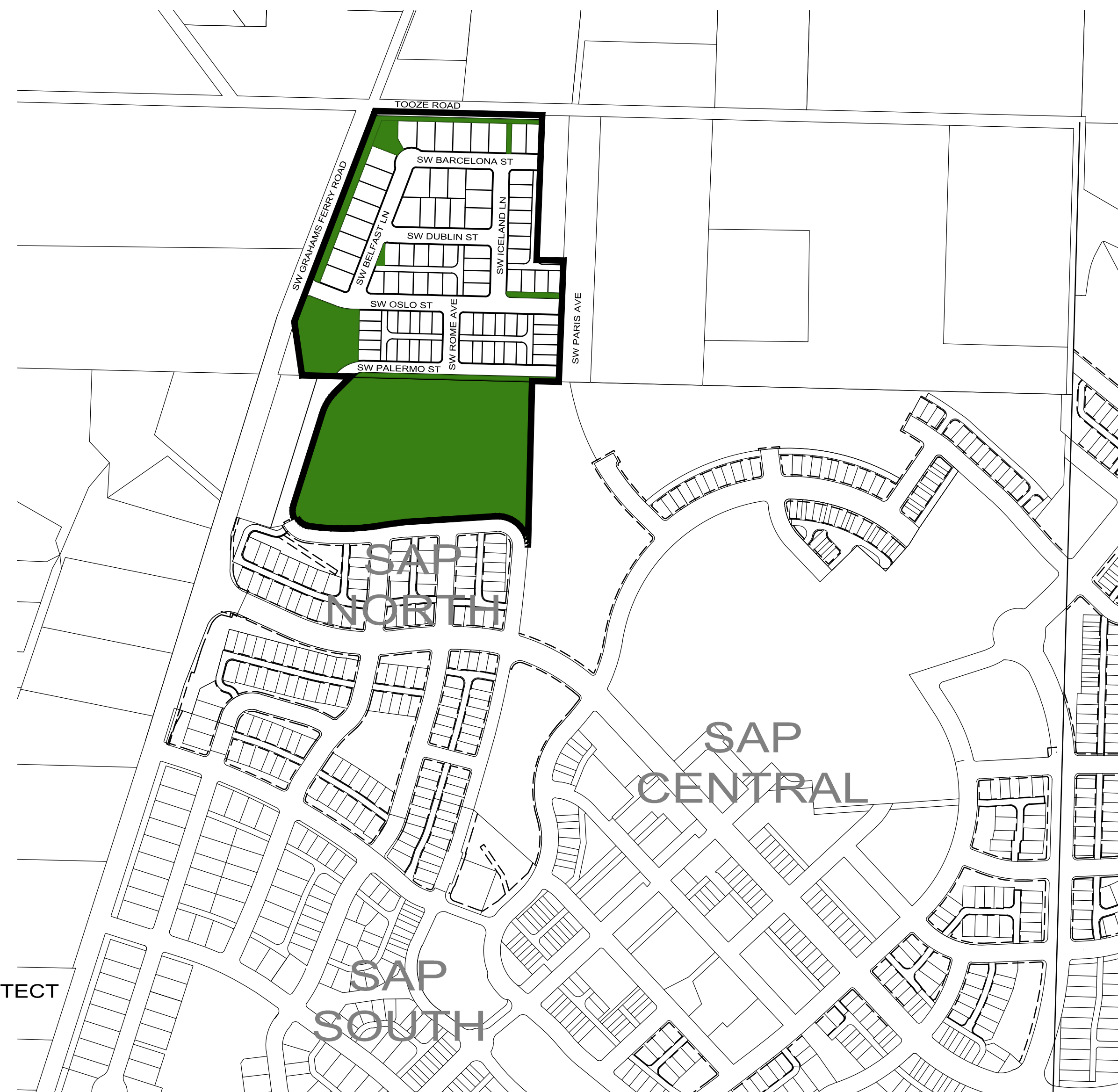
PACIFIC COMMUNITY DESIGN, INC
12564 SW Main Street
TIGARD, OR 97223
[P] 503-941-9484
CONTACT: TRAVIS JANSEN, PLS, PE

LANDSCAPE ARCHITECT:

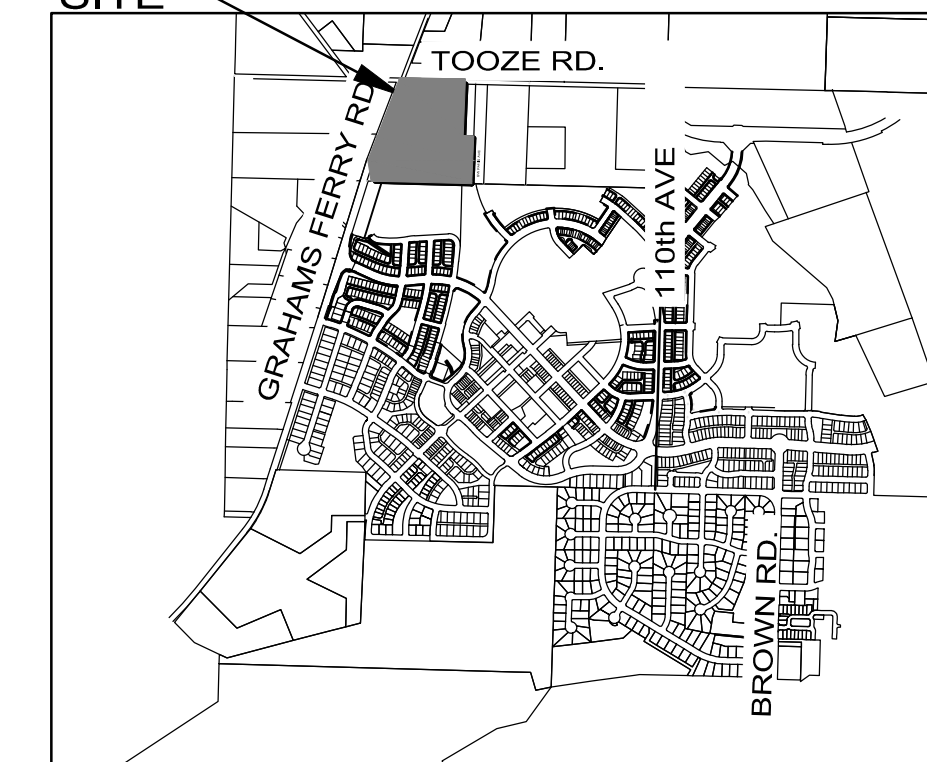
OTTEN LANDSCAPE ARCHITECTS, INC.
3933 SW KELLY AVE, SUITE B
PORTLAND, OR 97239
[P] 503-972-0311
CONTACT: JANET OTTEN, LANDSCAPE ARCHITECT

GEOTECHNICAL ENGINEER:

GEODESIGN, INC.
15575 SW SEQUOIA PARKWAY, SUITE 100
PORTLAND, OR 97224
[P] 503-968-8787
CONTACT: CRAIG WARE, PE



PROJECT SITE



VICINITY MAP

UTILITIES & SERVICES:

WATER:	CITY OF WILSONVILLE
STORM:	CITY OF WILSONVILLE
SEWER:	CITY OF WILSONVILLE
POWER:	PORTLAND GENERAL ELECTRIC
GAS:	NORTHWEST NATURAL
FIRE:	TUALATIN VALLEY FIRE & RESCUE
POLICE:	CLACKAMAS COUNTY SHERIFF
SCHOOL:	WEST LINN / WILSONVILLE SCHOOL DISTRICT 3JT
PARKS:	CITY OF WILSONVILLE
PHONE:	FRONTIER
WASTE DISPOSAL:	UNITED DISPOSAL SERVICE
CABLE:	COMCAST

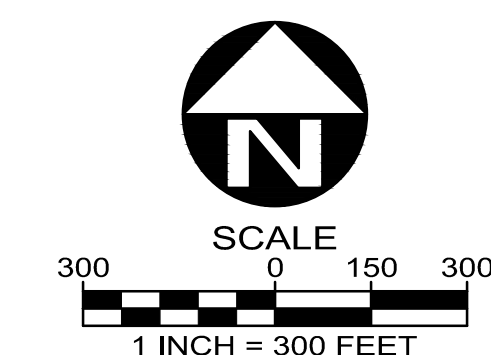
BENCHMARK:

OREGON STATE PLANE COORDINATE 5818 LOCATED IN MONUMENT BOX IN CENTERLINE OF TOOZE ROAD .2 MILES WEST OF 110TH.

ELEVATION DATUM: NAVD 88, ELEVATION = 202.991

SHEET INDEX:

- 1 COVER SHEET
- L1.0 LANDSCAPE PLAN
- L2.0 LANDSCAPE PLAN
- L3.0 LANDSCAPE PLAN
- L4.0 LANDSCAPE PLAN
- L5.0 LANDSCAPE DETAILS & SPECIFICATIONS



Villebois



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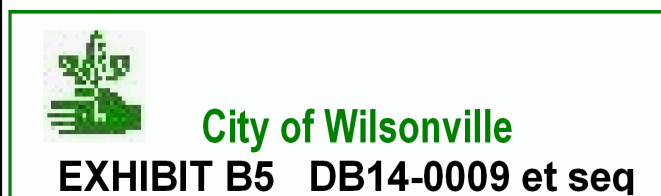


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GEODESIGN, INC

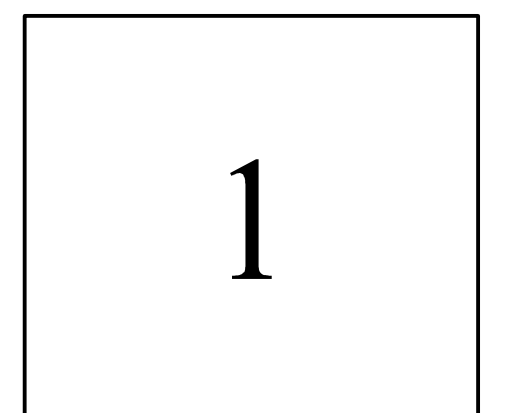
PDP 3N
VILLEBOIS

Final
Development
Plan

Cover Sheet

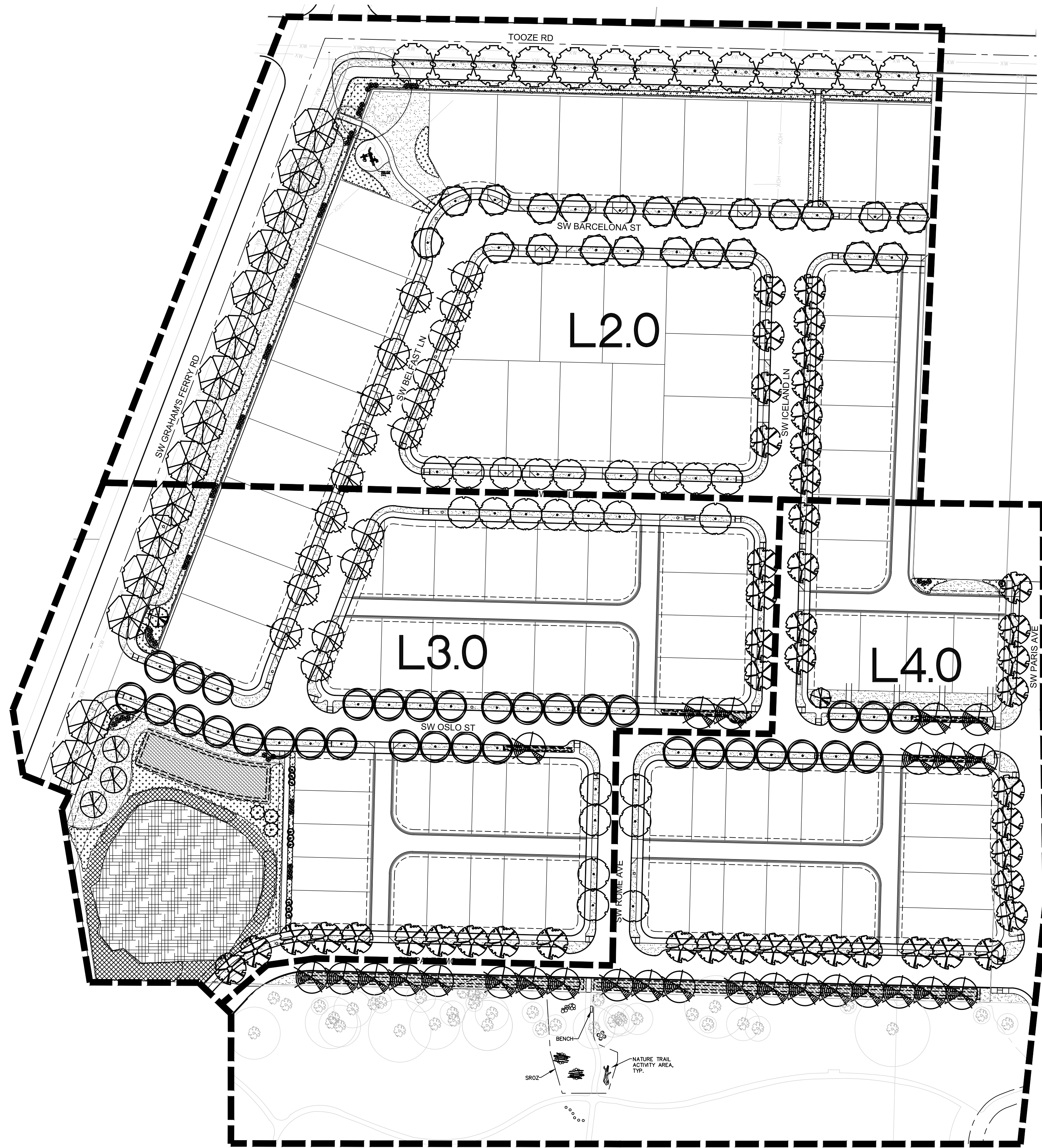


DATE 1/31/14



SUGGESTED PLANT LIST:

SYM.	LATIN NAME/ Common Name	SIZE	SPACING
STREET TREES			
	ACER X FREMANII 'AUTUMN BLAZE' Autumn Blaze Maple	2" cal.	30' o.c.
	ACER PSEUDOPLANTANUS Sycamore Maple	2" cal.	30' o.c.
	FAGUS SYLVATICA European Beech	2" cal.	30' o.c.
	NYSSA SYLVATICA Black Tupelo	2" cal.	30' o.c.
	QUERCUS COCCINEA Scarlett Oak	2" cal.	30' o.c.
	QUERCUS RUBRA Red Oak	2 1/2" cal.	40' o.c.
	TILIA TOMENTOSA Silver Linden	2 1/2" cal.	40' o.c.
	ZELKOVA SERRATA 'GREEN VASE' Green Vase Zelkova	2" cal.	30' o.c.
	Shade Tree Quercus rubra Fagus sylvatica Acer rubrum	2" cal.	As shown
	Small Columnar or Ornamental Trees Malus 'Snowdrift' Stewartia pseudocamellia Magnolia stellata 'Royal Star' Acer circinatum	1 3/4" cal.	As shown
	Conifer Tree Pseudotsuga menziesii Calocedrus decurrens	8' ht. 5-6' ht.	As shown
	Large Flowering Shrub Hamamelis mollis 'Coombe Wood' Viburnum plic. tom. 'Mariesii' Syringa microphylla 'Superba' Hydrangea macrophylla 'Nikko Blue'	5 gal.	5-6' o.c.
	Medium Ornamental Shrubs Abelia grandiflora 'Edward Goucher' Berberis thunbergii Ilex crenata Euonymus japonica 'Silver Princess' Lonicera nitida Pieris 'Forest Flame' Rhododendron Spiraea bumalda 'Anthony Waterer' Weigela florida Mahonia aquifolium	2-5 gal.	3-4' o.c.
	Native Shrub/ Groundcover Cornus stolonifera Symphoricarpos albus Arctostaphylos uva-ursi Mahonia repens	1 gal.	3'-5' o.c.
	Lawn Fine Seed Lawn	Seed	5 lbs./ 1,000 sq.ft.
	Existing Wetland		
	Water Quality Facility		
	To be Planted per City of Wilsonville Standards:	Trees: 6' ht./ 1.5" cal.	
	3 Evergreen trees/ 1,000 SF	Shrubs: 1 gal.	
	2 Deciduous trees/ 1,000 SF		
	30 Shrubs/ 1,000 SF		
	1 Wetland Plant/	Aquatic Plants:	
	2 SF Pond Emergent Zone	Plugs	

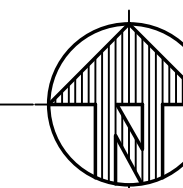


GENERAL NOTES:

- Contractor is to verify all plant quantities.
- Adjust plantings in the field as necessary.
- Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. System is to be design/build by Landscape Contractor. Guarantee system for a minimum one year. Show drip systems as alternate bid only.
- All plants are to be fully foliated, well branched and true to form.

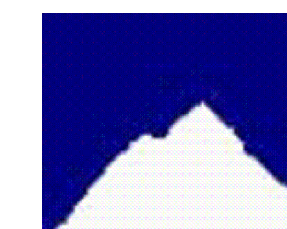
OVERALL LANDSCAPE PLAN

SCALE 1" = 60'-0"



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PHASE 3
NORTH
VILLEBOIS

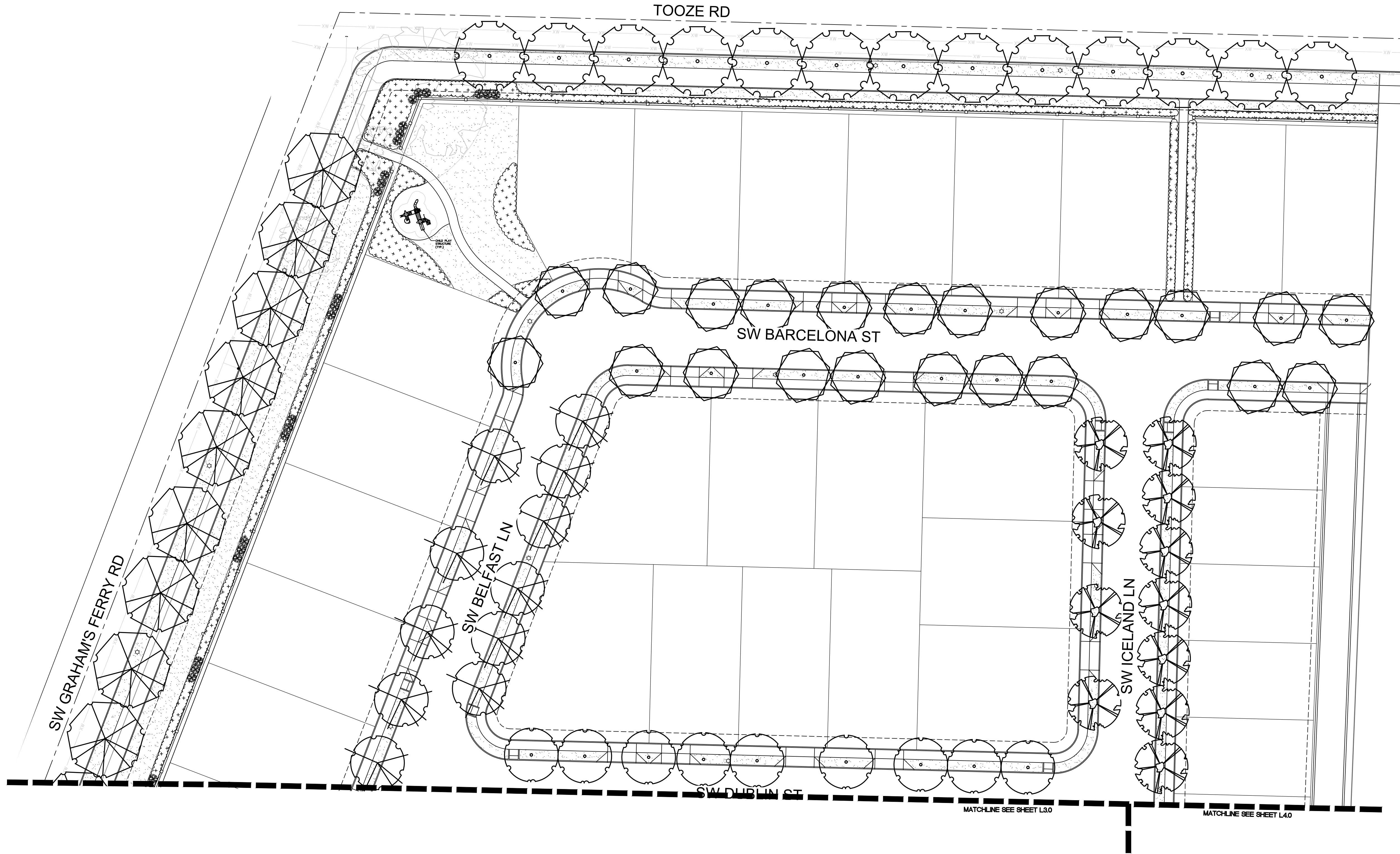
Preliminary
Development Plan

Landscape
Plan

DATE 1/20/13

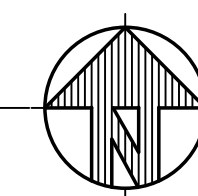
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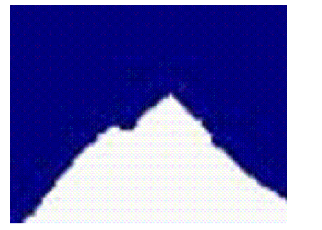
LANDSCAPE PLAN

SCALE 1" = 30'-0"



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PHASE 3 NORTH VILLEBOIS

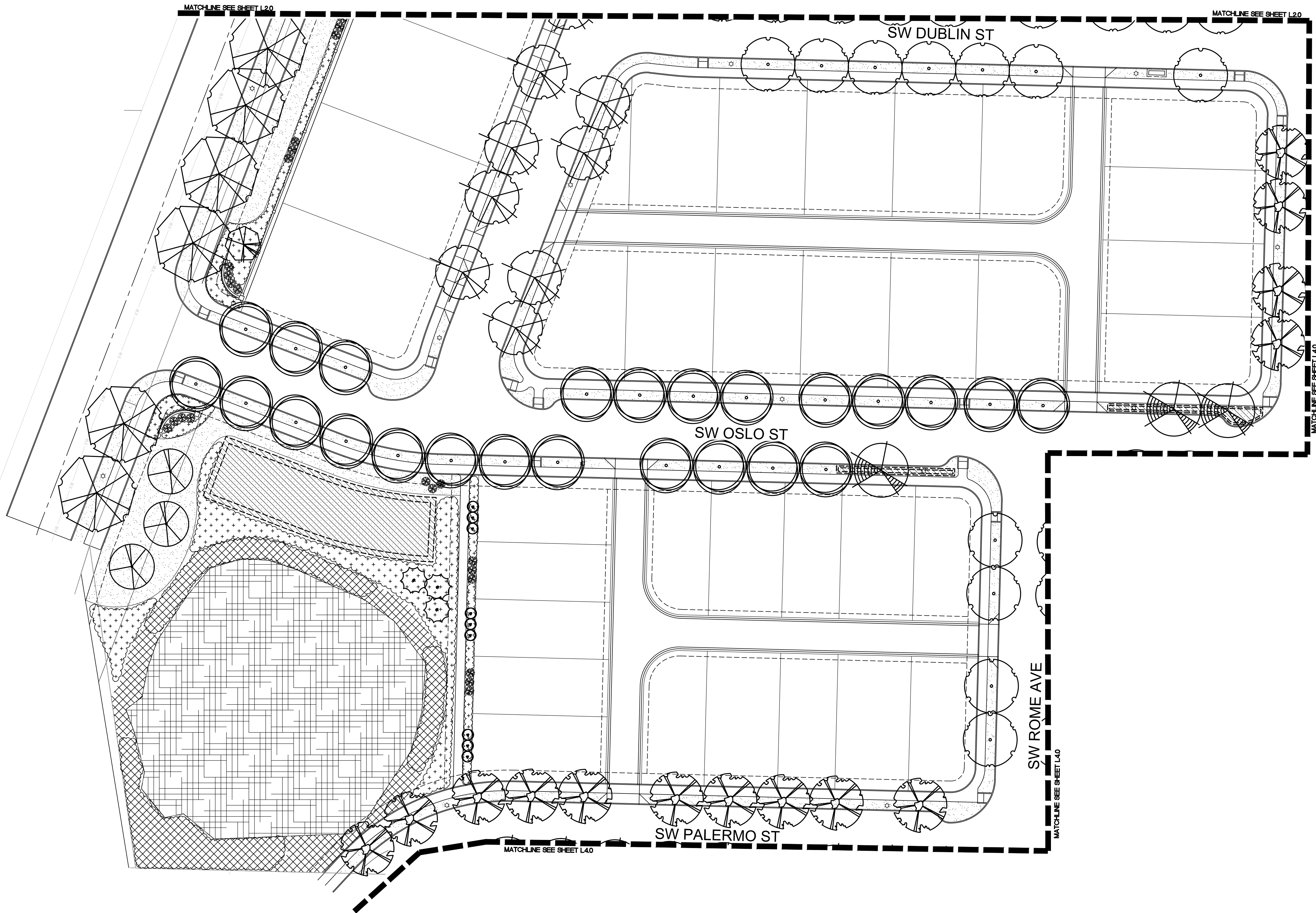
Preliminary
Development Plan

Landscape
Plan

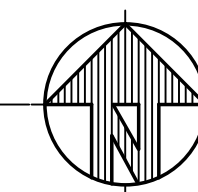
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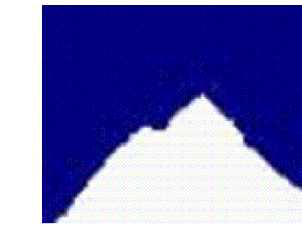
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LANDSCAPE PLAN
 SCALE 1" = 30'-0"



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**PHASE 3
 NORTH
 VILLEBOIS**

**Preliminary
 Development Plan**

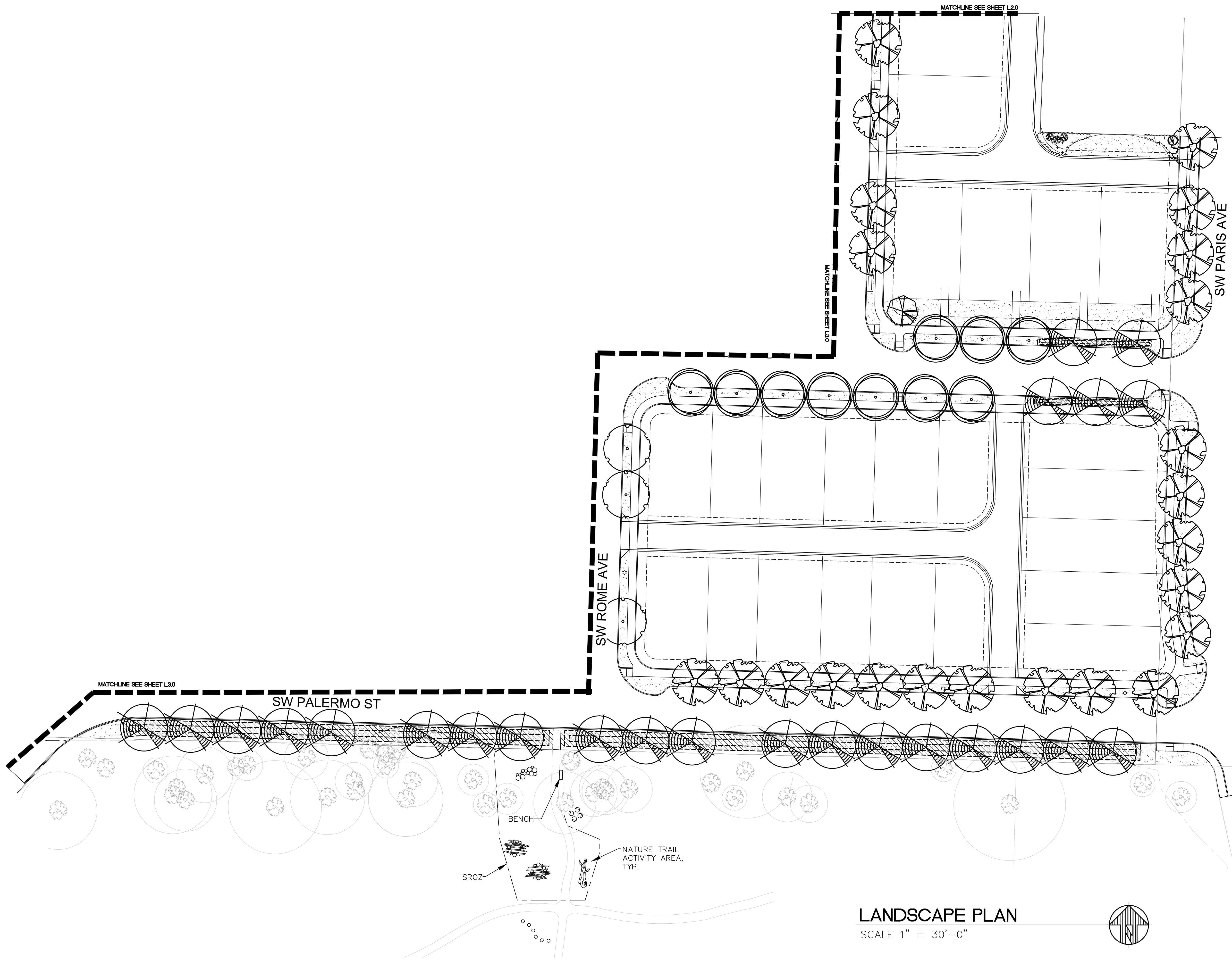
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 Plan**

DATE 1/20/13

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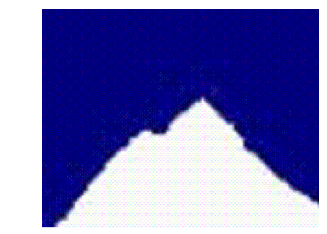
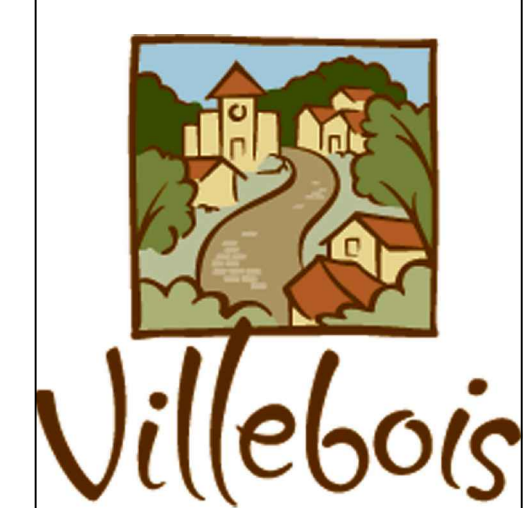
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LANDSCAPE PLAN
 SCALE 1" = 30'-0"

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**PHASE 3
 NORTH
 VILLEBOIS**

**Preliminary
 Development Plan**

**Landscape
 Plan**

DATE 1/20/13

L4.0
 4 OF 5

OUTLINE SPECIFICATIONS PLANTING AND SEEDING:

GENERAL: All plants shall conform to all applicable standards of the latest edition of the "American Association of Nurserymen Standards", A.N.S.I. Z60.1 – 1973. Meet or exceed the regulations and laws of Federal, State, and County regulations, regarding the inspection of plant materials, certified as free from hazardous insects, disease, and noxious weeds, and certified fit for sale in Oregon.

The apparent silence of the Specifications and Plans as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first quality are to be used. All interpretations of these Specifications shall be made upon the basis above stated.

Landscape contractor shall perform a site visit prior to bidding to view existing conditions.

PERFORMANCE QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary horticultural practices and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this section.

NOTIFICATION: Give Landscape Architect minimum of 2 days advance notice of times for inspections. Inspections at growing site does not preclude Landscape Architect's right of rejection of deficient materials at project site. Each plant failing to meet the above mentioned "Standards" or otherwise failing to meet the specified requirements as set forth shall be rejected and removed immediately from the premises by the Contractor and at his expense, and replaced with satisfactory plants or trees conforming to the specified requirements.

SUBSTITUTIONS: Only as approved by the Landscape Architect or the Owner's Representative.

GUARANTEE AND REPLACEMENT: All plant material shall be guaranteed from final acceptance for one full growing season or one year, whichever is longer. During this period the Contractor shall replace any plant material that is not in good condition and producing new growth (except that material damaged by severe weather conditions, due to Owner's negligence, normally unforeseen peculiarities of the planting site, or lost due to vandalism). Guarantee to replace, at no cost to Owner, unacceptable plant materials with plants of same variety, age, size and quality as plant originally specified. Conditions of guarantee on replacement plant shall be same as for original plant.

Landscape Contractor shall keep on site for Owner's Representative's inspection, all receipts for soil amendment and topsoil deliveries.

PROTECTION Protect existing roads, sidewalks, and curbs, landscaping, and other features remaining as final work. Verify location of underground utilities prior to doing work. Repair and make good any damage to service lines, existing features, etc. caused by landscaping installation.

PLANT QUALITY ASSURANCE: Deliver direct from nursery. Maintain and protect roots of plant material from drying or other possible injury. Store plants in shade and protect them from weather immediately upon delivery, if not to be planted within four hours.

Nursery stock shall be healthy, well branched and rooted, formed true to variety and species, full foliated, free of disease, injury, defects, insects, weeds, and weed roots. Trees shall have straight trunks, symmetrical tips, and have an intact single leader. Any trees with double leaders will be rejected upon inspection. All Plants: True to name, with one of each bundle or lot tagged with the common and botanical name and size of the plants in accordance with standards of practice of the American Association of Nurserymen, and shall conform to the Standardized Plant Names, 1942 Edition.

Container grown stock: Small container-grown plants, furnished in removable containers, shall be well rooted to ensure healthy growth. **Grow container plants in containers a minimum of one year** prior to delivery, with roots filling container but not root bound. Bare root stock: Roots well-branched and fibrous. Balled and burlapped (B&B): Ball shall be of natural size to ensure healthy growth. Ball shall be firm and the burlap sound. No loose or made ball will be acceptable.

TOPSOIL AND FINAL GRADES: Landscape Contractor is to verify with the General Contractor if the on site topsoil is or is not conducive to proper plant growth. Supply alternate bid for imported topsoil.

Landscape Contractor is to supply and place 12" of topsoil in planting beds and 6" in lawn areas. If topsoil stockpiled on site is not conducive to proper plant growth, the Landscape Contractor shall import the required amount. Landscape Contractor is to submit samples of the imported soil and/or soil amendments to the Landscape Architect. The topsoil shall be a sandy loam, free of all weeds and debris inimical to lawn or plant growth.

Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated. Planting bed grades shall be approximately 3" below adjacent walks, paving, finished grade lines, etc., to allow for bark application. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

CITY OF WILSONVILLE WATER QUALITY FACILITY SPECIFICATIONS:

SOIL PREPARATION: Remove all nonnative plant materials, including plants, roots, and seeds prior to adding topsoils. Till the sub-grade in these areas to a depth of at least four inches. Water Quality Swale area shall be over-excavated and filled to final grade with 4 inches of topsoil in areas where topsoil has been removed or not adequate. Topsoil shall be tested for the following characteristics provide a good growing medium:

- A) Texture
- B) Fertility
- C) Microbial

Incorporate 2" garden compost, free of conventional fertilizer, to a depth of 4" on all areas of the water quality facility. **DO NOT** apply fertilizer to the Water Quality Facility.

TIMING: Plantings should be installed between February 1 and May 1 or between October 1 and November 15. Bare root stock shall be installed only from December 15 through April 15. When plantings must be installed outside these times, additional measures may be needed to assure survival.

EROSION CONTROL: Grading, soil preparation, and seeding shall be performed during optimal weather conditions and at low flow levels to minimize sediment impacts. Site disturbance shall be minimized and desirable vegetation retained, where possible. Slopes shall be graded to support the establishment of vegetation. Where seeding is used for erosion control, an appropriate native grass, Regreen (or its equivalent), or sterile wheat shall be used to stabilize slopes until permanent vegetation is established. Biodegradable fabrics (coir, coconut or approved jute matting (minimum 1/4" square holes) may be used to stabilize slopes and channels. Fabrics such as burlap may be used to secure plant plugs in place and to discourage floating upon inundation.

A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the swale cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Use high density jute matting in the treatment area (Geojute Plus or approved equal). In all other areas use low density jute matting (EconoJute or approved equal). Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated on civil plans. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

HERBICIDES: Removal of invasive non-native species is required by hand for the entire wetland buffer area. If necessary, excessive weed growth may be treated with Rodeo or Garlon 3-A (or approved equals) in strict accordance with the manufacturer's instructions.

FERTILIZER: Do not apply fertilizer to any plantings within the Wetland Buffer or Water Quality Facilities.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Loosen and remove twine binding and burlap from top one-half of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with native soil mix while working each layer to eliminate voids.

MULCHING: Trees, shrubs, and groundcovers planted in upland areas shall be mulched a minimum of 3" in depth and 18" in diameter, to retain moisture and discourage weed growth around newly installed plant material. Appropriate mulches are made from composted bark or leaves that have not been chemically treated. The use of mulch in frequently inundated areas shall be limited, to avoid any possible water quality impacts including the leaching of tannins and nutrients, and the migration of mulch into waterways.

WILDLIFE PROTECTION: Appropriate measures shall be taken to discourage wildlife browsing. Biodegradable plastic mesh tubing, or other substitute approved by the City, shall be placed around individual trees and shrubs to prevent browsing by wildlife, including beaver, nutria, deer, mice and voles.

SEED: Bluetag grass seed conforming to applicable State laws. No noxious weed seeds. Submit Guaranteed analysis.

Moist Area Seed Mix: To contain 47% Blue Wildry, 40% Meadow Barley, 10% Tufted Hairgrass, 2% Western Mannagrass and 1% American Sloughgrass (Hobbs & Hopkins Pro-Time 840 Native Wetland Mix) Sow Seed at 20-40 lbs./acre.

Dry Area Seed Mix: To contain 60% Blue Wildry, 30% Meadow Barley and 10% Native California Brome (Hobbs & Hopkins Pro-Time 400 Native Grass Mix) Sow Seed at 15-30 lbs./acre.

IRRIGATION: Is to be provided as per a separate plan design/build by Landscape Contractor. Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. Guarantee system for a minimum one year.

MAINTENANCE: The permittee is responsible for the maintenance of this facility for a minimum of two years following the acceptance of the facility by the City of Wilsonville. The City's authorized representative shall inspect the condition of all landscaping located within the water quality facility, at the end of the of the first year of the post-construction period. The authorized representative shall provide a report describing any deficiencies to the applicant.

If, at any time during the warranty period, the landscaping falls below 90% survival of trees and shrubs or 90% aerial coverage, the Owner shall remove the undesirable vegetation and reinstall all deficient planting at the next appropriate time. Prior to replanting, the cause of the plant loss shall be determined and corrected. The two-year maintenance period shall begin again from the date of replanting.

Water Quality Facility is to be kept free of debris and maintained to insure water flow and proper functioning. Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance.

CLEAN-UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.

PLANTING SPECIFICATIONS:

HERBICIDES: Prior to soil preparation, all areas showing any undesirable weed or grass growth shall be treated with Round-up in strict accordance with the manufacturer's instructions. Nuisance plant removal in Open Space 2 shall be done by hand, cutting/pulling out at the base. Limited spot application of approved herbicide directly on the cut area of the stem is acceptable.

SOIL PREPARATION: Work all areas by rototilling to a minimum depth of 8". Remove all stones (over 1 1/2" size), sticks, mortar, large clumps of vegetation, roots, debris, or extraneous matter turned up in working. Soil shall be of a homogeneous fine texture. Level, smooth and lightly compact area to plus or minus .10 of required grades.

In groundcover areas add 2" of compost (or as approved) and fill in to the top 6" of soil.

PLANTING HOLE: Lay out all plant locations and excavate all soils from planting holes to 2 1/2 times the root ball or root system width. Loosen soil inside bottom of plant hole. Dispose of any "subsoil" or debris from excavation. Check drainage of planting hole with water, and adjust any area showing drainage problems.

SOIL MIX: Prepare soil mix in each planting hole by mixing:
2 part native topsoil (no subsoil)
1 part compost (as approved)

Thoroughly mix in planting hole and add fertilizers at the following rates:
Small shrubs - 1/8 lb./ plant
Shrubs - 1/3 to 1/2 lb./ plant
Trees - 1/3 to 1 lb./ plant

FERTILIZER: For trees and shrubs use Commercial Fertilizer "A" Inorganic (5-4-3) with micro-nutrients and 50% slow releasing nitrogen. For initial application in fine seed lawn areas use Commercial Fertilizer "B" (8-16-8) with micro-nutrients and 50% slow-releasing nitrogen. For lawn maintenance use Commercial Fertilizer "C" (22-16-8) with micro-nutrients and 50% slow-releasing nitrogen. **DO NOT** apply fertilizer to Water Quality Swale.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Place 6" minimum, lightly compacted layer of prepared planting soil under root system. Loosen and remove twine binding and burlap from top 1/2 of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with soil mix while working each layer to eliminate voids.

When approximately 2/3 full, water thoroughly, then allow water to soak away. Place remaining backfill and dish surface around plant to hold water. Final grade should keep root ball slightly above surrounding grade, not to exceed 1". Water again until no more water is absorbed. Initial watering by irrigation system is not allowed.

STAKING OF TREES: Stake or guy all trees. Stakes shall be 2" X 2" (nom.) quality tree stakes with point. They shall be of Douglas Fir, clear and sturdy. Stake to be minimum 2/3 the height of the tree, not to exceed 8'-0". Drive stake firmly 1'-6" below the planting hole. Tree ties for deciduous trees shall be "Chainlock" (or better). For Evergreen trees use "Gro-Straight" Tree Ties (or a reinforced rubber hose and guy wires) with guy wires of a minimum 2 strand twisted 12 ga. wire. Staking and guying shall be loose enough to allow movement of tree while holding tree upright.

MULCHING OF PLANTINGS: Mulch planting areas with dark, aged, medium grind fir or hemlock bark (aged at least 6 months) to a depth of 2" in ground cover areas and 2 1/2" in shrub beds. Apply evenly, not higher than grade of plant as it came from the nursery, and rake to a smooth finish. Water thoroughly, then hose down planting area with fine spray to wash leaves of plants.

FINE LAWN AREAS: In fine lawn area apply Commercial Fertilizer Mix "B" at 4.5 lbs. Per 1,000 sq.ft. and rake into soil surface. Establish an even, fine textured seedbed meeting grades, surfaces and texture. Sow seed with a mechanical spreader at the uniform rates as noted below. Rake seed lightly to provide cover.

ROUGH SEED AREA: In rough seeded area, establish an evenly graded seedbed. Sow seed with a mechanical spreader at the uniform rates as noted below. Rake seed lightly to provide cover.

SEED: Bluetag grass seed conforming to applicable State laws. No noxious weed seeds. Submit Guaranteed analysis.

Fine Lawn Seed Mix: To contain 50% Top Hat Perennial Ryegrass, 30% Derby Supreme Ryegrass, 20% Longfellow Chewings Fescue (Hobbs and Hopkins Pro-Time 303 Lawn Mix or as approved) Sow Seed at 5 lbs. / 1000 sq. ft.

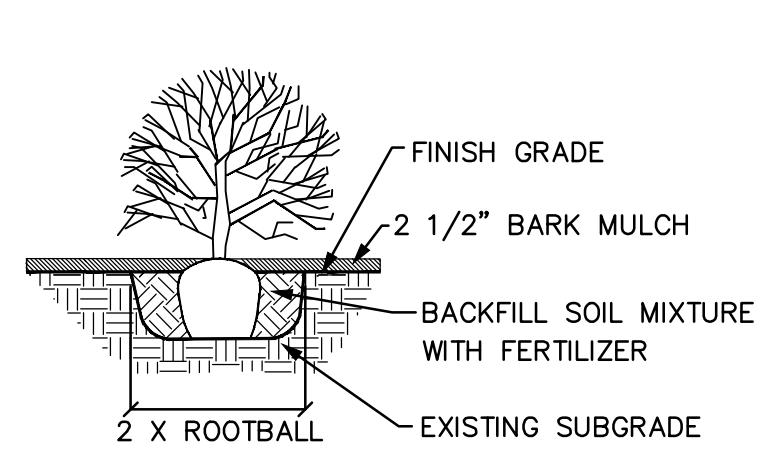
Rough Seed Mix: To Contain: 60% Perennial Ryegrass, 15% Eureka Hard Fescue, and 20% Herbaceous Plants and Clover (Hobbs and Hopkins Pro-Time 705 PDX, or approved equal). Sow at 2 lbs. Per 1,000 sq.ft.

MAINTENANCE OF SEEDED AREAS:

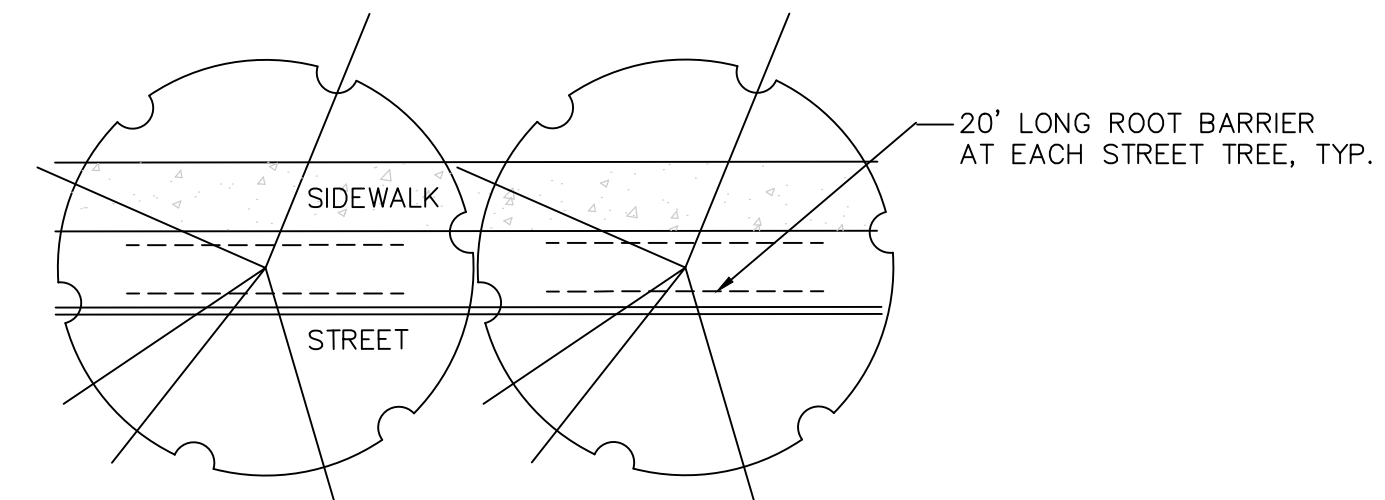
Fine Lawn Areas: The lawn areas shall be maintained by watering, mowing, reseeding, and weeding for a minimum of 60 days after seeding. After 30 days, or after the second mowing, apply Commercial Fertilizer Mix "C" at 5 lbs. per 1,000 sq. ft. Mow and keep at 1 1/2" to 2" in height. Remove clippings and dispose of off site.

GENERAL MAINTENANCE: Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance. Replace plants not in normal healthy condition at the end of this period. Water, weed, cultivate, mulch, reset plants to proper grade or upright position, remove dead wood and do necessary standard maintenance operations. Irrigate when necessary to avoid drying out of plant materials, and to promote healthy growth.

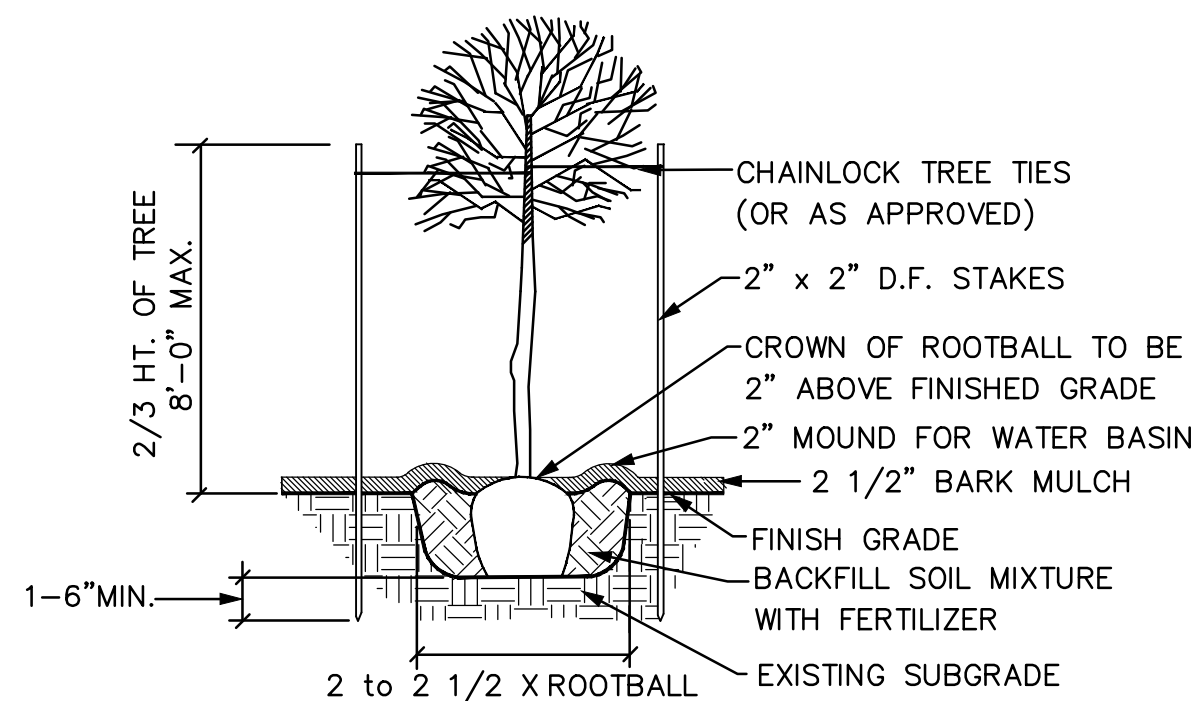
CLEAN-UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.



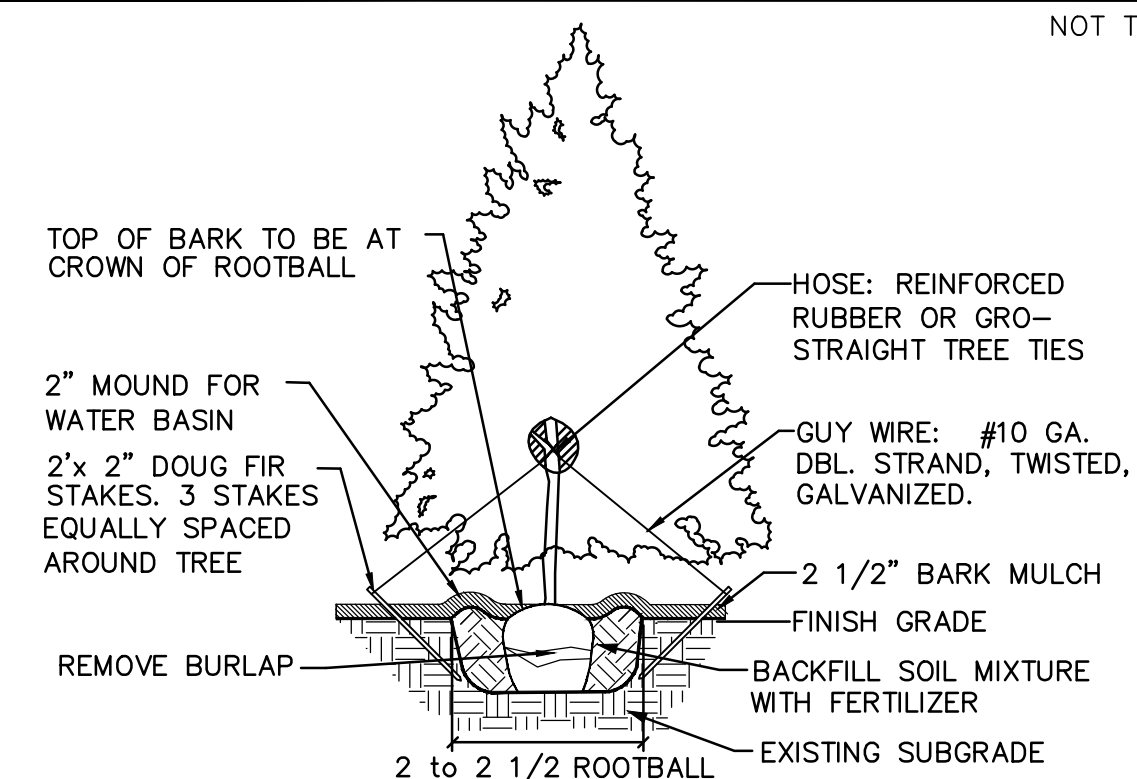
SHRUB PLANTING DETAIL
NOT TO SCALE



ROOT BARRIER DETAIL
NOT TO SCALE

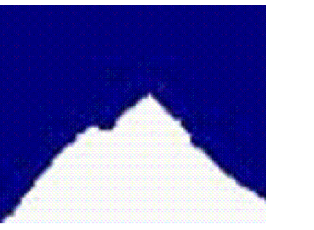
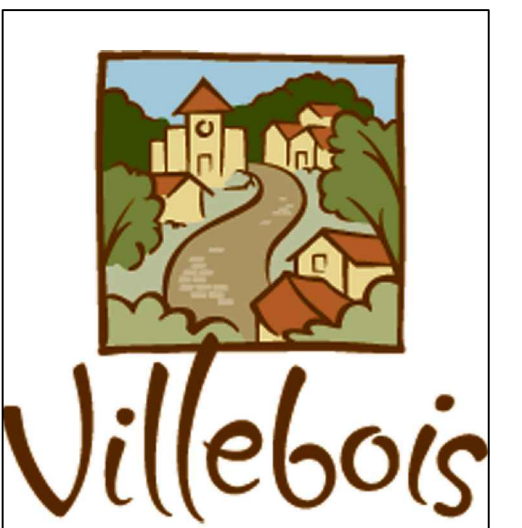


DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



EVERGREEN TREE STAKING DETAIL
NOT TO SCALE

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POLYGON NW COMPANY



OTTEN LANDSCAPE ARCHITECTS, INC.
GEODESIGN, INC.

**PHASE 3
NORTH
VILLEBOIS**

**Preliminary
Development Plan**

**Landscape
Details &
Specifications**

DATE 1/20/13

L5.0

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, MAY 12, 2014

6:30 PM

VIII. Board Member Communications:

**A. Agenda Results from the April 28, 2014 DRB
Panel B meeting**

City of Wilsonville

Development Review Board Panel B Meeting Meeting Results

DATE: APRIL 28, 2014		TIME END: 7:17 P.M.
LOCATION: 29799 SW TOWN CENTER LOOP EAST, WILSONVILLE, OR		
TIME START: 6:30 P.M.		

ATTENDANCE LOG

BOARD MEMBERS	STAFF
Andrew Karr, Chair	Blaise Edmonds
Dianne Knight	Barbara Jacobson
Aaron Woods	Daniel Pauly
Jhuma Chaudhuri	
Cheryl Dorman was absent.	

AGENDA RESULTS

AGENDA	ACTIONS
CITIZENS' INPUT	None
ELECTION OF 2014 CHAIR AND VICE-CHAIR	
Chair	Andrew Karr unanimously elected 2014 DRB-B Chair
Vice-Chair	Aaron Woods unanimously elected 2014 DRB-B Vice-Chair
CONSENT AGENDA	
A. Approval of March 24, 2014 Minutes	
PUBLIC HEARING	
A. Resolution 276. World of Speed Museum Signs: Siteworks Design Build – representative for DSRA LLC –owner. The applicant is requesting a Master Sign Plan modification and Sign Waivers for the World of Speed Museum. The site is located on Tax Lots 400 and 500, Section 11D; T3S-R1W; Clackamas County; Wilsonville, Oregon. Staff: Daniel Pauly Case File: DB14-0026 – Master Sign Plan modification and Sign Waivers	A. Resolution 276 unanimously approved as amended and with the addition of Exhibits B5 and B6
BOARD MEMBER COMUNICATIONS	
A. Results of the April 14, 2014 DRB Panel A meeting	
STAFF COMMUNICATIONS	Training session for all boards and commission with City Council on May 17, 2014