Project Narrative:

30535 SW Magnolia Avenue
Wilsonville, Oregon
97070

Presented by base design + architecture, llc | July 17, 2020 (REVISED)

City of Wilsonville
Exhibit B1 DB19-0047 et seq

base DESIGN + ARCHITECTURE LLC

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PROJECT SUMMARY

SITE INFORMATION

EXISTING SITE INFORMATION

ADDRESS: 30535 SW Magnolia Avenue
LOT SIZE: 16,552 SQFT

ZONE: PDC
OVERLAY: Old Town Neighborhood
OTHER: Square 76 Plan

SETBACKS:
Front: 20'
Side: 10'
Rear: 20'
Garage: 20'

PARKING REQUIREMENTS:
Car: 1 per dwelling unit
Bike: 2 Minimum

OUTDOOR:
25% ' Open Space'
1000 sqft min. Recreational Space

HEIGHT MAXIMUM: 35'

PROPOSED PROJECT INFORMATION

BUILDING FOOTPRINT: 3492 sf Total
Building A: 1781 sf
Building B: 1711 sf

UNITS: 6 Total
Net Leasable Area:
(2) 3-Bedroom, 1288 sf
(2) 2-Bedroom Plus, 1509 sf
(2) 2-Bedroom, 1797 sf

PARKING:
Bike: 2 Short-Term
Car: 12 Total (2 per dwelling unit)
Garage: 6 (1 per dwelling unit)
Driveway: 4
Easement: 2 Compact

OUTDOOR:
25% open space
1000sf recreational space

BUILDING HEIGHT: 33' @ T.O. Gable

BACKGROUND INFORMATION

ACCOMMODATING NEW GROWTH IN A CHANGING REGION

Originally occupied by the Kalapuyan People, the region now known as Wilsonville offered resources along the Willamette River, making it a desirable place to settle. Alphonso Boone settled in the area in 1846, which is where he established his Boones Ferry- servicing the Willamette River. (The street to the west of our site is still called 'Boones Ferry' today.) The community would not be incorporated as a city until 1968— over 120 years later. Like the rest of the Pacific Northwest region, Wilsonville has experienced substantial population growth. This is in part due to the growing populations in the Portland Metropolitan Area as the tech, education, and mass timber industries grow. Since its incorporation in 1968, Wilsonville's population has grown from 1000 to an estimated 24,500.

The site was zoned as PDC (Commercial), and neighbored both residential and industrial zones. In an effort to help plan the growth of the newly incorporated Wilsonville, the central portion of the city adopted the Square 76 Plan—showing 30535 SW Magnolia as a site for multi-family housing development. Several sites north of 30535 have since been developed for multi-family housing, placing the site under consideration at a point of transition from single family to multi-family residential.

The site under consideration is located at the north end of Magnolia Avenue, which is located in the Old Town Neighborhood- this area was officially organized by a neighborhood association in 2011. This association drafted their own neighborhood plan in an effort to keep any future developments consistent with that architectural style used for development in the 1970s.

The resulting situation is a site with three different designations: zoned as commercial with the City, as Multi-Family per the Square 76 Plan, and as Single-Family Residential per the Old Town Neighborhood Plan. The proposed project aims to incorporate all of these opposing forces for a design solution that offers a development that serves a link between the neighboring sites.

RELEVANT DESIGN ISSUES:

LANDLOCKED SITE: The current site is located at the dead-end street called SW Magnolia Avenue. This street was presumably designed to be a thoroughfare up to NW Bailey Street, but its access was closed off with the construction of the multi-family complex to the north of the site. The result is that the site has no direct access to SW Magnolia. A single-family residence that used to exist on the site, used a makeshift driveway at the southeast corner of the lot. This has since made into an easement for driveway access for 30535 SW Magnolia in 2018. The proposed design aims to incorporate this easement for driveway and off-street parking purposes for tenants of the site.

ZONING: The complexity of zoning on this site is a key issue in this design review process.

RELEVANT DESIGN ISSUES

RELEVANT DESIGN ISSUES CONT'D:

The site is zoned as commercial, multi-family residential, as well as single-family residential. The proposed design incorporates a multi-family development that is designed in a way to emulate traditional single-family scales. It is the design team's understanding that although the site is zoned as commercial, in speaking with the City Planners and neighborhood that this would not be appropriate use for the site on the otherwise residential street that is SW Magnolia.

AESTHETICS AND HISTORICAL CONTEXT: The following narrative is responding specifically to the Old Town Neighborhood Design Guidelines. The purpose of the guidelines state: *"This overlay district is intended to create a modern interpretation of a traditional old town main street and mixed use neighborhood."* The proposed design incorporates a traditional townhome style construction, which allows for individual identification of each unit as well as a massing that is suitable for the surrounding residential neighborhood. This proposal looks to capitalize on the transitional nature of this site and provide a design that can be seen as a buffer between the larger multi-family complexes to the north of the property and the single-family community to the south. The typology, a walk-up 6-plex, is in and of itself a buffer, creating a multi-family use that is in-line with the properties north of it, while creating a scale and architectural language that is more applicable to individual, single-family residences. The design strives to utilizes traditional design characteristics denoted in the *Wilsonville Old Town Single-Family Design Standards*, to better meet the desired design aesthetic of the neighborhood. The modern interpretation of a cross-over between Western Farmhouse and Ranch stylings denoted as two of the predominate design styles of the neighborhood is what the design team settled on. The proposed design incorporates many of the design elements specifically called out within the standards, such as the expressed gable roof profile and covered entry of Western Farmhouse and the attached garage and large street-facing picture windows.

Additionally, the design team looked to stay close to the identified building height denoted for Western Farmhouse (28'), while achieving the third story necessary for this type of building typology and site density. As well, the gable roof pitch is a blend of these two styles at 6.5:12, seeing as the high end of the Ranch style is 6:12 and the low end of the Western Farmhouse style is 7:12.

As these are walk-up multi-family units in a townhouse configuration, the design team looked to incorporate these expressed gable porches and asymmetrical elements common within the Ranch style in a more applicable manner, through the third floor balconies that are still forward facing and capture the gable profile of those entry porches.

RELEVANT DESIGN ISSUES

RELEVANT DESIGN ISSUES CONT'D:

Beyond this the design team looked to incorporate other aspects of the *Old Town Overlay Zoning Code* not discussed in these standards, as noted below. These components include the utilization of the site layout to help break up the building scale, buffer the building(s) from the street, and the utilization of durable contemporary materials that are in-line aesthetically with the historical architecture of the area. The end goal being a modern interpretation of the historically appropriate architectural styles emblematic of the area, while also functioning as a transitional site between the larger commercial and multi-family residential properties to the north and the smaller, single-family residential properties to the south.

Please see the attached design package and its included site and massing diagrams, as well as historical precedents for additional information regarding the design and its incorporation of these historical design components.

NEIGHBORHOOD MEETING

The following items are an abridged account of the findings from our Neighborhood Meeting we voluntarily held. These were the key items the members of the community noted during our discussion.

On October 29th, the design team held a neighborhood meeting with the Old Town Neighborhood Association. Representatives Monica Keenan and Doug Muench acted as the key contacts to the rest of the neighborhood. They also helped to draft the Old Town Neighborhood Design Standards, referenced often in this narrative.

Some key issues brought forth during the neighborhood meeting are as follows:

OFF-STREET PARKING & DENSITY: The neighbors are concerned about adding density to this lot, given that the on-street parking is already quite limited for current residents. It is their concern that the addition of new residents will increase the difficulty of current residents to find parking near their homes. Although the proposed design incorporates the code minimum of one parking space per dwelling unit, the neighborhood expressed concern that these spaces were offered in the dwelling unit's garages. The concern is that garages are often used for storage and not for parking. We have increased our site parking to 12 spaces in order to address this issue.

BUILDING HEIGHT & PRIVACY: : The neighbors expressed concern about a 3-story building on this site in that it would threaten the privacy of nearby neighbors. The design team has worked to accommodate covered parking, an open site plan with shared recreation space, as well as adequate

RELEVANT DESIGN ISSUES

NEIGHBORHOOD MEETING CONT'D:

living space for the proposed units. In an effort to minimize the effect of a 3-story building, we have proposed a gabled roof, with it's maximum peak at 33', which is 2' below the maximum height.) The lowest point of the gable is at 28' above grade. We also are working with a landscape designer to mitigate any visual connections to neighboring sites by planting along the border of the site. Window placement has also been taken heavily into consideration.

ARCHITECTURE : During the neighborhood meeting, multiple members expressed their appreciation of the design team's effort to introduce an architecture that adheres to the design guidelines put forth by the *Old Town Single-Family Design Standards.* It was expressed multiple times that the building itself was pleasing aesthetically. Much of the team's presentation to the neighbors involved the strategy and ambition to design within the guidelines and blend their aesthetic characteristics into a cohesive, modern interpretation.

NEIGHBORHOOD INFORMATION:

List of Properties & Owners within 250'

Address	Owner
9310 SW BAILEY ST, WILSONVILLE, OR 97070	KWDS LLC
30520 SW BOONES FERRY RD, WILSONVILLE, OR 97070	ANDERSON, JEAN R
30550 SW BOONES FERRY RD, WILSONVILLE, OR 97070	LOCHMANN, MARIA-LUISE A TRUSTEE
30555 SW MAGNOLIA AVE, WILSONVILLE, OR 97070	LAWRENCE JAMES NATHAN & SANDRA
30570 SW MAGNOLIA AVE, WILSONVILLE, OR 97070	MORGAN, KELLY
30580 SW BOONES FERRY RD, WILSONVILLE, OR 97070	M&D EQUITIES, LLC
30595 SW MAGNOLIA AVE, WILSONVILLE, OR 97070	MENDOZA, SHELLY J
30590 SW MAGNOLIA AVE, WILSONVILLE, OR 97070	CONNIRY, MATTHEW J & ASHLEY M

RESPONSE TO KEY CODE CRITERIA

4.113 RESIDENTIAL DEVELOPMENT STANDARDS AND ZONING

4.113.01 Outdoor Recreational Area in Residential Developments

1. "designed with a reasonable amount of privacy balanced between indoor and outdoor living areas."

RESPONSE: The project proposes private patios for all 6 units, at the back of the buildings. These patios are separated by sizable planters, and at times, level changes to provide adequate privacy for each tenant. In addition, covered balconies for 4 of the 6 units are provided for even more privatized exterior space. Please see building plans and elevations for clarity on location of balconies and private patios.

2. "Recreational areas shall be provided in keeping with the needs of the prospective tenants and shall not be located in required yards, parking, or maneuvering areas, or areas that are inaccessible."

RESPONSE: The client has expressed since the beginning project phases that he would like to include shared barbecue and picnic space for the site, as well as communal children's play equipment. It is the intention to place these recreational items at the north side of the lot, and connected to the through path between buildings A and B. Please see the provided site plan for the location of these items.

3. "...Multi-family developments shall provide at least the following minimum recreational area:
   a. for ten or fewer dwelling units, 1000 square feet of usable recreation area..."

RESPONSE: The proposed project has designated 1000 square feet of usable recreation towards the north end of the lot and in the shared 'backyard' of the buildings. Please see our site plan and supplemental drawings with that area outlined specifically.

4.113.02 Open Space Area

A. Multi-family developments shall provide a minimum of 25% open space excluding streets and private drives. Open space must include, as a minimum natural areas that are preserved under the City's SROZ regulations, and outdoor recreational area as provided in 4.113(.01)(A)(1) through (5)

RESPONSE: The proposed project includes 35% of open space, including 1000 sf of recreational space. Please see the provided landscape plans which show conformance with SROZ regulations as well as the provided Architectural Site Plan which shows the open space provided.

RESPONSE TO KEY CODE CRITERIA

4.113 RESIDENTIAL DEVELOPMENT STANDARDS AND ZONING CONT'D

4.113.03 Building Setbacks

A. For lots over 10,000 square feet:

1. Minimum front yard setback: 20 feet

2. Minimum side yard setback: 10 feet

5. Minimum setback to garage door or carport entry: 20 feet

6. Minimum rear yard setback; 20 feet.

RESPONSE: Please see the provided architectural site plan which includes the required setbacks and building locations in relationship to them. The garages are well within the required setback, as are the buildings themselves.

4.118 STANDARDS APPLYING TO ALL PLANNED DEVELOPMENT ZONES

4.118.09 Habitat-friendly development practices. To the extent practicable, development and construction activities of any lot shall consider the use of habitat-friendly development practices, which include:

A. Minimizing grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;

B. Minimizing adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2 in Section 4.139.03, unless their use is prohibited by an applicable and required state or federal permit, such as a permit required under the federal Clean Water Act, 33 U.S.C. §§1251 et seq., or the federal Safe Drinking Water Act, 42 U.S.C. §§300f et seq., and including conditions or plans required by such permit;

C. Minimizing impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2 in Section 4.139.03; and

D. Using the practices described in Part (c) of Table NR-2 in Section 4.139.03.

RESPONSE: Please reference our enclosed landscape planting plans, Civil grading and stormwater plans, and the architectural site plans which address the habitat-friendly development practices. This site is relatively flat and the design team has worked to minimize additional grading on site. The stormwater is handled on-site through the use of flow-through planters and rain gardens and works with the building design, site design, and planting plan to efficiently treat the water and incorporate more naturally into the site. There are no wildlife corridors or fish passages on-site.

4.131 PLANNED DEVELOPMENT COMMERCIAL ZONE

4.131.01 The following shall apply to any PDC zone:

A. Uses that are typically permitted:

5. Any use allowed in a PDR Zone or PDI Zone, provided the majority of the total ground floor area is commercial, or any other commercial uses provided that any such use

is compatible with the surrounding uses and is planned and developed in a manner consistent with the purposes and objectives of Section 4.140.

RESPONSE: It is the client's, the neighborhood's, and the design team's opinion that the site in question should be used for residential purposes only, and that the need for commercial on the ground floor of a new development should be reconsidered. This site is located at the end of a residential street that does not connect directly to any major transit streets or thoroughfare and has limited foot traffic beyond the adjacent residential neighbors. The proposal is to include 6 townhomes without commercial programming on the ground floor.

4.133 WILSONVILLE ROAD INTERCHANGE AREA MANAGEMENT PLAN (IAMP) OVERLAY ZONE

4.133.01. Purpose. The purpose of the IAMP Overlay Zone is the long-range preservation of operational efficiency and safety of the Wilsonville Road Interchange, which provides access from and to Interstate 5 for residents and businesses in south Wilsonville. The Wilsonville Road Interchange is a vital transportation link for regional travel and freight movement and provides connectivity between the east and west side of the community. Preserving capacity and ensuring safety of this interchange and the transportation system in its vicinity is essential to existing businesses and residents in the southern parts of the city and to the continued economic and community growth and development in the vicinity of Wilsonville Road and the interchange.

RESPONSE: A traffic study has been performed by DKS Associates for this proposed development and it was determined that it would only generate 5 p.m. peak hour trips through the I-5/Wilsonville Road Interchange. The report also confirmed adequate pedestrian and bicycle access. The report denoted concerns regarding some of the on-site parking being provided and the design team worked to reconfigure the parking based off this analysis. A copy of the report is included in subsection (b) of the enclosed additional information.

4.138 OLD TOWN OVERLAY ZONE

4.138.01 Purpose. The purpose of this overlay zone is to establish the design standards that will be applied to developments within the Old Town neighborhood, mapped as the Boones Ferry District in the City's West Side Master Plan. The following purpose statement is not intended as a set of additional permit criteria. Rather, it is a description of the desired outcome as development occurs incrementally, over time. This overlay district is intended to create a

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

modern interpretation of a traditional old town Main Street and mixed use neighborhood. It is recognized that the Old Town neighborhood is of unique significance because of its existing pattern of mixed uses, its access to the Willamette River and because it was the original center of housing and commerce for the community.

RESPONSE: The ambition of the design team has been to create a modern interpretation of the traditional Main Street. The design team made an effort to include the Old Town Neighborhood community prior to submitting to the City for review in an effort to produce a design that adequately meets the guidelines set forth by the neighborhood. Local architecture from the immediate street and surrounding area was reviewed for both architectural aspects and scale. The design package includes the extensive findings from that research and denotes the particular components that were captured within the proposed design.

4.138.01.A. The standards of the "O" overlay zone are intended to assure that, through the appropriate use of architectural details, windows, building orientation, facades, and construction materials, new structures, and major alterations of existing structures, create a pleasing and pedestrian-friendly environment.

RESPONSE: The proposed design introduces 6 units at a scale that resembles a traditional main street orientation of townhomes rather than a single apartment building or block massing. This configuration is also in-line with the mixed-use and multi-family precedents that we found within the Willamette Valley from this historical period. The 6 units are broken up across two buildings on the site, with a path leading to the shared backyard separating the two. The two massings are broken up vertically to show the differentiation of each individual unit. This, along with the careful selection of materials, traditional architectural forms, and extensive outdoor space create a pleasing and pedestrian-oriented environment. The proposed design utilizes a varied material palette that emphasize the specific portions of the buildings that are in contact with the pedestrians and is carried through to the upper portions of the building that are in direct contact with the occupant. The addition of recesses and alcoves adds additional pedestrian engagement and functionality, similarly to how a traditional main street facade would engage the pedestrian.

4.138.01.B. It is the desire of the City to have commercial, industrial, multi-family, and mixed use buildings in the "O" overlay zone reflect a range of architectural types and styles that were popular in the Willamette

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

Valley from approximately 1880 to 1930 and for single-family homes to be consistent with and enhance the historic small town residential character of the neighborhood. The following design standards are intended to further define those characteristics that will convey the desired architecture.

Section 4.138.05 Standards for Development Subject to Site Design Review

B. Landscaping - Not less than fifteen (15) percent of the development site shall be landscaped. In the event that a building is set back from a street side property line, along Boones Ferry Road, Bailey Street, or 5th Street, the intervening area shall be landscaped. In reviewing proposals for parking lots in locations between buildings and streets, the Development Review Board may require special landscaping treatments or designs to screen the view of the parking lot from the public right-of-way.

RESPONSE: Please see the included Landscape Area Plan showing the 15% landscaped area on the site being met. Additional area is planted and landscaped beyond this required amount as denoted on the plan.

C. Building height - as specified in underlying base zone.

RESPONSE: The building height maximum for PDC is 35'. Our design proposes a gable roof with the peak of the roof at 33'. Please reference the exterior elevations for scaled drawings showing building height in relationship to the grade.

D. Street Access to Boones Ferry Road *(section is not applicable)*

E. Pedestrian Environment: In order to enhance the pedestrian scale of the neighborhood:

1. Special attention shall be given to the primary building entrances, assuring that they are both attractive and functional.

RESPONSE: The entrances of every unit are both highly visible and delineated from the rest of the building facade, all while appearing protected and privatized with both plantings and overhangs. Strategic use of wood siding is incorporated to enhance moments of the building that would be of key use for the tenants. All entryways are clad with wood, differentiating these areas from the rest of the massings. This design element was found to be in both keeping with the code's interest of creating an engaged pedestrian and in-line with the historical precedents found in the surrounding neighborhood.

2. The pedestrian environment shall be

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

enhanced by amenities such as street furniture, landscaping, awnings, and movable planters with flowers, as required by the Development Review Board.

RESPONSE: The proposed design includes extensive landscaping, covered entries, and planters that all aid in providing an enhanced pedestrian environment. Each dwelling unit has a private patio with planters on either side that are for the tenant's use. As mentioned prior, the proposal also includes a designated picnic and barbecue area in the rear yard as well as play/ fitness equipment.

G. Building compatibility.

1. The design and materials of proposed buildings shall reflect the architectural styles of the Willamette Valley during the period from 1880 to 1930.

RESPONSE: Please see the supplemental drawing package pages 7-13 for diagrams and historical precedents regarding the proposals compatibility with previous Willamette Valley styles. As mentioned earlier in this narrative, the design team's goal for the proposed design was to create a cohesive, modern interpretation of the historic, architectural styles typical of this region. Through the referencing of the 'Wilsonville Old Town Single-Family Design Standards', the team landed on a blended aesthetic styling of Western Farmhouse and Ranch architectural elements as described within those standards. Elements such as gabled roofs and their associated slopes, the expressing of that gabled profile, covered entries, large forward-facing picture windows, shingle siding, minimal eaves, and attached garages are all elements of these styles denoted in those standards and present in the proposed design.

3. Residential buildings shall be designed to reflect the size and shape of traditional dwellings from the period from 1880 to 1930. Where larger multiple family residential buildings are proposed, their building facades shall be divided into units that give the appearance of a series of smaller dwellings.

RESPONSE: The proposed design strategically differentiates each individual apartment unit so that it represents the scale of a typical residential building. Additionally, the massing is broken up into two buildings on the site, with a pedestrian path to the shared backyard space. This further reduces the 'block' nature common within contemporary multi-family complexes, such as those to the north of the site and allows the building to further fit within the architectural context and function as a transitional buffer between those larger complexes and the single-family residential neighborhood to the south. Please reference pages 6-7 of the supplemental

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

design package for additional information related to building scale.

H. Building Materials

1. Facades shall be varied and articulated to provide visual interest to pedestrians. Within larger developments, variations in facades, floor levels, architectural features, and/or exterior finishes shall be used to create the appearance of a series of smaller buildings.

RESPONSE: Please see the supplemental drawing package for diagrams regarding the use of materials to articulate the facade at the pedestrian scale. The use of wood and durable shingle siding that reads as traditional shake create variation and breaks the building massing and allows those components to better read at a human scale. This helps to create the appearance of smaller buildings and generally enhances the pedestrian experience at grade and the tenant's experience at the upper floors.

2. Exterior building materials shall be durable, and shall convey a visual impression of durability. Materials such as masonry, stone, stucco, and wood will generally provide such an appearance. Other materials that replicate the appearance of those durable materials may also be used.

RESPONSE: Please see the attached material information as well as supplemental drawings that illustrate the use of durable exterior materials. The proposed materials are cementitious shingle siding that emulates traditional wood shake shingles, tight-knot t&g cedar siding, and perforated metal panel. Cementitious shingle cladding and metal are highly durable and long-lasting materials and the wood siding, while durable, has also been located under covered areas or drip edges to better improve its durability and limit its maintenance.

I. Roof materials, roof design and parapets.

1. Pitched roof structures shall have a minimum pitch of 4:12.

RESPONSE: The proposed design incorporates pitched roofs at every residence. The pitch is 6.5:12. Please see the supplemental package for diagram. (pg. 7)

4. Sloped roofs that will be visible from the adjoining street right-of-way shall be of a dark, non-ornamental color.

RESPONSE: The proposed roof is a metal standing seam roof in a dark grey finish. Please see the attached supplemental information regarding roof materiality.

5. Preferred roofing materials that are visible from a public street include wood or

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

architectural grade composition shingle, tile, or metal with standing or batten seams. Metal roofs without raised seams shall not be used in visible locations.

RESPONSE: The proposed roof is visible from a public street and as such, is a metal standing seam roof. Please see the attached supplemental information regarding roof materiality.

J. Building entrances. If visible from the street, entrances to commercial, industrial, or multi-family residential buildings are to be architecturally emphasized, with coverings...

RESPONSE: The proposed design includes an emphasized entryway at every unit. This is done through the use of recessed, alcove entries that are additionally highlighted by the use of wood cladding and lighting. Please see the supplemental drawing package for more information on this item.

K. Building Facades

2. Buildings are to incorporate amenities such as alcoves, awnings, roof overhangs, porches, porticoes, and/or arcades to protect pedestrians from the rain and sun. Awnings and entrances may be designed to be shared between two adjoining structures.

RESPONSE: The proposal uses the articulation of roof overhangs at the exterior porches and balconies. The unit entryways are also covered and partially enclosed to better protect the tenants from the elements. Both of these parts of the building are clad with t&g wood siding to delineate them from the rest of the massing and enhance the experience of the pedestrian. Please see additional supplemental drawings.

4. Buildings are to have variations in relief, including such things as cornices, bases, fenestration, fluted masonry, and other aesthetic treatments to enhance pedestrian interest.

RESPONSE: The proposal uses a varied fenestration pattern, in-line with the Ranch style, along with larger recesses in the massing to provide building relief. Additionally, the staggering (stepping) of the facade at the individual units adds further variation to the facade.

L. Windows in buildings adjacent to Boones Ferry Road

1. Windows shall include amenities such as bottom sills, pediments, or awnings. Glass curtain walls, highly reflective glass, and painted or darkly tinted glass are not permitted...

3. Upper-floor windows on commercial, industrial, or multi-family residential buildings shall include the following features:

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

a. Glass dimensions shall not exceed five feet wide and seven feet high.
b. Windows shall be fully trimmed with molding that is at least two inches wide.
c. Multiple-light windows or windows with grid patterns may be required by the Development Review Board when architecturally consistent with the building.

RESPONSE: This proposed design is not immediately adjacent to Boones Ferry Road, but as portions of the upper portion of the buildings are visible from Boones Ferry Road, the design team has strived to address these glazing requirements in the design. The windows do have a bottom sill and are proposed to be glazed with Cardinal LowE 366 glass that is efficient at blocking UV and minimizing solar heat gain without being darkly tinted or overly reflective. There is also no curtain wall proposed for this design and all the windows are a traditional punched fenestration that is in line with the Western Farmhouse and Ranch styles that have been previously discussed. The windows at the upper floors are all within the dimensional requirements denoted by this section and are trimmed out with metal flashing to meet the dimensions requested. The use of window stiles and rails is not appropriate with the overall aesthetics of the building and out of character with the Ranch style being emulated in this proposed design.

M. Landscapes and Streetscapes
(section is not applicable)

N. Lighting
1. All building entrances and exits shall be well-lit. The minimum lighting level for commercial, industrial, or multi-family residential building entrances is to be four (4) foot-candles. The maximum standard is to be ten (10) foot-candles. A lighting plan shall be submitted for review by the Development Review Board.
2. Exterior lighting is to be an integral part of the architectural design and must complement the street lighting of the area, unless it is located at the side or rear of buildings in locations that are not facing a public street that is not an alley.
3. In no case is lighting to produce glare on neighboring properties or public rights-of-way such that a nuisance or safety hazard results.

RESPONSE: This proposed design is to meet the minimum and maximum lighting levels denoted above. All building entrances are presently lit with both overhead can lighting and wall sconces. The lighting works with the architectural features of the building and enhances the overall architecture by highlighting the points of interest along the facade as well as the areas of pedestrian/tenant engagement. There are no

RESPONSE TO KEY CODE CRITERIA

4.138 OLD TOWN OVERLAY ZONE CONT'D

street lights in the vicinity. Please reference the included outdoor lighting plan.

O. Exterior Storage
(section is not applicable)

P. Storage of Trash and Recyclables
Storage areas for trash and recyclables shall meet the applicable City requirements of Sections 4.179 and 4.430 of the Wilsonville Code.

RESPONSE: This proposed design meets the requirements of this section and all tenant garbage and recycling will be stored on-site within the individual unit's garages. This plan has been previously approved by the waste collection company in the area, Republic Services and their approval letter is included in this package.

Q. Signs
(section is not applicable)

4.140 PLANNED DEVELOPMENT REGULATIONS

4.140.1 Purpose. A. The provisions of Section 4.140 shall be known as the Planned Development Regulations. The purposes of these regulations are to encourage the development of tracts of land sufficiently large to allow for comprehensive master planning, and to provide flexibility in the application of certain regulations in a manner consistent with the intent of the Comprehensive Plan and general provisions of the zoning regulations and to encourage a harmonious variety of uses through mixed use design within specific developments thereby promoting the economy of shared public services and facilities and a variety of complimentary activities consistent with the land use designation on the Comprehensive Plan and the creation of an attractive, healthful, efficient and stable environment for living, shopping or working.

B. It is the further purpose of the following Section:
1. To take advantage of advances in technology, architectural design, and functional land use design:
2. To recognize the problems of population density, distribution and circulation and to allow a deviation from rigid established patterns of land uses, but controlled by defined policies and objectives detailed in the comprehensive plan;

RESPONSE TO KEY CODE CRITERIA

4.140 PLANNED DEVELOPMENT CONT'D

3. To produce a comprehensive development equal to or better than that resulting from traditional lot land use development.
4. To permit flexibility of design in the placement and uses of buildings and open spaces, circulation facilities and off-street parking areas, and to more efficiently utilize potentials of sites characterized by special features of geography, topography, size or shape or characterized by problems of flood hazard, severe soil limitations, or other hazards;
5. To permit flexibility in the height of buildings while maintaining a ratio of site area to dwelling units that is consistent with the densities established by the Comprehensive Plan and the intent of the Plan to provide open space, outdoor living area and buffering of low-density development.
6. To allow development only where necessary and adequate services and facilities are available or provisions have been made to provide these services and facilities.
7. To permit mixed uses where it can clearly be demonstrated to be of benefit to the users and can be shown to be consistent with the intent of the Comprehensive Plan.
8. To allow flexibility and innovation in adapting to changes in the economic and technological climate.

RESPONSE: The applicant is not applying for a Planned Development Permit for this parcel. The lot is not large enough to require one and the parcel is presently appropriately zoned for the proposed design. That said, the design team has looked at many of the items located in subsection (B) as drivers for both the building design and site approach. Additionally, no waivers are being sought for this property or this proposed design.

4.154 ON-SITE PEDESTRIAN ACCESS AND CIRCULATION

A. The purpose of this section is to implement the pedestrian access and connectivity policies of the Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.
B. Standards. Development shall conform to all of the following standards:
1.Continuous Pathway System. A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable.
2.Safe, Direct, and Convenient. Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:
a. Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they

RESPONSE TO KEY CODE CRITERIA

4.154 ON-SITE PEDESTRIAN ACCESS CONT'D

are free from hazards and provide a reasonably smooth and consistent surface.

b. The pathway is reasonably direct. A pathway is reasonably direct when it follows a route between destinations that does not involve a significant amount of unnecessary out-of-direction travel.

c. The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements.

d. All parking lots larger than three acres in size shall provide an internal bicycle and pedestrian pathway pursuant to Section 4.155(.03)(B.)(3.)(d.).

3.Vehicle/Pathway Separation. Except as required for crosswalks, per subsection 4, below, where a pathway abuts a driveway or street it shall be vertically or horizontally separated from the vehicular lane. For example, a pathway may be vertically raised six inches above the abutting travel lane, or horizontally separated by a row of bollards.

4.Crosswalks. Where a pathway crosses a parking area or driveway, it shall be clearly marked with contrasting paint or paving materials (e.g., pavers, light-color concrete inlay between asphalt, or similar contrast).

5.Pathway Width and Surface. Primary pathways shall be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and not less than five (5) feet wide. Secondary pathways and pedestrian trails may have an alternative surface except as otherwise required by the ADA.

6. All pathways shall be clearly marked with appropriate standard signs.

RESPONSE: The site has been configured with tenant access in mind and all applicable conditions of this section have been met. The unit entries have individual hardscape pedestrian access from the unit driveways that is clearly delineated in both site scape and with the building articulation and cladding. The entry paths are covered to better aid the tenant. Additionally, the building was split in two allowing direct pedestrian access through the site as opposed to requiring them to circulate around the perimeter. This pedestrian access is a clearly marked, concrete path through the property connecting the property "frontage" to a common tenant area at the north of the property. The central pathway, along with all pedestrian access is well lit and meets the grading and clearance requirements for ADA compliance. It is as well, lifted above the elevation of the drive to account for its intersection with the main vehicular drive at the south of the property.

RESPONSE TO KEY CODE CRITERIA

4.155 PARKING, LOADING & BICYCLE PARKING

Purpose: A.The design of parking areas is intended to enhance the use of the parking area as it relates to the site development as a whole, while providing efficient parking, vehicle circulation and attractive, safe pedestrian access.
B.As much as possible, site design of impervious surface parking and loading areas shall address the environmental impacts of air and water pollution, as well as climate change from heat islands.
C.The view from the public right of way and adjoining properties is critical to meet the aesthetic concerns of the community and to ensure that private property rights are met. Where developments are located in key locations such as near or adjacent to the I-5 interchanges, or involve large expanses of asphalt, they deserve community concern and attention.

RESPONSE: The proposed design incorporates (12) total vehicular parking spaces through a combination of (6) individual garage spaces, one at every unit, as well as (6) surface spaces located at the drives of several units and at the site entry. All spaces are paved with approved surfacing materials (asphalt and concrete driveways) per the General Provisions of this section. The design team worked with both the TVFR and the local waste collection facility, Republic, to confirm site parking impacts to their access and operation. Additionally, the design team headed the comments noted within the traffic study and requests of the neighborhood community to arrive at this current layout. This design doubles the required parking on-site per Table 5 of this code section and achieves the minimum requested by the neighborhood community. Additionally, there are (2) bike parking spaces at the east side of the property. Please reference the architectural site plan for location and all appropriate dimensioning. This area is also lit for safety and ease of access.

4.171 PROTECTION OF NATURAL FEATURES AND RESOURCES

Purpose. It is the purpose of this Section to prescribe standards and procedures for the use and development of land to assure the protection of valued natural features and cultural resources. The requirements of this Section are intended to be used in conjunction with those of the Comprehensive Plan and other zoning standards. It is further the purpose of this Section:
A. To protect the natural environmental and scenic features of the City of Wilsonville.
B. To encourage site planning and development practices which protect and enhance natural features such as riparian corridors, streams, wetlands, swales, ridges, rock outcroppings, views, large trees and wooded areas.
C. To provide ample open space and to create a constructed environment capable and harmonious with the natural environment.

RESPONSE TO KEY CODE CRITERIA

4.171 PROTECTION OF NATURAL FEATURES AND RESOURCES CONT'D

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 landforms.

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: (l) 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 existing site does not meet any of the specific resource areas described within this code section. That said care was taken to address the site as lightly as possible per the general conditions of this section. There were existing trees on site and so the design team worked with a licensed arborist to determine the species and health of the trees. The majority of the trees are an invasive species and while established are structured poorly and prone to failure. The others are either diseased or decaying. It was the recommendation of the arborist to remove these trees in question. Care has been taken to preserve rot systems of trees on adjacent lots whose drip lines hang over the property line.

As a by-product of these removals, the design team has located (32) new trees on the property, more than doubling the existing tree count. Additionally, the site strategy has been to do a minimal amount of grading as this is already a relatively level site and address all water treatment on the property through a combination of flow-through planters and rain gardens.

4.175 PUBLIC SAFETY AND CRIME

(.01)All developments shall be designed to deter crime and insure public safety.

(.02)Addressing and directional signing shall be designed to assure identification of all buildings and structures by emergency response personnel, as well as the general public.

(.03)Areas vulnerable to crime shall be designed to allow surveillance. Parking and loading areas shall be designed for access by police in the course of routine patrol duties.

(.04)Exterior lighting shall be designed and oriented to discourage crime.

RESPONSE TO KEY CODE CRITERIA

4.175 PUBLIC SAFETY AND CRIME CONT'D

RESPONSE: The proposed design has been laid out with public and tenant safety in mind. The units are individually lit at the entries and at the rear to deter break-ins at ground level. There is additional lighting at the driveways to deter vehicular break-ins or vandalism and the additional (2) site parking spaces and bike parking is lit by an overhead post. The orientation of the buildings as well, while still establishing a sense of privacy, directs eyes on to the north end of the property to better cover the common areas and the pedestrian access points are all well lit for pedestrian safety. The development has a wide drive area that is also easily accessed by both police patrol and/or fire rescue (see attached confirmation of design letter by TVFR).

4.176 LANDSCAPING, SCREENING, AND BUFFERING

(.01)Purpose. This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing of installation. The City recognizes the ecological and economic value of landscaping and requires the use of landscaping and other screening or buffering to:

A. Promote the re-establishment of vegetation for aesthetic, health, erosion control, flood control and wildlife habitat reasons;

B. Restore native plant communities and conserve irrigation water through establishment, or re-establishment, of native, drought-tolerant plants;

C. Mitigate for loss of native vegetation;

D. Establish and enhance a pleasant visual character which recognizes aesthetics and safety issues;

E. Promote compatibility between land uses by reducing the visual, noise, and lighting impacts of specific development on users of the site and abutting sites or uses;

F. Unify development and enhance and define public and private spaces;

G. Promote the retention and use of existing topsoil and vegetation. Amended soils benefit stormwater retention and promote infiltration;

H. Aid in energy conservation by providing shade from the sun and shelter from the wind; and

I. Screen from public view the storage of materials that would otherwise be considered unsightly.

J. Support crime prevention, create proper sight distance clearance, and establish other safety factors by effective landscaping and screening.

K. Provide landscaping materials that minimize the need for excessive use of fertilizers, herbicides and pesticides, irrigation, pruning, and mowing to conserve and protect natural resources, wildlife habitats, and watersheds.

RESPONSE TO KEY CODE CRITERIA

4.176 LANDSCAPING, SCREENING, AND BUFFERING CONT'D

RESPONSE: The proposed design is in-line with the standards of this section. The landscape strategy has from the onset been one of promoting a visually pleasing site area, that meets the landscape area requirements and standards, while also incorporating species and orientations that are native, naturally occurring, and drought-tolerant/water conserving. The intention is to create a landscape that is reflective of a natural one for this area, and will require minimal irrigation and upkeep to minimize aggressive landscape practices, such as pruning, over-fertilizing, and mowing. This final outcome of this established planting plan will be one of visual enhancement with minimal site impact to the site area and surrounding resources.

The buffering and screening requirements of this section have been addressed through vegetation selection and location per the included Landscape Plans in the supplemental package. The location of plantings allows for privacy screening on-site for the individual tenants, while still providing necessary site lines for crime prevention. The vegetation is also located along the perimeter of the property and at the front facade of the buildings in order to help break up sight lines to adjacent properties and help facilitate the broken up scale of the structures. The fencing on the site is all existing, partially obscuring, and will be maintained.

4.177 STREET IMPROVEMENT STANDARDS

This section contains the City's requirements and standards for pedestrian, bicycle, and transit facility improvements to public streets, or within public easements. The purpose of this section is to ensure that development, including redevelopment, provides transportation facilities that are safe, convenient, and adequate in rough proportion to their impacts.
(.01) Development and related public facility improvements shall comply with the standards in this section, the Wilsonville Public Works Standards, and the Transportation System Plan, in rough proportion to the potential impacts of the development. Such improvements shall be constructed at the time of development or as provided by Section 4.140, except as modified or waived by the City Engineer for reasons of safety or traffic operations.

RESPONSE: The unusual nature of this site has created a condition where the property is without any direct right-of-way connection or frontage. This has been reviewed by the City Engineer and it has been determined that there are no street improvements required of this proposed development.

4.179 MIXED SOLID WASTE AND RECYCLING

(.01) All site plans for multi-unit residential and non-residential buildings submitted to

RESPONSE TO KEY CODE CRITERIA

4.179 MIXED SOLID WASTE AND RECYCLING CONT'D

the Wilsonville Development Review Board for approval shall include adequate storage space for mixed solid waste and source separated recyclables. [Amended by Ordinance No. 538, 2/21/02.]

RESPONSE: The storage and removal of solid waste and recycling in this proposed development will be addressed through individual unit storage of receptacles and curb-side pickup. The receptacles are stored within the individual unit garages as shown on the Ground Floor Plan. Additionally, the design team has worked with the local waste collection agency, Republic, to confirm that curb-side pickup is their preferred method for collection. Please see the included confirmation letter, correspondence, and "service plan" in the relevant reports at the end of this project narrative package.

4.199 OUTDOOR LIGHTING

(.01) Purpose: The purpose of this Code is to provide regulations for outdoor lighting that will:
A. Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.
B. Conserve energy and resources to the greatest extent possible.
C. Minimize glare, particularly in and around public rights-of-way; and reduce visual discomfort and improve visual acuity over large areas by avoiding "light islands" and "spotlighting" that result in reduced visual perception in areas adjacent to either the source of the glare or the area illuminated by the glare.
D. Minimize light trespass, so that each owner of property does not cause unreasonable light spillover to other property.
E. Curtail the degradation of the nighttime environment and the night sky.
F. Preserve the dark night sky for astronomy and enjoyment.
G. Protect the natural environment, including wildlife, from the damaging effects of night lighting from human sources.
(.02) Purpose Statement as Guidelines: Declaration of purpose statements are guidelines and not approval criteria in the application of WC Section 4.199.
4.199.40.1 Non-Residential Uses and Common Residential Areas.
A. All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.
B. Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.
1. The maximum luminaire lamp wattage and shielding shall comply with Table 7.
2. Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the Oregon Energy Efficiency

RESPONSE TO KEY CODE CRITERIA

4.199 OUTDOOR LIGHTING CONT'D

Specialty Code, Exterior Lighting.
3. The maximum pole or mounting height shall be consistent with Table 8.
4. Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:
a. Exception 1: If the subject property abuts a property with the same base and lighting zone, no setback from the common lot lines is required.
b. Exception 2: If the subject property abuts a property which is zoned (base and lighting) other than the subject parcel, the luminaire shall be setback three times the mounting height of the luminaire, measured from the abutting parcel's setback line. (Any variance or waiver to the abutting property's setback shall not be considered in the distance calculation).
c. Exception 3: If the luminaire is used for the purpose of street, parking lot or public utility easement illumination and is located less than 3 mounting heights from the property line, the luminaire shall include a house side shield to protect adjoining property.
d. Exception 4: If the subject property includes an exterior column, wall or abutment within 25 feet of the property line, a luminaire partly shielded or better and not exceeding 60 lamp watts may be mounted onto the exterior column, wall or abutment or under or within an overhang or canopy attached thereto.
e. Exception 5: Lighting adjacent to SROZ areas shall be set back 3 times the mounting height of the luminaire, or shall employ a house side shield to protect the natural resource area.

RESPONSE: The proposed outdoor lighting layout is based off the prescriptive method and the lighting layout can be found on the Outdoor Lighting Plan in the supplemental package. The light cutsheets are located at the end of this narrative package for reference. The luminaire setback requirements as all freestanding fixtures are 8' or lower and are setback more than 24' from the property line. The only exception to this is the outdoor fixture that services the site parking and bike staple at the southeast corner of the property, but this fixture meets except 1 of this code section.

4.300-4.320 UNDERGROUND UTILITIES

Section 4.300.General.
(.01) The City Council deems it reasonable and necessary in order to accomplish the orderly and desirable development of land within the corporate limits of the City, to require the underground installation of utilities in all new developments.
(.02) After the effective date of this Code, the approval of any development of land within the City will be upon the express condition that all new utility lines, including but not limited to those required for power, communication, street lighting, gas, cable television services and related

RESPONSE TO KEY CODE CRITERIA

4.300-4.320 UNDERGROUND UTILITIES CONT'D

facilities, shall be placed underground.
(.03) The construction of underground utilities shall be subject to the City's Public Works Standards and shall meet applicable requirements for erosion control and other environmental protection.
Section 4.310 Exceptions.
Section 4.300 of this Code shall not apply to surface-mounted transformers, surface-mounted connection boxes, wireless communication facilities, and meter cabinets and other appurtenances which are reasonably necessary to be placed above ground, or to temporary utility service facilities during construction, or to high capacity electric and communication feeder lines, or to utility transmission lines operating at 50,000 volts or more.
Section 4.320. Requirements.
(.01) The developer or subdivider shall be responsible for and make all necessary arrangements with the serving utility to provide the underground services (including cost of rearranging any existing overhead facilities). All such underground facilities as described shall be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus.
(.02) The location of the buried facilities shall conform to standards supplied to the subdivider by the City. The City also reserves the right to approve location of all surface-mounted transformers.
(.03) Interior easements (back lot lines) will only be used for storm or sanitary sewers, and front easements will be used for other utilities unless different locations are approved by the City Engineer. Easements satisfactory to the serving utilities shall be provided by the developer and shall be set forth on the plat.

RESPONSE: The existing site does not have any above ground utilities to relocate. All new utilities for the proposed design are to be located underground per this code section. The design team has coordinated the layouts to provide all new utility to the as underground service and all necessary connections are to be made through the adjacent property to the east of the site per the existing utility easement present there. Please reference the preliminary utility plan provided in the full-sized set of drawings.

4.400-4.450 SITE DESIGN REVIEW

(.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

RESPONSE TO KEY CODE CRITERIA

4.400-4.450 SITE DESIGN REVIEW CONT'D

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.

(.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.

B. Encourage originality, flexibility and innovation in site planning and development, including the architecture, landscaping and graphic design of said development;

C. Discourage monotonous, drab, unsightly, dreary and inharmonious developments;

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;

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;

F. Stabilize and improve property values and prevent blighted areas and, thus, increase tax revenues;

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.

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;

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;

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 TO KEY CODE CRITERIA

4.400-4.450 SITE DESIGN REVIEW CONT'D

RESPONSE: The proposed development has been laid out with much of these conditions in mind. The design team worked through the site orientation and layout with the combined intention of providing an aesthetically pleasing and functional development for the future tenants, as well as a development that would maximize the beneficial visual impact on the adjacent community, while simultaneously minimizing any negative impacts that can come with a new land development within an existing mixed-residential community. Given the unique location of the property abutting a higher density zone to the north, but having a lower density residential zone to the south, as well as its site access at the end of a residential street, great care has been taken to design a series of structures that properly bridges these two zones and achieves what the comp plan allows the site to possess, while still making a scalar connection to the lower density neighborhood. The development at its minimum has looked to take a historically "undevelopable" lot that has been left to disuse and applied a small development that activates the site and the termination of this street, while still creating a residential feel that is appropriate to the community. Please reference the included site diagrams in the supplemental package.

Given the unusual site access, the layout has been carefully thought out so that no adjacent property receives a "back" of the structures and at the same time allowing delineated and activated pedestrian access throughout the property.

The site amenities add additional community feel and engagement to again help activate the site and give it that low density residential feel, while providing the site density that Wilsonville's continued growth so desperately needs.

4.600-4.640.20 TREE PRESERVATION AND PROTECTION

Purpose and Declaration

(.01) Rapid growth, the spread of development, need for water and increasing demands upon natural resources have the effect of encroaching upon, despoiling, or eliminating many of the trees, other forms of vegetation, and natural resources and processes associated therewith which, if preserved and maintained in an undisturbed and natural condition, constitute important physical, aesthetic, recreational and economic assets to existing and future residents of the City of Wilsonville.

(.02) Specifically, the City Council finds that:

A. Woodland growth protects public health through the absorption of air pollutants and contamination, through the reduction of excessive noise and mental and physical damage related to noise pollution, and through its cooling effect in the summer months, and insulating effects in

RESPONSE TO KEY CODE CRITERIA

4.600-4.640.20 TREE PRESERVATION AND PROTECTION

winter;

B. Woodlands provide for public safety through the prevention of erosion, siltation, and flooding; and

C. Trees make a positive contribution to water quality and water supply by absorbing rainfall, controlling surface water run-off, and filtering and assisting in ground water recharge; and

D. Trees and woodland growth are an essential component of the general welfare of the City of Wilsonville by producing play areas for children and natural beauty, recreation for all ages and an irreplaceable heritage for existing and future City residents.

(.03)Therefore, the purposes of this subchapter are:

A.To preserve Significant Resource Overlay Zone areas, recognizing that development can and will occur.

B.To provide for the protection, preservation, proper maintenance and use of trees and woodlands in order to protect natural habitat and prevent erosion.

C. To protect trees and other wooded areas for their economic contribution to local property values when preserved, and for their natural beauty and ecological or historical significance.

D. To protect water quality, control surface water run-off, and protect ground water recharge.

E. To reflect the public concern for these natural resources in the interest of health, safety and general welfare of Wilsonville residents.

F. To encourage replanting where trees are removed.

RESPONSE: The existing site has (11) trees presently located on it. As a by-product of the initial design and site layout an arborist's services were obtained to assess the health and confirm the species of the site trees. At the determination of the report (see included arborist report in this package) it was confirmed that all (11) trees should be removed. One tree (a small japanese maple) had been recently planted at the SE property corner by the adjacent neighbor and is still root bundled and will be relocated. The remaining (10) trees will be removed as they have all been deemed to be either invasive or in poor health, or both. In addition, there are (2) trees on the eastern property line that will also need to be removed as a component of the site access easement and a letter has been obtained from the neighbor confirming their approval of this. There are several other trees to the south and west of the property of significant size and the design team, with the assistance of the arborist, have found solutions to protect their root structures during the development of the property. Please reference the Tree Mitigation and Protection Plan in the full-sized set of drawings.

With the removal of these (10) site trees, the design team set out to remedy this by adding a significant amount of trees back to the property

RESPONSE TO KEY CODE CRITERIA

4.600-4.640.20 TREE PRESERVATION AND PROTECTION CONT'D

through the planting of (32) new trees. This will do a number of things to the site and new development, but will significantly help address site erosion concerns and water run-off from the property. Additionally, the increase in trees will help beautify the site and provide both shading and privacy to the tenants and surrounding residents. Please reference the Planting Plan in the supplemental package.

Enclosed:

Property Documents
Relevant Reports
Cutsheets

Property Documents

30535 SW Magnolia Avenue | July 17, 2020 (REVISED)

File No.: 18-228829

Clackamas County Official Records
Sherry Hall, County Clerk

2018-076249

12/20/2018 11:42:03 AM

D-D Cnt=1 Stn=53 CINDY
$15.00 $16.00 $10.00 $62.00

$103.00

WFG Title 18-228829 LO

Grantor
George Richard Buscher 3628A NE 78th Ave Portland, OR 97213
Grantee
Daniel Hillebrand 8908 SE 55th Ave. Portland, OR 97206
After recording return to
Daniel Hillebrand 8908 SE 55th Ave. Portland, OR 97206Wilsonville, OR 97070
Until requested, all tax statements shall be sent to
Daniel Hillebrand 8908 SE 55th Ave. Portland, OR 97206Wilsonville, OR 97070 Tax Acct No(s): 31W23AB02101, 00819449

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

George Richard Buscher, Grantor(s) convey and warrant to Daniel Hillebrand, Grantee(s), the real property described in the attached Exhibit A, free of encumbrances EXCEPT covenants, conditions, restrictions, easements, and encumbrances of record as of the date hereof.

The true consideration for this conveyance is **$205,000.00**. (Here comply with requirements of ORS 93.030)

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, 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 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Executed this 28 day of November, 2018

George Richard Buscher

STATE OF OREGON
COUNTY OF CLACKAMAS

This instrument was acknowledged before me this 28 day of November, 2018 by George Richard Buscher.

Notary Public for Oregon
My Commission Expires: 2/8/20

OFFICIAL STAMP
MARY ANN HUGHES
NOTARY PUBLIC-OREGON
COMMISSION NO. 947316
MY COMMISSION EXPIRES FEBRUARY 08, 2020

EXHIBIT "A"
LEGAL DESCRIPTION

Part of the Thomas Bailey Donation Land Claim in Section 23, Township 3 South, Range 1 West, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the Northeast corner of said Donation Land Claim, in Section 23, Township 3 South, Range 1 West, of the Willamette Meridian; thence South on the East line of said Donation Land Claim, 11.1 chains, more or less, to the Northeast corner of the Anselm Berger, et ux, Tract as described in Book 467, Page 484, Deed Records; thence continuing South along the East boundary of the Donation Land Claim and the East boundary of the Berger Tract 298.2 feet, more or less, to the Southeast corner of said Berger Tract; thence West along the South boundary of the Berger Tract 663.00 feet, more or less, to the Southeast corner of the parcel sold on Contract to Bruce R. Hazel, et ux, by Contract recorded October 31, 1962 in Book 34, Page 429, Miscellaneous Records and the true point of beginning of the tract herein to be described; thence North along the East boundary of the Hazel Tract, 111 feet to the Northeast corner thereof; thence East along an Easterly extension of the North boundary of said Hazel Tract, 164.0 feet, more or less, to a point that is 252.0 feet Easterly of the Northwest corner of the Hazel Tract as described in Miscellaneous Book 34, Page 429; thence South parallel to the East boundary of the Hazel Tract, 111 feet to a point in the South boundary of the Anselm Berger Tract heretofore described; thence West along the South boundary of the Berger Tract 164 feet to the true point of beginning.

EXCEPTING THEREFROM the following described property:

Part of the Thomas Bailey Donation Land Claim in Section 23, Township 3 South, Range 1 West, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at a point of intersection of the West line of Magnolia Avenue with the South line of the property sold to Bruce Raymond Hazel, et ux, recorded December 13,1972 as Fee No. 72-37799, Film Records; thence Northeasterly in a straight line to the Northeast corner of said Hazel Property; thence South along the East line of said Hazel Property to the Southeast corner thereof; thence Westerly along the South line of said Hazel Property to the point of beginning.

Clackamas County Official Records
Sherry Hall, County Clerk
2018-062988
10/15/2018 08:47:00 AM
D-EAMD Cnt=1 Stn=4 STEPHEN
$30.00 $16.00 $10.00 $62.00
$118.00

After Recording Return To:

Kathleen S. Sieler, Esq.
Bateman Seidel
888 SW 5th Ave., Suite 1250
Portland, OR 97204

MODIFICATION AND CONFIRMATION OF EASEMENT

THIS MODIFICATION AND CONFIRMATION OF EASEMENT ("**Agreement**") is made by and between KWDS LLC, an Oregon limited liability company ("**KWDS**"), and GEORGE R. BUSCHER ("**Buscher**"), effective as of the latter of the two dates shown beneath the parties' signatures on the signature page attached hereto (the "**Effective Date**").

RECITALS

A. KWDS owns the real property commonly known as 9310 SW Bailey St., Wilsonville, Oregon (the "**Burdened Property**"). KWDS is the successor in title to Anselm Berger and Mary Ann Berger ("**Grantor**"), previous owners of the Burdened Property. The Burdened Property is so identified and more specifically legally described on Exhibit A to this Agreement, which is incorporated herein by this reference.

B. Buscher owns the real property commonly known as 30535 SW Magnolia Ave., Wilsonville, Oregon (the "**Benefitted Property**"). Buscher is the successor in title to Bruce Raymond Hazel and Elizabeth Ruth Haze ("**Grantee**"), previous owners of the Benefitted Property. The Benefitted Property is so identified and more specifically legally described on Exhibit A to this Agreement, which is incorporated herein by this reference.

C. Grantee reserved an easement for ingress and egress over the Burdened Property for the benefit of the Benefitted Property in the Bargain and Sale Deed dated February 11, 1974, and recorded in the Official Records of Clackamas County, Oregon, on February 22, 1974, as Document No. 74 4339 (the "**Easement**").

D. A portion of the Burdened Property was consistently used for ingress and egress, including a driveway, for the benefit of the Benefitted Property.

E. KWDS subsequently constructed various improvements including parking areas, landscaping, and a fence (collectively, the "**Improvements**") across portions of the Burdened Property, encroaching on the easement area. Buscher subsequently contacted KWDS concerning the encroachment.

After Recording Return To:

Kathleen S. Sieler, Esq.
Bateman Seidel
888 SW 5th Ave., Suite 1250
Portland, OR 97204

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D. A portion of the Burdened Property was consistently used for ingress and egress, including a driveway, for the benefit of the Benefitted Property.

E. KWDS subsequently constructed various improvements including parking areas, landscaping, and a fence (collectively, the "**Improvements**") across portions of the Burdened Property, encroaching on the easement area. Buscher subsequently contacted KWDS concerning the encroachment.

F. In the spirit of good neighborly relations, Buscher and KWDS desire to resolve the encroachment and agree, based on the terms set forth in this Agreement, that Buscher shall continue to have unfettered rights of ingress and egress across that portion of the Burdened Property described in Exhibit B to this Agreement, which is incorporated herein by this reference (the "**Driveway Area**"), and that KWDS may continue to maintain the Improvements on the Burdened Property, all as more specifically described herein.

CONFIRMATION AND AGREEMENT

1. **Incorporation of Recitals**. The above recitals are hereby made a part of this Agreement and the parties to this Agreement acknowledge the truth thereof.

2. **Property Benefited by Easement**. KWDS confirms and agrees that the Benefitted Property shall be entitled to the benefits of the Easement, subject to those uses for the benefit of KWDS authorized by Buscher herein. Buscher shall be entitled to unfettered rights of ingress and egress across that portion of the Burdened Property described in Exhibit B, including the right to maintain and improve the driveway constructed thereon. If Buscher desires to reconstruct the driveway, Buscher shall do so at his sole cost and expense and in accordance with the requirements of the City of Wilsonville applicable to driveways. Buscher shall be solely responsible for the maintenance, including the cost thereof, of any driveway improvements constructed by him. Notwithstanding the foregoing, if repair or maintenance to the driveway improvements is required as a result of the willful acts or negligence of KWDS or its tenants, lessees, employees, agents, invitees or licensees, such repair and maintenance shall be at the sole cost of KWDS.

3. **Authorization to Maintain Improvements**. Buscher hereby authorizes and consents to KWDS' continued maintenance of the Improvements on the Burdened Property and agrees that KWDS may repair and maintain the Improvements.

4. **Indemnity**. Buscher shall indemnify and hold harmless KWDS from and against any and all claims arising from or in connection with use of the Burdened Property by Buscher or Buscher's successors, assigns, lessees, mortgagees, invitees, guests, agents and employees, together with all costs, expenses and liabilities incurred in connection with each such claim or action or proceeding brought thereon, including, without limitation, all attorney fees and expenses. KWDS shall indemnify and hold harmless Buscher from and against any and all claims arising from or in connection with use of the Burdened Property by KWDS or KWDS' successors, assigns, lessees, mortgagees, invitees, guests, agents and employees, together with all costs, expenses and liabilities incurred in connection with each such claim or action or proceeding brought thereon, including, without limitation, all attorney fees and expenses.

5. **Runs with the Land; Successors and Assigns**. The rights granted herein shall be appurtenant to and run with the land as to all real property burdened and benefited hereby. This Agreement and the rights granted herein shall inure to the benefit and shall be binding upon the parties and their respective heirs, successors and assigns.

(*Remainder of page intentionally blank. Signature pages follow on subsequent two pages.*)

SIGNATURE PAGE—KWDS

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

KWDS:

KWDS LLC, an Oregon limited liability company

By: _____

Name: JACK E KOHL, JR

Its: MANAGING MEMBER

Dated: 10/10 _____, 2018.

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me on October, 10th 2018, by Jack E. Kohl, as Managing Member of KWDS LLC, an Oregon limited liability company.

_____
Notary Public for Oregon
My Commission Expires 2/6/21

OFFICIAL STAMP
LINDA LOVOS
NOTARY PUBLIC-OREGON
COMMISSION NO. 958827
MY COMMISSION EXPIRES FEBRUARY 06, 2021

(*Remainder of page intentionally blank. Signature for Buscher on following page.*)

SIGNATURE PAGE—BUSCHER

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

BUSCHER:

George R. Buscher

Dated: 29 JUN 2018

STATE OF OREGON)
) ss.
County of Multnomah)

This instrument was acknowledged before me on June 29, 2018 by George R. Buscher

OFFICIAL STAMP
BRIONI SIXBERRY
NOTARY PUBLIC-OREGON
COMMISSION NO. 946157
MY COMMISSION EXPIRES JANUARY 10, 2020

Notary Public for Oregon
My Commission Expires 1/10/2020

EXHIBIT A

Legal Description of Burdened Property:

Part of the Thomas Bailey Donation Land Claim in Section 23, Township 3 South, Range I West, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at a point of intersection of the West line of Magnolia Avenue with the South line of the property sold to Bruce Raymond Hazel, et ux, recorded December 13, 1972 as Fee No. 72-37799, Film Records; thence Northeasterly in a straight line to the Northeast corner of said Hazel Property; thence South along the East line of said Hazel Property to the Southeast corner thereof; thence Westerly along the South line of said Hazel Property to the point of beginning.

Legal Description of Benefitted Property:

Part of the Thomas Bailey Donation Land Claim in Section 23, Township 3 South, Range 1 West, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the Northeast comer of said Donation Land Claim, in Section 23, Township 3 South, Range 1 West, of the Willamette Meridian; thence South on the East line of said Donation Land Claim, 11.1 chains, more or less, to the Northeast corner of the Anselm Berger, et ux, Tract as described in Book 467, Page 484, Deed Records; thence continuing South along the East boundary of the Donation Land Claim and the East boundary of the Berger Tract 298.2 feet, more or less, to the Southeast corner of said Berger Tract; thence West along the South boundary of the Berger Tract 663.00 feet, more or less, to the Southeast comer of the parcel sold on Contract to Bruce R. Hazel, et ux, by Contract recorded October 31, 1962 in Book 34, Page 429, Miscellaneous Records and the true point of beginning of the tract herein to be described; thence North along the East boundary of the Hazel Tract, 111 feet to the Northeast comer thereof; thence East along an Easterly extension of the North boundary of said Hazel Tract, 164.0 feet, more or less, to a point that is 252.0 feet Easterly of the Northwest corner of the Hazel Tract as described in Miscellaneous Book 34, Page 429; thence South parallel to the East boundary of the Hazel Tract, 111 feet to a point in the South boundary of the Anselm Berger Tract heretofore described; thence West along the South boundary of the Berger Tract 164 feet to the true point of beginning.

EXCEPTING THEREFROM the following described property:

Part of the Thomas Bailey Donation Land Claim in Section 23, Township 3 South, Range I West, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at a point of intersection of the West line of Magnolia Avenue with the South line of the property sold to Bruce Raymond Hazel, et ux, recorded December 13, 1972 as Fee No. 72-37799, Film Records; thence Northeasterly in a straight line to the Northeast corner of said Hazel Property; thence South along the East line of said Hazel Property to the Southeast corner thereof; thence Westerly along the South line of said Hazel Property to the point of beginning.

EXHIBIT B

(Legal Description of Driveway Area)

BEGINNING at the southwest corner of that tract of land described in Document No. 2008-068348, Clackamas County Deed Records, said corner marked by a one-half inch diameter iron pipe found at the northeast corner of Lot 14, Block 'A', WILSONVILLE, Clackamas County Plat Records, situated in the Northeast one-quarter of Section 23, Township 3 South, Range 1 West, of the Willamette Meridian, in the City of Wilsonville, Clackamas County, Oregon; THENCE North 18°58'13" East along the east line of said Document No. 2008-068348 tract, 36.56 feet; THENCE South 31°49'09" East along a fence line, 18.84 feet to an angle point therein; THENCE South 68°11'15" East along said fence line, 11.45 feet to the end of said fence; THENCE South 47°46'09" East, 25.29 feet to a point on the north right-of-way line of Magnolia Street; THENCE North 86°59'50" West along said north right-of-way line, 51.25 feet to the PLACE OF BEGINNING.

Relevant Reports

Gmail by Google

Kegan Flanderka <kegan@basedesignarchitecture.com>

Request for Advice on Fire Access and Water Supply - 30535 SW Magnolia

Arn, Jason S. <Jason.Arn@tvfr.com> Mon, Dec 2, 2019 at 4:03 PM
To: Cait Sylvain <cait@basedesignarchitecture.com>
Cc: Kegan Flanderka <kegan@basedesignarchitecture.com>, "Gitt, Melissa (gitt@ci.wilsonville.or.us)" <gitt@ci.wilsonville.or.us>

Cait,

That should work. We will require No Parking Fire Lane signs on the private drive, other than that we are good.

NO PARKING SIGNS: Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, “No Parking” signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Signs shall read “NO PARKING - FIRE LANE” and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (OFC D103.6)

NO PARKING: Parking on emergency access roads shall be as follows (OFC D103.6.1-2):

1. 20-26 feet road width – no parking on either side of roadway
2. 26-32 feet road width – parking is allowed on one side
3. Greater than 32 feet road width – parking is not restricted

Thank you,

Jason Arn | Deputy Fire Marshal

Tualatin Valley Fire & Rescue

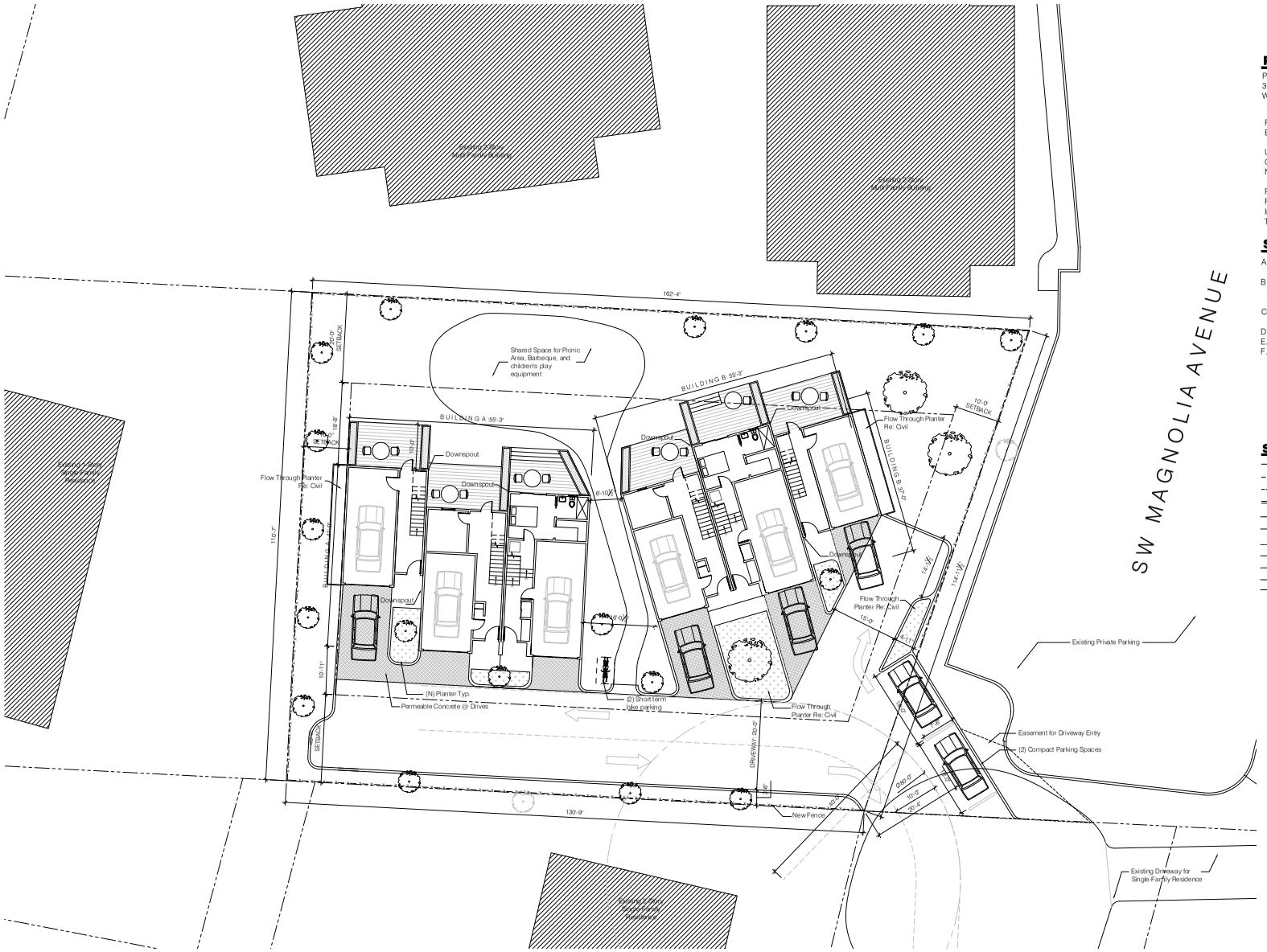
Direct: 503-259-1510

www.tvfr.com

From: Cait Sylvain <cait@basedesignarchitecture.com>
Sent: Monday, December 2, 2019 3:33 PM
To: Arn, Jason S. <Jason.Arn@tvfr.com>
Cc: Kegan Flanderka <kegan@basedesignarchitecture.com>
Subject: Re: Request for Advice on Fire Access and Water Supply - 30535 SW Magnolia

[Quoted text hidden]

19004 g0.10 Site Plan-G0.10 20191202.pdf
404K



1 G0.10 **Proposed Site Plan**
3/32"=1'-0"

PROPERTY INFORMATION:

Project Address:
30535 SW Magnolia Avenue
Wilsonville OR 97070

Property / Lot Area:	16,204sf
Building Footprint:	3,447sf

Units: 6 Townhomes
Gross Building Area: 10,620
Net Rentable Area:

Proposed Impervious Area:	
Roof:	3,583 sf
Impervious Site:	
TOTAL IMPERVIOUS AREA:	

SITE PLAN NOTES:

A. All Property Information and Dimensions Shown Are Approximate and Are To Be Field Verified.
B. Site Utilities Shown for Reference Only. Contractor To Verify Existing Utility Locations Prior To Construction. Typ.
C. All Work in R.O.W. Under Separate Public Works Permit.
D. Reference Civil For Erosion Control Information
E. Reference Plumbing For Under Slab Utility Locations
F. Domestic Water Service to Have Premise Isolation RPBA. Dedicated Fire Line to Have Premise Isolation DCDA Backflow Preventer. Reference Civil Set for Location.

SITE PLAN SYMBOLS LEGEND:

- Property Line
- Fence
- Building / Wall to Be Demolished
- Curb Line
- Water Line
- Storm Line
- Sanitary Sewer Line
- Combined Storm / Sewer
- Underground Gas Line
- Overhead Power Line
- Telephone Line
- Storm Catch Basin
- Manhole
- Power Pole
- Power Pole with Light
- Sign
- Fire Hydrant
- Water Meter
- Electric Meter
- Gas Meter
- Property Corner
- Bollard

base

Design Development
11.26.2019

Revision

Date:	Issue:

MAGNOLIA 6-PLEX
30535 SW Magnolia Avenue
Wilsonville, OR 97070

Sheet Title:
SITE PLAN
Drawing Scale: 1/8" = 1'-0"
BASE Job No: 19004

Sheet Number:
G0.10

REPUBLIC SERVICES

10295 Southwest Ridder Road Wilsonville, OR 97070
o 503.570.0626 f 503.582.9307 republicservices.com

December 6, 2019

Cait Sylvain
Base Design/Architecture, LLC

Re: SW Magnolia Ave.
Wilsonville, OR 97070

Dear Cait,

Thank you, for sending us the site plans for this proposed development in Wilsonville.

My Company: Republic Services of Clackamas and Washington Counties has the franchise agreement to service this area with the City of Wilsonville. We will provide residential waste removal and recycling services as needed on a weekly basis for this location.

We agree that option# 1, residential automated side-load trash and recycle service, will be the optimum service type for this development as outlined in your correspondence on 11/25/2019.
Safe access onto and off the property for our service trucks will require "No Parking" in the driveways and will be posted with signage and curb marking as outlined in your correspondence on 12/5/2019.

It is understood that this development will have third-party yard maintenance service and they will be responsible for removal of the yard debris and, there will not be a need for us to provide yard debris service at this location.

Thank you Cait, for your help and concerns for our services prior to this project being developed.

Sincerely,

Kelly Herrod
Operations Supervisor
Republic Services Inc.

Gmail by Google

Kegan Flanderka <kegan@basedesignarchitecture.com>

Re: Trash Recycle Service - Wilsonville OR

Herrod, Kelly <KHerrod@republicservices.com> Mon, Nov 25, 2019 at 11:49 AM
To: Cait Sylvain <cait@basedesignarchitecture.com>
Cc: "Baker, Christine" <CBaker@republicservices.com>, "Hodge, Michael" <MHodge@republicservices.com>, "Olivares, John" <JOlivares@republicservices.com>, Kegan Flanderka <kegan@basedesignarchitecture.com>

Hi Cait,

After reviewing your design plan with my driver team, we concluded the most reasonable method of service would be Option #1)Residential Automated Side-load for trash and commingle recycle. There is a high level of concern when backing in a narrow driveway. As a result, we will require NO PARKING in the area highlighted in yellow on the attached diagram. Option #2) would be cart placement in the dead-end of Magnolia. This option is possible but may be problematic due to space needed for potentially 12 carts and 6 glass bins. You had mentioned that there will not be a need for yard debris service or that a contracted landscaper will haul the yard debris.

Please provide feedback to the following:

- Designated No Parking will be established in the complex driveways.
- Yard Debris service will not be required by Republic Services.

Regards,

[Quoted text hidden]

Service Plan.pdf
213K

Option #1 Residential carts at curb of each unit. Arrows indicate collection truck traffic pattern. Driveway widths will require absolutely “No Parking” in the areas highlighted yellow.

Option #2. Residential carts set out in the dead-end street. This would probably be problematic due to limited space for 12 carts.

Gmail by Google

Kegan Flanderka <kegan@basedesignarchitecture.com>

Re: Trash Recycle Service - Wilsonville OR

Herrod, Kelly <KHerrod@republicservices.com> Tue, Nov 26, 2019 at 12:07 PM
To: Cait Sylvain <cait@basedesignarchitecture.com>
Cc: "Baker, Christine" <CBaker@republicservices.com>, "Hodge, Michael" <MHodge@republicservices.com>, "Olivares, John" <JOlivares@republicservices.com>, Kegan Flanderka <kegan@basedesignarchitecture.com>

- Designated No Parking will be established in the complex driveways. Confirmed. Is this best displayed with a NO PARKING sign? Our experience has been to paint and stencil curbing and post signage.

[Quoted text hidden]

Gmail by Google

Kegan Flanderka <kegan@basedesignarchitecture.com>

Re: Trash Recycle Service - Wilsonville OR

Cait Sylvain <cait@basedesignarchitecture.com> Thu, Dec 5, 2019 at 4:50 PM
To: "Herrod, Kelly" <KHerrod@republicservices.com>
Cc: "Baker, Christine" <CBaker@republicservices.com>, "Hodge, Michael" <MHodge@republicservices.com>, "Olivares, John" <JOlivares@republicservices.com>, Kegan Flanderka <kegan@basedesignarchitecture.com>

Hi Kelly

Thank you for your response- my apologies for my delay. We would like to confirm that we will post NO PARKING signage as well as paint curbing.

Thank you for all of your help! Best,

Cait Sylvain

base design/architecture, LLC
503.477.8268
basedesignarchitecture.com

[Quoted text hidden]

PIONEER DESIGN GROUP

Preliminary Storm Drainage Report

Magnolia 6-Plex

Wilsonville, Oregon

Applicant:
Daniel Hillebrand
8905 SE 55th Ave.
Portland, Oregon 97206
503.317.6500

Engineer:
Pioneer Design Group, Inc.
9020 SW Washington Sq. Rd.
Suite 170
Portland, Oregon 97223
503.643.8286

REGISTERED PROFESSIONAL ENGINEER
74669PE
PRELIMINARY
OREGON
JULY 13, 2004
LUKE R. LAPPIN
VALID THROUGH 12-31-20

Date: December 17, 2019
Revised: July 10, 2020
Prepared by: Luke Lappin, P.E.
PDG Job No. 999-234

TABLE OF CONTENTS

TECHNICAL APPENDIX

1.0 INTRODUCTION

This report represents the preliminary storm drainage and stormwater analysis for the **Magnolia 6-Plex** development project. The basis of this report is to comply with the City of Wilsonville, Clackamas County, and the State of Oregon's regulations and engineering standards as well as the latest edition of the Oregon Plumbing Specialty Code (OSPC). Compiled in this report are the design criteria for the site, the hydrologic methodology, and the preliminary drainage analysis.

2.0 SITE DESCRIPTION AND LOCATION

The proposed 0.37-acre (16,207 sq. ft.) Magnolia 6-Plex project is located at 30535 SW Magnolia Avenue in Wilsonville, Oregon. The property is specifically identified as Tax Map 31W23AB, tax lot 2101, and zoned PDC (Planned Development Commercial) by the City of Wilsonville's land use ordinance.

The development proposes to construct a 6-plex multi-family apartment complex with drive aisle access, landscaping, associated underground utility improvements, and two stormwater management facilities. Specifically, Low Impact Development (LID) facilities will be chosen per the City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards, Section 301.4.00.*

3.0 EXISTING CONDITIONS

Currently, the subject site is vacant with the remnant of a small asphalt driveway. The existing house that once occupied the property has been removed. The majority of the site is covered in grass with a stand of trees in the southwest corner and a few others scattered around the perimeter.

There are no existing wetlands, creeks or sensitive areas within the subject site.

3.1 Site Topography

The property is flat generally sloping towards the north and south boundary.

The high point on site is near the center of the property at an elevation of approximately 154 feet with a relative low point in the southeast corner at an elevation of 151 feet. Grades throughout the site range from 0-3% sloping towards the corners of the lot.

The subject site is surrounded by single family residential land uses to the south and west with multi-family development to the north and east.

3.2 Soil Type

The predominant soils found on site are Latourell loam (53A) and Quatama loam (71A) with corresponding hydrologic soil group (HSG) designations 'B' and 'C' respectively, as shown on the attached Natural Resources Conservation Service (NRCS) soil survey for Clackamas County.

Table 3-2: HYDROLOGIC SOIL GROUP RATINGS		
NRCS Map Unit Symbol	**NRCS Map Unit Name**	**Hydrologic Soil Group Rating**
53A	Latourell loam, 0-3% slopes	B
71A	Quatama loam, 0-3% slopes	C

3.3 Runoff Curve Numbers

Predeveloped pervious areas will use a composite Runoff Curve Number (RCN) of 69.7 corresponding to "Open Space" cover type (HSG designation 'B' and 'C') in good condition. Developed pervious areas will use a composite RCN of 77.4 corresponding to "Open Space" cover type (HSG designation 'B' and 'C') in fair condition. A runoff curve number of 98 will be used for all predeveloped and developed impervious areas (refer to the *SCS Runoff Curve Numbers and Composite CN* Exhibits).

Table 3-3: Runoff Curve Numbers		
Land Description	**Existing RCN**	**Proposed RCN**
Open Space, Good Condition	69.7	---
Open Space, Fair Condition	---	77.4
Impervious	98	98

4.0 PROPOSED IMPROVEMENTS

The City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards* shall govern the stormwater design criteria for the project. Per Section 301.1.02, all development that results in 5,000 square feet of new or replaced impervious surface, cumulative over a 5-year period, are subject to the requirements of these standards.

Impervious surfaces will be constructed as a result of the private driveways, buildings and sidewalks. Private utilities will be extended throughout the site for the use of the proposed development. The development proposes to create approximately 9,701 sq. ft. of new impervious area.

In accordance with Sections 301.4.03 (*Facility Selection*) and 301.4.05 (*Design Methods*), the BMP Sizing Tool was used to select and design the stormwater management facilities for the development. Two LID facilities will be constructed to manage the stormwater created by the new impervious areas. A filtration planter will treat runoff from the two buildings and driveways while a rain garden will manage stormwater from the common area and a small subbasin of the parking area.

The proposed storm drainage system will convey runoff into the LID facilities before discharging and connecting to an existing 18" CSP main located in the parking lot of the adjacent multi-family apartment complex.

There are no offsite contributing drainage basins.

4.1 Hydrology/Hydraulic Methodology

Pert the City's *"Design and Construction Standards"*, stormwater systems shall strive to maintain pre-developed runoff characteristics to minimize effects on the drainageways generally associated with urbanization. Stormwater facilities shall be designed to maximize groundwater recharge through the process of infiltration of runoff into vegetated Low Impact Development (LID) facilities and/or flow controls to address hydromodification.

Infiltration testing was performed at the subject site on June 25, 2019. Results of the initial testing indicated no movement of water in the test pits. The site was retested on July 3, 2020, with noticeable differences in results from the previous exploration. Infiltration rates from the second test were measured to be 30 inches per hour with a recommended design rate of 15 inches per hour (refer to Appendix 'E' - Geotechnical report and Addendum No. 1).

Using the Santa Barbara Urban Hydrograph (SBUH) method based on a Type 1A rainfall distribution, the site has been analyzed to determine the proposed peak runoff rates for the 2, 10, and 25-year 24-hour storm event in regard to the development's conveyance standards. The SBUH method uses runoff curve numbers in conjunction with the property's hydrologic soil group to model the site's permeability.

A predeveloped time of concentration of 14.79 minutes and a developed time of concentration of 5.0 minutes were calculated using the methodology outlined in the TR-55 technical manual *(refer to the Time of Concentration Calculations and Exhibits)*.

Rainfall depths for all storm events used in the calculations and design of the proposed storm drainage system are found in latest edition of The City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards* and as shown below.

Table 4-1: 24-Hour Rainfall Depths (City of Wilsonville)					
Recurrence Interval, Years	2	5	10	25	100
24-Hour Depths, Inches	2.50	3.00	3.45	3.90	4.50

4.2 Water Quality

As required by City of Wilsonville, the development will utilize LID to the "maximum extent possible". Water quality facilities shall be designed capture and treat 80% of the average annual runoff volume to the MEP with the goal of 70% total suspended soils (TSS) removal.

4.3 Detention

Water quantity control (detention) is required for the proposed development. Flow control standards require the duration of peak flow rates from post-development conditions to be less than or equal to the duration of peak flow rates from the predeveloped conditions for all peak flows between 42% of the 2-year storm peak flow rate up to the 10-year peak flow rate. The BMP Sizing Tool incorporates these flow control requirements to size the stormwater facilities.

4.4 Facility Design

As referenced above, both the planter and rain garden have been designed using the BMP Sizing Tool. The facilities will be lined as a result of the negligible infiltration rates (see *BMP Sizing Tool Report and Files*). The following table summarizes the impervious basin areas for the planter and rain garden and the corresponding size of each facility which meets the City's water quality and flow control requirements.

Table 4-4: Stormwater Facility Summary				
Basin ID	**Post Developed Conditions**	**Impervious Area (Sq. Ft.)**	**Facility Size Required (Sq. Ft.)**	**Facility Size Provided (Sq. Ft.)**
1A	West Building Roof	1,786	578.8 (Planter)	580 (Planter)
2A	East Building Roof	1,786		
3A	Driveway, Parking Aisle, Sidewalks	4697		
1B	Common Area	1,000	71.6 (Rain Garden)	72 (Rain Garden)
2B	Parking	432		
	Total	**9,701**	**608.2**	**624**

4.5 Conveyance

Runoff from the site will be conveyed into the stormwater facilities for treatment and detention and then discharged to an existing offsite main east of the proposed development.

Per the requirements of the City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards* and Section 301.1.13, conveyance systems shall be designed to convey and contain at the peak runoff for the 25-year design storm. A Manning's 'n' value of 0.013 has also been applied to the pipe flow (refer to the *Conveyance Calculations)*.

5.0 DOWNSTREAM ANALYSIS

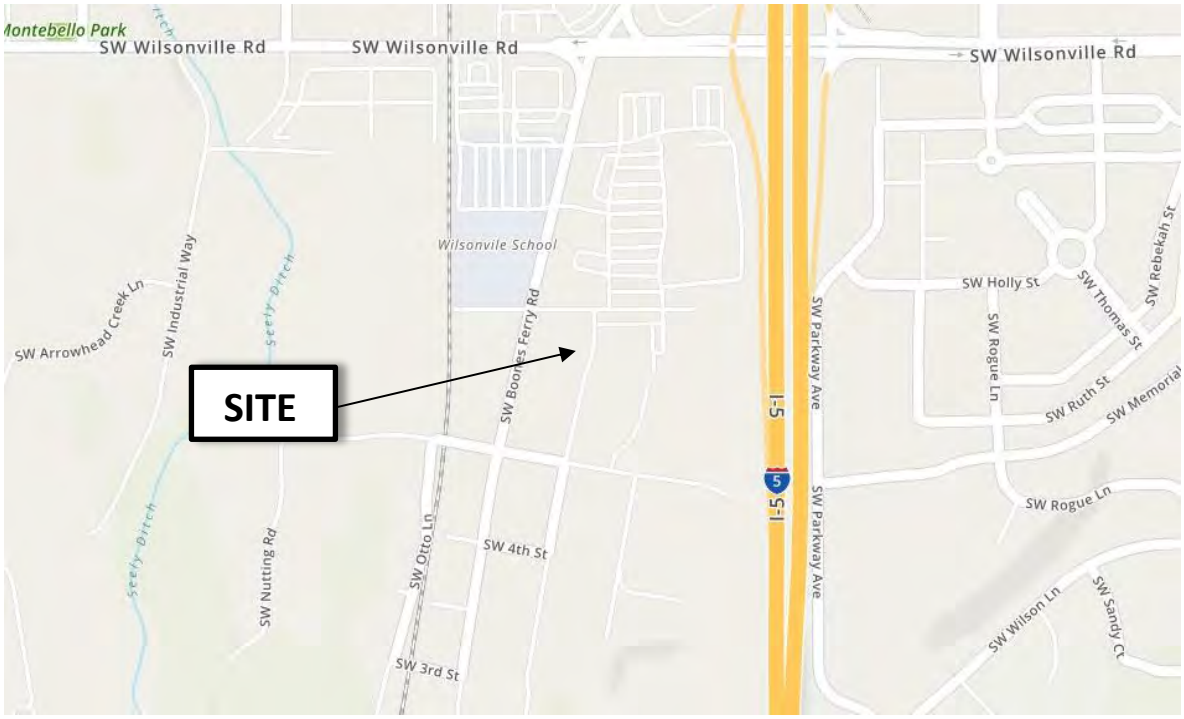
According to the City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards* Section 301.5.01.b, an analysis of the drainage system downstream of the development must verify the downstream system has capacity to convey the 25-year storm. From an analysis and research of available utility records, in addition to visual observations of the downstream conveyance system, there doesn't appear to be any observable capacity or condition issues with the receiving system.

In the event the facilities fail or receive rainfall in excess of the design capacity, stormwater overflow will be directed out of the low point catch basins located in the drive aisle and common area. Runoff will either flow out to SW Magnolia Avenue or around the west side of the property into the public alley right-of-way.

6.0 CONCLUSION

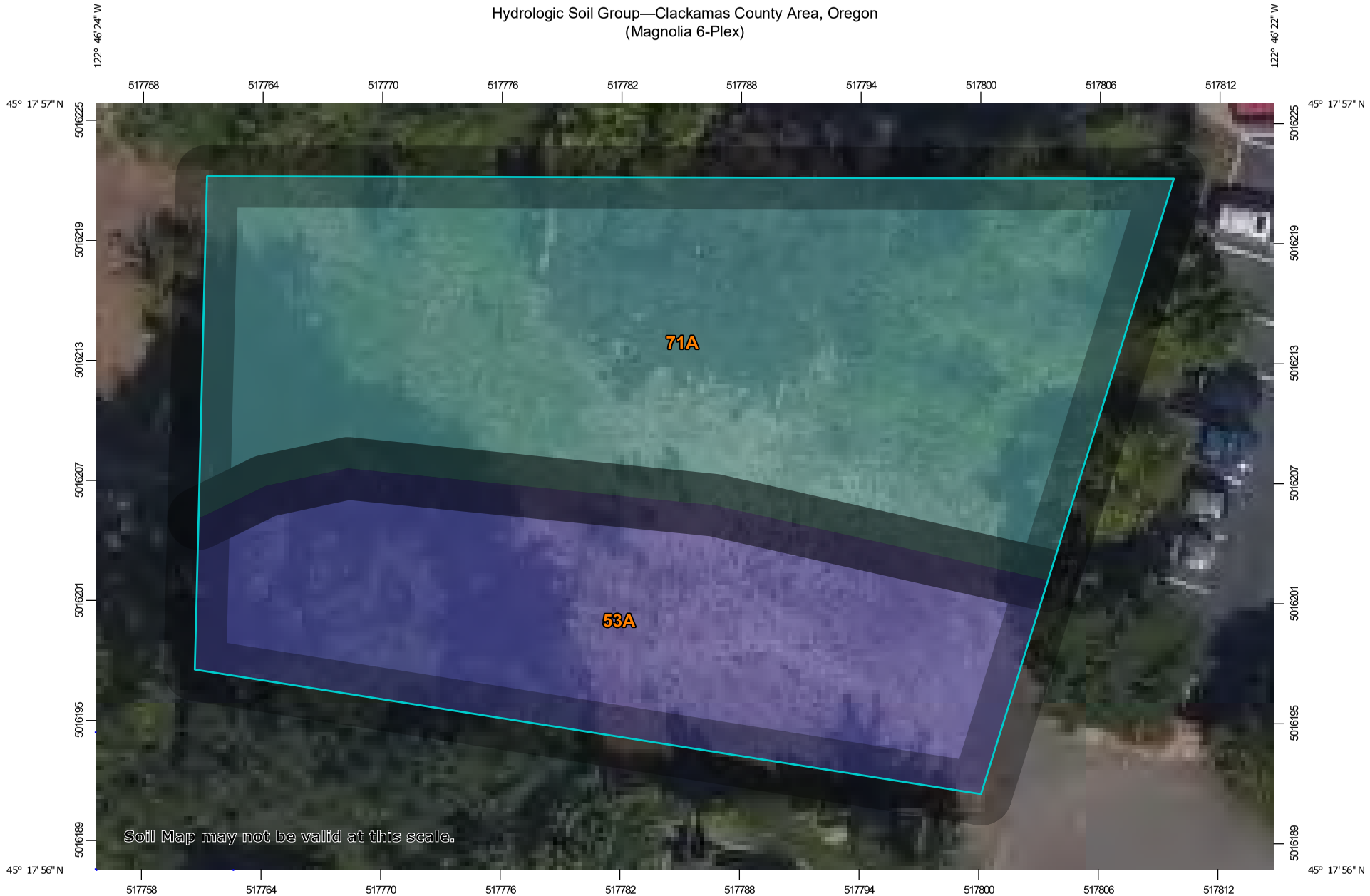
Based on the supporting stormwater calculations and attached analysis, it is the opinion of Pioneer Design Group that the development of the Magnolia 6-Plez development project will not adversely affect the existing downstream drainage system or adjacent property owners. Water quality treatment and quantity control for all new impervious areas created by the development will be managed onsite by a LID planter and rain garden in accordance with the City of Wilsonville's *2015 Stormwater and Surface Water Design and Construction Standards*. Therefore, all the requirements associated with the City of Wilsonville and Clackamas County have been met for this project.

7.0 VICINITY MAP



ENGINEERING CALCULATIONS AND SPREADSHEETS

Hydrologic Soil Group—Clackamas County Area, Oregon
(Magnolia 6-Plex)



Map Scale: 1:270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 4 8 16 24

Feet
0 10 20 40 60

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 15, Sep 10, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2019—Sep 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
53A	Latourell loam, 0 to 3 percent slopes	B	0.1	37.9%
71A	Quatama loam, 0 to 3 percent slopes	C	0.2	62.1%
Totals for Area of Interest			**0.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

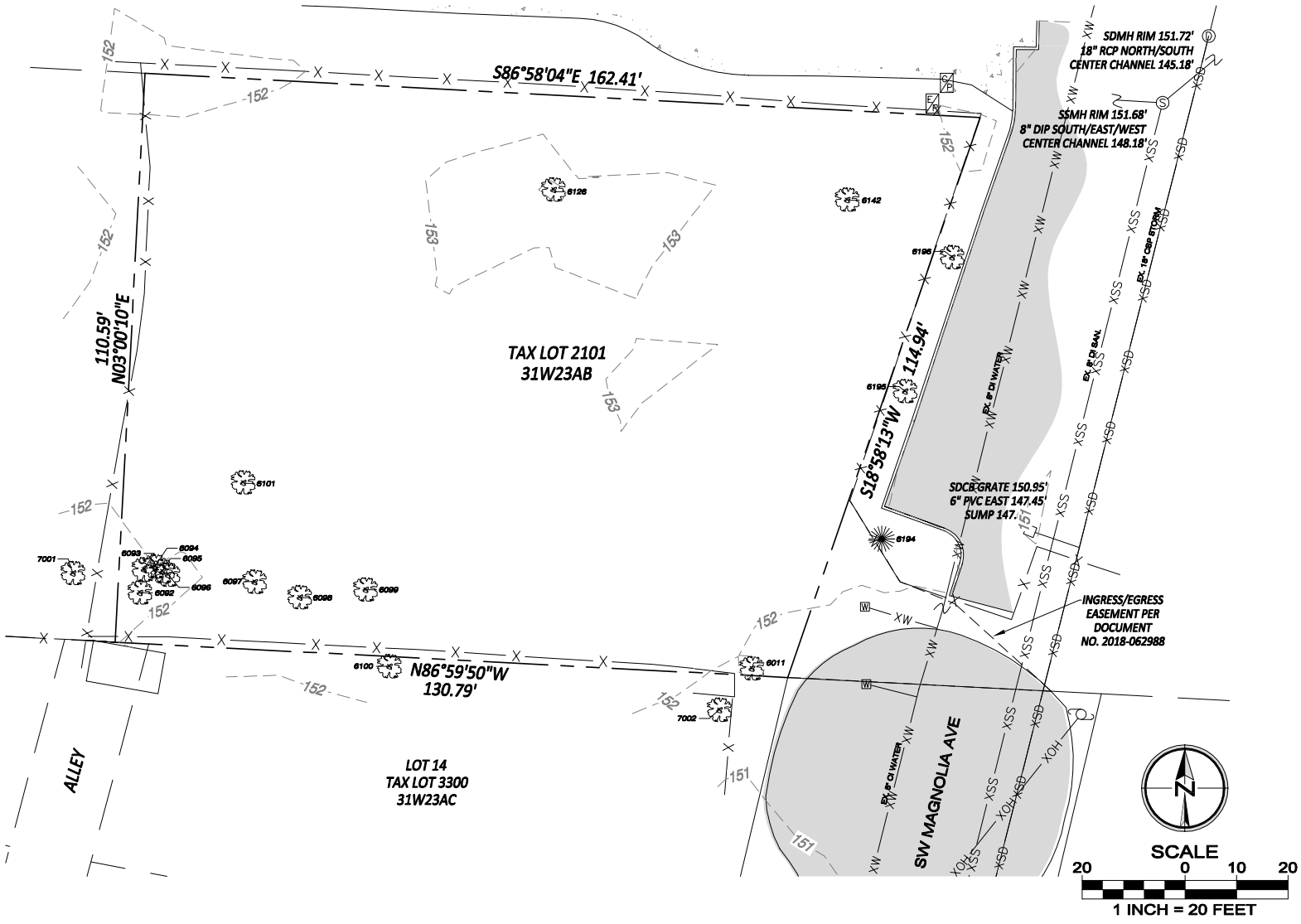
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Predeveloped Conditions Exhibit

MAGNOLIA 6-PLEX



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Designed by	LRL	Date	12/2019
Drawn by	LRL	Date	12/2019
Reviewed by	BEF	Date	12/2019
Project No.	999-234	REF.	
Horiz. Scale:	1"=20'		
Vert. Scale:			

Existing Conditions Plan.dwg

Project
MAGNOLIA 6-PLEX

No.
999-234

Type
PLANNING

Sheet
1 of 2

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Developed Conditions Exhibit

MAGNOLIA 6-PLEX

Designed by	LRL	Date	12/2019
Drawn by	LRL	Date	12/2019
Reviewed by	BEF	Date	12/2019
Project No.	999-234	REF.	
Horiz. Scale:	1"=20'		
Vert. Scale:			

DEVELOPED.DWG

Project MAGNOLIA 6-PLEX
No. 999-234
Type PLANNING
Sheet 2 of 2

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RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]	77	86	91	94	
Idle lands (CNs are determined using cover types similar to those in table 2-2c)					

1: Average runoff condition, and $I_a = 0.2S$.

2: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas hava a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3: CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4: Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

MANNING'S "n" VALUES

SHEET FLOW EQUATION MANNING'S VALUES	n_s
Smooth Surfaces (concrete, asphault, gravel, or bare hand packed soil)	0.011
Fallow Fields or loose soil surface (no residue)	0.05
Cultivated soil with residue cover (≤ 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)	

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IMPERVIOUS AREA CALCULATIONS

JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

NEW IMPERVIOUS AREA

BUILDINGS (2 @ 1786 SF/EA)	3,572.00 ft^2	
SIDEWALKS	260.00 ft^2	
COMMON AREA	1,000.00 ft^2	
STREET PAVEMENT	4,869.00 ft^2	
	9,701.00 ft^2	**0.22 ac**

EXISTING IMPERVIOUS AREA

BUILDINGS	ft^2	
SIDEWALKS	ft^2	
GRAVEL AT 60% IMPERVIOUS	ft^2	
STREET PAVEMENT	ft^2	
	0.00 ft^2	**0.00 ac**

Total Shed Area	**16,207.00 ft^2**	**0.37 ac**
Existing Impervious Area	**0.00 ft^2**	**0.00 ac**
% Impervious		**0.0 %**
Proposed Impervious Area	**9,701.00 ft^2**	**0.22 ac**
% Impervious		**59.9 %**

PIONEER DESIGN GROUP

PREDEVELOPED TIME OF CONCENTRATION

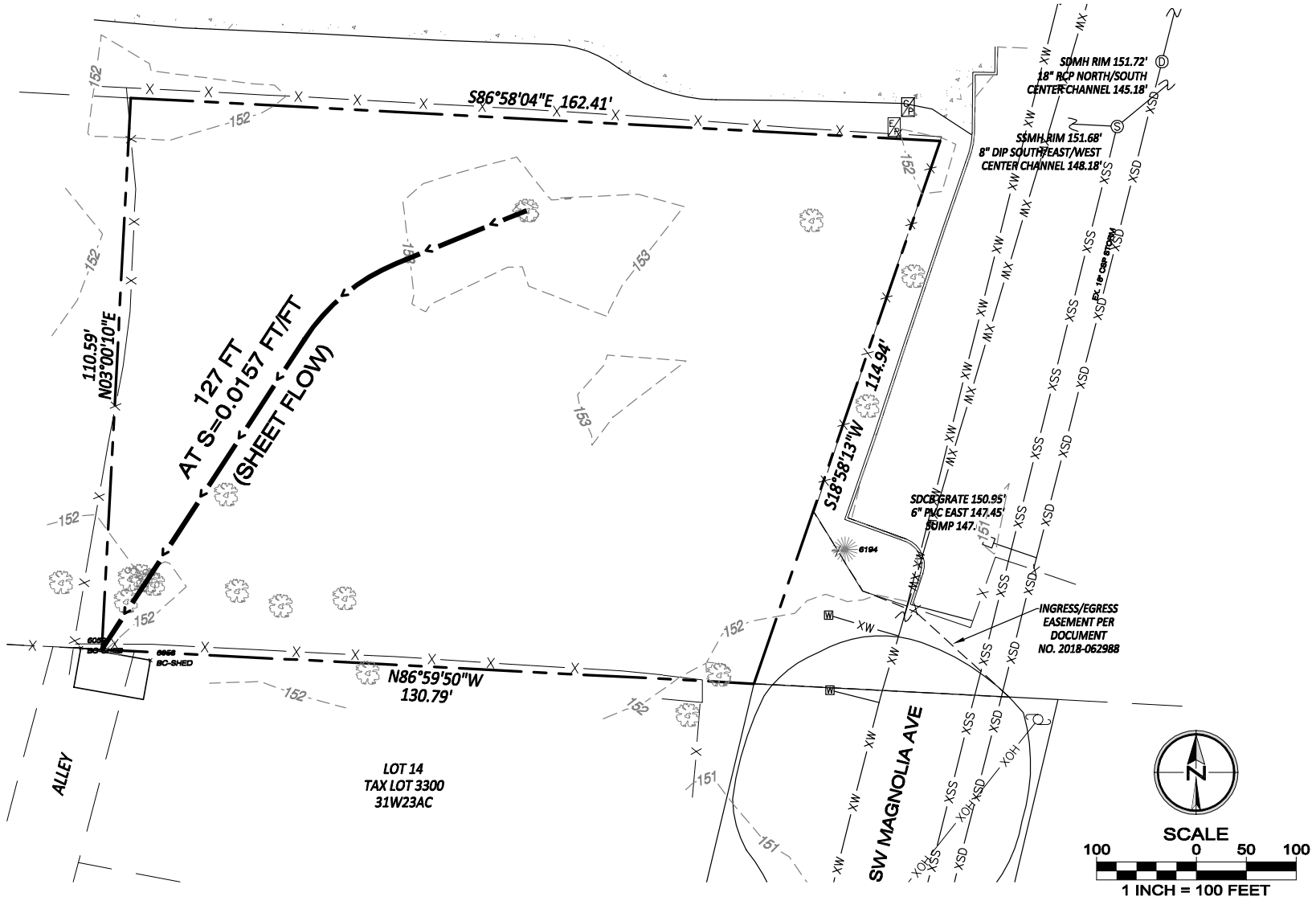
JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

			Accum. Tc
LAG ONE: SHEET FLOW (FIRST 127 FEET)			
Tt = Travel time			
Manning's "n " =	0.15		
Flow Length, L =	127 ft	(300 ft. max.)	
P = 2-year, 24hr storm =	2.5 in		
Slope, S_0 =	0.016 ft/ft		
$T_T = \frac{(0.42)(n * L)^{0.8}}{(P)^{0.5}(S_0)^{0.4}}$	14.79 min.		14.79 min.

TOTAL PREDEVELOPED TIME OF CONCENTRATION (Tc) = 14.79 min.

Existing Time of Concentration

MAGNOLIA 6-PLEX



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Reviewed by	BEF	Date	12/2019	
Project No.	999-234	REF.		
Horiz. Scale:	1"=20'			
Vert. Scale:				

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Project
MAGNOLIA 6-PLEX

No.
999-234

Type
PLANNING

Sheet
1 of 1

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PIONEER DESIGN GROUP

DEVELOPED TIME OF CONCENTRATION

JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

Catchment Time	5 min.
Longest Run of Pipe	0 ft
Velocity of Flow	3 ft/s
Time in Pipe = (0 ft)/(3.00 ft/s) =	0 s
TOTAL DEVELOPED Tc =	**5 min.**

PIONEER DESIGN GROUP

EXISTING CONDITIONS - PERVIOUS COMPOSITE CURVE NUMBERS

JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

TOTAL AREA= 16,207 SF

EXISTING CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
Grass, Good Condition	53A Latourell loam	5,348	B	61
Grass, Good Condition	71A Quatama loam	10,859	C	74

EXISTING COMPOSITE CN (PERVIOUS) = $\frac{(5348 \times 61) + (10859 \times 74)}{16,207}$ = **69.7**

PIONEER DESIGN GROUP

DEVELOPED CONDITIONS - PERVIOUS COMPOSITE CURVE NUMBERS

JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

TOTAL AREA= 16,207 SF

DEVELOPED CONDITIONS

COVER TYPE	SOIL TYPE	AREA (SF)	SOIL GRADE	CURVE NUMBER
OPEN SPACE "FAIR CONDITION"	53A Latourelle loam	5,348	B	74
OPEN SPACE "FAIR CONDITION"	71A Quatama loam	10,859	C	79

DEVELOPED COMPOSITE CN (PERVIOUS) = $\frac{(5348 \times 74) + (10859 \times 79)}{16,207}$ = **77.4**

PIONEER DESIGN GROUP

SANTA BARBARA URBAN HYDROGRAPHS

JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex
FILE: 999234_hydro_planning

DESCRIPTION	DESIGN STORM (YR)	DURATION (HR)	PRECIP (IN)	AREA TOTAL (AC)	% IMP	AREA PERV. (AC)	CN PER.	AREA IMP. (AC)	CN IMP.	TIME (MIN)	Q (CFS)
PREDEVELOPED 2-YEAR PEAK DISCHARGE	2	24	2.5	0.37	0.00	0.37	69.7	0.00	98	14.79	0.01
DEVELOPED 2-YEAR PEAK DISCHARGE	2	24	2.5	0.37	59.90	0.15	77.4	0.22	98	5.00	0.16
PREDEVELOPED 10-YEAR PEAK DISCHARGE	10	24	3.45	0.37	0.00	0.37	69.7	0.00	98	14.79	0.05
DEVELOPED 10-YEAR PEAK DISCHARGE	10	24	3.45	0.37	59.90	0.15	77.4	0.22	98	5.00	0.25
PREDEVELOPED 25-YEAR PEAK DISCHARGE	25	24	3.9	0.37	0.00	0.37	69.7	0.00	98	14.79	0.08
DEVELOPED 25-YEAR PEAK DISCHARGE	25	24	3.9	0.37	59.90	0.15	77.4	0.22	98	5.00	0.29
PREDEVELOPED 100-YEAR PEAK DISCHARGE	100	24	4.5	0.37	0.00	0.37	69.7	0.00	98	14.79	0.11
DEVELOPED 100-YEAR PEAK DISCHARGE	100	24	4.5	0.37	59.90	0.15	77.4	0.22	98	5.00	0.35

PIONEER DESIGN GROUP

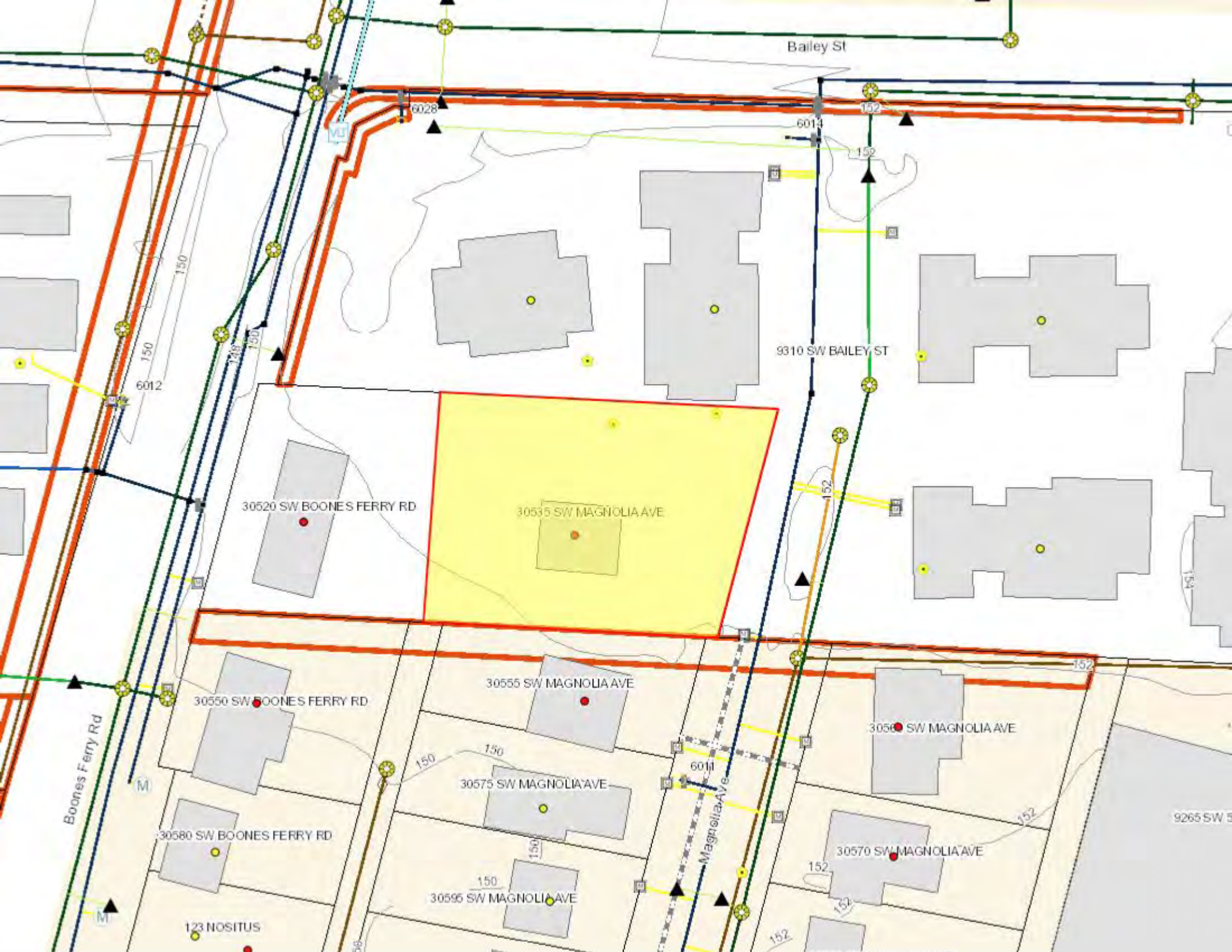
STORMWATER CONVEYANCE CALCULATIONS

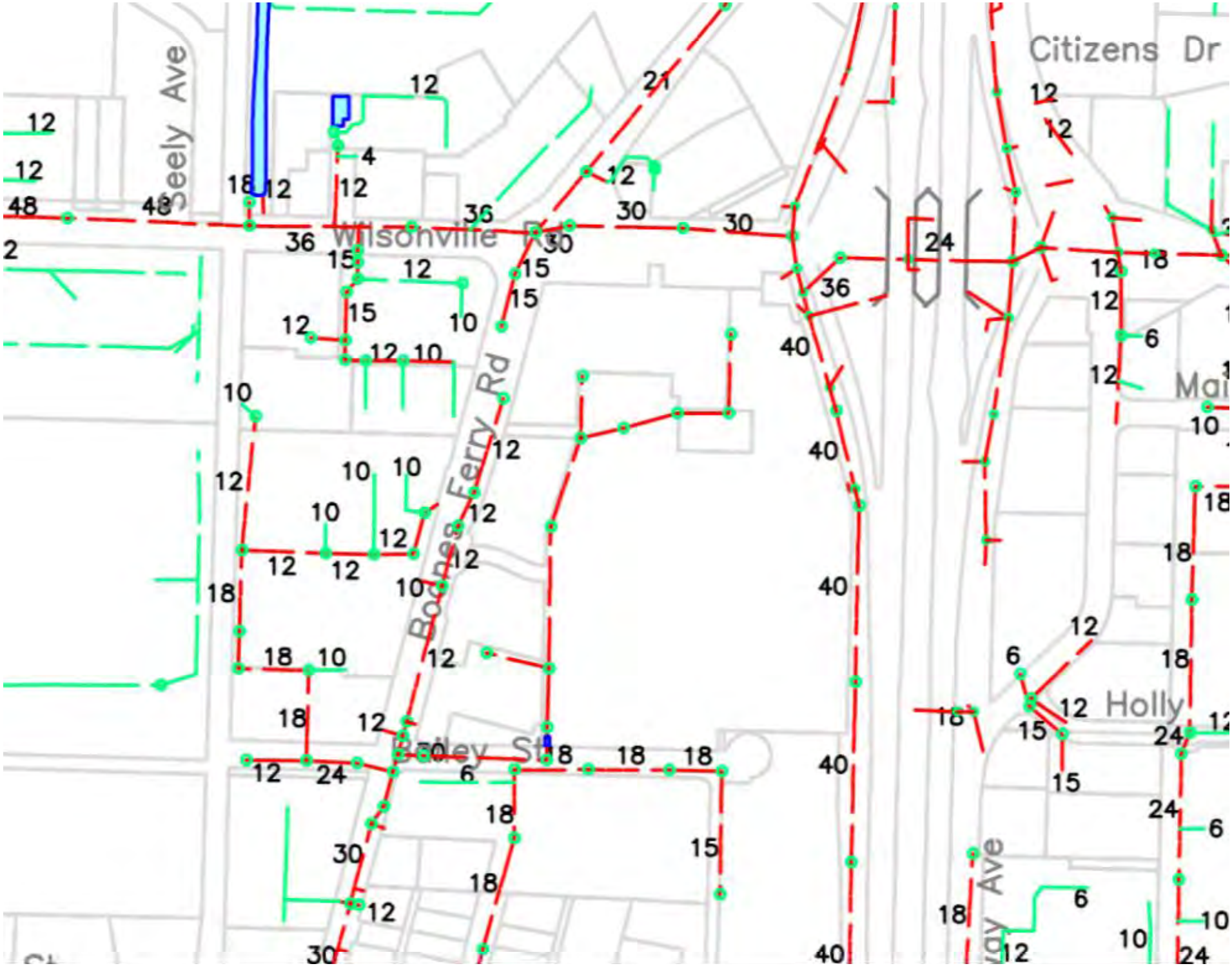
JOB NUMBER: 999-234
PROJECT: Magnolia 6-Plex

FILE: 999234_hydro_planning
Design Storm: 25 YR
Storm Duration: 24 HRS
Precipitation: 3.9 IN
Manning's "n" 0.013

LINE	INC. AREA (AC)	AREA TOTAL (AC)	% IMP.	AREA PERV. (AC)	CN PER.	AREA IMP. (AC)	CN IMP.	TIME (MIN)	Q (CFS)	PIPE SIZE (IN)	SLOPE (FT/FT)	Qf (CFS)	Q/Qf (%)	Vf (FPS)	V/Vf (%)	ACTUAL V (FPS)
ENTIRE SHED	0.37	0.37	59.9	0.15	77.4	0.22	98	5.00	0.29	4	0.0230	0.29	1.00	3.32	1.16	3.86
ENTIRE SHED	0.37	0.37	59.9	0.15	77.4	0.22	98	5.00	0.29	6	0.0100	0.56	0.51	2.87	1.01	2.90
ENTIRE SHED	0.37	0.37	59.9	0.15	77.4	0.22	98	5.00	0.29	8	0.0075	1.05	0.28	3.01	0.82	2.47

APPENDIX 'A' – CITY OF WILSONVILLE UTILITY MAPS


Bailey St
6028
6014
152
159
150
6012
9310 SW BAILEY ST
30520 SW BOONES FERRY RD
30535 SW MAGNOLIA AVE
30555 SW MAGNOLIA AVE
30550 SW BOONES FERRY RD
30560 SW MAGNOLIA AVE
Boones Ferry Rd
6011
30575 SW MAGNOLIA AVE
Magnolia Ave
30580 SW BOONES FERRY RD
30570 SW MAGNOLIA AVE
30595 SW MAGNOLIA AVE
123 NOSITUS
9265 SW


Seely Ave
Wilsonville Rd
Rodgers Ferry Rd
Bailey St
Citizens Dr
Holly

APPENDIX 'B' – WES BMP TOOL SIZING REPORT

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Magnolia 6-Plex (Building)
Project Type	Subdivision
Location	30535 SW Magnolia Avenue
Stormwater Management Area	8849
Project Applicant	Daniel Hillebrand
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Driveway and Aisle	4,443	Grass	ConventionalConcrete	C	Planter
Building A	1,786	Grass	Roofs	C	Planter
Building B	1,786	Grass	Roofs	C	Planter
Sidewalk	254	Grass	ConventionalConcrete	C	Planter

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	578.8	580.0	0.9

Pond Sizing Details

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Magnolia 6-Plex (Common)
Project Type	Subdivision
Location	30535 SW Magnolia Avenue
Stormwater Management Area	1492
Project Applicant	Daniel Hillebrand
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Common Area	1,000	Grass	ConventionalConcrete	B	NA
NW Parking	432	Grass	ConventionalConcrete	B	BMP

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP	FlowControlAndTreatment	Rain Garden - Infiltration	A1	43.2	60.0	0.0

Pond Sizing Details

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

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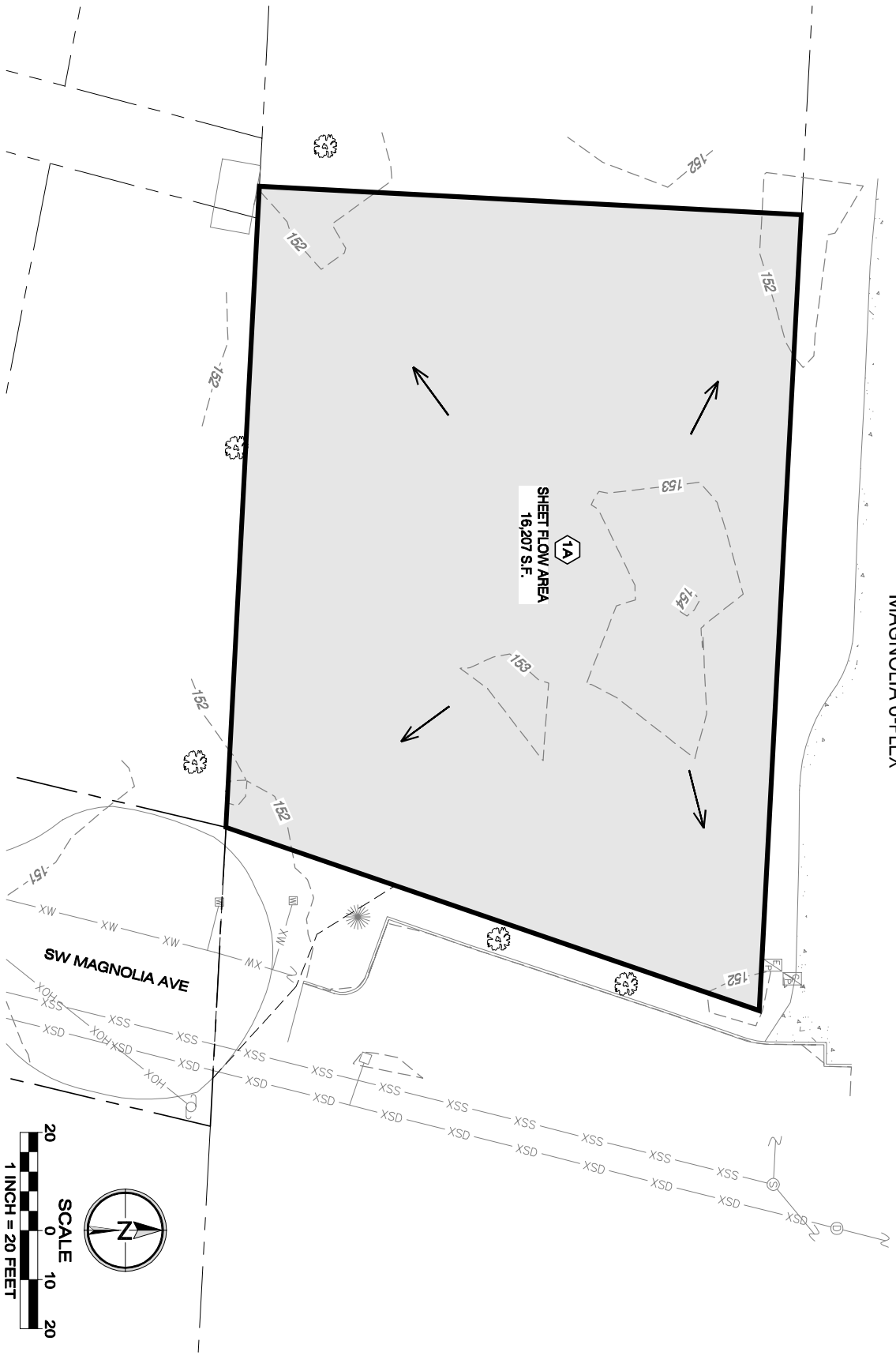
Pre-Developed Basin Exhibit

MAGNOLIA 6-PLEX



Project	MAGNOLIA 6-PLEX	Designed by	LRL Date 12/2019
No.	999-234	Drawn by	BDH Date 12/2019
Type	PLANNING EXHIBIT	Reviewed by	LRL Date 12/2019
Sheet	1 of 2	Project No.	999-234 REF.
		Horiz. Scale:	1:20
		Vert. Scale:	NA

MAGNOLIA 6-PLEX

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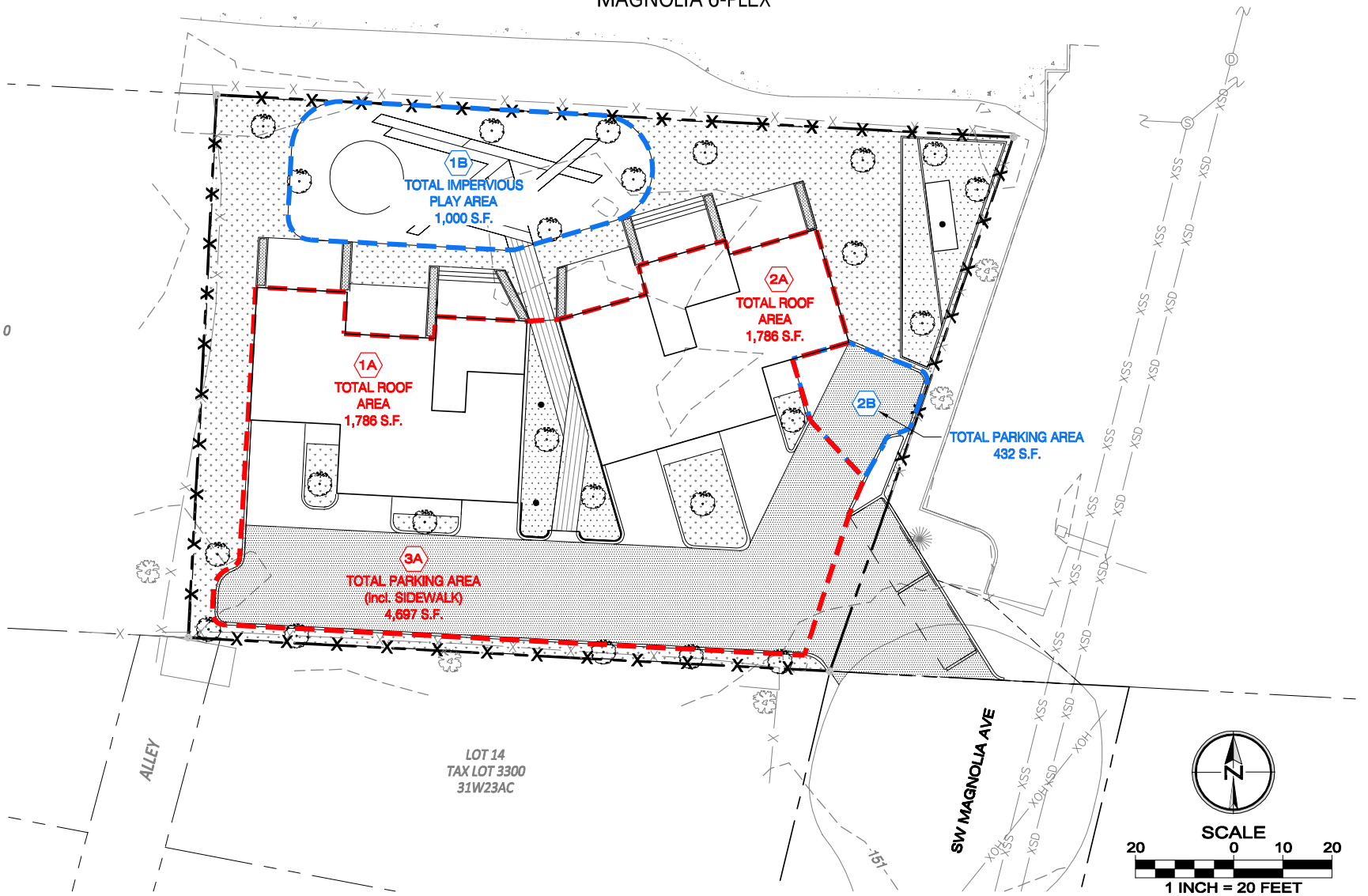
Developed Basin Exhibit

MAGNOLIA 6-PLEX



B:\Projects\999-234\Engineering\Hydro\Preliminary\999234_Developed Basin Exhibit_revised.dwg 6/24/2020 3:26:31 PM

PIONEER DESIGN GROUP
CIVIL ENGINEERING • LAND USE PLANNING • LAND SURVEYING • LANDSCAPE ARCHITECTURE
PORTLAND, OREGON | HONOLULU, HAWAII
PH: 503.643.8286 PH: 808.753.2376
WWW.PD-GRP.COM

Designed by	LRL	Date	12/2019	
Drawn by	BDH	Date	12/2019	
Reviewed by	LRL	Date	12/2019	REF.
Project No.	999-234			
Horiz. Scale:	1:20			
Vert. Scale:	NA			

MAGNOLIA 6-PLEX

Project
MAGNOLIA 6-PLEX

No.
999-234

Type
PLANNING EXHIBIT

Sheet
2 of 2

IMPERVIOUS AREA THRESHOLD DETERMINATION FORM

1. TOTAL NEW AND REPLACED IMPERVIOUS AREA, SF:	Box 1	9,701
2. APPLY IMPERVIOUS REDUCTION METHODS:		
2a. Pervious Pavement, SF:	Box 2a	0
2b. Green Roof, SF:	Box 2b	0

2c. Tree Credit - Applies to NON single family residential developments only. NOTE: Maximum total tree credit allowed is 10% of the Impervious Area in BOX 1:

New Trees

To receive credit, trees must be planted in excess of Planning Division (landscaping) requirements. New evergreen trees must be at least 6 feet tall at the time of planting and new deciduous trees must be at least 2-inch caliper (diameter at 4 feet high). Trees must be planted within 25-feet of ground-level impervious surfaces. New trees cannot be credited against rooftop surfaces or pervious pavement. New trees must be selected from tree species included in Appendix A unless otherwise approved.

Number of new trees meeting criteria x 100 sf each, SF:	Box 2c	0

2d. Existing Tree Canopy

To receive credit, existing tree canopy must be preserved during and after construction (recorded on property deed). Existing trees cannot be credited against rooftop surfaces or pervious pavement. Minimum tree size to receive credit is 6-inch caliper. No credit will be given for existing trees located in vegetative buffers or other requirements of the Planning Division. Tree canopy is measured as the area under the tree drip-line and that is within 25 feet of ground-level impervious surfaces.

SF of existing tree canopy that meets criteria:	Box 2d	0
2e. Total Tree Credit (Box 2c + 2d), OR 10% of Box 1, whichever is SMALLER:	Box 2e	0
3. TOTAL IMPERVIOUS AREA REDUCTION, (Sum of Boxes 2a, 2b, and 2e), SF	Box 3	0
4. PROPOSED IMPERVIOUS AREA, (Box 1 minus Box 3), SF (compare to thresholds):	Box 4	9,701

Impervious Area Threshold Determination Form			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6000	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6000.DWG	APPROVED BY: NK	DATE: 10/10/14	PUBLIC WORKS STANDARDS

SITE ASSESSMENT AND PLANNING CHECKLIST

1. SITE INFORMATION

Contact Information	
Applicant Name	Luke Lappin
Business Name	Pioneer Design Group, Inc.
Address	9020 SW Washington Sq. Rd. #170 Portland, OR 97223
Phone	503-643-8286
Email	llappin@pd-grp.com
Project Location	
Site Address	30535 SW Magnolia Ave. Wilsonville, OR 97070
Site Description	The site is curently vacant with the remnant of a small asphalt driveway. The existing house has been removed. The majority of the site is covered with grass with a stand of trees in the SW corner and a few other scattererd around the perimeter.
Major Drainage Basin	Willamette
Vicinity Map	*See Section 7.0 - Preliminary Storm Drainage Report*
Project Type	
Type of Development	Multi-Family Residential
Description	A 6-plex multi-family apartment building with drive aisle access, landscaping, associated underground utility improvements, and two stormwater management facilities.
Size of Site	
Acreage	0.37 AC
# of tax lots	1

2. Site Assessment

Topography	
Aerial Map	*See Section 7.0 - Preliminary Storm Drainage Repor*
Soils and Groundwater	
NRCS Hydrologic Soil Type	B, C *See attached NRCS Hydrologic Soil Map (Prel. Storm Drainage Report)* *Attach Seasonal Groundwater Depth Evaluation*
Infiltration Assessment	
Test Type	Professional
Inches/Hour	>2.0 in./hr.
Hydrology-Conditions and Features	
Sensitive Area(s)	None
Floodplain	None
Downstream Conveyance	
Downstream Capacity	Downstream conveyance system discharges into the Willamette River. There are no observable restrctions or capacity issues. *See attached Preliminary Storm Drainage Report*
Existing Vegetation	
	See attached "Pre-Developed Conditions Exhibit"

Natural Resources Areas and Setbacks	
Identify the Significant Resource Overlay Zone and other Natural Resource areas	The Site is not within a Significant Overlay Zone
Land Use and Zoning	
Existing Land Use Zoning Designation(s):	PDC- Planned Development Commercial
Access and Parking	
Amount of required parking onsite	Site includes 8 parking spaces
Area of required parking onsite	Total planned driveway and acces aisle is 4,875 sf. *See attached "Developed Conditions Exhibit"*
Utilities to Site and Surrounding Area	
	Mark all that apply and attach maps
Storm water Management Facilities	X
Storm Conveyance	X
Sewer	X
Water	X
Wells	
Drywells	
On-site septic systems	
Electricity	X
Phone/cable	X
Gas	X
Public storm system/facility downstream	

3. Site planning Design Objectives
Site Plan - See attached "Developed Conditions Exhibit"
Preserve Existing Natural Resources
N/a
Minimize Site Disturbance
See attached "Tree Removal and Preservation Plan"
Minimize Soil Compaction
See attached "Preliminary Composite Utility Plan"
Minimize Imperviousness
See attached "Impervious Area Threshold Determination Form"

4. Proposed Stormwater Management Strategy

	Mark all that Apply:
LIDA facilities to the MEP	X
All onsite infiltration including retention of the 10-year storm event	
LIDA facilities and infiltration are limited by the following conditions	X
Stormwater management facility to be located on fill	
Steep slopes	
High groundwater	
Contaminated soils	
Conflict with required source controls (Section 301.12.00)	
See attached "Geotechnical Report" (unrecordable infiltration rates)	X

Check Minimum Facility Size Required

A.	Surface area of onsite LID facility, as determined by BMP Sizing Tool or Engineered Method:	622 SF
B.	Calculate MEP surface of onsite LID facility for sites with limiting conditions: total new/redeveloped impervious area (SF) x 0.10 =	970 SF
C.	Required surface area - smaller of [A] or [B]	622 SF
D.	Proposed LID facility surface area: must be equal to or larger than [C]	640 SF

5. Facility Selection/ Sizing

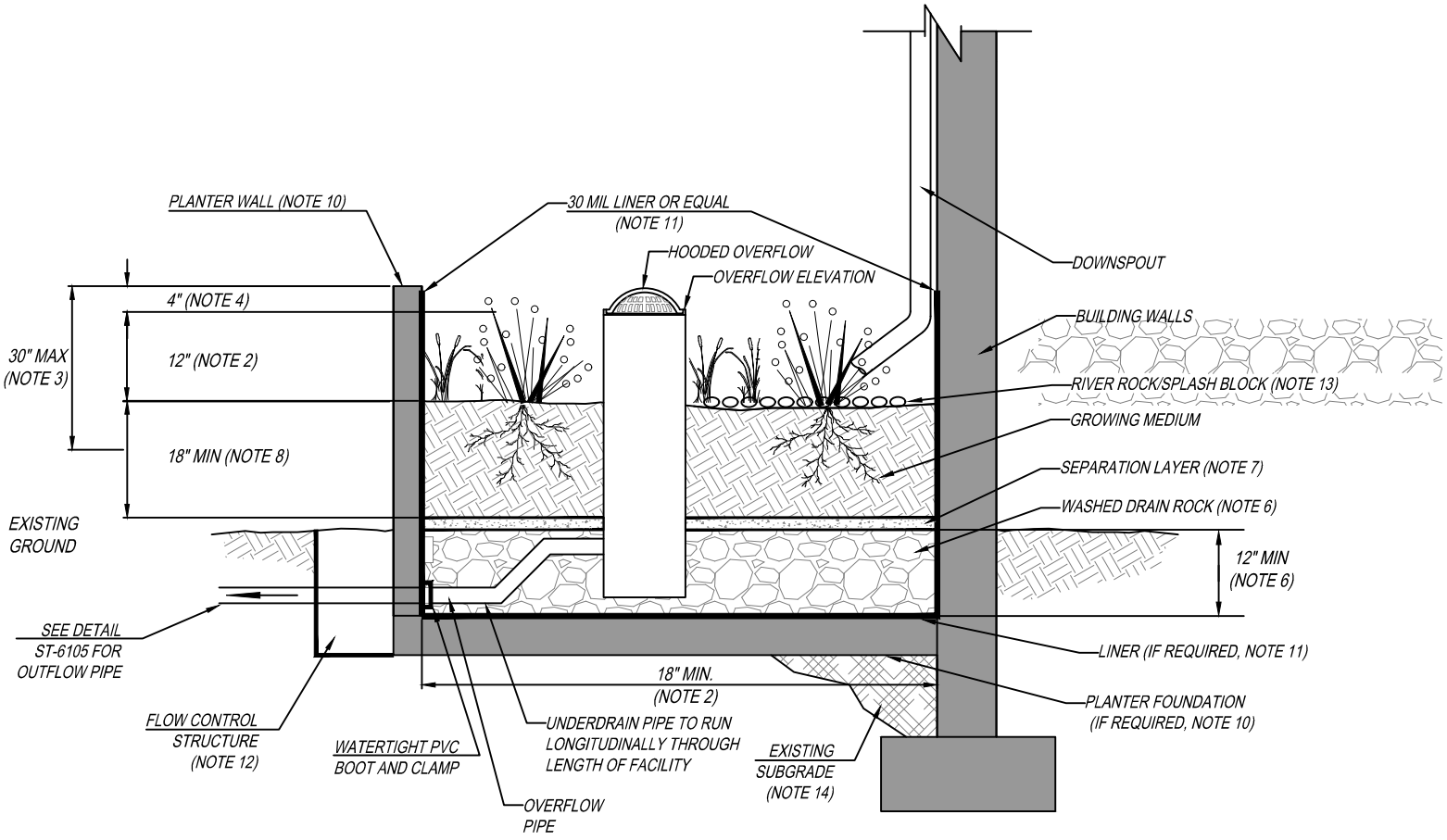
Proposed Facility Types(s)

Check all that apply, attach output from BMP Sizing Tool application, and show proposed facilities on Preliminary Site Plan

	LID Facilities
Infiltration Stormwater Planter	
Filtration Stormwater Planter	1 - see utility plan
Infiltration Rain Garden	1- see utility plan
Filtration Rain Garden	
Vegetated Filter Strip	
Vegetated Swale	
Detention Pond	

	Other Stormwater Management Facilities as approved:
Infiltration Trench	N/a
Manufactured Treatment Technology	N/a
Underground Detention Tank	N/a
Other:	

APPENDIX 'C' – CITY OF WILSONVILLE STORMWATER DETAILS



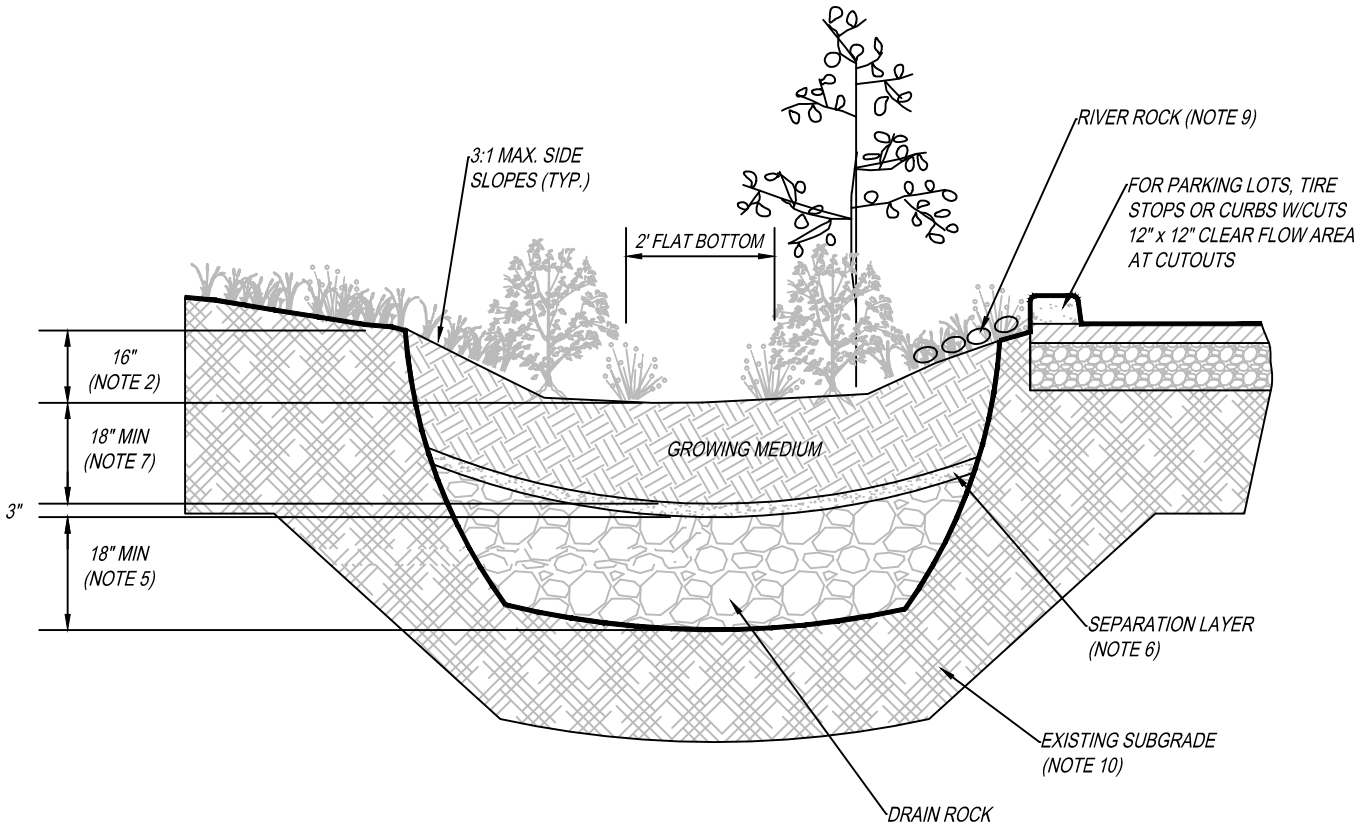
GENERAL NOTES:

1. **PROVIDE PROTECTION** FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. WRAP UNDER-DRAIN IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
2. **DIMENSIONS:**
   -WIDTH: 18" MINIMUM
   -DEPTH OF PLANTER (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12"
   -SLOPE OF PLANTER: 0.5% OR LESS
3. **HEIGHT/SETBACK**
   -PLANTERS SHALL BE LESS THAN 30" IN HEIGHT ABOVE SURROUNDING AREA
   -PLANTERS SHALL BE MINIMUM OF 5 FEET FROM PROPERTY LINE
4. **OVERFLOW:**
   -INLET ELEVATION SHALL ALLOW FOR 4" OF FREEBOARD, MINIMUM
   -PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE
5. **PIPING:**
   -PERFORATED UNDER-DRAIN PIPING: SHALL RUN LONGITUDINALLY THROUGH LENGTH OF FACILITY, SHALL BE ABS SCH. 40, CAST IRON, OR PVC SCH.40, 6" MINIMUM DIAMETER. PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND. WRAP UNDER-DRAIN IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
   -OVERFLOW PIPING: SHALL BE ABS SCH.40, CAST IRON, OR PVC SCH.40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND.
6. **DRAIN ROCK:**
   -SIZE FOR FLOW-THROUGH PLANTER: 1 1/2" - 3/4" WASHED
   -DEPTH: 12" MINIMUM
7. **SEPARATION** BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.
8. **GROWING MEDIUM:**
   -DEPTH: 18" MINIMUM
   -SEE APPENDIX A FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
   -FACILITY SURFACE AREA MAY BE REDUCED BY 25% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30" OR MORE.
9. **VEGETATION:** FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.
10. **PLANTER FOUNDATION AND WALLS:**
    -MATERIALS SHALL BE 4" REINFORCED CONCRETE, STONE, BRICK, OR OTHER DURABLE MATERIAL.
    -CONCRETE, BRICK, OR STONE WALLS SHALL BE INCLUDED ON FOUNDATION PLANS.
    -INSTALL INVERTED CURB AS NEEDED BETWEEN PLANTER AND ROAD SUBGRADE.
    -SUBMIT RETAINING WALL DESIGN IN ACCORDANCE WITH APPLICABLE STRUCTURAL CODES FOR REVIEW AND APPROVAL.
11. **WATERPROOF LINER (IF REQUIRED):**
    -LINER SHALL BE 30 MIL PVC OR EQUIVALENT, FOR FLOW THROUGH FACILITIES.
    -A WATERPROOF LINER IS NOT REQUIRED IF THE FOUNDATION OR WALL MATERIAL IS WATERPROOF REINFORCED CONCRETE OR APPROVED EQUAL.
12. **FLOW CONTROL** STRUCTURE. SEE DETAIL ST-6105.
13. **INSTALL RIVER ROCK** SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLETS TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" - 3", 4 SQUARE FEET, 6" DEEP.
14. **SEASONAL HIGH GROUNDWATER SEPARATION:**
    --SEPARATION DISTANCE AS REQUIRED BY THE CITY.

Stormwater Planter - Filtration		
DRAWING NUMBER: ST-6005	DRAWN BY: SR	SCALE: N.T.S.
FILE NAME: ST-6005.DWG	APPROVED BY: NK	DATE: 4/16/18

CITY OF WILSONVILLE

PUBLIC WORKS STANDARDS

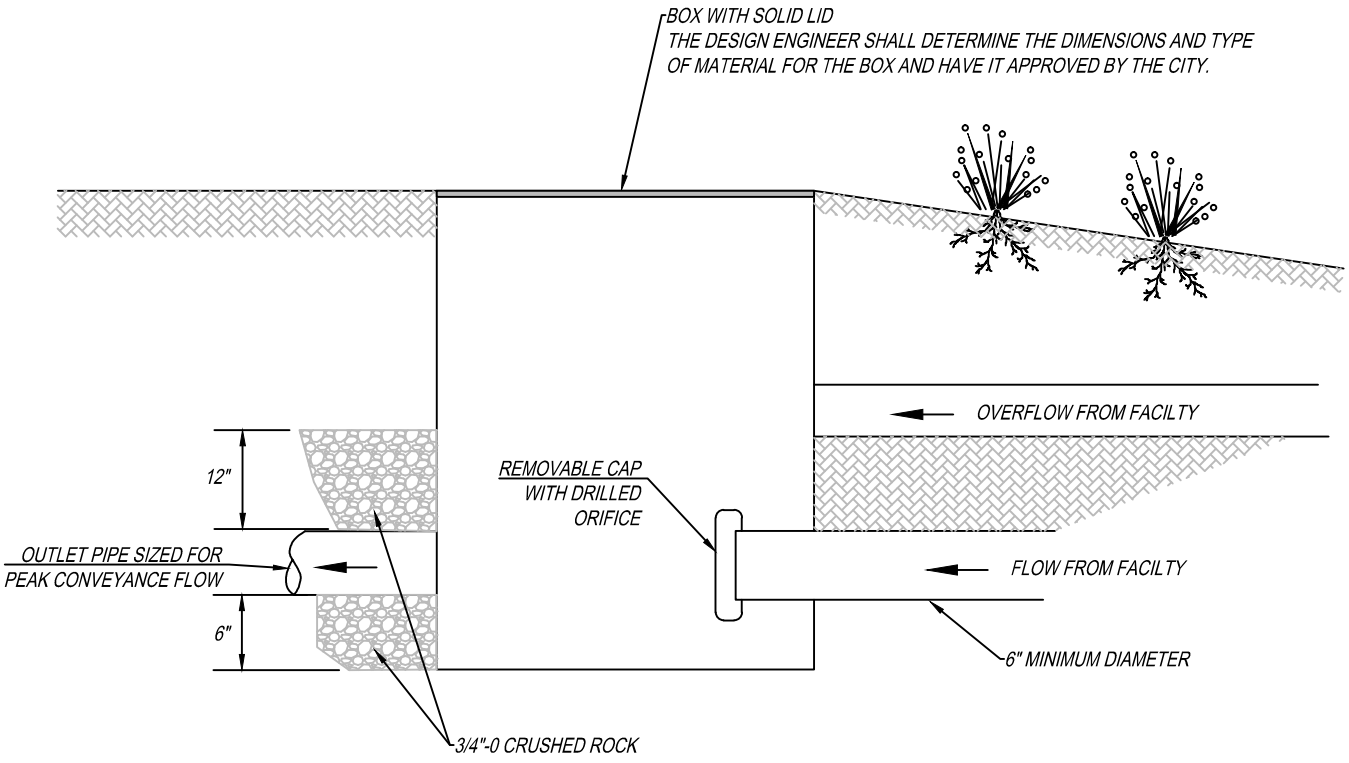


GENERAL NOTES:

1. **PROVIDE PROTECTION** FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED RAIN GARDENS ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.
2. **DIMENSIONS:**
   -DEPTH OF BASIN (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION); 16"
   -FLAT BOTTOM WIDTH: 2' MINIMUM
   -SIDE SLOPES OF RAIN GARDEN: 0.5% OR LESS
3. **SETBACKS (FROM MIDPOINT OF FACILITY):**
   -INFILTRATION RAIN GARDEN SHALL BE 10' FROM FOUNDATIONS AND 5' FROM PROPERTY LINES
4. **OVERFLOW:**
   -EMERGENCY OUTFLOW PATH FOR THE 100 YEAR DESIGN STORM SHALL BE IDENTIFIED IN THE STORMWATER MANAGEMENT PLAN
5. **DRAIN ROCK:**
   -SIZE: 1 1/2" TO 3/4" WASHED
   -DEPTH: 18"
6. **SEPARATION** BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.
7. **GROWING MEDIUM:**
   -DEPTH: 18" MINIMUM
   -SEE APPENDIX A FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
   -FACILITY SURFACE AREA MAY BE REDUCED BY 25% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30" OR MORE.
8. **VEGETATION:** FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.
9. **INSTALL RIVER ROCK** SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLET TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" TO 3", 4 SQUARE FEET, 6" DEEP.
10. **SEASONAL HIGH GROUNDWATER SEPARATION:**
    -SEPARATION DISTANCE AS REQUIRED BY THE CITY.

Rain Garden - Infiltration			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6025	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6025.DWG	APPROVED BY: NK	DATE: 6/3/16	PUBLIC WORKS STANDARDS

PLANTER, RAIN GARDEN, SWALE FLOW CONTROL STRUCTURE



Planter, Rain Garden, Swale Flow Control Structure		
DRAWING NUMBER: ST-6105	DRAWN BY: SR	SCALE: N.T.S.
FILE NAME: ST-6105.DWG	APPROVED BY: NK	DATE: 11/4/14

CITY OF WILSONVILLE

PUBLIC WORKS STANDARDS

APPENDIX 'D' – OPERATIONS AND MAINTENANCE PLAN

Stormwater Planters
Operations & Maintenance Plan

What to Look For	What to Do
Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains and curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Repair/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 to 10 inch deep rock check dams at design intervals.
Vegetation	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back grass and prune overgrowth 1-2 times per year. Remove cuttings
Weeds	-Manually remove weeds. Remove all plant debris.
Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Replace splash blocks or inlet gravel/rock.
Slope Slippage	-Stabilize 3:1 slopes/banks with plantings from Appendix A
Ponding	-Rake, till, or amend to restore infiltration rate.

Annual Maintenance Schedule:

Summer. Make any structural repairs. Improve filter medium as needed. Clear drain. Irrigate as needed.
Fall. Replant exposed soil and replace dead plants. Remove sediment and plant debris.
Winter. Monitor infiltration/flow-through rates. Clear inlets and outlets/overflows to maintain conveyance.
Spring. Remove sediment and plant debris. Replant exposed soil and replace dead plants. Mulch.
All seasons. Weed as necessary.
Maintenance Records: Record date, description, and contractor (if applicable) for all structural repairs, landscape maintenance, and facility cleanout activities. Keep work orders and invoices on file and make available upon request of the inspector.
Access: Maintain ingress/egress to design standards.
Infiltration/Flow Control: All facilities shall drain within 72 hours. Record time/date, weather, and site conditions when ponding occurs.
Pollution Prevention: All sites shall implement best management practices to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Contact _____ for immediate assistance responding to spills. Record time/date, weather, and site conditions if site activities contaminate stormwater.
Vectors (Mosquitoes & Rodents): Stormwater facilities shall not harbor mosquito larvae or rats that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface. Note holes/burrows in and around facilities. Call Clackamas County Vector Control for immediate assistance to eradicate vectors. Record time/date, weather, and site conditions when vector activity observed.

Stormwater Planter O & M Plan			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6015	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6015.DWG	APPROVED BY: NK	DATE: 10/8/14	PUBLIC WORKS STANDARDS

Rain Gardens
Operations & Maintenance Plan

What to Look For	What to Do
Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains and curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Repair/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 to 10 inch deep rock check dams at design intervals.
Vegetation	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back grass and prune overgrowth 1-2 times per year. Remove cuttings
Weeds	-Manually remove weeds. Remove all plant debris.
Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Replace splash blocks or inlet gravel/rock.
Slope Slippage	-Stabilize 3:1 slopes/banks with plantings from Appendix A
Ponding	-Rake, till, or amend to restore infiltration rate.

Annual Maintenance Schedule:

Summer. Make any structural repairs. Improve filter medium as needed. Clear drain. Irrigate as needed.
Fall. Replant exposed soil and replace dead plants. Remove sediment and plant debris.
Winter. Monitor infiltration/flow-through rates. Clear inlets and outlets/overflows to maintain conveyance.
Spring. Remove sediment and plant debris. Replant exposed soil and replace dead plants. Mulch.
All seasons. Weed as necessary.
Maintenance Records: Record date, description, and contractor (if applicable) for all structural repairs, landscape maintenance, and facility cleanout activities. Keep work orders and invoices on file and make available upon request of the inspector.
Access: Maintain ingress/egress to design standards.
Infiltration/Flow Control: All facilities shall drain within 72 hours. Record time/date, weather, and site conditions when ponding occurs.
Pollution Prevention: All sites shall implement best management practices to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Contact _____ for immediate assistance responding to spills. Record time/date, weather, and site conditions if site activities contaminate stormwater.
Vectors (Mosquitoes & Rodents): Stormwater facilities shall not harbor mosquito larvae or rats that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface. Note holes/burrows in and around facilities. Call Clackamas County Vector Control for immediate assistance to eradicate vectors. Record time/date, weather, and site conditions when vector activity observed.

Rain Garden O & M Plan			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6030	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6030.DWG	APPROVED BY: NK	DATE: 10/15/14	PUBLIC WORKS STANDARDS

APPENDIX 'E' – GEOTECHNICAL REPORT
And ADDENDUM No. 1

GEOTECHNICAL ENGINEERING REPORT
PROPOSED NEW MAGNOGLIA 6-PLEX
30535 SW MAGNOLIA AVE
WILSONVILLE, OREGON

Prepared for:

Daniel Hillebrand, President
Hillebrand Construction, Inc.
8908 SE 55th Avenue
Portland OR 97206

June 25, 2019
Project No. 890-001

TERRA DOLCE CONSULTANTS, INC.

TERRA DOLCE CONSULTANTS, INC.
4706 NE 75TH AVE
PORTLAND, OREGON 97218
503-502-5114

June 25, 2019
Project No. 890-001

Daniel Hillebrand, President
Hillebrand Construction, Inc.
8908 SE 55th Avenue
Portland OR 97206

GEOTECHNICAL ENGINEERING REPORT
PROPOSED NEW MAGNOLIA 6-PLEX
30535 SW MAGNOLIA AVE
WILSONVILLE, OREGON

Dear Daniel:
Terra Dolce Consultants, Inc. (TDC) is pleased to present our report summarizing the site subsurface conditions and providing geotechnical recommendations for the proposed new hotel at the referenced property. Our project work included field exploration, engineering analyses, and preparation of our report. Our work was completed in general accordance with our proposal dated May 20, 2019.

SITE DESCRIPTION

The project site is located in Wilsonville, Oregon (see Figure 1). The 0.39-acre site was developed with a single-family house and detached garage. These structures were removed between 2010 and 2011, and now the site is vacant (see Figure 2). There are several large trees on the property and the surface is overgrown with vegetation.

The site is relatively flat with less than 2 feet of relief across the site.

PROJECT DESCRIPTION

TDC understands that you plan to build a 6-unit townhouse-style apartment building on the property. At the time of our investigation and report preparation, the proposed development plan was not available.

GEOLOGIC CONDITIONS

The northern Willamette Valley lies within a structural depression, called the Portland Basin. The basement rock is a sequence of lava flows of the Columbia River Basalt Group (CRBG), which flowed from eastern Oregon and Washington between 17 million and 6 million years ago. The Tualatin Mountains (also known as Portland Hills), located to the northwest of the project site, form the uplifted southwest margin of the Portland Basis and comprise CRBG overlain with various sedimentary deposits.

The Columbia River is located 21.5 miles to the north from the site. The river has deposited extensive sedimentary material throughout the Portland Basin and into the Willamette Valley. Two deposits, which overlie the CRBG lavas, are the Sandy River

Mudstone and the younger Troutdale Formation. The 2 to 3-million-year-old Troutdale Formation consists of Sand, Gravel, and Cobble cemented Conglomerate.

About 15,000 years ago, a glacier blocked the mouth of the Clark Fork River in Western Montana, creating an immense lake known as Lake Missoula. As waters within Lake Missoula filled, the ice dam began to float and the waters breached the ice dam. Floodwaters, 700 to 1,000 feet deep, ripped through the Columbia River Gorge, spilled out in to Portland Basin and filled the Tualatin and Willamette Valleys. Boulders, cobbles, and gravels were deposited closest to the mouth of the Gorge, while finer sediments spread throughout the valleys. Since the source of the floods was in Western Montana, the sediments found throughout the flood deposits contain not only clasts of the local CRBG but also of igneous and metamorphic rocks common to Montana and Idaho. These deposits are known as the Coarse-grained and Fine-grained Catastrophic Flood Deposits.

Geological maps indicate that the site is underlain with the Coarse-grained Catastrophic Flood Deposits and the Troutdale Formation at depth. The Coarse-grained deposit is typically Silts, Sands and Gravel. In east Multnomah County, the Coarse-grained soils may also include large boulders.

FIELD INVESTIGATIONS

On June 13, 2019, TDC conducted a site investigation at the referenced property. The investigation consisted of drilling four (4) boring up to four (4) feet deep (designated B-1 through B-4, see Figure 2 and Attached Boring Logs). The shallow borings were due to auger refusal in shallow gravels across the site.

Boring was drilled with a solid-stem auger drill rig. During drilling, disturbed soil samples were collected at 2.5-foot intervals to the total depth of the borings. Standard Penetration Test method (ASTM D 1586) was used to collect soil samples with an 18-inch-long split-spoon sampler driven with a 140-pound hammer. The number of blows required to drive the sampler 18 inches were recorded in three (3) 6-inch intervals. The number of blows for the last two intervals were added together to determine the blow count (N) or blows per foot (bpf), which are used to estimate the in-place consistency of the soil. The soil types and blow counts were documented on boring logs (see Attached Boring Logs).

Surface Conditions.

The site was vacant at the time of our field investigation, except for several large trees and vegetation. The debris from the previous house and detached garage were cleared away.

Subsurface Conditions

Results of the field investigation indicate that the site is mantled with a thin layer of Silt overlying Gravel of the Coarse-grained Flood Deposits. Dense surface soils were encountered in the four borings, and therefore, the depths were limited up to 4 feet bgs.

Undocumented Fill. Up to 2.5 feet of Undocumented Fill was encountered in boring B-1 (see Attached Logs). The Silty Fill consisted of medium stiff, brown, moist, with trace mica, bricks and charcoal.

This material is not suitable for foundation bearing and therefore, needs to be overexcavated and removed from the site.

Sandy Silt to Silt (ML). Sandy Silt to Silt was encountered up to 2.5 feet bgs in the borings (see Attached Logs). The material consisted of loose to medium stiff, brown, moist, with trace mica.

Silty Gravel with Sand (GM). Silty Gravel with Sand was encountered at 2.5 feet bgs. The material was dense, brown, moist, basalt clasts up to 1 inch in dimension and Silty Sandy matrix.

Groundwater

No groundwater was encountered in the borings.

Infiltration Tests. One infiltration test was conducted in Boring B-1. The boring was drilled to 5 feet bgs and then a 6-inch-diameter casing was installed in the boring. The casing was filled with 12 inches of water and allowed to soak for 4 hours. During the 4 hours, there was no movement of the water. Therefore, the infiltration test was abandoned.

SEISMIC CONDITIONS

Faulting

The entire Northwest, including the site, is located within a seismically active region. The U.S. Geological Survey fault database contains information on faults and associated folds in the United States that are believed to be sources of Magnitude 6 or greater earthquakes during the Quaternary (the past 1.6 million years).

The database indicates that the site is located near several crustal faults or fault segments:

Table 2 – Summary of Local Faults

Fault	Approx. Distance From the Site (miles)	Fault or Fault Segment Length (km)	Slip Rate (Mm/yr.)
Portland Hills	12 NE	68.3	<0.2
Oatfield	10.6 NE	41	<0.2
Bolton	9 NE	33.9	<0.2
Canby-Molalla	4.5 NE	50	<0.2

In our opinion, surface fault rupture is a low hazard at the site.

Liquefaction

Liquefaction occurs in loose, saturated, granular soils. Strong shaking, such as that experienced during earthquakes, causes the densification and the subsequent settlement of these soils. As site soils are unsaturated Silt, Sand, and Gravel, structurally damaging liquefaction is not expected. Liquefaction of discrete layers in perched ground water is possible, but is not expected to be structurally damaging.

Seismic Shaking

Strong, seismic ground shaking is a significant hazard at the site. The site is underlain with medium Sandy Silt to Silty Sand followed by a very dense gravel and cobble conglomerate. The perched water table is about 15 feet bgs. Based on a weighted average shear wave velocity (Vs) of about 700 ft/sec in the top 100 feet, the site classifies as Site Class D.

As stated previously, the 2014 OSSC specifies the use of an earthquake event having a 2 % probability of exceedance in 50 years (an approximate return period of 2,475 years). This earthquake is defined as the Maximum Considered Earthquake (MCE) for use in structural design.

The design spectral accelerations were obtained from the ASCE 7 Hazards Report (USGS) National Seismic Hazard Mapping Program probabilistic seismic hazard analyses (PSHA). The location of the ground motions for the evaluation is:

Latitude = 45.298941 Longitude = -122.772848

The seismically induced acceleration values at the rock interface, and the coefficients used to estimate ground surface response adjusted for Site Class D, for the MCE at the site are presented below:

Table 3 – Summary of Seismic Parameters

Seismic Parameters	Value
Mapped Peak Ground Acceleration, ASCE7-16, Fig. 22-7, PGA	0.371g
Peak Ground Acceleration adjusted for site effects, PGA_M	0.456g
MCE Bedrock Spectral Acceleration, 0.2 second period, S_S	0.814g
MCE Bedrock Spectral Acceleration, 1.0 second period, S_1	0.381g
Short-Period Site Factor, F_a	1.174
Long-Period Site Factor, F_v	N/A
Soil MCE Spectral Acceleration, 0.2 second period, Site Class D, S_{MS}	0.956g
Soil Design Spectral Acceleration, 1.0 second period, Site Class D, S_{M1}	N/A
Soil Design Spectral Acceleration, 0.2 second period, Site Class D, S_{DS}	0.637g
Soil Design Spectral Acceleration, 1.0 second period, Site Class D, S_{D1}	N/A

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations in this report are based on the information provided to us, results of the site investigation, and professional judgment. We have observed only a small portion of the pertinent soil and groundwater conditions. The recommendations are based on the assumptions that the soil conditions do not deviate appreciably for those encountered during our site visit.

Conclusions

It is our opinion that the site is geotechnically sound for the proposed new hotel. Our opinion is based on the assumption that the recommendations provided in this report are followed.

Recommendations

Site Preparation.

At the time of our investigation, the property was vacant and had large trees and thick grass throughout. TDC recommends that the vegetation and trees within the proposed foundation footprint and parking area shall be removed. The trees rootballs and roots 4 inches or greater shall be overexcavated and replaced with Structural Fill, as described below.

During our site investigations, we did not encounter any signs of previous structures. If, however, there were previous structures on the property, then the foundations and other associated utilities (i.e., drywells or cisterns) shall be decommissioned per the City of Wilsonville specifications.

Wet Weather or Wet Soil Construction

During wet weather or soil conditions, the exposed soils may be disturbed with construction traffic. Such disturbance will structurally weaken the soil and render it unsuitable for uses in foundation bearing.

If construction occurs during wet weather, the exposed soils should be protected with at least non-woven geofabric and 12 inches of rock with less than 6 percent fines. In addition, care should be taken to minimize disturbance of native Silty soil, which may become "pumped" and weakened by repeated loading and vibratory compaction and wheeled equipment. Should soils become disturbed, the soils should be removed to firm native subgrade and replaced with compacted ¾-inch-minus gravel structural fill placed in accordance with the above recommendations.

Excavation Recommendations

At this time, excavations are not anticipated for the project. If underground utilities are to be removed, then the excavation shall follow OROSHA regulations for trenching. The trenching shall be backfilled with Structural Fill, as described below.

Structural Fill

Structural Fill is anticipated within the footprint of the building and parking lot to replace the Undocumented Fill. Structural Fill shall consist of 1 ½ inch to ¾-inch crushed rock with 10 percent passing No 200 sieve. The Structural Fill shall have

little to no organics or other deleterious materials. The Structural Fill shall be placed in 12-inch-thick lifts and compacted to 95 percent of the maximum dry density as determined by standard Proctor (ASTM 698). At the time of placement, moisture content of the Structural Fill shall be within 5 percent of the Optimum Moisture Content. The subgrade of the Structural Fill shall be firm, non-yielding, native soil that is neat cut. If Structural Fill are 2 feet thick or more, then they shall be tested by a material testing firm (i.e., ACS Testing, Carson Testing, etc).

Allowable Bearing Capacity

The proposed bearing surface within the building footprint is native Silt overlying Gravel. TDC recommends an allowable bearing capacity shall be 2,500 pounds per square foot (psf). The allowable bearing capacity can be increased by one-third to account for seismic and other transitory live loads.

Total and Differential Settlement

Total and differential settlement were evaluated for the site. Results indicate that for an allowable bearing capacity of 2,500 psf in the Silt is about 1 inch. Differential settlement should be half of the total settlement.

Foundation Lateral Resistance. The lateral resistance of the slab-on-grade shall be based on a coefficient of friction equal to 0.5 on gravel backfill and 0.35 on native Silt. An equivalent fluid weight of 300 pounds per cubic foot (pcf) shall be used to compute the passive earth pressures acting on the foundation footings.

Foundation Subgrade

The foundation subgrade shall be firm, non-yielding, native Silt. Undocumented Fill or soft areas shall be overexcavated to firm, native Silt and replaced with Structural Fill, as described above.

Retaining Wall Lateral Loads Recommendations

If retaining walls are required for the project, then the following recommendation shall be followed:

Allowable Active Earth Pressures. Unrestrained walls are those that are allowed to rotate at least 0.001H (where H equals the retained height of the wall in feet) at the top of the wall, whereas restrained walls are not allowed to move. TDC recommends an allowable equivalent fluid weight of 40 pounds per cubic foot (pcf).

Allowable Passive Earth Pressures. An allowable passive equivalent fluid weight should be 300 pcf. The allowable coefficient of friction of 0.50 is recommended for the footings in contact with at least 6 inches of crushed rock. These pressures assume that the backfill placed behind retaining walls is well drained so that no hydrostatic pressures build up behind the walls.

Seismic Load. Seismic design for roughly one inch of deflection (Based on NCHRP 6-11 and NCHRP 12-70; Anderson 2008 and 0.45g PGA), a seismically induced lateral forces are $9H^2$ and applied at 1/3 H.

Retaining Wall Drainage Recommendations
To promote drainage behind the retaining wall, drain boards, such as Tremdrain 1000 or equivalent, may be installed against cutslopes behind a retaining wall. The drain board would be connected to a foundation drain that consist of a 4-inch-diameter drain surrounded with at least 2 feet of drainrock. The drain rock shall be wrapped with a geotextile with an AOS of a #70 sieve, a minimum permittivity of 1.0 sec-1, and a minimum puncture resistance of 80 pounds (such as a Propex Geotex 401or equivalent).

Retaining Wall Backfill
Retaining walls shall be backfilled with imported clean crushed or pit run rock with less than 6 percent fines. The material shall be compacted as specified above.

If flat work (slabs, sidewalk, or pavement) will be placed adjacent to the wall, we recommend that the upper 2 feet of fill be compacted to 95 percent of the maximum dry density as determined by standard Proctor (ASTM D 698). Settlements of up to 1 percent of the wall height commonly occur immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures. We recommend that construction of flat work adjacent to retaining walls be postponed at least two weeks after construction, unless survey data indicates that settlement is complete prior to that time.

Slab-on-Grade Recommendations
The slab-on-grade floor should be designed for an allowable subgrade reaction modulus of approximately 120 pounds per cubic inch (pci). The subgrade soils must be in a firm, non-yielding conditional at the time of slab construction. Soft areas encountered during the preparation of the slab subgrade should be overexcavated and replaced with structural fill.

For wet weather conditions, care must be taken to reduce the potential of rainwater ponding on the slab-on-grade rock section. In the areas where covered with moisture-sensitive flooring, an additional 4-inch thick lift of ¼-inch to ¾-inch, open graded, angular drain rock placed below the capillary break.

It is our experience that concrete slab-on-grade commonly exhibit shrinkage cracks despite the presence of steel reinforcing or fiber strands. This cracking can be reduced by using a low-slump concrete, properly designed and constructed joints and by properly curing the concrete.

Stormwater Management.
As noted above, TDC conducted an infiltration test in boring B-1 for four hours and the water level did not move. As a result, TDC does not recommend onsite infiltration system to manage stormwater from the site. Instead, TDC recommends that a flow-through planter system or equivalent be designed by the Civil Engineer.

Parking Lot Recommendations.
The proposed parking lot will cover a majority of the site and will have up to 75 parking areas.

Parking Lot Subgrade Condition and Preparation. Field data indicate that the site is covered up to 5 feet of soft Undocumented Fill within the area of the parking lot. TDC recommends that the Undocumented Fill be overexcavated to firm Native Silt. The remainder of the parking lot shall be stripped of vegetation to firm, non-yielding subgrade.

Once stripped, the subgrade should be proof-rolled, under the observation of the geotechnical engineer, with a loaded 13-cubic-yard dump truck before placement of crushed rock base material. The subgrade is adequate if there is less the 2 inches of rutting. Soft areas shall be overexcavated and replaced with additional base rock. The recommended CBR for the base rock shall be 20 percent.

Base Rock. The base rock shall consist of 1-inch minus crushed rock with less than 10 percent fines. The rock shall be placed in 12 inches thick lifts and compacted in place to 95 percent of standard Proctor (ASTM 698).

Hot Mix Asphalt. Asphalt Concrete Pavement (ACP) Dense Graded the aggregate base rock material. We recommend 4 inches of PG58-22, Level 3 - ½" ACP Dense Graded over 12 inches of crushed base rock material. The ACP shall be compacted to 92 percent Rice Density. A materials Testing Company, (ACS Testing) shall test the asphalt it is placed.

DOCUMENT REVIEW AND CONSTRUCTION MONITORING
We recommend that TDC be retained to review final plans and specifications for the proposed structure. This review will allow us to examine the documents to determine whether the intent of our recommendations presented in this report was incorporated into the report.

TDC should provide construction monitoring during the foundation construction activities. The purpose of our field monitoring services is to confirm that the site conditions are as anticipated and to provide field recommendations as required based on the conditions encountered. TDC should observe the following:

- Structural Fill Placement and Testing (Materials Testing Firm);
- Subgrade Conditions;
- Proof Roll for Parking Lot; and
- Stormwater Management System Installation.

- A Materials Testing Firm, such as ACS Testing, shall be hired to conduct laboratory and field compaction testing during the placement of the Structural Fill.

LIMITATIONS

Geotechnical review is of paramount importance in engineering practice. The poor performance of many foundations has been attributed to inadequate construction review. On-site grading and earthwork should be observed and, where necessary, tested by a qualified engineering firm to verify the compliance with the recommendations contained in this report. Foundation excavation should also be observed to compare the generalized site conditions assumed in this report with those found on the site at the time of construction. If the plans for site development are changed, or if various or undesirable geotechnical conditions are encountered during construction, the geotechnical engineer should be consulted for further recommendations.

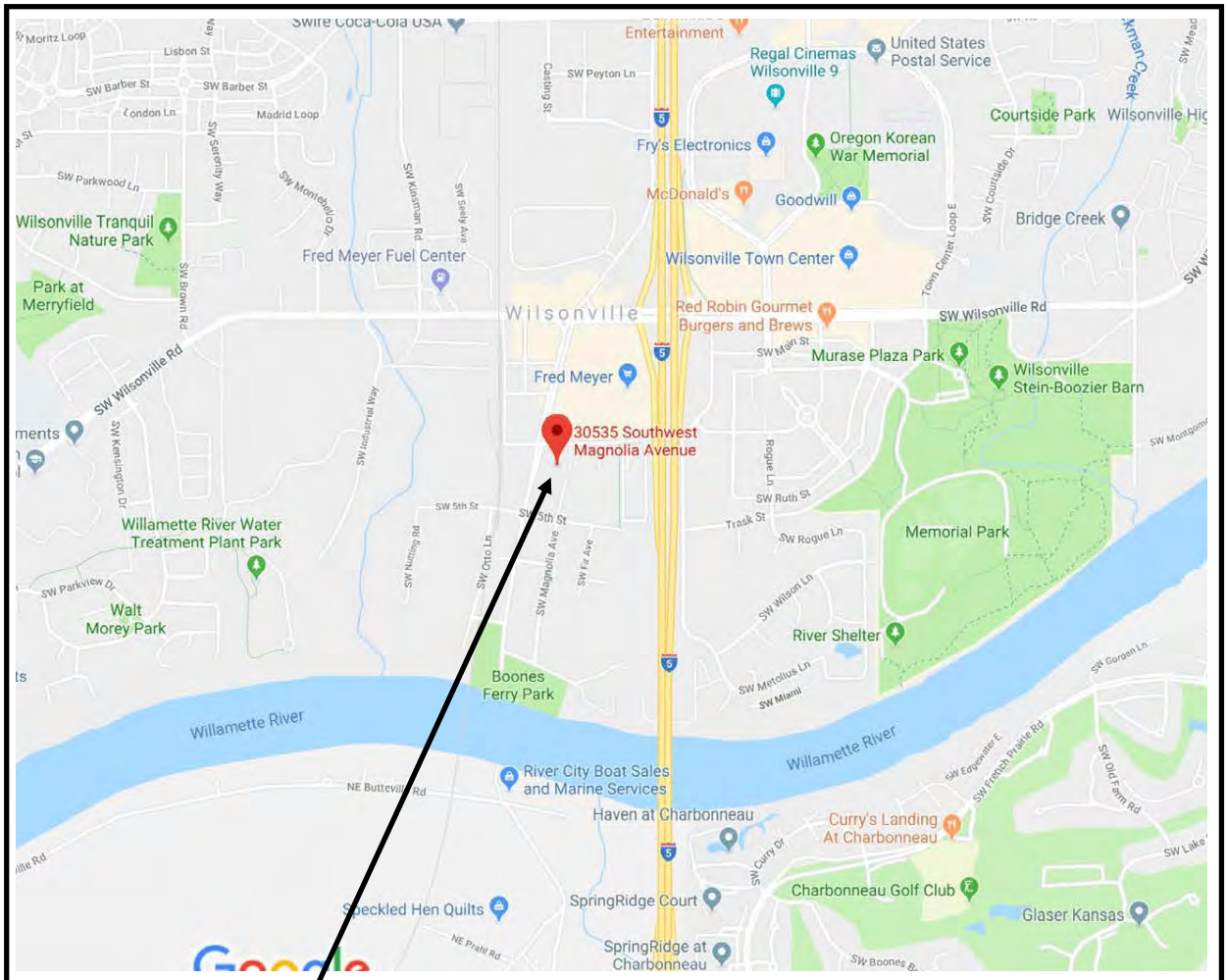
This report is issued with the understanding that it is the responsibility of the Client to ensure that the recommendations are incorporated in the plans and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field. Geotechnical engineering is characterized by a certain degree of uncertainty. Professional judgments presented are based partly on our understanding of the proposed construction and partly on our general experience. Our engineering work and judgments rendered meet current professional standards; no other warranties, either expressed or implied are made. This report is subject to review and should not be relied upon after a period of 3 years.

It has been a pleasure providing you the geotechnical services for this project. If you have any questions, please call at 503.502.5114.

Sincerely,
Terra Dolce Consultants, Inc.

Cynthia L. Hovind, P.E., G.E.
Professional Geotechnical Engineer, OR-**17857PE**

Attachments
Figure 1 – Vicinity Map
Figure 2 – Site Plan
Boring Logs



SITE

Google Map 2019

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Terra Dolce Consultants, Inc. 4706 NE 75th Ave Portland, Oregon 97218 Phone 503.502.5114 Fax 503.206-5114	Proposed Magnolia 6-Plex Apartments 30535 SW Magnolia Avenue Wilsonville, Oregon		
Project No. 890-001	**June 25, 2019**	**Vicinity Map**	**Figure 1**

Google Map 2019

N

Terra Dolce Consultants, Inc.
4706 NE 75th Ave
Portland, Oregon 97218
Phone 503.502.5114
Fax 503.206-5114

Proposed Magnolia 6-Plex Apartments
30535 SW Magnolia Avenue
Wilsonville, Oregon

Project No. 890-001	June 25, 2019	Site Map	Figure 2

BORING LOGS

Terra Dolce Consultants, Inc

Boring Log No. B-1
Proposed Magnolia Apartments

Location: 30535 SW Magnolia Ave. Wilsonville, OR			**WO#: 890-001**
Method: 4" Auger			**Ground EL: N/A**
Hammer: Safety Hammer		**Hammer weight (lb): 140**	**Hole depth (ft): 4**
Sampler: 2" Split Spoon Sampler	**Drop (in): 30**	**G.W.T. @ Drilling (ft): N/A**	**Sampled by: AS**
Driller: Dan J. Fischer Excavating		**Drill Date: 6/13/19**	**Logged by: AS**

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	Notes
0		GWT not encountered	1		6-13-7	ML	Silty Fill (ML), brown, moist, very stiff, trace mica, trace charcoal, trace brick, trace angular gravel 3/4" (Silty Fill)	
2.5			2		4-20-50/1"	GM	Silty Gravel (GM), brown, moist, very dense, trace mica, trace fine-grain sand, weathered gravel in silty matrix (Silty Gravel)	Infiltration tests performed on the bore. Refusal in silty gravel at 2.5'.
4							Boring completed at depth of 4 feet	

■ SPT. blow/ft ○ Moisture %

0 20 40 60

Remarks:

Plate 1

Terra Dolce Consultants, Inc

Boring Log No. B-2
Proposed Magnolia Apartments

Location: 30535 SW Magnolia Ave. Wilsonville, OR			**WO#: 890-001**
Method: 4" Auger			**Ground EL: N/A**
Hammer: Safety Hammer		**Hammer weight (lb): 140**	**Hole depth (ft): 5**
Sampler: 2" Split Spoon Sampler	**Drop (in): 30**	**G.W.T. @ Drilling (ft): N/A**	**Sampled by: AS**
Driller: Dan J. Fischer Excavating		**Drill Date: 6/13/19**	**Logged by: AS**

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT. blow/ft ○ Moisture % (0 20 40 60)	Notes
0		GWT not encountered				ML	Sandy Silt (ML), brown, moist, stiff, trace mica, trace roots, fine-grain sand (Sandy Silt)		
1									
2									
3			1		4-4-8				
4						GM	Silty Gravel (GM), grey-brown, moist, very dense, trace mica, trace fine-grain sand (Silty Gravel)		
5			2		32-45-50/5"		Boring completed at depth of 5 feet		Refusal in silty gravel at 4'.
6									
7									

Remarks:

Terra Dolce Consultants, Inc

Boring Log No. B-3
Proposed Magnolia Apartments

Location: 30535 SW Magnolia Ave. Wilsonville, OR			**WO#: 890-001**
Method: 4" Auger			**Ground EL: N/A**
Hammer: Safety Hammer		**Hammer weight (lb): 140**	**Hole depth (ft): 4**
Sampler: 2" Split Spoon Sampler	**Drop (in): 30**	**G.W.T. @ Drilling (ft): N/A**	**Sampled by: AS**
Driller: Dan J. Fischer Excavating		**Drill Date: 6/13/19**	**Logged by: AS**

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	Notes
0		GWT not encountered				ML	Silt (ML), brown, moist, hard, trace mica (Silt)	
3			1		5-5-50/5"	GM	Gravels	Refusal at 2.5'.
4							Boring completed at depth of 4 feet	
			2		50/0"			Refusal at 4'. No recovery.

■ SPT. blow/ft
○ Moisture %
0 20 40 60

Remarks:

Terra Dolce Consultants, Inc

Boring Log No. B-4
Proposed Magnolia Apartments

Location: 30535 SW Magnolia Ave. Wilsonville, OR			**WO#: 890-001**
Method: 4" Auger			**Ground EL: N/A**
Hammer: Safety Hammer		**Hammer weight (lb): 140**	**Hole depth (ft): 3.5**
Sampler: 2" Split Spoon Sampler	**Drop (in): 30**	**G.W.T. @ Drilling (ft): N/A**	**Sampled by: AS**
Driller: Dan J. Fischer Excavating		**Drill Date: 6/13/19**	**Logged by: AS**

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	Notes
0		GWT not encountered				ML	Silt (ML), brown, moist, hard, trace mica, cemented, trace angular gravel 3/4" (Silt)	
3			1		6-7-24	GM	Silty Gravel (GM), brown, moist, hard, trace mica, angular gravel 1/2"-3/4" (Silty Gravel)	
							Boring completed at depth of 3.5 feet	
4			2		26-39-33			Auger refusal at 3.5'.

■ SPT. blow/ft ○ Moisture %

0 20 40 60

Remarks:

Plate 4

ADDENDUM NO 1
JUNE 25 2019 GEOTECHNICAL ENGINEERING REPORT
PROPOSED NEW MAGNOGLIA 6-PLEX
30535 SW MAGNOLIA AVE
WILSONVILLE, OREGON

Prepared for:

Daniel Hillebrand, President
Hillebrand Construction, Inc.
8908 SE 55th Avenue
Portland OR 97206

July 10, 2020
Project No. 890-001

TERRA DOLCE CONSULTANTS, INC.

TERRA DOLCE CONSULTANTS, INC.
4706 NE 75TH AVE
PORTLAND, OREGON 97218
503-502-5114

July 10, 2020
Project No. 890-001

Daniel Hillebrand, President
Hillebrand Construction, Inc.
8908 SE 55th Avenue
Portland OR 97206

ADDENDUM NO 1
JUNE 25 2020 GEOTECHNICAL ENGINEERING REPORT
PROPOSED NEW MAGNOLIA 6-PLEX
30535 SW MAGNOLIA AVE
WILSONVILLE, OREGON

Dear Daniel:
Terra Dolce Consultants, Inc. (TDC) is pleased to present our Addendum No 1 to our June 25 2020 Geotechnical Engineering Report. Addendum No 1 summarizes our second infiltration tests that was completed on the property on July 3, 2020. Our project work included field exploration, engineering analyses, and preparation of our report. Our work was completed in general accordance with our proposal dated May 20, 2019.

JULY 3 2020 INFILTRATION TESTS

On July 3, 2020, TDC completed a second infiltration test on the referenced site (see Figure 2). The test was completed in a test pit that was excavated to 7 feet below the ground surface (bgs). Soil encountered in the test pit were Sandy Silt from 0 to 4 feet bgs and Cobble and Gravel from 4 to 7 feet bgs.

The infiltration test was completed by filling the test pit with water from a hose with a flowrate of 5 gallons per minute. The test pit filled with about ½ inch of water, which drained in one minute. Therefore, the measured infiltration rate was 30 inches per hour. TDC recommends that the design infiltration rate shall be 15 inches per hour.

LIMITATIONS

Geotechnical review is of paramount importance in engineering practice. The poor performance of many foundations has been attributed to inadequate construction review. On-site grading and earthwork should be observed and, where necessary, tested by a qualified engineering firm to verify the compliance with the recommendations contained in this report. Foundation excavation should also be observed to compare the generalized site conditions assumed in this report with those found on the site at the time of construction. If the plans for site development are changed, or if various or undesirable geotechnical conditions are encountered during construction, the geotechnical engineer should be consulted for further recommendations.

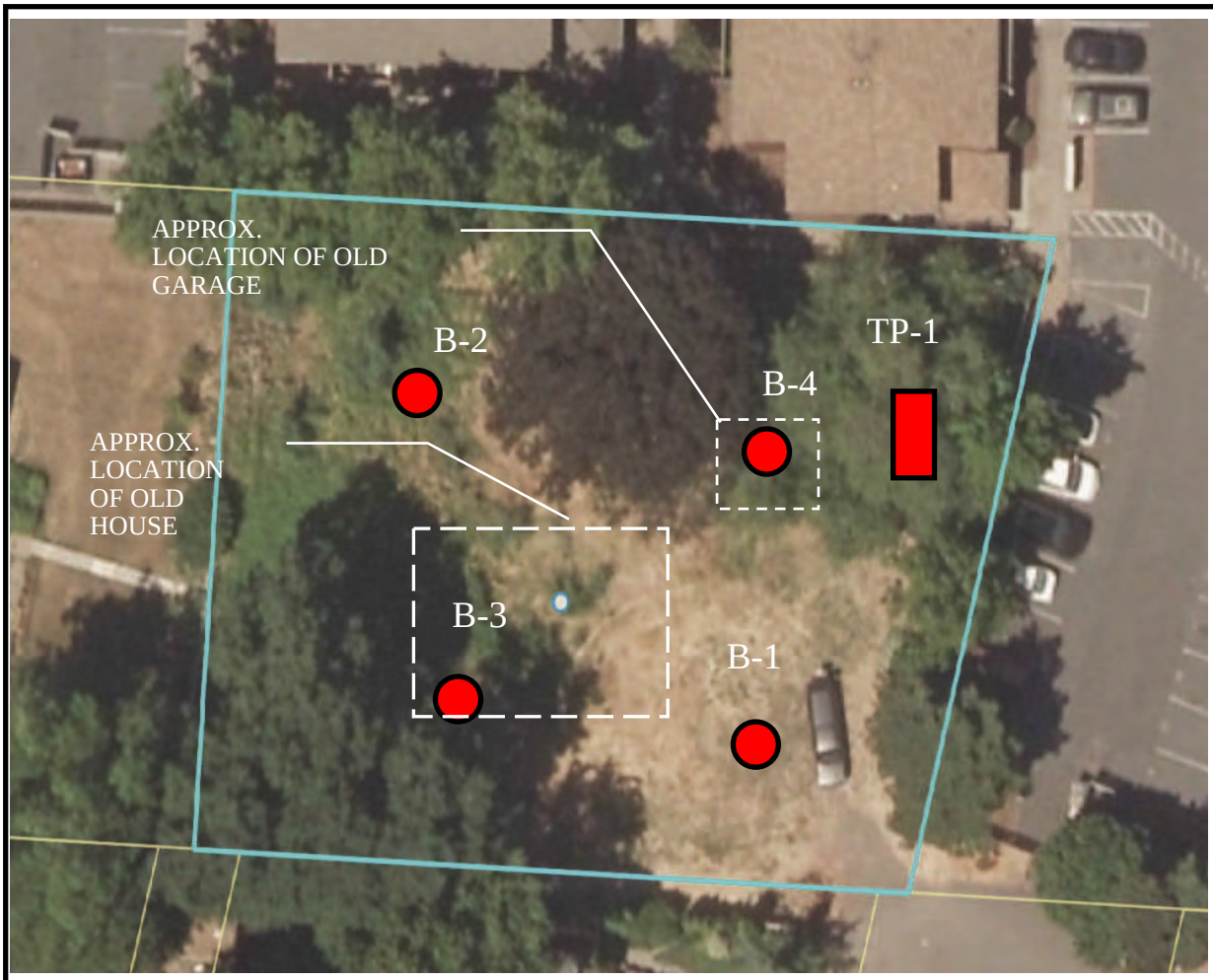
This report is issued with the understanding that it is the responsibility of the Client to ensure that the recommendations are incorporated in the plans and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field. Geotechnical engineering is characterized by a certain degree of uncertainty. Professional judgments presented are based partly on our understanding of the proposed construction and partly on our general experience. Our engineering work and judgments rendered meet current professional standards; no other warranties, either expressed or implied are made. This report is subject to review and should not be relied upon after a period of 3 years.

It has been a pleasure providing you the geotechnical services for this project. If you have any questions, please call at 503.502.5114.

Sincerely,
Terra Dolce Consultants, Inc.

Cynthia L. Hovind, P.E., G.E.
Professional Geotechnical Engineer, OR-**17857PE**

Attachments
Figure 2 – Site Plan



B-4 BORINGS 2019

TP-1 TEST PIT 2020

Google Map 2019

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Terra Dolce Consultants, Inc. 4706 NE 75th Ave Portland, Oregon 97218 Phone 503.502.5114 Fax 503.206-5114	Proposed Magnolia 6-Plex Apartments 30535 SW Magnolia Avenue Wilsonville, Oregon		
Project No. 890-001	**July 10, 2020**	**Site Map**	**Figure 2**

MEMORANDUM

117 Commercial Street NE
Suite 310
Salem, OR 97301
503.391.8773
www.dksassociates.com

DATE: November 15, 2019

TO: Khoi Le, P.E., City of Wilsonville

FROM: Scott Mansur, P.E., PTOE, DKS Associates
Jenna Hills, EIT, DKS Associates

SUBJECT: **Wilsonville Magnolia Ave Trip Generation Memo** P19006-004

This memorandum documents trip generation estimates for the proposed 6-plex housing development located at 30535 SW Magnolia Avenue in the Old Town area of Wilsonville, Oregon.

The purpose of this memorandum is to determine how much additional traffic the proposed six-plex development would generate through the City's transportation system. Also, an evaluation of site access, bicycle and pedestrian needs, and parking will be addressed. The following sections include the project trip generation, site plan review, and summary of findings.

Project Trip Generation

Trip generation is the method used to estimate the number of vehicles that are added to the roadway network by the proposed project during a specified period (i.e., p.m. peak hour). The trip generation for the site during the p.m. peak period were estimated using the trip rates provided by the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*[1]. Table 1 on the following page shows the estimated number of p.m. peak hour trips for the six proposed dwelling units. As shown, a total of 5 trips (3 in, 2 out) are expected to be generated during the p.m. peak hour.

Table 1: Trip Generation Summary

Land Use (ITE Code)	Size	Trip Rate[b]	P.M. Peak Hour Trips		
			In	Out	Total
Proposed					
Multifamily Housing – Low Rise (220)	6 DU[a]	0.83 trips/DU	3	2	5

[a]DU = 1 Dwelling Unit
[b]Trip rates shown were back-calculated using the ITE fitted curve equation.

Project Trips through I-5 Interchange Area

The Magnolia Avenue 6-Plex is expected to generate approximately 0 p.m. peak hour trips through the I-5/Elligsen Road interchange area and 4 p.m. peak hour trip (2 inbound, 2 outbound), through the I-5/Wilsonville

[1] *Trip Generation, 10th Edition*, Institute of Transportation Engineers, 2017.

Road interchange area. This project trip distribution was estimated using the City of Wilsonville travel demand model.[2]

Site Plan Review

The applicant's preliminary site plan was provided by the project sponsor and is attached to the appendix. It was reviewed to evaluate site access and internal circulation and bicycle and pedestrian needs.

Site Access and Internal Circulation

The proposed site plan shows a full driveway access to the site via the cul-de-sac on SW Magnolia Avenue. Due to the expected low vehicle speeds in the cul-de-sac, there are no concerns about sight distance for the proposed lot access.

The proposed site plan shows a drive aisle of 20 feet width that provides sufficient internal circulation and access to all six dwelling units and associated driveways.

The site plan shows a total of 12 vehicle parking stalls. However, the stall on the southwest corner of the site does not have sufficient turning width to enter or exit the space. Additionally, it blocks the vehicle in the adjacent driveway from performing an exit maneuver. Therefore, it is recommended to remove this parking stall.

It is also recommended to realign the two parking stalls on the northeast corner of the site with the angle of the approach drive aisle in order to eliminate the turning radii required to enter or exit the space.

Bicycle and Pedestrian Facilities

The proposed site plan shows sufficient pedestrian and bicycle access to the site as well as sufficient circulation on-site.

Summary

Key findings for the proposed subdivision, totaling approximately 2.94 acres, and consisting of 11 lots, in Wilsonville, Oregon are as follows:

- The estimated number of net new p.m. peak hour trips from the proposed Magnolia Avenue 6-Plex is 5 trips (3 in, 2 out).
- It is expected that 0 p.m. peak hour trips will travel through the I-5/Elligsen Road interchange area and 4 p.m. peak hour trips will travel through the I-5/Wilsonville Road interchange area.
- It is recommended to remove the parking stall on the southwest corner of the site as it prevents the vehicle in the adjacent driveway from performing an exit maneuver.
- It is recommended to realign the two parking stalls on the northeast corner of the site with the angle of the approach drive aisle in order to eliminate the turning radii required to enter or exit the spaces.

Please let us know if you have any questions.

[2] Wilsonville Travel Demand Model - select zone model run for TAZ 4002.

Morgan Holen & Associates LLC
Consulting Arborists and Urban Forest Management
971.409.9354
3 Monroe Parkway, Suite P 220
Lake Oswego, Oregon 97035
morgan@mholen.com

Magnolia 6-Plex – Wilsonville, Oregon
Tree Maintenance and Protection Plan
November 10, 2019 | Revised: December 19, 2019

MHA19065

Purpose

This Tree Maintenance and Protection Plan for the Magnolia 6-Plex development project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code (WDC) Section 4.610.40. This arborist report describes the existing trees located on and directly adjacent to 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) Board Certified Master Arborist (PN-6145B) and Qualified Tree Risk Assessor Morgan Holen during a site visit conducted on November 7, 2019, and subsequent coordination with Pioneer Design Group (PDG).

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Base Design + Architecture, LLC to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with site development, and to develop a tree maintenance and protection plan for the project in coordination with the design team at PDG. Prior to our fieldwork, an existing conditions survey was provided to us by PDG illustrating the location of existing trees and survey point numbers.

Visual Tree Assessment (VTA[1]) was performed on existing individual trees located on and directly adjacent to the project site except as otherwise described herein. Individual trees were evaluated in terms of species, diameter, crown radius, general condition and potential construction impacts. Following the tree inventory fieldwork, we coordinated with PDG to discuss and finalize treatment recommendations for tree removal and protection 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 Magnolia 6-Plex project site is located at 30535 SW Magnolia Avenue in Wilsonville, Oregon. The site is undeveloped and flat. The project proposes to develop multi-family housing and includes two buildings, an access driveway and new landscaping. The site does not include Significant Resource Overlay Zone (SROZ).

In all, 18 existing trees were inventoried including 12 on-site trees and six off-site trees representing nine different species, none of which are Oregon white oaks (*Quercus garryana*), native yews (*Taxus brevifolia*) or any species listed by either the state or federal government as rare or endangered. Table 1 provides a summary of the count of inventoried trees by species and general location. 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 Inventoried Trees by Species and Location – Magnolia 6-Plex, Wilsonville, OR.

Common Name	Species Name	On-Site	Off-Site	Total	Percent*
black locust^	*Robinia pseudoacacia*	9		**9**	50%
deciduous	unknown		1	**1**	6%
deodar cedar	*Cedrus deodara*		1	**1**	6%
elm	*Ulmus* spp.	1		**1**	6%
Japanese maple	*Acer palmatum*	1		**1**	6%
lodgepole pine	*Pinus contorta*		1	**1**	6%
Norway maple^	*Acer platanoides*	1		**1**	6%
silver maple	*Acer saccharinum*		1	**1**	6%
sweetgum	*Liquidambar styraciflua*		2	**2**	11%
Total		**12**	**6**	**18**	**100%**
Percent		**67%**	**33%**		

*Percent total by species does not sum to 100 due to rounding.
^Identifies trees widely accepted as invasive in our region.

Tree Plan Recommendations

As described in the enclosed tree data, individual trees were assigned a general condition rating as follows, although none of the trees received an excellent rating:

P: Poor Condition
F: Fair Condition
G: Good Condition
E: Excellent Condition

Table 2 provides a summary of the count of trees by treatment and general condition rating.

Table 2. Count of Inventoried Trees by Treatment and General Condition Rating.

	General Condition Rating					
Treatment	**P**	**F**	**G**	**E**	**Total**	**Percent***
Protect	-	1	3	-	**4**	22%
Remove	1	11	2	-	**14**	78%
Total	**1**	**12**	**5**	**-**		
Percent*	6%	67%	28%	-	**18**	100%

*Percent total by condition does not sum to 100 due to rounding.

All 12 on-site trees and two off-site trees are planned for removal for the purposes of site development including grading, utilities, site improvements and building. Eleven of these trees are at least 6-inches in diameter and likely grew from natural regeneration and have not been maintained or cared for. This includes:

- Nine invasive black locusts (*Robinia pseudoacacia*) clustered near the southwest corner of the site (trees #6092-6099 and #6101). These trees range in size from 6- to 31-inches in diameter, although seven are smaller than 12-inches. They are in fair condition, but have moderate structure including high live crowns.

- One multi-stemmed elm (*Ulmus* spp.) located near the northeast corner of the site (tree #6142). This tree is in poor condition and with very poor structure including a history of branch failure, dead and broken branches, and trunk and crown decay.
- One invasive Norway maple (*Acer platanoides*) located near the north-central portion of the site (tree #6126). This tree is 28-inches in diameter and in generally good condition. It is relatively the best existing on-site tree but adequate protection is not possible based on the proposed site plan. The proximity of the proposed building to the tree is likely to result in critical root impacts and moreover, an extensive portion of its broad low-lying crown would need to be pruned for clearance.

The twelfth on-site tree planned for removal is a small Japanese maple (*Acer palmatum*), tree #6011, that appears to have been transplanted from another location and placed in its surveyed location in the southeast corner of the site, likely for temporary storage; the root ball did not appear to have been planted in the ground but it was covered with wood chips. I suspect the neighbor may have placed it here and he may want to relocate it prior to construction. Nevertheless, no mitigation is required for its removal because it is smaller than 6-inches in diameter.

The two off-site trees planned for removal are trees #6194 and #6195, a 19-inch diameter lodgepole pine (*Pinus contorta*) with poor structure that is heavily infested with sequoia pitch moth and a 10-inch diameter sweetgum (*Liquidambar styraciflua*) in generally good condition. Both trees appear to have been planted for landscaping purposes near the eastern property boundary of the project site along the parking lot of the adjacent apartment complex. Based on the proposed site plan, adequate protection is not possible due to required grading for curbs and paving. Removal of off-site trees requires prior written consent of the adjacent owner and we understand that the project owner has been in contact with the adjacent owner in this regard.

The other four off-site trees are planned for protection. Note that visual tree assessment was limited for the off-site trees because no property access was authorized. In this case, diameters were visually approximated and assessment was limited to observations made from the project site only. These trees include:

- One approximately 19-inch diameter silver maple (*Acer saccharinum*), tree #6100, located just off-site along the southern property boundary near the center of the site. This tree has the largest dripline encroachment. A proposed curb and driveway are planned north of the tree within approximately 6-feet of the trunk. Approximately 10-inches of excavation are required for the sub-base. Protection fencing is recommended at the limits of proposed work and the tree plan prepared by PDG identifies the area of dripline encroachment where construction should be monitored and documented by the project arborist.
- One 13-inch diameter sweetgum in generally good condition, tree #6196, located off-site along the eastern boundary in a landscape strip within the adjacent apartment complex's parking lot. This tree is further north of the two off-site trees planned for removal and it will be protected by an existing fence along the property boundary. The tree plan prepared by PDG identifies the area of dripline encroachment where construction should be monitored and documented by the project arborist.

- One unidentified deciduous tree (#7001) in generally good condition but with moderate structure located off-site near the southwest corner of the project site. The crown of this tree is mostly one-sided to the southwest with little overlap onto the project site. However, the dripline circle and area of dripline encroachment shown on the tree plan prepared by PDG assumes the crown is symmetrical. Protection fencing is recommended at the limits of work but the proposed construction is beyond the actual dripline area and no root impacts are anticipated. The protection fencing will need to be opened temporarily to allow removal of the black locusts on-site and the stumps of these trees should only be extracted from the ground under arborist supervision in order to minimize any pulling and tearing of roots that are potentially interconnected with the off-site tree.
- One approximately 9-inch diameter deodar cedar (*Cedrus deodara*) in generally good condition located off-site near the southeast corner of the project site. Protection fencing is recommended at the limits of proposed curb and driveway construction and the area of dripline encroachment is limited to the outer dripline only. Nevertheless, arborist oversight is recommended to help minimize potential root impacts.

In addition, several off-site trees to the north that are not included on the survey will be protected by an existing fence along the property boundary. There is some crown overlap onto the project site, but no construction activity is proposed along this boundary and these trees should be unaffected.

In accordance with WDC Section 4.610.40(.02)(A)(2)(b), all trees being retained must be identified by numbered metal tags corresponding with the tree plan. However, since the protected trees are all located off-site, it is likely that tagging may not be mandated.

Mitigation Requirements
Thirteen of the 14 trees planned for removal are at least 6-inches in diameter and require mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, 13 trees measuring at least 2-inches in diameter shall be planted as mitigation for tree removal.

In accordance with Section 4.620.00(.03), 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. 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 years after the planting date. A "guaranteed" tree that dies or becomes diseased during that time shall be replaced. 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. 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. A mitigation or replacement tree plan is required prior to planting.

Where it is not feasible to replace trees on site or at another approved location in the City, the Tree Removal Permit grantee shall pay into the City Tree Fund an amount of money approximately equal to the value of the replacement trees that would otherwise be required.

Tree Protection Specifications

The following tree protection measures are provided in accordance with WDC Section 4.620.10 and arborist recommendations specific to this project, and should be copied onto construction documents.

1. **Preconstruction Conference.** Prior to the start of construction activity, the contractor shall coordinate with the project arborist in a timely manner to review the tree protection plan, verify that trees to be retained are identified with numbered tags on the ground (if applicable), and to inspect and verify the installation of tree protection measures.

2. **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing as depicted on site plans in order to prevent injury to tree trunks or roots, or soil compaction within the root protection area. Unless otherwise approved by the City, fences shall be a minimum 6-foot high 2-inch chain link mesh secured to metal posts driven into the ground.

   Along the northern and eastern property boundaries, existing property boundary fences are designated as tree protection; if any existing fences acting as tree protection fencing are removed during construction, tree protection fencing shall be installed immediately unless other arrangements are coordinated with and documented by the project arborist. The contractor is responsible for coordinating with the project arborist in a timely manner prior to opening, adjusting or removing tree protection fencing.

3. **Tree Protection Zone.** Without authorization from the Project Arborist, none of the following shall occur beneath the dripline of any protected tree:
   a) Grade change or cut and fill;
   b) New impervious surfaces;
   c) Utility or drainage field placement;
   d) Staging or storage of materials and equipment; or
   e) Vehicle maneuvering.

   The contractor shall be responsible for contacting the project arborist in a timely manner prior to working beneath protected tree driplines. Root protection zones may be entered for tasks like surveying, measuring and sampling. Fences must be closed upon completion of these tasks.

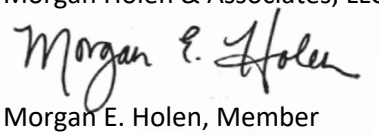
4. **Tree and Stump Removal.** Protection fencing at tree #7001 may be temporarily opened for removal of trees #6092-6096. Tree removal shall be performed with hand tools only and trees shall be directionally felled to avoid damage to remaining nearby trees. The stumps of trees #6092-6096 shall be removed approximately 6-inches below the ground surface using a stump grinder or else extracted from the ground under the project arborist's direction and oversight.

5. **Pruning.** Pruning may be needed to provide 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 prepared for construction. Tree removal and pruning shall be performed by a Qualified Tree Service.

6. **Curb and Utility Trench Excavation.** Excavation within the dripline encroachment area of protected trees shall be performed under arborist supervision. An excavator with a flat-blade bucket may be used to slowly remove soil in shallow layers to the necessary depth. If tree roots are encountered, stop machine-digging and hand-dig to evaluate root size; the project arborist may require alternative means of excavation such as air-spading or hydro-vacuum excavation in order to minimize root impacts, if needed. Exposed roots smaller than 2-inches in diameter shall be pruned clean to sound wood with a sharp saw or pruning shears at the limits of excavation as digging progresses in order to avoid pulling and tearing roots and minimize potential impacts. Roots 2-inches and larger in diameter shall be assessed and documented by the project arborist. 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. The contractor is responsible for coordinating with the project arborist in a timely manner prior to impacting roots of protected trees.
7. **Quality Assurance.** A Qualified Arborist should supervise proper execution of this plan on-call during construction activities that could encroach on retained trees. Tree protection site inspection monitoring reports should be provided to the Client and City following each site visit performed during construction.

Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Magnolia 6-Plex project in Wilsonville, Oregon. Please contact us if you have questions or need any additional information.

Thank you,
Morgan Holen & Associates, LLC



Morgan E. Holen, Member
ISA Board Certified Master Arborist, PN-6145B
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: MHA19065 Magnolia 6-Plex – Tree Data 11-7-19 Rev. 12-19-19

No.	Type	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Comments	Location	Treatment
6011	Dec	Japanese maple	*Acer palmatum*	5	4	F	May be neighbor's transplant	On-site	Remove
6092	Dec	black locust	*Robinia pseudoacacia*	11	18	F	Invasive species, high live crown	On-site	Remove
6093	Dec	black locust	*Robinia pseudoacacia*	6	11	F	Invasive species, small live crown, poor structure	On-site	Remove
6094	Dec	black locust	*Robinia pseudoacacia*	10	20	F	Invasive species, high live crown	On-site	Remove
6095	Dec	black locust	*Robinia pseudoacacia*	9	20	F	Invasive species, one-sided crown to S	On-site	Remove
6096	Dec	black locust	*Robinia pseudoacacia*	11	20	F	Invasive species, high live crown	On-site	Remove
6097	Dec	black locust	*Robinia pseudoacacia*	10	22	F	Invasive species, one-sided crown to S, trunk wound E face	On-site	Remove
6098	Dec	black locust	*Robinia pseudoacacia*	10	20	F	Invasive species, dead and broken branches, high live crown	On-site	Remove
6099	Dec	black locust	*Robinia pseudoacacia*	17	20	F	Invasive species, codominant stems with included bark, lower trunk wound N face	On-site	Remove
6100	Dec	silver maple	*Acer saccharinum*	*19	25	F	Crown mostly one-sided to S, limited visual assessment	Off-site	Protect
6101	Dec	black locust	*Robinia pseudoacacia*	31	24	F	Invasive species, multiple stems, dead and broken branches	On-site	Remove
6126	Dec	Norway maple	*Acer platanoides*	28	28	G	Invasive species, few dead and broken branches, broad crown, bacterial wet wood in codominant leader attachment on N face	On-site	Remove
6142	Dec	elm	*Ulmus* spp.	18,26	30	P	Very poor structure, history of branch failure, dead and broken branches, trunk and crown decay	On-site	Remove

Morgan Holen & Associates, LLC
Consulting Arborists and Urban Forest Management
3 Monroe Parkway, Suite P220, Lake Oswego, OR 97035
morgan@mholen.com | 971.409.9354

No.	Type	Common Name	Species Name	DBH[1]	C-Rad[2]	Cond[3]	Comments	Location	Treatment
6194	Con	lodgepole pine	*Pinus contorta*	19	18	F	Codominant leaders, heavily infested with sequoia pitch moth	Off-site	*Remove
6195	Dec	sweetgum	*Liquidambar styraciflua*	10	14	G	Lower trunk wound	Off-site	*Remove
6196	Dec	sweetgum	*Liquidambar styraciflua*	13	12	G	Crown is somewhat one-sided to E	Off-site	Protect
7001	Dec	deciduous	unknown	*24	22	G	Moderate structure, limited visual assessment	Off-site	Protect
7002	Con	deodar cedar	*Cedrus deodara*	*9	15	G	Limited visual assessment	Off-site	Protect

[1]**DBH** is tree diameter measured at 4.5-feet above the ground level, in inches. Asterisk (*) identifies off-site trees where assessment was limited by site access and diameters were visually approximated.

[2]**C-Rad** is the average crown radius measured in feet.

[3]**Cond** is an arborist assigned rating to generally describe the condition of individual trees as **D**ead, **P**oor, **F**air, **G**ood, or **E**xcellent.

*Removal of off-site trees requires prior written consent of adjacent property owner.

KWDS, LLC.

PO BOX 145
WILSONVILLE, OREGON 97070
PHONE: 503-682-2337
FAX: 503-682-0538

February 10, 2020

Daniel Hillebrand
8908 SE 55th Av.
Portland, OR. 97206
503-999-5657

Dear Mr. Hillebrand,
It was nice to meet you at Boones Ferry Village and discuss your project. As discussed, we grant you permission, at your cost, to remove 2 trees and replace with like trees on the South side of our property located at 9280 SW Bailey St., Wilsonville, OR. 97070. The trees are adjacent to your property on Magnolia Ave. Further, we ask that your company take full responsibility and any liability for any damages done by the tree removal company. We will need to coordinate with our on-site manager to help clear the parking lot to keep people and cars out of the area while the work is being done.

If required, any permitting will be handled and paid for by your company.

If you have any other questions or concerns, please feel free to give us a call.

Kim McAvoy
KWDS, LLC, Managing Member
503-682-2337

Jack Kohl
KWDS, LLC, Member
503-799-2228

Cutsheets

30535 SW Magnolia Avenue | July 17, 2020 (REVISED)

Customer Service: 1-800-653-6556 **or** cs@destinationlighting.com
M-F: 7am-5pm **&** Sunday: 11am-4pm **(PST)**

Modern Path Light with White Glass in Titanium Finish

Product Number:	P1143697 or 349000
Manufacturer:	Hinkley Lighting
Model Number:	1518TT
Collection:	Atlantis
Manufacturer Finish:	Titanium
Manufacturer Shade Color:	Etched
Glass Treatment:	Etched
Total Wattage:	20 w.
Voltage Type:	Low Voltage
Voltage Input:	12 v.
Circuit Type:	Single Circuit
Height:	22 in.
Width:	6.5 in.
Wattage:	20
Bulb Type:	Halogen
Bulb Shape:	T3
Base Type:	Bi-Pin
Number Of Bulbs:	1
Bulb Included:	Yes
EnergyStar Compliant:	No

Shade Material:	Glass
Material:	Aluminum
Shipping:	UPS Regular
Certification Agencies:	UL
Wet Location:	Yes
Harsh Environ/Coastal:	No
Weight:	4 lbs
Made In America:	No
Dusk To Dawn:	No
Title 24:	No

Customer Service: 1-800-653-6556 **or** cs@destinationlighting.com
M-F: 7am-5pm **&** Sunday: 11am-4pm **(PST)**

Progress Lighting Cylinder White LED Outdoor Wall Light Accessory

Sale Price: $104.22
Regular Price: $138.96

Product Number:	P1413467 or 604154
Manufacturer:	Progress Lighting
Model Number:	P5641-30/30K
Collection:	Cylinder
Manufacturer Finish:	White
Manufacturer Shade Color:	White
Total Wattage:	29 w.
Voltage Type:	Line Voltage
Average Rated Life1:	60,000 hrs
Height:	12 in.
Width:	6 in.
Depth:	8.88 in.
Wattage:	29
Bulb Type:	LED
Base Type:	Integrated LED
Number Of Bulbs:	1
Bulb Included:	Yes
Dark Sky:	No
EnergyStar Compliant:	No
Shade Material:	Metal

Material:	Aluminum
Shipping:	UPS Regular
Certification Agencies:	CSA
Backplate Dimension:	4.5 x 4.5
Wire Length:	0.5 ft.
Wet Location:	No
Damp Location:	Yes
Harsh Environ/Coastal:	No
Weight:	4 lbs
Kelvin Temperature:	3000
Lumens:	2000
Color Rendering Index:	90
Made In America:	No
Dusk To Dawn:	No
Motion Sensor:	No
Title 24:	Yes

DestinationLighting.

Customer Service: 1-800-653-6556 **or** cs@destinationlighting.com

M-F: 7am-5pm **&** Sunday: 11am-4pm **(PST)**

5-Inch New Construction Recessed Lighting Can - Case Pack of 6

Product Number:	340723
Manufacturer:	Juno Lighting Group
Model Number:	IC-20-CASE
Collection:	Universal IC Housing
Voltage Type:	Line Voltage
Voltage Input:	120 v.
Aspect:	Flat
Height:	7.5 in.
Width:	13.5 in.
Bulb Included:	No
EnergyStar Compliant:	No
Material:	Steel, Aluminum
Shipping:	UPS Regular
Certification Agencies:	UL
Can Size:	5"
Trim Size:	5"
Can Rating:	IC & Airtight
Can Height:	Standard
Can TrimShape:	Round
Wet Location:	Yes
Damp Location:	Yes
Firebox Included:	No
Installation Type:	New Construction
Made In America:	No
Title 24:	No

Frosted Glass Post Light White Costaluz by Besa Lighting

Product Number:	P1373155
Manufacturer:	Besa Lighting
Model Number:	315153-POST-FR
Collection:	Costaluz
Manufacturer Shade Color:	Frosted
Total Wattage:	75 w.
Voltage Type:	Line Voltage
Voltage Input:	120 v.
Dimmable:	Non-Dimmable
Height:	13 in.
Width:	4.75 in.
Depth:	4.75 in.
Wattage:	75
Bulb Type:	Incandescent
Bulb Shape:	A19
Base Type:	Medium
Number Of Bulbs:	1
Bulb Included:	No
Bulb Color:	Frosted
Dark Sky:	No

EnergyStar Compliant:	No
Shade Material:	Glass
Material:	Cast Aluminum
Mix And Match:	No
LampShade Included:	Yes
Shipping:	UPS Regular
Certification Agencies:	UL
Wet Location:	Yes
Made In America:	No
Dusk To Dawn:	No
Title 24:	Yes

HardieShingle® Siding

Submittal Form **03**

Submitted to: .....

Project Name: .....

Submitted by: .....

Date: .....

☐ **HZ5® Product Zone** ☐ **HZ10® Product Zone**

Product : ☐ **Straight Edge Panel** ☐ **Staggered Edge Panel** ☐ **Half Round Panel** ☐ **Individual**

Product Finish: ☐ **Primed** ☐ **ColorPlus®Technology**

Product Texture: ☐ **Select Cedarmill©**

HardieShingle® Siding

Specification Sheet **03**

DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION | **SECTION: 07 46 46 FIBRE CEMENT SIDING**

HARDIESHINGLE® SIDING

Manufacturer

James Hardie Building Products Inc

The products are manufactured at the following locations, with quality control inspections by ICC-ES:

- Cleburne, Texas
- Plant City, Florida
- Reno, Nevada
- Waxahachie, Texas
- Peru, Illinois
- Pulaski, Virginia
- Tacoma, Washington
- Fontana, California

Compliance with the following codes

- 2012, 2009 and 2006 International Building Code® (IBC)
- 2012, 2009 and 2006 International Residential Code® (IRC)

Features

- Noncombustible
- Dimensionally Stable
- Resistant to damage caused by pests
- Weather Resistant-Engineered for Climate®
- Impact resistant
- Sustainable

Use

James Hardie fiber-cement cladding shingles are used as exterior wall covering. The product complies with IBC Section 1404.10 and IRC Section R703.10. The product may be used on exterior walls of buildings of Type I, II, III and IV construction (IBC).

Description

HardieShingle siding is a single-faced, cellulose fiber-reinforced cement (fiber-cement) product. HardieShingle siding complies with ASTM C1186, as Grade II, Type A; has a flame-spread index of 0 and a smoke-developed index of 5 when tested in accordance with ASTM E84; and is classified as noncombustible when tested in accordance with ASTM E136.

Available Sizes

Product	Width (in)	Height (in)	Thickness (in)
Shingle Panel 5 inch exposure (Straight edge)	48	14	1/4
Shingle Panel 6 inch Exposure (Staggered Edge)	48	15 1/4	1/4
Shingle Panel 7 inch exposure (Straight Edge & Half Round)	48	15 1/4	1/4
Individual shingles 5 inch exposure	3 1/2, 4 1/2, 5 1/2, 7, 8 3/4	14	1/4
Individual shingles 7 inch exposure	4 3/16, 5 1/2, 6 3/4, 7 1/4, 10	15 1/4	1/4

Texture & Finish

HardieShingle™ siding is available in wood grain texture. Finish options are primed for field paint, or factory finished with ColorPlus® Technology. Color and exposure availability varies by region.

Engineered for Climate®

HardieShingle siding is engineered for performance to specific weather conditions by climate zones as identified by the following map.

Performance Properties

	General Property	Test Method	Unit or Characteristic	Requirement	Result
PHYSICAL ATTRIBUTES	Dimensional Tolerances	ASTM C1185	Length	± 0.5% or ± 1/4in	Pass
			Width	± 0.5% or ± 1/4 in	
			Thickness	± 0.04 in	
			Squareness	<1/32 in/ft of length	
			Edge Straightness	<1/32 in/ft of length	
	Density, lb/ft^3	ASTM C1185		As reported	83
	Water Absorption, % by mass	ASTM C1185		As reported	36
	Water Tightness	ASTM C1185	Physical Observations	No drop formation	Pass
	Flexural Strength	ASTM C1185	Wet conditioned, psi	>1015 psi	Pass
			Equilibrium conditioned, psi	>1450 psi	
THERMAL	Thermal Conductivity	ASTM C177	(BTU/(hr·ft°F))/inch	As reported	2.07
	Actual Thermal Conductivity		(K_{eff})		6.62
	Thermal Resistance		R=1/ K_{eff}		0.48
	Actual Thermal Resistance		(R)		0.15
DURABILITY	Warm Water Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
	Heat/Rain Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
	Freeze/Thaw Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
			Mass Loss, %	≤ 3.0%	
			Freeze/Thaw, % strength retention	≥ 80%	
	UV Accelerated Weathering Test	ASTM G23	Physical Observations	No cracking, checking, or crazing	Pass
FIRE CHARACTERISTICS	Surface Burning Characteristics	ASTM E84	Flame Spread Index (FSI)		0
			Smoke Developed Index (SDI)		≤ 5
			Fuel Contributed		0
			NFPA Class		A
			Uniform Building Code Class	As reported	1
			International Building Code® class		A
	Noncombustibility	ASTM E136	Noncombustible	Pass/fail	Pass
	Fire Resistance Rated Construction	ASTM E119	Fire Resistance Rating	1-hour	Note 1

Note 1: listed on Warnock Hersey and ESR 2290

Installation

Install HardieShingle siding in accordance with:

- HardieShingle siding installation instructions
- ICC-ES ESR 2290
- Requirements of authorities having jursidiction

Warranty

HardieShingle siding: 30-year, Non-Prorated, Limited Warranty
ColorPlus Technology: 15-year Limited Finish Warranty

Sustainable Design Contribution

- Regionally sourced content- varies by project location
- Avoidance of certain chemicals or Red List Compliance

Detailed product information for LEED projects, or other state or regional sustainability programs is available through James Hardie Technical Services.

Storage and Handling

Store flat and keep dry and covered prior to installation.

Technical Services

Contact James Hardie Technical Services online at JamesHardie.com, or by phone at (800)426-4051

JamesHardie®

Additional Installation Information, Warranties, and Warning are available at JamesHardie.com

1 866 442 7343 | www.jameshardie.com

IMPORTANT: Failure to install and finish this product in accordance with applicable building codes and James Hardie written application instructions may affect system performance, violate local building codes, void the product-only warranty and lead to personal injury.

DESIGN ADVICE: Any information or assistance provided by James Hardie in relation to specific projects must be approved by the relevant specialists engaged for the project eg. builder, architect or engineer. James Hardie will not be responsible in connection with any such information or assistance.

TAYLOR METAL PRODUCTS

Slim-Lock™
STANDING SEAM

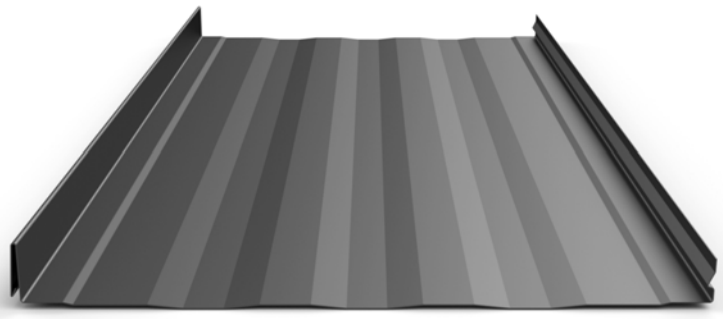
The Slim-Lock™ Standing Seam delivers a panel with strong, clean, continuous grace, together with unequaled quality. This provides you a weather tight roof to last a lifetime. Clip systems allow for extremely long panels, without the need for laps.

KEY FEATURES

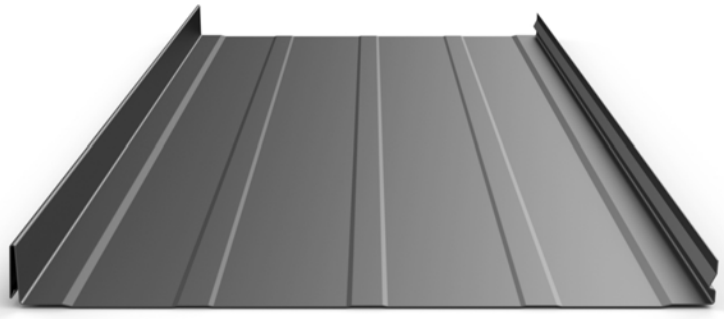
- Standard coverages: 12-3/8" & 16-1/4"
- 26, 24 & 22 gauge Tru-Gauge™ and .032" Aluminum
- 16 & 20 oz. Copper *(Please inquire)*
- Floating clip system: allows for expansion / contraction of panels in longer lengths
- 1-1/2" vertical rib
- Standard factory notched panels
- Concealed fasteners: fasteners cannot leak
- UL 790 Class A Fire Rated *(Slim-Lock™ carries its UL Classifications under the Clip-Lock™ profile designation)*
- 3:12 minimum pitch recommended *(For lower pitches, please inquire)*
- Standard panel lenghts 4' to 60' Minimum length 2' *(For longer panels, please inquire)*
- 2' Shortcut capability *(Fee applicable)*
- Onsite roll forming available
- Panel options: Striations, Accent Ribs, and Flat Pan

PANEL PROFILES

12-3/8" & 16-1/4" coverage options

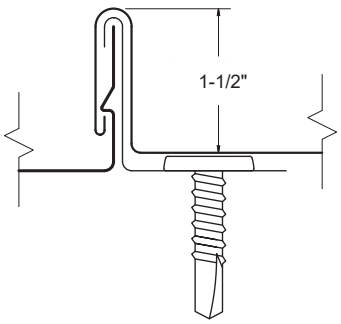


STRIATIONS



ACCENT RIBS 2 Accent ribs for 12-3/8" panel
3 Accent ribs for 16-1/4" panel

SEAM DETAIL



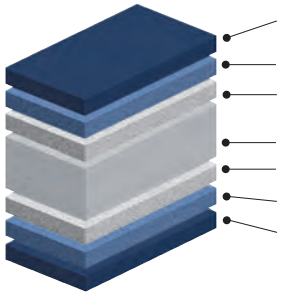
TAYLOR METAL PRODUCTS

MATERIAL SPECIFICATIONS

- 26 gauge Kynar 500® Painted Steel .019" (Thickness prior to painting) Galvanized G-90 or AZ-50
- 24 gauge Kynar 500® Painted Steel .0236" (Thickness prior to painting) Galvanized G-90 or AZ-50
- 26, 24 & 22 gauge bare Zincalume® Plus AZ-55 *(No finish warranty – 25 yr. perforation warranty)*
- ▲ 22 gauge Kynar 500® Painted Steel .029" (Thickness prior to painting) Galvanized G-90 or AZ-50
- ✦ .032" Kynar 500® Painted Aluminum
- 16 and 20 ounce Copper *(Please inquire)*
- Kynar 500® and substrate testing data available (See website)
- "Oil Canning" is an inherent characteristic of roof and wall products, and not a defect, which is not a cause for panel rejection

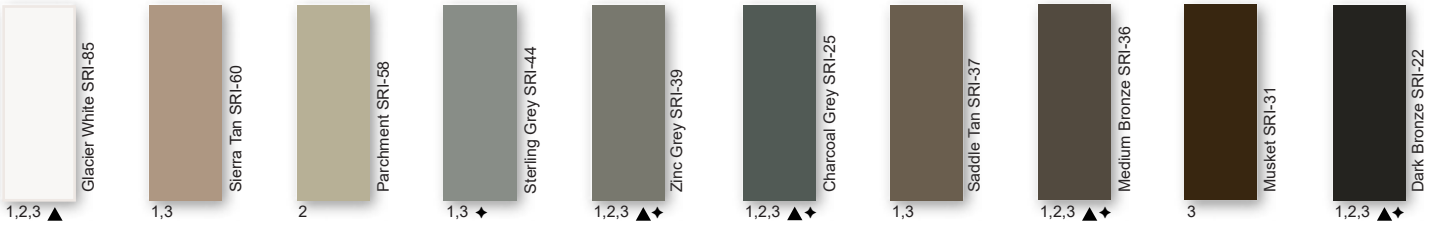
KEY FEATURES

- 21 Standard Colors, 5 Metallic Colors and 4 Specialized Colors
- Kynar 500® Paint System - the ultimate in exterior durability and color retention
- "Cool" color pigments are specially designed to reflect infrared light, reducing heat gain to dwelling, and conform with ENERGY STAR® criteria
- Superior quality, two coat, 70% resin finish, applied at a 1 mil. thicknes
- 40 year residential paint warranty
- 20 and 30 year commercial paint warranty: Contact TMP for warranty specification

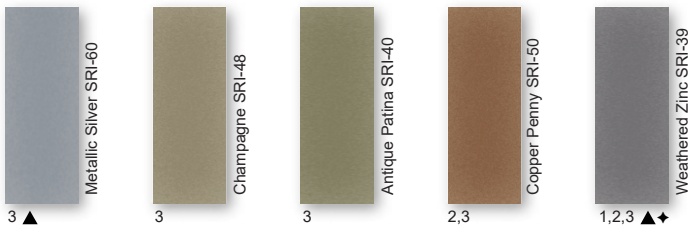


40-Year Residential / 20 and 30 Year Commercial Manufacturer's Limited Warranty

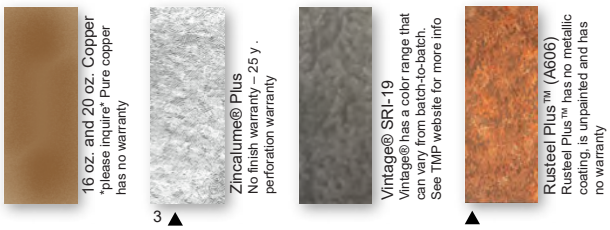
STANDARD COOL KYNAR 500® COLORS



PREMIUM METALLIC COOL KYNAR® COLORS



SPECIALIZED MATERIAL



These printed chips provide a close representation of the colors.

Metal samples are available upon request. Coatings are low gloss 10-15% sheen.

*SRI = Solar Reflective Index. SRI values listed above are in accordance with ASTM E 1980 and are based on actual testing.***Oil canning is not a cause for material rejection****

Standard Panel Weight				
Width	Gauge	Color	LBS SQFT	LBS LF
12-3/8"	26	1	1.13	1.13
12-3/8"	24	2	1.33	1.33
16-1/4"	24	3	1.24	1.65
16-1/4"	0.032	✦	0.58	0.78
16-1/4"	22	▲	2.07	2.75

steelscape