



Wilsonville City Hall Development Review Board Panel B

Monday, September 25, 2017 - 6:30 P.M.

I. **Call To Order:**

II. **Chairman's Remarks:**

III. **Roll Call:**

Aaron Woods Richard Martens Shawn O'Neil Samuel Scull Samy Nada

IV. **Citizen's Input:**

V. **Consent Agenda:**

A. Approval of minutes of July 24, 2017 meeting

Documents:

[July 24 2017 Minutes.pdf](#)

VI. **Public Hearing:**

A. Resolution No. 343

Site Modifications - 9600 SW Boeckman: Mac Martin, W-4 LLC -

Applicant/Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Plan for a parking lot expansion, associated landscaping modifications and trash enclosure modifications. The subject property is located at 9600 SW Boeckman Road on Tax Lots 202, 282, and 292 of Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files: DB17-0008 Stage II Final Plan Revision

DB17-0009 Site Design Review

DB17-0010 Type C Tree Plan

Documents:

[Staff Report.Exhibits.pdf](#)

[Exhibit B1 Applicant Materials.pdf](#)

[Exhibit B2 Drawings and Plans.pdf](#)

VII. **Board Member Communications:**

A. Results of the September 11, 2017 DRB Panel A meeting

Documents:

[DRB-A Sept 11 2017 Results.pdf](#)

B. Recent City Council Action Minutes

Documents:

[Recent City Council Action Minutes.pdf](#)

VIII. Staff Communications:

IX. Adjournment

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

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

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 25, 2017

6:30 PM

V. Consent Agenda:

- A. Approval of minutes from the July 24, 2017 DRB
Panel B meeting

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

**Development Review Board – Panel B
Minutes–July 24, 2017 7:30 PM**

I. Call to Order

Chair Shawn O’Neil called the meeting to order at 7:35 p.m.

II. Chair’s Remarks

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

III. Roll Call

Present for roll call were: Shawn O’Neil, Richard Martens, Aaron Woods, and Samuel Scull. Samy Nada was absent.

Staff present: Daniel Pauly and Kimberly Rybold

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

VI. Consent Agenda: None

VII. Public Hearing:

A. Resolution No. 338. Annexation of 63rd Avenue Right-of-Way: West Linn-Wilsonville School District—Owner/Applicant. The applicant is requesting approval of an Annexation of 2,206 square feet of territory on the south side of Advance Road at SW 63rd Avenue. The subject property is specifically known as an eastern portion of Tax Lot 2100 of Section 18, Township 3 South, Range 1 East, Willamette Meridian, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files: DB17-0019 Annexation

The DRB action on the Annexation is a recommendation to the City Council.

Chair O’Neil called the public hearing to order at 7:38 p.m. and read the conduct of hearing format into the record. All Board members declared for the record that they had visited the site. No board member, however, declared a conflict of interest, bias, or conclusion from a site visit. No board member participation was challenged by any member of the audience.

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

Ms. Rybold presented the Staff report via PowerPoint with these key additional comments:

- The 2,206 sq ft of right-of-way being requested for annexation was along SW 63rd Ave at the Meridian Creek Middle School site, which was currently under construction. This particular right-of-way was dedicated to the school district to accommodate an additional turn lane needed in the area and to allow for construction of a sidewalk on that side of the road. The road would provide access to the Meridian Creek Middle School, as well as a future city park that would be located east of the road.

- This area was brought into the urban growth boundary (UGB) through a minor UGB amendment earlier this year. Upon completion of the project, the road would be dedicated to the City of Wilsonville.
- The proposed annexation met applicable state and regional rules and statues, including the petitioner for the annexation being the owner of the right-of-way dedicated for the roadway construction; the land was in the UGB; and was the minimum area needed to complete the multi-modal roadway improvements in the area.
- Staff recommended approval of the annexation request with no additional conditions.

Chair O’Neil called for the Applicant’s testimony.

Tim Woodley, Director of Operations, West Linn-Wilsonville School District, 2755 SW Borland Rd, Tualatin, stated he had read the entire Staff report. He and the school district had been involved on this particular project for many years. Through the design and permitting for the new school, it was discovered that the subject sliver of property was necessary, as noted in the Staff report. He concluded that the District fully supported and appreciated the DRB’s actions.

Chair O’Neil noted there was no one was in the audience except for the applicant and their consultant, and closed the public hearing at 7:44 pm.

Chair O’Neil moved to approve Resolution No. 388 recommending approval to the City Council of an annexation of 2,206 square feet of territory on the south side of Advance Road at SW 63rd Avenue and adopting the July 17, 2017 Staff report with the attached findings included in Exhibit A1. Aaron Woods seconded the motion, which passed unanimously.

VIII. Board Member Communications

A. Results of the July 10, 2017 DRB Panel A meeting

Dan Pauly, Senior Planner, discussed the public hearing held for a park design in Villebois, noting some residents who recently moved in across from the proposed park had some concerns, primarily that the sales brochure did not show the future park across the street. Polygon was going to do some continued outreach to those neighbors and others. DRB Panel A would reconvene on September 11 to further consider the matter.

- He updated that the landscaping for the skate park was in and the bathroom was slowly coming together. No noise or traffic complaints had been received thus far, but there had been a few break-ins. The police were involved and the City had been responsive to neighbors as that issue came up.

B. Recent City Council Action Minutes

Barbara Jacobson, City Attorney, noted the DRB-Panel B’s approval of the Subaru development had went smoothly and the Applicant seemed happy with the approval and conditions. Subsequently, however, the Applicant became dissatisfied with the amount of the Systems Development Charges (SDCs) imposed and appealed to have the majority of those refunded. In a preliminary motion, City Council agreed with Ms. Jacobson that the appeal was not timely and it was dismissed. The Applicant now had 60 days from that dismissal date to apply to Circuit Court for a writ of review. She briefly described the City’s various SDCs and how they were assessed.

Chair O’Neil stated he had an issue with that because the Board had approved the application and there was pushback from citizens who had not bothered to show up to the hearing to voice concerns about issues, including traffic. Subaru had done an excellent job of communicating with the citizens. Now, they were going to go back on contributions related to traffic and everything else. It seemed like a bad PR move on Subaru’s part.

Ms. Jacobson said she did not know why Subaru waited so long. Crunching the numbers to come up with the charges involved a long process, so there was ample time for an applicant to look at the numbers and question them or suggest alternatives if they believed the calculations were incorrect.

- She confirmed the SDC figures were generated on the front end of the project, but the numbers were not firm when DRB Panel B had reviewed the applications. The basic charges were addressed in the Staff report, but the traffic studies and everything else would have to be done to come up with the numbers. Although that did not happen until a few months after the DRB approval, it was certainly completed months in advance of when the building permits were issued.
- She reviewed the process for applicants wanting to challenge SDCs and described two examples involving Costco and Café Yumm, noting both processes occurred prior to the issuance of building permits.

Mr. Pauly added the Frog Pond Code and Master Plan had been adopted and Staff had already held a preapplication meeting for a development there. One of the DRBs would be reviewing some residential development subdivisions out in Frog Pond.

Ms. Jacobson noted it would be like starting Villebois all over again. She announced that Jon Gail, author of the Boones Ferry Messenger, had died suddenly over the weekend. He was very active in the community, and was a great, dedicated employee who always had a positive attitude and very excellent skills that he contributed to the City. He was the affordable housing guru and advocate, in addition to authoring the Boones Ferry Messenger.

IX. Staff Communications:

X. Adjournment

The meeting adjourned at 7:57 p.m.

Respectfully submitted,

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

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 25, 2017

6:30 PM

VI. Public Hearing:

A. Resolution No. 343. Site Modifications - 9600 SW Boeckman: Mac Martin, W-4 LLC –

Applicant/Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Site Design Review and Type C Tree Plan for a parking lot expansion, associated landscaping modifications and trash enclosure modifications. The subject property is located at 9600 SW Boeckman Road on Tax Lots 202, 282, and 292 of Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon. Staff: Kimberly Rybold

Case Files:	DB17-0008	Stage II Final Plan Revision
	DB17-0009	Site Design Review
	DB17-0010	Type C Tree Plan

**DEVELOPMENT REVIEW BOARD
RESOLUTION NO. 343**

A RESOLUTION ADOPTING FINDINGS AND CONDITIONS APPROVING A STAGE II FINAL PLAN REVISION, SITE DESIGN REVIEW AND TYPE C TREE PLAN FOR A PARKING LOT EXPANSION, ASSOCIATED LANDSCAPING MODIFICATIONS AND TRASH ENCLOSURE MODIFICATIONS. THE SUBJECT PROPERTY IS LOCATED AT 9600 SW BOECKMAN ROAD ON TAX LOTS 202, 282 AND 292 OF SECTION 14B, T3S, R1W, CLACKAMAS COUNTY, OREGON. MAC MARTIN, W-4 LLC – APPLICANT / OWNER.

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

WHEREAS, the Planning Staff has prepared staff report on the above-captioned subject dated September 18, 2017, and

WHEREAS, said planning exhibits and staff report were duly considered by the Development Review Board Panel B at a scheduled meeting conducted on September 25, 2017, at which time exhibits, together with findings and public testimony were entered into the public record, and

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

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

NOW, THEREFORE, BE IT RESOLVED that the Development Review Board of the City of Wilsonville does hereby adopt the staff report dated September 18, 2017, attached hereto as Exhibit A1, with findings and recommendations contained therein, and authorizes the Planning Director to issue permits consistent with said recommendations for:

DB17-0008 through DB17-0010, Stage II Final Plan, Site Design Review, and Type C Tree Removal Plan for a parking lot expansion, associated site modifications, and trash enclosure modifications located at 9600 SW Boeckman Road.

ADOPTED by the Development Review Board of the City of Wilsonville at a regular meeting thereof this 25th day of September, 2017 and filed with the Planning Administrative Assistant on _____. This resolution is final on the 15th calendar day after the postmarked date of the written notice of decision per *WC Sec 4.022(.09)* unless appealed per *WC Sec 4.022(.02)* or called up for review by the council in accordance with *WC Sec 4.022(.03)*.

Shawn O'Neil, Chair - Panel B
Wilsonville Development Review Board

Attest:

Shelley White, Planning Administrative Assistant



Exhibit A1
Planning Division Staff Report
Site Modifications 9600 SW Boeckman Rd.

Development Review Board Panel 'B'
Quasi-Judicial Public Hearing

Hearing Date:	September 25, 2017
Date of Report:	September 18, 2017
Application Nos.:	DB17-0008 Stage II Final Plan Revision DB17-0009 Site Design Review DB17-0010 Type C Tree Plan

Request/Summary: The Development Review Board is being asked to review a Class 3 Stage II Final Plan Revision, Site Design Review, and Type C Tree Plan for a parking lot expansion, associated landscaping modifications, and trash enclosure modifications.

Location: 9600 SW Boeckman Road. South side of SW Boeckman Road, west of the Portland and Western Railroad. The property is specifically known as Tax Lots 202, 282 and 292, Section 14B, Township 3 South, Range 1 West, Willamette Meridian, City of Wilsonville, Clackamas County, Oregon.

Owner/Applicant: Mac Martin
W-4 LLC

Comprehensive Plan Designation: Industrial

Zone Map Classification: PDI (Planned Development Industrial)

Staff Reviewers: Kimberly Rybold, Associate Planner
Steve Adams PE, Development Engineering Manager
Kerry Rappold, Natural Resources Program Manager
Don Walters, Building Plans Examiner

Staff Recommendation: Approve with conditions the requested revised Stage II Final Plan, Site Design Review, and Type C Tree Removal request.

Applicable Review Criteria:

<u>Development Code:</u>	
Section 4.008	Application Procedures-In General
Section 4.009	Who May Initiate Application
Section 4.010	How to Apply
Section 4.011	How Applications are Processed
Section 4.014	Burden of Proof
Section 4.031	Authority of the Development Review Board
Subsection 4.035 (.04)	Site Development Permit Application
Subsection 4.035 (.05)	Complete Submittal Requirement
Section 4.110	Zones
Section 4.117	Standards Applying to Industrial Development in All Zones
Section 4.118	Standards Applying to Planned Development Zones
Section 4.135	Planned Development Industrial Zone (PDI)
Section 4.140	Planned Development Regulations
Section 4.154	On-site Pedestrian Access and Circulation
Section 4.155	Parking, Loading, and Bicycle Parking
Section 4.167	Access, Ingress, and Egress
Section 4.171	Protection of Natural Features and Other Resources
Section 4.175	Public Safety and Crime Prevention
Section 4.176	Landscaping, Screening, and Buffering
Section 4.177	Street Improvement Standards
Section 4.179	Mixed Solid Waste and Recycling
Sections 4.199.20 through 4.199.60	Outdoor Lighting
Sections 4.300 through 4.320	Underground Utilities
Sections 4.400 through 4.440 as applicable	Site Design Review
Sections 4.600-4.640.20	Tree Preservation and Protection
<u>Other Planning Documents:</u>	
Wilsonville Comprehensive Plan	

Vicinity Map

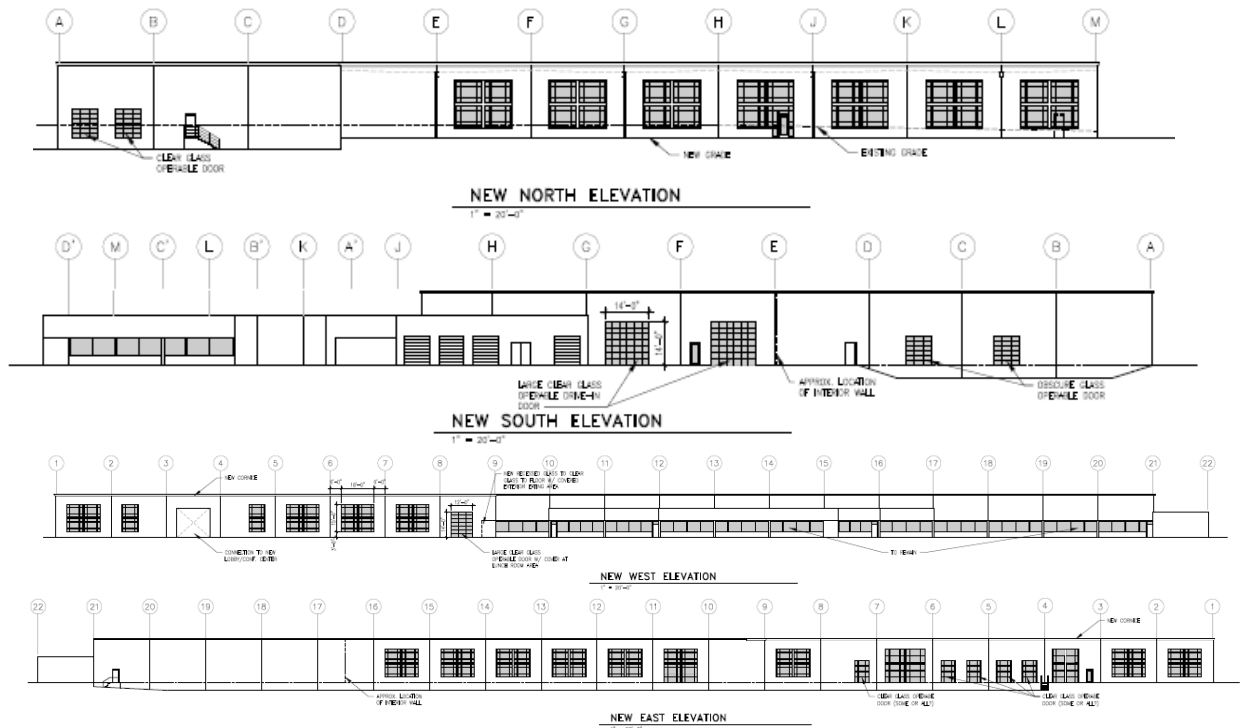


Background:

The development of the subject building occurred in the 1970s and has served a number of industrial users over its history including a publishing plant (RFD Publications) and a warehouse for doors and other building materials (OrePac). The applicant is in the process of converting the building to high tech manufacturing and research. Currently the site contains one large warehouse/office that houses DW Fritz Automation and the temporary use of Grace Chapel. The existing site development is summarized in the table below:

Item	Lot Coverage - Square Feet	Lot Coverage - Percentage
Building Area	161,207 SF	15%
Parking and Drives	227,174 SF	21%
Landscaping	678,839 SF	64%
Total Site Area	1,067,220 SF	100%

Planning staff previously approved administratively new windows, cornices, and building colors (case file AR16-0063). Planning staff subsequently approved administratively a new building entryway (case file AR17-0041). The applicant pursued these administrative approvals separately to progress on portions of the construction earlier. The current application is a continuation of this conversion, and includes revisions to the current onsite parking, a building entry ramp, trash enclosure modifications, and associated landscaping modifications. A future application is anticipated for signage. As the request involves the addition of more than 10 parking spaces the City's Development Code requires review by the Development Review Board.



Architectural modifications approved in 2016

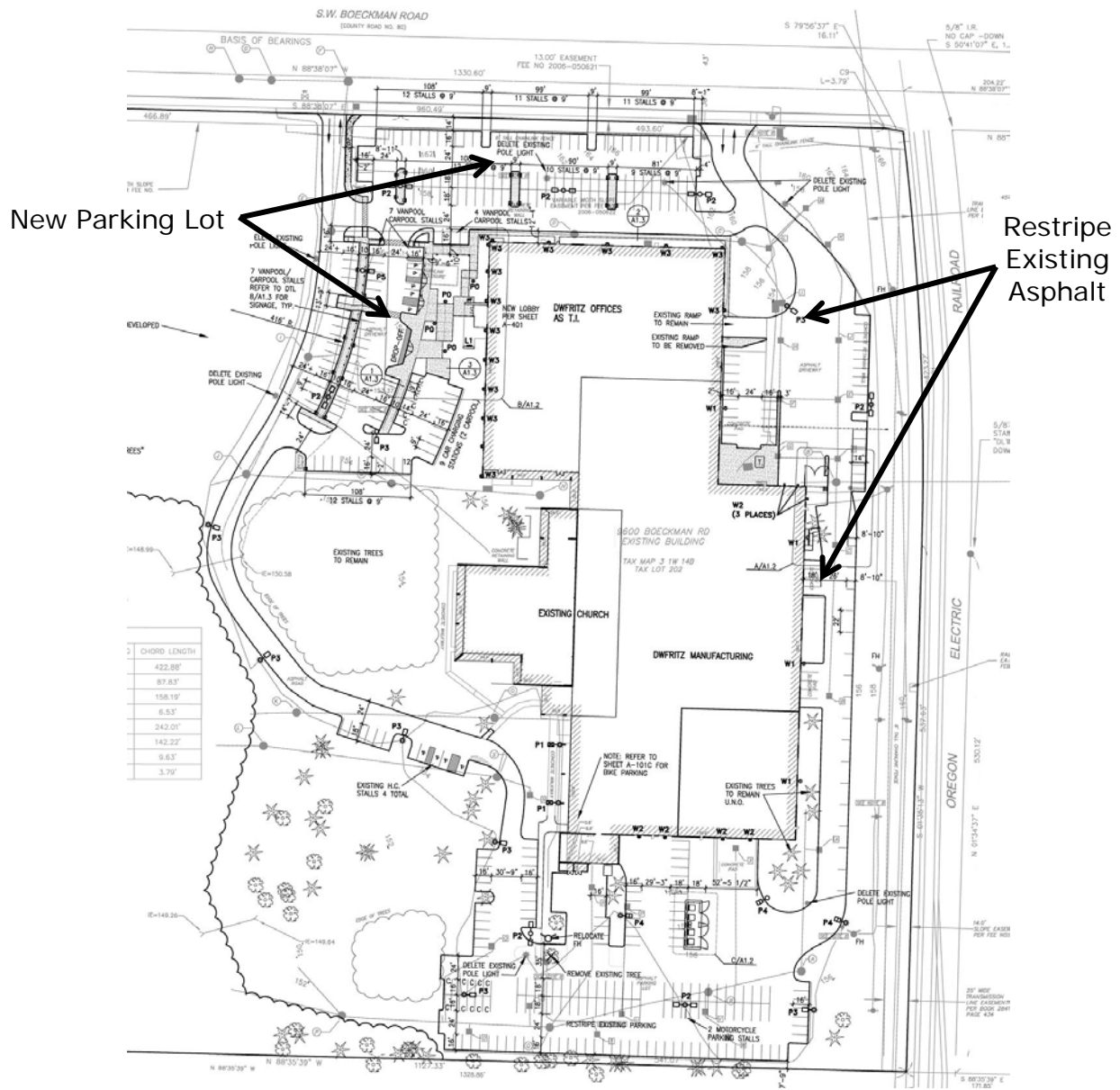


Revised building entryway approved in 2017

Summary:

Stage II Final Plan Revision (DB17-0008)

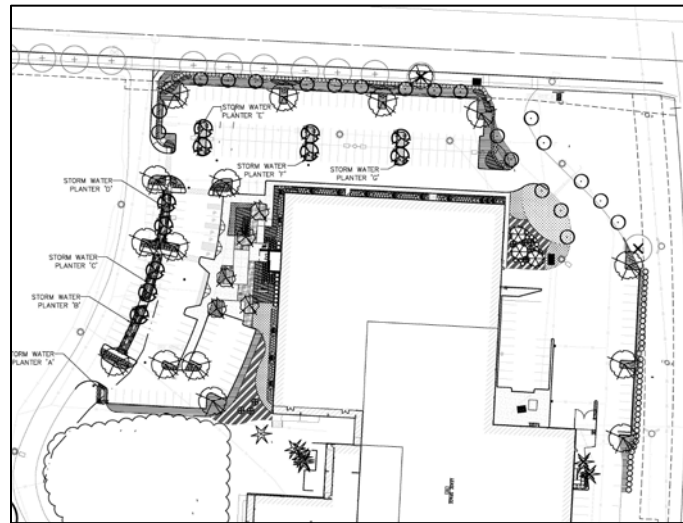
The proposed Stage II Final Plan Revision evaluates the function and design of the proposed site modifications for the DW Fritz building. This includes the construction of a new parking lot and restriping of existing paved areas to accommodate the conversion of the building to high tech manufacturing and research. This also includes the construction of a new entry ramp on the east side of the building, trash enclosure modifications, and associated landscaping and screening.



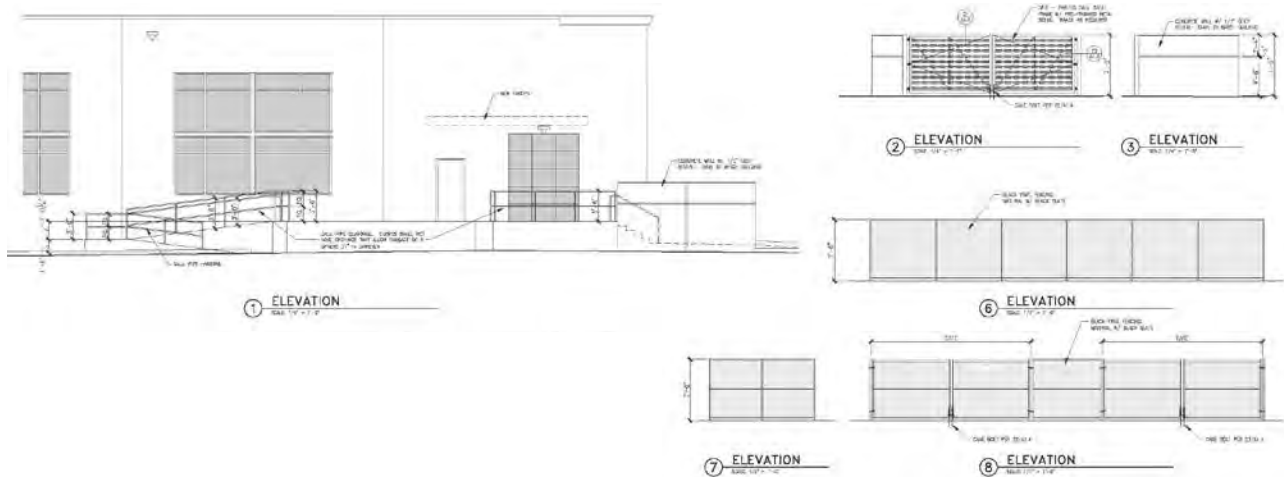
Proposed Parking Lot Expansion

Site Design Review (DB17-0009)

Site Design Review evaluates the appearance of the proposed landscaping, along with the design of the updated trash storage enclosures. The proposed professionally-designed landscaping provides the required screening and a variety of landscape materials meeting or exceeding City standards. Likewise, fencing provided with the proposed trash enclosures is coordinated with the previously-approved architectural modifications to the building, utilizing combination of stained concrete and black vinyl fencing to screen these areas.



Proposed Landscaping



Proposed Ramp and Trash Enclosures

Type C Tree Plan (DB17-0010)

The existing trees are located around the building, in the parking lot, in the right-of-way along SW Boeckman Road, and in the undeveloped portion of the site to the west. Four distinct tree stands are located on the western portions of the site, including portions located within the Significant Resource Overlay Zone (SROZ).

Outside of these tree stands, the arborist report identifies 74 trees on the DW Fritz site and nearby areas impacted by the proposal. The applicant proposes removing seven of the onsite trees. Four of these trees are Douglas-fir, while the other trees include scarlet oak, willow, and black cottonwood.

The applicant proposes to exceed mitigation requirements for the tree removal by planting 69 additional trees on site.

Discussion Points:

Traffic Study

While the reuse of a building for the same type of use would not typically require a traffic study, the traffic analysis previously conducted for this site is more than 25 years old. As such, the City has worked with the applicant to do an updated traffic study. This information is not being used as criteria to approve or deny the current requests, but does provide the City information about traffic expected to be generated from the site. This information will be helpful to anticipate future transportation needs in the area as well as provide helpful information for future transportation studies in the area.

The traffic study, prepared by DKS Associates, evaluated two different phases development for this site. Phase 1 reflects the renovation of the existing building into a combined office and manufacturing space. Phase 2 assumes an additional 70,000 square feet of high-tech manufacturing use on the site, along with a 4,000-square-foot sit-down restaurant. All of the study intersections meet the City's Level of Service (LOS) D p.m. peak operating standard and ODOT operating standards in both Phase 1 alone and Phase 1 and 2 combined, factoring in existing development and Stage II development approvals. In order to implement Phase 2 as evaluated in this study, modifications to the Stage I Preliminary Plan and Stage II Final Plan for the subject property would be required.

Parking

Presently, the subject property has 156 parking spots, the majority of which are on the south side of the site and not proximate to the recently approved building entryway. The proposed additional parking will provide direct access to the main building entryway, with spaces provided for ADA access, carpool/vanpool parking, and electric vehicle charging. The number of parking spaces exceeds the minimum required for the existing use; however, the code establishes no maximum parking requirement for manufacturing uses that would limit the allowable amount of parking on this site. The proposed parking is located on a portion of the site that minimizes the need for extensive grading and tree removal.

Conclusion and Conditions of Approval:

Staff has reviewed the Applicant's analysis of compliance with the applicable criteria. The Staff report adopts the applicant's responses as Findings of Fact except as noted in the Findings.

Based on the Findings of Fact and information included in this Staff Report, and information received from a duly advertised public hearing, Staff recommends that the Development Review Board approve the proposed application (DB17-0008 through DB17-0010) with the following conditions:

Planning Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PDA 1.	The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Planning Director through the Class I Administrative Review Process if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the original application and shall be subject to the same procedural requirements. See Finding A12.
PDA 2.	All travel lanes shall be constructed to be capable of carrying a twenty-three (23) ton load. See Finding A58.
PDA 3.	Where landscape plans indicate a choice between Marshall Seedless Ash and Village Green Zelkova, the applicant shall plant Village Green Zelkova. See Finding A54.

Request B: DB17-0009 Site Design Review

PDB 1.	Construction, site development, and landscaping shall be carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. Minor revisions may be approved by the Planning Director through administrative review pursuant to Section 4.030. See Finding B3.
PDB 2.	All landscaping required and approved by the Board shall be installed prior to use of the proposed parking unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City will be returned to the applicant. See Finding B11.
PDB 3.	The approved landscape plan is binding upon the applicant/owner. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan

	shall not be made without official action of the Planning Director or Development Review Board, pursuant to the applicable sections of Wilsonville’s Development Code. See Finding B12.
PDB 4.	All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered as allowed by Wilsonville’s Development Code. See Findings B13 and B14.
PDB 5.	The following requirements for planting of shrubs and ground cover shall be met: <ul style="list-style-type: none"> • Non-horticultural plastic sheeting or other impermeable surface shall not be placed under landscaping mulch. • Native topsoil shall be preserved and reused to the extent feasible. • Surface mulch or bark dust shall be fully raked into soil of appropriate depth, sufficient to control erosion, and shall be confined to areas around plantings. • All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10” to 12” spread. • Shrubs shall reach their designed size for screening within three (3) years of planting. • Ground cover shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at 4 feet on center minimum, 4” pot spaced 2 feet on center minimum, 2-1/4” pots spaced at 18 inch on center minimum. • No bare root planting shall be permitted. • Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. • Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations. • Compost-amended topsoil shall be integrated in all areas to be landscaped, including lawns. See Finding B20.
PDB 6.	All trees shall be balled and burlapped and conform in size and grade to “American Standards for Nursery Stock” current edition. See Finding B21.
PDB 7.	Plant materials shall be installed to current industry standards and be properly staked to ensure survival. Plants that die shall be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. See Finding B25.
PDB 8.	Final review of the proposed building lighting’s conformance with the Outdoor Lighting Ordinance will be determined at the time of Building Permit issuance.

Request C: DB17-0010 Type C Tree Plan

PDC 1.	This approval for removal applies only to the seven (7) trees identified in the Applicant’s submitted materials. All other trees on the property shall be maintained unless removal is approved through separate application.
PDC 2.	The Applicant shall submit an application for a Type ‘C’ Tree Removal Permit on

	the Planning Division’s Development Permit Application form, together with the applicable fee. In addition to the application form and fee, the Applicant shall provide the City’s Planning Division an accounting of trees to be removed within the project site, corresponding to the approval of the Development Review Board. The applicant shall not remove any trees from the project site until the tree removal permit, including the final tree removal plan, have been approved by the Planning Division staff.
PDC 3.	The Applicant/Owner shall install the required seven (7) mitigation trees, as shown in the Applicant’s sheet L1.0, per Section 4.620 WC.
PDC 4.	The permit grantee or the grantee’s successors-in-interest shall cause the replacement trees to be staked, fertilized and mulched, and shall guarantee the trees for two (2) years after the planting date. A “guaranteed” tree that dies or becomes diseased during the two (2) years after planting shall be replaced.
PDC 5.	Prior to site grading or other site work that could damage trees, the Applicant/Owner shall install six-foot-tall chain-link fencing around the drip line of preserved trees. The fencing shall comply with Wilsonville Public Works Standards Detail Drawing RD-1230. See Finding C14.

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

Engineering Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PF 1.	Public Works Plans and Public Improvements shall conform to the “Public Works Plan Submittal Requirements and Other Engineering Requirements” in Exhibit C1.
PF 2.	Site access shall be via the two existing driveways located on Boeckman Road. It should be noted that with the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed.
PF 3.	No site access shall be taken to/from Kinsman Road.

PF 4.	City records indicate no Public Utility Easement exists on the property fronting Boeckman Road. The City's 2013 Transportation System Plan classifies Boeckman Road as a Minor Arterial. Per Section 101.8.14 of the Public Works Standards, applicant shall be required to dedicate a 10-ft wide Public Utility Easement along all property fronting Boeckman Road.
PF 5.	Both Boeckman Road and Kinsman Road (under construction) are or will be fully developed and in compliance with the 2013 Transportation System Plan and to Public Works Standards. No improvements to either road are required and no additional right-of-way is needed.

Natural Resources Division Conditions:

All Requests

NR 1.	Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.
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Building Division Conditions:

All Requests

BD 1.	Accessible Parking. While what is shown on these preliminary plans appears to be in general compliance with the code, the plans do not contain sufficient information to fully review the accessible parking or the accessible drop-off zone. The additional information available at the building permit submittal may require changes to the design.
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Master Exhibit List:

The following exhibits are hereby entered into the public record by the Development Review Board as confirmation of its consideration of the application as submitted. This is the exhibit list that includes exhibits for Planning Case File DB17-0008 through DB17-0010.

Planning Staff Materials

- A1.** Staff report and findings (this document)
- A2.** Staff's Presentation Slides for Public Hearing (to be presented at Public Hearing)

Materials from Applicant

- B1.** Application Form and Submitted Materials
 - Application Form
 - Project Narrative
 - Tree Maintenance and Protection Plan
 - Lighting Specifications
 - Materials Board
 - Preliminary Stormwater Report and Calculations

Letter from Republic Services
Traffic Impact Analysis (available online, printed copy available upon request)

- B2.** Drawings and Plans
 - A1.1 Site Plan
 - A1.2 Enlarged Site Plans and Details
 - A1.3 Site Details
 - A1.4 Site Details
 - A-152-Bike
 - L1.0 Landscape Plan
 - L2.0 Landscape Detail
 - L3.0 Tree Protection Plan
 - Lighting Plan
 - Lighting Analysis
 - C0.1 General Notes
 - C0.2 Existing Conditions
 - C0.3 Demolition Plan
 - C1.0 Site Plan
 - C2.0 Grading Plan
 - C2.1 Grading Enlargement
 - C2.2 Grading Enlargement
 - C3.0 Utility Plan
 - C3.1 Utility Enlargement
 - C3.2 Utility Enlargement
 - C4.0 Details

Development Review Team Correspondence

- C1.** Engineering Findings, Conditions, and Requirements
- C2.** Natural Resource Findings, Conditions, and Requirements
- C3.** Building Division Conditions, Requirements, and Advisories
- C4.** Email from Joshua Brooking

Procedural Statements and Background Information:

1. The statutory 120-day time limit applies to this application. The application was received on March 15, 2017. On March 28, 2017 staff conducted a completeness review within the statutorily allowed 30-day review period and found the application to be incomplete. On August 21, 2017, the Applicant submitted new materials. On September 1, 2017 the application was deemed complete. The City must render a final decision for the request, including any appeals, by December 30, 2017.
2. Surrounding land uses are as follows:

Compass Direction	Zone:	Existing Use:
North:	PDI	Industrial
East:	PDI	Industrial
South:	PDI	Industrial
West:	RA-H	Vacant

3. Previous Planning Approvals:
 74RZ09 Zone Change from RA-1 to Industrial
 91PC13 Stage I Modification, Stage II (parking addition)
 91DR06 Landscape, Parking Lot Addition
 AR16-0015 Tentative Partition Plat and SROZ Map Verification
 AR16-0063 Class II Review of Architectural Changes and Minor Grading
 AR17-0041 Class II Review of Building Entryway Modification
4. The applicant has complied with Sections 4.013-4.031 of the Wilsonville Code, said sections pertaining to review procedures and submittal requirements. The required public notices have been sent and all proper notification procedures have been satisfied.

Findings:

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

General Information

Application Procedures-In General
 Section 4.008

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

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

Initiating Application

Section 4.009

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

Response: The application has been submitted on behalf of the property owner, W-4 LLC, and is signed by an authorized representative.

Pre-Application Conference

Subsection 4.010 (.02)

Criteria: This section lists the pre-application process.

Response: Staff previously consulted with the applicant about prior development permit applications, providing an understanding of the review process. As a result, it was determined that an additional pre-application conference for the proposed parking lot expansion and associated modifications was not necessary.

Lien Payment before Approval

Subsection 4.011 (.02) B.

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

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

General Submission Requirements

Subsection 4.035 (.04) A.

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

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

Zoning-Generally

Section 4.110

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

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

Request A: DB17-0008 Stage II Final Plan Revision

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Planned Development Regulations-Generally

Planned Development Purpose

Subsection 4.140 (.01)

A1. Criterion: The proposed Stage II Final Plan shall be consistent with the Planned Development Regulations purpose statement.

Response: The proposed site modifications are consistent with this purpose statement, as flexibility in the location of parking and site circulation allows for the preservation of trees and SROZ on the subject property.

Ownership Requirements

Subsection 4.140 (.03)

A2. Criterion: "The tract or tracts of land included in a proposed Planned Development must be in one (1) ownership or control or the subject of a joint application by the owners of all the property included."

Response: The land included in the proposed Stage II Final Plan is under the single ownership of W-4 LLC, and Mac Martin, an authorized representative, has signed the application.

Professional Design Team

Subsection 4.140 (.04)

A3. Criteria: "The applicant for all proposed Planned Developments shall certify that the professional services of the appropriate professionals have been utilized in the planning process for development. One of the professional consultants chosen by the applicant shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan."

Response: As can be found in the applicant's submitted materials, appropriate professionals have been involved in the planning and permitting process. Bob Wells with Lance Mueller and Associates Architects has been designated the coordinator for the planning portion of the project.

Stage II Final Plan Submission Requirements and Process

Timing of Submission

Subsection 4.140 (.09) A.

A4. Criterion: “Unless an extension has been granted by the Development Review Board, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submission in stages has been authorized pursuant to Section 4.035 for the first unit of the development...”

Response: The proposed application is for an expansion of the existing building’s parking lot with other minor site modifications. No changes in use or size of the existing building are proposed.

Stage I Conformance, Submission Requirements

Subsection 4.140 (.09) C.

A5. Criteria: “The final plan shall conform in all major respects with the approved preliminary development plan, and shall include all information included in the preliminary plan plus the following:” listed 1. through 6.

Response: The Stage II plan substantially conforms to the Stage I Master plan, as approved in Case File No. 91PC13. The applicant has provided the required drawings and other documents showing all the additional information required by this subsection.

Stage II Final Plan Detail

Subsection 4.140 (.09) D.

A6. Criterion: “The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development.”

Response: The applicant has provided sufficiently detailed information to indicate fully the ultimate operation the development, including a detailed site plan, landscaping plan, and elevation drawings for the new entrance ramp and trash enclosure modifications.

Submission of Legal Documents

Subsection 4.140 (.09) E.

A7. Criterion: “Copies of legal documents required by the Development Review Board for dedication or reservation of public facilities, or for the creation of a non-profit homeowner’s association, shall also be submitted.”

Response: No additional legal documentation is required for dedication or reservation of public facilities.

Expiration of Approval

Subsection 4.140 (.09) I. and Section 4.023

A8. Criterion: This subsection and section identify the period for which Stage II approvals are valid.

Response: The Stage II Approval, along other associated applications, will expire two (2) years after approval, unless an extension is approved in accordance with these subsections.

Consistency with Plans

Subsection 4.140 (.09) J. 1.

A9. Criterion: “The location, design, size and uses, both separately and as a whole, are consistent with the Comprehensive Plan, and with any other applicable plan, development map or Ordinance adopted by the City Council.”

Response: The subject property has previously been zoned Planned Development Industrial consistent with the Industrial designation in the Comprehensive Plan. To staff’s knowledge, the location, design, size, and uses are consistent with other applicable plans, maps, and ordinances, or will be by specific conditions of approval.

Traffic Concurrency

Subsection 4.140 (.09) J. 2.

A10. Criteria: “That the location, design, size and uses are such that traffic generated by the development at the most probable used intersection(s) can be accommodated safely and without congestion in excess of Level of Service D, as defined in the Highway Capacity Manual published by the National Highway Research Board, on existing or immediately planned arterial or collector streets and will, in the case of commercial or industrial developments, avoid traversing local streets. Immediately planned arterial and collector streets are those listed in the City’s adopted Capital Improvement Program, for which funding has been approved or committed, and that are scheduled for completion within two years of occupancy of the development or four year if they are an associated crossing, interchange, or approach street improvement to Interstate 5.” Additional qualifiers and criteria listed a. through e.

Response: While the reuse of a building for the same type of use would not typically require a traffic study, the traffic analysis previously conducted for this site is more than 25 years old. As such, the City has worked with the applicant to do an updated traffic study. This information is not being used as criteria to approve or deny the current requests, but does provide the City information about traffic expected to be generated from the site. As stated on page 3 of the Transportation Impact Study prepared by DKS Associates dated August 14, 2017 (component of Exhibit B2) the building renovation is anticipated to generate 105 (38 in, 67 out) p.m. peak hour trips. As shown on Page 6 of the Transportation Impact Study, the Level of Service (LOS) D standard will continue to be met by existing street improvements at the studied intersections with existing, planned, and the proposed parking lot expansion.

Facilities and Services Concurrency
Subsection 4.140 (.09) J. 3.

A11. Criterion: “That the location, design, size and uses are such that the residents or establishments to be accommodated will be adequately served by existing or immediately planned facilities and services.”

Response: Facilities and services, including stormwater utilities, are available and sufficient to serve the proposed development.

Adherence to Approved Plans
Subsection 4.140 (.09) L.

A12. Criterion: “The applicant shall agree in writing to be bound, for her/himself and her/his successors in interest, by the conditions prescribed for approval of a development. The approved final plan and stage development schedule shall control the issuance of all building permits and shall restrict the nature, location and design of all uses. Minor changes in an approved preliminary or final development plan may be approved by the Director of Planning if such changes are consistent with the purposes and general character of the development plan. All other modifications, including extension or revision of the stage development schedule, shall be processed in the same manner as the original application and shall be subject to the same procedural requirements.”

Response: Condition of Approval PDA 1 ensures adherence to approved plans except for minor revisions by the Planning Director.

Standards Applying in All Planned Development Zones

Underground Utilities
Subsection 4.118 (.02)

A13. Criterion: “Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.”

Response: All additional utilities on the property are required to be underground.

Waivers
Subsection 4.118 (.03)

A14. Criteria: “Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may” waive a number of standards as listed in A. through E.

Response: No waivers are being requested.

Other Requirements or Restrictions

Subsection 4.118 (.03) E.

A15. Criteria: “Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may adopt other requirements or restrictions, inclusive of, but not limited to, the following:” Listed 1. through 12.

Response: No additional requirements or restrictions are recommended pursuant to this subsection.

Impact on Development Cost

Subsection 4.118 (.04)

A16. Criterion: “The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on availability and cost. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of unnecessarily increasing the cost of development. However, consideration of these factors shall not prevent the Board from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code.”

Response: It is staff’s professional opinion that the determination of compliance or attached conditions does not unnecessarily increase the cost of development, and no evidence has been submitted to the contrary.

Requiring Tract Dedications

Subsection 4.118 (.05)

A17. Criteria: “The Planning Director, Development Review Board, or on appeal, the City Council, may as a condition of approval for any development for which an application is submitted, require that portions of the tract or tracts under consideration be set aside, improved, conveyed or dedicated for the following uses:” Recreational Facilities, Open Space Area, Easements.”

Response: No additional tracts are being required for the purposes given.

Habitat Friendly Development Practices

Subsection 4.118 (.09)

A18. Criteria: “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: The grading will be limited to that needed for the proposed improvements, no significant native vegetation would be retained by an alternative site design, the City’s stormwater standards will be met limiting adverse hydrological impacts on water resources, and no impacts on wildlife corridors or fish passages have been identified.

Planned Development Industrial (PDI) Zone

Typically Permitted Uses

Subsection 4.135 (.03)

A19. Criteria: This subsection establishes the typically permitted uses in the PDI Zone.

Response: The proposed use is consistent with the Stage I Master Plan as well as with the purpose of the PDI zone as it includes industrial operations as well as associated and supportive uses.

Industrial Performance Standards

Industrial Performance Standards

Subsection 4.135 (.05)

A20. Criteria: “The following performance standards apply to all industrial properties and sites within the PDI Zone, and are intended to minimize the potential adverse impacts of industrial activities on the general public and on other land uses or activities. They are not intended to prevent conflicts between different uses or activities that may occur on the same property.” Standards listed A. through N.

Response: The proposed site modifications will ensure the development’s continued compliance with the listed performance standards.

On-site Pedestrian Access and Circulation

Continuous Pathway System

Section 4.154 (.01) B. 1.

A21. Criterion: “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.”

Response: There is a continuous walkway system throughout new parking area that connects all of the primary building exits, the parking and surrounding area to the sidewalk.

Safe, Direct, and Convenient
Section 4.154 (.01) B. 2.

A22. Criteria: "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:"

Response: The plans show a pedestrian pathway directly from the Boeckman Road sidewalk to the parking lot, connecting to the main building entryway.

Free from Hazards/Smooth Surface
Section 4.154 (.01) B. 2. a.

A23. Criterion: "Pedestrian pathways are designed primarily for pedestrian safety and convenience, meaning they are free from hazards and provide a reasonably smooth and consistent surface."

Response: The pathways will be constructed using concrete and will provide a smooth and consistent surface.

Reasonably Direct
Section 4.154 (.01) B. 2. b.

A24. Criterion: "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."

Response: The pathway from the Boeckman Road sidewalk travels along the western driveway entrance, connecting to the main building entryway. There is no unnecessary out of direction travel.

Building Entrance Connectivity/Meets ADA
Section 4.154 (.01) B. 2. c.

A25. Criterion: "The pathway connects to all primary building entrances and is consistent with the Americans with Disabilities Act (ADA) requirements."

Response: Five ADA parking spaces are provided proximate to the main building entryway, connecting to the sidewalk via accessible ramps. These spaces are provided in addition to the four existing ADA spaces located on the southwest side of the building. Condition of Approval BD1 ensures that facilities meeting ADA requirements are provided during building permit review.

Vehicle/Pathway Separation
Section 4.154 (.01) B. 3.

A26. Criterion: "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."

Response: The walkway adjacent to the building will be raised six inches above the adjacent parking lot to provide vertical separation.

Crosswalks

Section 4.154 (.01) B. 4.

A27. Criterion: “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).”

Response: As indicated in the applicant’s site plan, all crosswalks will be marked by contrasting paint colors/stripping.

Pathway Width and Surface

Section 4.154 (.01) B. 5.

A28. Criterion: “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.”

Response: All proposed pathways are 5 feet or wider and will be constructed of concrete.

Pathway Signs

Section 4.154 (.01) B. 6.

A29. Criterion: “All pathways shall be clearly marked with appropriate standard signs.”

Response: No pathways needing directional signage are proposed.

Parking Area Design Standards

Minimum and Maximum Parking

Section 4.155 (.03) G.

A30. Criteria: This subsection defines the minimum and maximum parking standards for various land uses.

Response: The DW Fritz facility requires a minimum of 364 parking spaces with no limit on the maximum number of spaces. The applicant proposes 402 spaces. The calculation of parking spaces is as follows:

Office* (86,167 sf)	Minimum 2.7 spaces per 1,000 square feet = 233 Maximum 4.1 per 1,000 square feet = 354
Manufacturing (81,964 sf)	Minimum 1.6 per 1,000 square feet = 131 Maximum = no limit
Total (rounded to nearest whole number):	Minimum – 364 spaces Maximum – No limit

*Note: Includes area presently used as a chapel that will be vacated in early 2018

Other Parking Area Design Standards
Subsections 4.155 (.02) and (.03)

A31. Criteria: These subsections list a number of standards affecting the design of parking areas.

Response: The applicable standards are met as follows:

Standard	Met	Explanation
Subsection 4.155 (.02) General Standards		
B. All spaces accessible and usable for parking	☒	Standard parking lot design.
J. Sturdy bumper guards of at least 6 inches to prevent parked vehicles crossing property line or interfering with screening or sidewalks.	☒	The parking lot will be surrounded by a six-inch curb.
K. Surfaced with asphalt, concrete or other approved material.	☒	The parking lot will be surfaced with asphalt.
Drainage meeting City standards	☒	Drainage is professionally designed and being reviewed to meet City standards.
L. Lighting won't shine into adjoining structures or into the eyes of passersby.	☒	Lighting is proposed to be fully shielded and subject to the City's Outdoor Lighting Ordinance.
N. No more than 40% of parking compact spaces.	☒	18 compact parking spaces are proposed (approximately 4% of spaces)
Subsection 4.155 (.03) Minimum and Maximum Off-Street Parking Requirements		
A. Access and maneuvering areas adequate.	☒	Access to the area is available to employees. Maneuvering area is plentiful.
A.1. Loading and delivery areas and circulation separate from customer/employee parking and pedestrian areas.	☒	Loading areas are generally separated from parking and pedestrian area, with the exception of two loading areas at the rear of the building. These parking areas are not adjacent to pedestrian areas or the main building entryway.
Circulation patterns clearly marked.	☒	Circulation patterns are clearly evident by the standard width of the drive aisles, which are equivalent to a local street without pavement markings, and the clear delineation of the edge of the drive aisles by painted parking stalls, landscape areas, and pedestrian walkways.
A.2. To the greatest extent possible, vehicle and pedestrian traffic separated.	☒	Vehicle and pedestrian traffic is clearly delineated and separated.

C. Safe and Convenient Access, meet ADA and ODOT Standards. For parking areas with more than 10 spaces, 1 ADA space for every 50 spaces.	☒	The proposed parking and access allow ADA and ODOT standards to be met. The applicant proposes 402 parking spaces, nine of which are ADA accessible spaces.
D. Efficient on-site parking and circulation.	☒	The proximity to the destination and pedestrian connections make the new parking area efficient. Adequate maneuvering area is provided making the circulation efficient.

Other Parking Standards and Policies and Procedures

Parking Variances and Waivers

Subsection 4.155 (.02) A. 1.-2.

A32. Criteria: “1. The Board shall have the authority to grant variances or planned development waivers to these standards in keeping with the purposes and objectives set forth in the Comprehensive Plan and this Code. 2. Waivers to the parking, loading, or bicycle parking standards shall only be issued upon a findings that the resulting development will have no significant adverse impact on the surrounding neighborhood, and the community, and that the development considered as a whole meets the purposes of this section.”

Response: The applicant has not requested variances or waivers pursuant to this subsection.

Multiple Use Parking Calculations

Subsection 4.155 (.02) D.

A33. Criterion: “In the event several uses occupy a single structure or parcel of land, the total requirement for off-street parking shall be the sum of the requirements of the several uses computed separately, except as modified by subsection “E,” below.”

Response: As shown in Finding A30, each proposed use was factored in to the overall calculation of the required number of parking spaces.

Shared Parking

Subsection 4.155 (.02) E.

A34. Criterion: “Owners of two (2) or more uses, structures, or parcels of land may utilize jointly the same parking area when the peak hours of operation do not overlap, provided satisfactory legal evidence is presented in the form of deeds, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them. “

Response: No shared parking with adjacent uses is proposed.

Off-Site Parking Allowance
Subsection 4.155 (.02) G.

A35. Criterion: “Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this Chapter may be located on another parcel of land, provided the parcel is within 500 feet of the use it serves and the DRB has approved the off-site parking through the Land Use Review. The distance from the parking area to the use shall be measured from the nearest parking space to the main building entrance, following a sidewalk or other pedestrian route. The right to use the off-site parking must be evidenced in the form of recorded deeds, easements, leases, or contracts securing full and permanent access to such parking areas for all the parties jointly using them.”

Response: No off-site parking was used for calculating the parking spaces provided.

Non-Parking Use of Parking Areas
Subsection 4.155 (.02) H.

A36. Criterion: “The conducting of any business activity shall not be permitted on the required parking spaces, unless a temporary use permit is approved pursuant to Section 4.163.”

Response: All parking areas are expected to be maintained and kept clear for parking unless a temporary use permit is granted or the Stage II approval is revised. Particularly no container or other storage is permitted in the parking areas.

Parking for Uses Not Listed
Subsection 4.155 (.02) M.

A37. Criterion: “Off-street parking requirements for types of uses and structures not specifically listed in this Code shall be determined by the Development Review Board if an application is pending before the Board. Otherwise, the requirements shall be specified by the Planning Director, based upon consideration of comparable uses.”

Response: The parking calculation is based on the listed uses of office or flex space and manufacturing establishment.

On-Street Parking for Parking Calculations
Subsection 4.155 (.03) F.

A38. Criterion: “On-street parking spaces, directly adjoining the frontage of and on the same side of the street as the subject property, may be counted towards meeting the minimum off-street parking standards.”

Response: The parking calculations do not include any on-street parking.

Electrical Vehicle Charging Stations
Subsection 4.155 (.03) H.

A39. Criteria: “1. Parking spaces designed to accommodate and provide one or more electric vehicle charging stations on site may be counted towards meeting the minimum off-street parking standards. 2. Modification of existing parking spaces to accommodate electric vehicle charging stations on site is allowed outright.”

Response: The applicant proposes nine electrical charging stations, two of which are carpool spaces.

Substituting Motorcycle Parking for Vehicle Parking Subsection 4.155 (.03) I.

A40. Criteria: “Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space.”

Response: The applicant proposes two motorcycle parking stalls.

Carpool and Vanpool Parking Requirements Subsection 4.155 (.06)

A41. Criteria: This subsection lists the requirements for carpool and vanpool parking.

Response: The applicant proposes 20 carpool/vanpool parking spots, meeting the standard of five percent of provided parking spaces on site. These spaces are located closest to the main building entryway, with the exception of required ADA parking.

Parking Area Landscaping

Minimizing Visual Dominance of Parking Subsection 4.155 (.03) B.

A42. Criteria: “Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:”

Response: The proposed landscaping shields the parking area from off-site view. The applicant provides the required parking lot trees.

Landscape Screening of Parking Subsection 4.155 (.03) B. 1.

A43. Criterion: “Landscaping of at least ten percent (10%) of the parking area designed to be screened from view from the public right-of-way and adjacent properties. This landscaping shall be considered to be part of the fifteen percent (15%) total landscaping required in Section 4.176.03 for the site development.”

Response: The new parking area is surrounded by landscaping far surpassing the 10% minimum. As shown on Sheet L1.0 of Exhibit B2, continuous screening of waxleaf privet or inkberry is proposed along the Boeckman Road frontage.

Parking Area Tree Requirement Subsection 4.155 (.03) B. 2. and 2. a.

A44. Criteria: “Landscape tree planting areas shall be minimum of eight (8) feet in width and length and spaced every (8) parking spaces or an equivalent aggregated amount. a. Trees shall be planted in a ratio of one (1) tree per eight (8) parking spaces or fraction thereof,

except in parking areas of more than two hundred (200) spaces where a ratio of one (1) tree per six (6) spaces shall be applied as noted in subsection (.03)(B.) (3.)”

Response: All tree planting areas meet or exceed the 8 foot minimum width and length. The proposed parking area exceeds 200 spaces. Trees will be planted along outer edges of the drive aisles and within tree planting areas. A number of existing mature trees are located along the southern portion of the new parking area and will provide shade to that portion of the lot.

Parking Area Tree Clearance

Subsection 4.155 (.03) B. 2. b.

A45. Criterion: “Except for trees planted for screening, all deciduous interior parking lot trees must be suitably sized, located, and maintained to provide a branching minimum of seven (7) feet clearance at maturity.”

Response: All trees required for planting in the parking area will be varieties that could typically be maintained to provide a seven-foot clearance.

Other Development Standards

Access, Ingress, and Egress

Section 4.167

A46. Criterion: “Each access onto streets or private drives shall be at defined points as approved by the City and shall be consistent with the public's health, safety and general welfare. Such defined points of access shall be approved at the time of issuance of a building permit if not previously determined in the development permit.”

Response: Existing access points at Boeckman Road will be retained. With the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed as noted in Condition of Approval PF2. No site access shall be taken to or from Kinsman Road as noted in Condition of Approval PF 3.

Double-Frontage Lots

Section 4.169

A47. Criterion: “Buildings on double frontage lots (i.e., through lots) and corner lots must meet the front yard setback for principal buildings on both streets or tracts with a private drive.”

Response: The subject property is a double frontage lot, and required building setbacks will continue to be met.

Natural Features and Other Resources
Section 4.171

- A48. Criteria:** This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.
- Response:** The western portion of the property contains some mature tree stands and SROZ which would not be disturbed by the proposed parking lot. The location of the proposed parking lot expansion slopes gently to the west, and some minor grading will be performed to level the site. Trees have been considered as part of site planning and a number of trees are being retained within the existing parking area. No other hillsides, powerline easements, etc. needing protection exist on the site.

Public Safety and Crime Prevention

Design for Public Safety
Subsection 4.175 (.01)

- A49. Criterion:** "All developments shall be designed to deter crime and insure public safety."
- Response:** The applicant has not provided any summary findings in response to these criteria. Staff finds no evidence and has not received any testimony that the design of the site and buildings would lead to crime or negatively impact public safety.

Surveillance and Access
Subsection 4.175 (.03)

- A50. Criterion:** "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."
- Response:** The parking and loading areas are easily accessible and no areas of particular vulnerability to crime have been identified warranting additional surveillance.

Lighting to Discourage Crime
Subsection 4.175 (.04)

- A51. Criterion:** "Exterior lighting shall be designed and oriented to discourage crime."
- Response:** Lighting has been designed in accordance with the City's outdoor lighting standards, which will provide sufficient lighting to discourage crime.

Landscaping Standards

Landscaping Standards Purpose
Subsection 4.176 (.01)

- A52. Criteria:** "This Section consists of landscaping and screening standards and regulations for use throughout the City. The regulations address materials, placement, layout, and timing

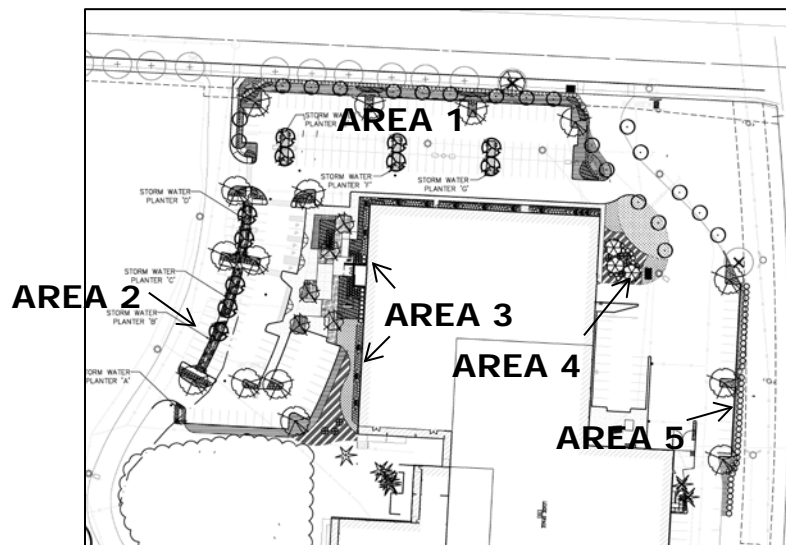
of installation. The City recognizes the ecological and economic value of landscaping and requires the use of landscaping and other screening or buffering to:” Listed A. through K.
Response: In complying with the various landscape standards in Section 4.176 the applicant has demonstrated the Stage II Final Plan is in compliance with the landscape purpose statement.

Landscape Code Compliance
Subsection 4.176 (.02) B.

A53. Criterion: “All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length”
Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Intent and Required Materials
Subsections 4.176 (.02) C. through I.

A54. Criteria: These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.
Response: As shown on sheet L1.0 of Exhibit B2 required materials for each landscaping standard is provided as follows. Throughout the site, appropriate groundcover is provided for areas without not otherwise occupied by shrubs and trees. In several areas, an option between Marshall Seedless Ash and Village Green Zelkova is indicated. Marshall Seedless Ash should not be utilized in the landscape plan, due to potential susceptibility of the Emerald Ash Borer. Condition of Approval PDA 3 ensures that this tree will not be utilized in the landscape plan.



Landscape Area 1

Area Description: Along north side of parking lot
Landscaping Standard: Low Screen
Comments on Intent: Screens parking lot from sidewalk and street right-of-way
Required Materials: 3-foot hedge 95 percent opaque year round, trees every 30 feet or as required to provide canopy over landscape area.
Materials Provided: Waxleaf Privet or Inkberry create the low screen. Tree canopy is provided by 4 Marshall Seedless Ash or Village Green Zelkova and 13 Karpick Red Maple or Columnar Tulip Trees.

Landscape Area 2

Area Description: Along west side of parking lot
Landscaping Standard: General
Comments on Intent: No screening required, area consists of stormwater planters
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 4 Marshall Seedless Ash or Village Green Zelkova and 5 Black Tupelo.

Landscape Area 3

Area Description: Adjacent to building and entryway
Landscaping Standard: General
Comments on Intent: No screening required
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 5 Eastern Redbud or River Birch.

Landscape Area 4

Area Description: East side of building
Landscaping Standard: General
Comments on Intent: No screening required
Required Materials: Fully cover, less than 30 feet deep, tree every 30 feet (may be grouped), 30 feet or deeper, one tree every 800 sf and 3 shrubs every 400 sf.
Materials Provided: Adequate shrubs and groundcover, trees include 3 Ponderosa Pine or Western Red Cedar and 3 Karpick Red Maple or Columnar Tulip Trees.

Landscape Area 5

Area Description: Along east side of property
Landscaping Standard: High Screen
Comments on Intent: Screen trash container from adjacent property
Required Materials: 6-foot hedge 95 percent opaque year round, trees every 30 feet

or as required to provide canopy over landscape area.

Materials Provided: Dwarf Strawberry Trees or Pacific Wax Myrtle create the low screen. Tree canopy is provided by 3 Marshall Seedless Ash or Village Green Zelkova.

Landscape Area and Locations

Subsection 4.176 (.03)

A55. Criteria: “Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable.”

Response: The percent of landscaping continues to be exceeded and dispersed around the DWFritz property.

Buffering and Screening

Subsection 4.176 (.04)

A56. Criteria: “Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.

B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.

C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.

D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.

E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.

F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.”

Response: The high screen standard is being applied to screen the proposed trash container on the east side of the building from off-site view.

Landscape Plans
Subsection 4.176 (.09)

A57. Criteria: "Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated."

Response: Applicant's sheet L1.0 provides the required information.

Other Development Standards

Access Drives and Travel Lanes
Subsection 4.177 (.01) E.

A58. Criteria: This subsection sets standards for access drives and travel lanes.

Response:

- All access drives are designed to provide a clear travel lane, free from obstructions.
- All travel lanes will be asphalt. Condition of Approval PDA 2 will ensure they are capable of carrying a 23-ton load.
- Emergency access lanes are improved to a minimum of 12 feet and the development is being reviewed and approved by the Fire District.

Mixed Solid Waste and Recyclables Storage
Section 4.179

A59. Criteria: This section establishes standards for mixed solid waste and recyclables storage in new multi-family residential and non-residential buildings.

Response: The required mixed solid waste and recyclables storage area is 886 square feet. Two new mixed solid waste and recyclables enclosures are proposed along with a trash container on the east side of the building, resulting in 988 square feet of storage area. Development of these storage areas has been coordinated with the City's franchised garbage hauler, Republic Services, as shown in Exhibit B1.

Outdoor Lighting
Sections 4.199.20 through 4.199.60

A60. Criteria: This section states that the outdoor lighting ordinance is applicable to "Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas" and "Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas." In addition the exempt luminaires and lighting systems are listed.

Response: The proposal is required to meet the Outdoor Lighting Standards. See Request B, Findings B28 through B36.

Underground Installation
Sections 4.300-4.320

A61. Criteria: These sections list requirements regarding the underground installation of utilities.

Response: All utility lines will be underground.

Request B: DB17-0009 Site Design Review

As described in the Findings below, the applicable criteria for this request are met or will be met by Conditions of Approval.

Site Design Review

Excessive Uniformity, Inappropriateness Design
Subsection 4.400 (.01) and Subsection 4.421 (.03)

B1. Criteria: “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.” “Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.”

Response: Staff summarizes the compliance with this subsection as follows:

Excessive Uniformity: The proposed site modifications are unique to the particular development context and do not create excessive uniformity.

Inappropriate or Poor Design of the Exterior Appearance of Structures: The existing building is designed in a manner that is consistent with newer industrial development in the PDI zone. Additional screening for the proposed trash enclosures is consistent with the existing building design.

Inappropriate or Poor Design of Signs: Review of new signs will occur in a subsequent development permit application.

Lack of Proper Attention to Site Development: The appropriate professional services have been used to design the site, demonstrating appropriate attention being given to site development.

Lack of Proper Attention to Landscaping: Landscaping is provided exceeding the area requirements, has been professionally designed by a landscape designer, and includes a variety of plant materials, all demonstrating appropriate attention being given to landscaping.

Purposes and Objectives

Subsection 4.400 (.02) and Subsection 4.421 (.03)

B2. Criteria: “The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.” “The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:” Listed A through J.

Response: The applicant has demonstrated compliance with the listed purposes and objectives. In short, the proposal provides a practical parking lot design and associated site modifications appropriate for the building modifications currently underway.

Development Review Board Jurisdiction

Section 4.420

B3. Criteria: The section states the jurisdiction and power of the Development Review Board in relation to site design review including the application of the section, that development is required in accord with plans, and variance information.

Response: Condition of Approval PDB 1 has been included to ensure construction, site development, and landscaping are carried out in substantial accord with the Development Review Board approved plans, drawings, sketches, and other documents. No building permits will be granted prior to development review board approval. No variances are requested from site development requirements.

Design Standards

Subsection 4.421 (.01)

B4. Criteria: “The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards.” Listed A through G.

Response: The applicant has provided sufficient information demonstrating compliance with the standards of this subsection as follows:

- Pursuant to standard A (Preservation of Landscape), the site modifications will generally occur in an area with gentle slopes and minimal vegetation. The proposed parking lot expansion will be enhanced by landscaping consistent with other industrial properties in Wilsonville.
- Pursuant to standard B (Relation of Proposed Buildings to Environment), the proposed ramp and trash enclosures are located within portions of the site that are already developed, minimizing impacts to naturally sensitive areas. The portion of the site where the parking lot would be developed does not have extensive topographical change or other naturally sensitive areas.
- Pursuant to standard C (Drives, Parking, and Circulation), no new driveways are

proposed in this application. The parking area is accessed via the existing driveway. Safe and accessible routes are provided throughout the site with a parking lot in front of the existing building and a pedestrian walkway from the parking to the front door of the new building.

- Pursuant to standard D (Surface Water Drainage), no adverse impacts to surface water drainage will result from the proposal.
- Pursuant to standard E (Utility Service), no above ground utility installations are proposed. Stormwater and sanitary sewage disposal facilities are indicated on the applicant's grading plan, shown in Exhibit B2.
- Pursuant to standard F (Advertising Features), the applicant has indicated that review of signs will occur under a separate development permit application.
- Pursuant to standard G (Special Features), there are no exposed storage areas except for the truck loading areas and the exterior trash container on the east side of the building. The proposed trash container and storage areas will be screened from the property to the east with landscaping.

Applicability of Design Standards

Subsection 4.421 (.02)

B5. Criterion: "The standards of review outlined in Sections (a) through (g) above shall also apply to all accessory buildings, structures, exterior signs and other site features, however related to the major buildings or structures."

Response: Design standards have been applied to the structures and site features.

Conditions of Approval

Subsection 4.421 (.05)

B6. Criterion: "The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code."

Response: No additional conditions of approval are recommended to ensure the proper and efficient functioning of the development.

Color or Materials Requirements

Subsection 4.421 (.06)

B7. Criterion: "The Board or Planning Director may require that certain paints or colors of materials be used in approving applications. Such requirements shall only be applied when site development or other land use applications are being reviewed by the City."

Response: No specific paints or colors are being required.

Design of Trash and Recycling Enclosures
Section 4.430

- B8. Criteria:** “The following locations, design and access standards for mixed solid waste and recycling storage areas shall be applicable to the requirements of Section 4.179 of the Wilsonville City Code.” Listed (.02) A. through (.04) C.
Response: Sheets A1.3 and A1.4 of Exhibit B2 show enclosures meeting all the standards listed in this Section. The enclosures have also been approved by the franchise solid waste hauler. See Finding A59.

Submission Requirements
Section 4.440

- B9. Criteria:** “A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:” Listed A through F.
Response: The applicant has submitted the required additional materials, as applicable.

Time Limit on Approval
Section 4.442

- B10. Criterion:** “Site design review approval shall be void after two (2) years unless a building permit has been issued and substantial development pursuant thereto has taken place; or an extension is granted by motion of the Board.
Response: The Applicant has indicated that they will pursue development within two (2) years and it is understood that the approval will expire after 2 years if a building permit hasn’t been issued unless an extension has been granted by the board.

Landscape Installation or Bonding
Subsection 4.450 (.01)

- B11. Criterion:** “All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to one hundred and ten percent (110%) of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six (6) months of occupancy. "Security" is cash, certified check, time certificates of deposit, assignment of a savings account or such other assurance of completion as shall meet with the approval of the City Attorney. In such cases the developer shall also provide written authorization, to the satisfaction of the City Attorney, for the City or its designees to enter the property and complete the landscaping as approved. If the installation of the landscaping is not completed within the six-month period, or within an extension of time authorized by the Board, the security may be used by the City to complete the installation. Upon completion of the installation, any portion of the remaining security deposited with the City shall be returned to the applicant.”
Response: Condition of Approval PDB 2 will assure installation or appropriate security.

Approved Landscape Plan
Subsection 4.450 (.02)

- B12. Criterion:** “Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code.”
Response: Condition of Approval PDB 3 shall provide ongoing assurance this criterion is met.

Landscape Maintenance and Watering
Subsection 4.450 (.03)

- B13. Criterion:** “All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval.”
Response: Condition of Approval PDB 4 will ensure landscaping is continually maintained in accordance with this subsection.

Modifications of Landscaping
Subsection 4.450 (.04)

- B14. Criterion:** “If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City’s development review process, that removal or modification must first be approved through the procedures of Section 4.010.”
Response: Condition of Approval PDB 4 shall provide ongoing assurance that this criterion is met by preventing modification or removal without the appropriate City review.

Natural Features and Other Resources

Protection
Section 4.171

- B15. Criterion:** This section provides for the protection of a number of natural features and other resources including: general terrain preparation, hillsides, trees and wooded areas, high voltage powerline easements and rights of way and petroleum pipeline easements, earth movement hazard areas, soil hazard areas, historic resources, and cultural resources.
Response: The proposed design of the site provides for protection of natural features and other resources consistent with the proposed Stage II Final Plan for the site as well as the purpose and objectives of site design review. See Finding A48 under Request A.

Landscaping

Landscape Standards Code Compliance

Subsection 4.176 (.02) B.

B16. Criterion: “All landscaping and screening required by this Code must comply with all of the provisions of this Section, unless specifically waived or granted a Variance as otherwise provided in the Code. The landscaping standards are minimum requirements; higher standards can be substituted as long as fence and vegetation-height limitations are met. Where the standards set a minimum based on square footage or linear footage, they shall be interpreted as applying to each complete or partial increment of area or length”

Response: No waivers or variances to landscape standards have been requested. Thus all landscaping and screening must comply with standards of this section.

Intent and Required Materials

Subsections 4.176 (.02) C. through I.

B17. Criteria: These subsections identify the various landscaping standards, including the intent of where they should be applied, and the required materials.

Response: The minimum or higher standard has been applied throughout different landscape areas of the site and landscape materials are proposed to meet each standard in the different areas. Site Design Review is being reviewed concurrently with the Stage II Final Plan which includes a thorough analysis of the functional application of the landscaping standards. See Finding A54 under Request A.

Landscape Area and Locations

Subsection 4.176 (.03)

B18. Criteria: “Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable.”

Response: Consistent with the proposed revised Stage II Final Plan revision for the site, the landscape minimum continues to be exceeded and landscaping is in a wide variety of areas.

Buffering and Screening

Subsection 4.176 (.04)

B19. Criteria: “Additional to the standards of this subsection, the requirements of the Section 4.137.5 (Screening and Buffering Overlay Zone) shall also be applied, where applicable.

- A. All intensive or higher density developments shall be screened and buffered from less intense or lower density developments.
- B. Activity areas on commercial and industrial sites shall be buffered and screened from adjacent residential areas. Multi-family developments shall be screened and buffered from single-family areas.
- C. All exterior, roof and ground mounted, mechanical and utility equipment shall be screened from ground level off-site view from adjacent streets or properties.
- D. All outdoor storage areas shall be screened from public view, unless visible storage has been approved for the site by the Development Review Board or Planning Director acting on a development permit.
- E. In all cases other than for industrial uses in industrial zones, landscaping shall be designed to screen loading areas and docks, and truck parking.
- F. In any zone any fence over six (6) feet high measured from soil surface at the outside of fenceline shall require Development Review Board approval.”

Response: Consistent with the proposed Stage II Final Plan, adequate screening is proposed. See Finding A56 under Request A.

Shrubs and Groundcover Materials

Subsection 4.176 (.06) A.

B20. Criteria: This subsection establishes plant material and planting requirements for shrubs and ground cover.

Response: Condition of Approval PDB 5 requires that the detailed requirements of this subsection are met.

Plant Materials-Trees

Subsection 4.176 (.06) B.

B21. Criteria: This subsection establishes plant material requirements for trees.

Response: The plants material requirements for trees will be met as follows:

- Condition of Approval PDB 6 requires all trees to be B&B (Balled and Burlapped).
- The condition of approval requires all plant materials to conform in size and grade to “American Standard for Nursery Stock” current edition.”
- The applicant’s planting plan lists tree sizes meeting requirements.

Types of Plant Species

Subsection 4.176 (.06) E.

B22. Criteria: This subsection discusses use of existing landscaping or native vegetation, selection of plant materials, and prohibited plant materials.

Response: The applicant has provided sufficient information in their landscape plan (sheet L1.0) showing the proposed landscape design meets the standards of this subsection.

Tree Credit

Subsection 4.176 (.06) F.

B23. Criteria: “Existing trees that are in good health as certified by an arborist and are not disturbed during construction may count for landscaping tree credit as follows: Existing

trunk diameter	Number of Tree Credits
18 to 24 inches in diameter	3 tree credits
25 to 31 inches in diameter	4 tree credits
32 inches or greater	5 tree credits:”

Maintenance requirements listed 1. through 2.

Response: The applicant is not requesting any of preserved trees be counted as tree credits pursuant to this subsection.

Exceeding Plant Standards

Subsection 4.176 (.06) G.

B24. Criterion: “Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.”

Response: The selected landscape materials do not violate any height or vision clearance requirements.

Landscape Installation and Maintenance

Subsection 4.176 (.07)

B25. Criteria: This subsection establishes installation and maintenance standards for landscaping.

Response: The installation and maintenance standards are or will be met as follows:

- Plant materials are required to be installed to current industry standards and be properly staked to ensure survival.
- Plants that die are required to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City.
- Notes on the applicant’s sheet L2.0 provides for an irrigation system.

Landscape Plans

Subsection 4.176 (.09)

B26. Criterion: “Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated.”

Response: Applicant’s sheets L1.0 and L2.0 in Exhibit B2 provide the required information.

Completion of Landscaping
Subsection 4.176 (.10)

B27. Criterion: “The installation of plant materials may be deferred for a period of time specified by the Board or Planning Director acting on an application, in order to avoid hot summer or cold winter periods, or in response to water shortages. In these cases, a temporary permit shall be issued, following the same procedures specified in subsection (.07)(C)(3), above, regarding temporary irrigation systems. No final Certificate of Occupancy shall be granted until an adequate bond or other security is posted for the completion of the landscaping, and the City is given written authorization to enter the property and install the required landscaping, in the event that the required landscaping has not been installed. The form of such written authorization shall be submitted to the City Attorney for review.”

Response: The applicant has not requested to defer installation of plant materials.

Outdoor Lighting

Applicability
Sections 4.199.20 and 4.199.60

B28. Criteria: Section 4.199.20 states that the outdoor lighting ordinance is applicable to “Installation of new exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas” and “Major additions or modifications (as defined in this Section) to existing exterior lighting systems in public facility, commercial, industrial and multi-family housing projects with common areas.” In addition the exempt luminaires and lighting systems are listed. Section 4.199.60 identifies the threshold for major additions.

Response: A new exterior lighting system is being installed for an existing development. The Outdoor Lighting standards are thus applicable.

Outdoor Lighting Zones
Section 4.199.30

B29. Criterion: “The designated Lighting Zone as indicated on the Lighting Overlay Zone Map for a commercial, industrial, multi-family or public facility parcel or project shall determine the limitations for lighting systems and fixtures as specified in this Ordinance.”

Response: The project site is within LZ 2 and the proposed outdoor lighting systems will be reviewed under the standards of this lighting zone.

Optional Lighting Compliance Methods
Subsection 4.199.40 (.01) A.

B30. Criteria: “All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.

Response: The applicant has elected to comply with the Prescriptive Option.

Wattage and Shielding
 Subsection 4.199.40 (.01) B. 1.

B31. Criteria: “The maximum luminaire lamp wattage and shielding shall comply with Table 7.”

Table 7: Maximum Wattage And Required Shielding				
Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded
LZ 2	100	35	39	Low voltage landscape lighting 50 watts or less

Response: Condition of Approval PDD 8 will ensure that the requirements of the Outdoor Lighting Ordinance are met at the time of building permit issuance.
 Compliance with Oregon Energy Efficiency Specialty Code
 Subsection 4.199.40 (.01) B. 2.

B32. Criterion: “Except for those exemptions listed in Section 4.199.20(.02), the exterior lighting for the site shall comply with the Oregon Energy Efficiency Specialty Code, Exterior Lighting.”

Response: The applicant is complying with the Oregon Energy Efficiency Specialty Code.

Mounting Height
 Subsection 4.199.40 (.01) B. 3.

B33. Criteria: “The maximum pole or mounting height shall comply with Table 8.”

Table 8: Maximum Lighting Mounting Height In Feet			
Lighting Zone	Lighting for private drives, driveways, parking, bus stops and other transit facilities	Lighting for walkways, bikeways, plazas and other pedestrian areas	All other lighting
LZ 2	40	18	8

Response: All exterior lighting is less than 40 feet high as shown on the Lighting Plan in Exhibit B2.

Luminaire Setback
 Subsection 4.199.40 (.01) B. 4.

B34. Criteria: “Each luminaire shall be set back from all property lines at least 3 times the mounting height of the luminaire:
 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.”

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).

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.

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.

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 subject property is bordered by the same base zoning and the same lighting zone on all sides. SROZ areas exist along the western portion of the property, necessitating greater setback distances or a house side shield. Condition of Approval PDD 8 will ensure that the requirements of the Outdoor Lighting Ordinance are met at the time of building permit issuance

Lighting Curfew

Subsection 4.199.40 (.02) D.

B35. Criteria: "All prescriptive or performance based exterior lighting systems shall be controlled by automatic device(s) or system(s) that:

1. Initiate operation at dusk and either extinguish lighting one hour after close or at the curfew times according to Table 10; or
2. Reduce lighting intensity one hour after close or at the curfew time to not more than 50% of the requirements set forth in the Oregon Energy Efficiency Specialty Code unless waived by the DRB due to special circumstances; and
3. Extinguish or reduce lighting consistent with 1. and 2. above on Holidays.

The following are exceptions to curfew:

- a. Exception 1: Building Code required lighting.
- b. Exception 2: Lighting for pedestrian ramps, steps and stairs.
- c. Exception 3: Businesses that operate continuously or periodically after curfew."

In Table 10 the Lighting Curfew for LZ 2 is 10 p.m.

Response: The applicant proposes to dim or turn off outdoor lighting by 10 p.m.

Standards and Submittal Requirements

Sections 4.199.40 and 4.199.50

B36. Criteria: These sections identify the Outdoor Lighting Standards for Approval and Submittal Requirements.

Response: All required materials have been submitted.

Request C: DB15-0044 Type C Tree Removal Plan

Type C Tree Removal-General

Tree Related Site Access

Subsection 4.600.50 (.03) A.

- C1. Criterion:** “By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant’s property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed.”

Response: It is understood the City has access to the property to verify information regarding trees.

Review Authority

Subsection 4.610.00 (.03) B.

- C2. Criterion:** “Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmation, reversal or modification by the City Council, if subsequently reviewed by the Council.”

Response: The requested removal is connected to site plan review by the Development Review Board for new development. The tree removal is thus being reviewed by the DRB.

Conditions of Approval

Subsection 4.610.00 (.06) A.

- C3. Criterion:** “Conditions. Attach to the granting of the permit any reasonable conditions considered necessary by the reviewing authority including, but not limited to, the recording of any plan or agreement approved under this subchapter, to ensure that the intent of this Chapter will be fulfilled and to minimize damage to, encroachment on or interference with natural resources and processes within wooded areas;”

Response: No additional conditions are recommended pursuant to this subsection.

Completion of Operation

Subsection 4.610.00 (.06) B.

- C4. Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Fix a reasonable time to complete tree removal operations;”

Response: It is understood the tree removal will be completed prior to construction of the proposed parking lot, which is a reasonable time frame for tree removal.

Security for Permit Compliance
Subsection 4.610.00 (.06) C.

C5. **Criterion:** “Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:” “Require the Type C permit grantee to file with the City a cash or corporate surety bond or irrevocable bank letter of credit in an amount determined necessary by the City to ensure compliance with Tree Removal Permit conditions and this Chapter.

1. This requirement may be waived by the Planning Director if the tree removal must be completed before a plat is recorded, and the applicant has complied with WC 4.264(1) of this Code.”

Response: No bond is anticipated to be required to ensure compliance with the tree removal plan as a bond is required for overall landscaping.

Tree Removal Standards
Subsection 4.610.10 (.01)

C6. **Criteria:** “Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:” Listed A. through J.

Response: The standards of this subsection are met as follows:

- **Standard for the Significant Resource Overlay Zone:** The proposed tree removal is not within the Significant Resource Overlay Zone.
- **Preservation and Conservation:** The applicant has taken tree preservation into consideration, resulting in the preservation of as many trees on the site as feasible without impacting the ability to expand the parking area.
- **Development Alternatives:** No significant wooded areas or trees would be preserved by design alternatives.
- **Land Clearing:** Land clearing will not exceed the permitted areas.
- **Residential Development:** The proposed activity does not involve residential development, therefore this criteria does not apply.
- **Compliance with Statutes and Ordinances:** The necessary tree replacement and protection is planned according to the requirements of tree preservation and protection ordinance.
- **Relocation or Replacement:** The applicant proposes to plant 69 trees on site, exceeding the replacement requirements for the seven proposed for removal.
- **Limitation:** Tree removal is limited to where it is necessary for construction or to address nuisances or where the health of the trees warrants removal.
- **Additional Standards:** A tree survey has been provided, and no utilities are proposed to be located where they would cause adverse environmental consequences.

Review Process

Subsection 4.610.40 (.01)

C7. Criteria: “Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of this subchapter and all applicable review criteria of Chapter 4. Application of the standards of this section shall not result in a reduction of square footage or loss of density, but may require an applicant to modify plans to allow for buildings of greater height. If an applicant proposes to remove trees and submits a landscaping plan as part of a site development application, an application for a Tree Removal Permit shall be included. The Tree Removal Permit application will be reviewed in the Stage II development review process, and any plan changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.”

Response: The plan is being reviewed concurrently with the Stage II Final Plan.

Tree Maintenance and Protection Plan

Section 4.610.40 (.02)

C8. Criteria: “The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:” Listed A. 1. through A. 7.

Response: The applicant has submitted the necessary copies of a Tree Maintenance and Protection Plan as shown in Exhibit B1.

Replacement and Mitigation

Tree Replacement Requirement

Subsection 4.620.00 (.01)

C9. Criterion: “A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal.”

Response: Seven trees are proposed for removal; 69 trees are proposed to be planted, exceeding a one-to-one ratio.

Basis for Determining Replacement

Subsection 4.620.00 (.02)

C10. Criteria: “The permit grantee shall replace removed trees on a basis of one (1) tree replanted for each tree removed. All replacement trees must measure two inches (2”) or more in diameter.”

Response: Seven trees are proposed for removal; 69 trees are proposed to be planted,

exceeding a one-to-one ratio. Trees will meet the minimum caliper requirement or will be required to by Condition of Approval PDC 3.

Replacement Tree Requirements

Subsection 4.620.00 (.03)

C11. Criteria: “A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

A. Replacement trees shall have shade potential or other characteristics comparable to the removed trees, shall be appropriately chosen for the site from an approved tree species list supplied by the City, and shall be state Department of Agriculture Nursery Grade No. 1 or better.

B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee’s successors-in-interest for two (2) years after the planting date.

C. A “guaranteed” tree that dies or becomes diseased during that time shall be replaced.

D. Diversity of tree species shall be encouraged where trees will be replaced, and diversity of species shall also be maintained where essential to preserving a wooded area or habitat.”

Response: Condition of Approval PDC 4 ensures the relevant requirements are met.

Replacement Tree Stock Requirements

Subsection 4.620.00 (.04)

C12. Criterion: “All trees to be planted shall consist of nursery stock that meets requirements of the American Association of Nurserymen (AAN) American Standards for Nursery Stock (ANSI Z60.1) for top grade.”

Response: The planting notes on the applicant’s sheet L2.0 in Exhibit B2 indicates the appropriate quality.

Replacement Trees Locations

Subsection 4.620.00 (.05)

C13. Criterion: “The City shall review tree relocation or replacement plans in order to provide optimum enhancement, preservation and protection of wooded areas. To the extent feasible and desirable, trees shall be relocated or replaced on-site and within the same general area as trees removed.”

Response: The applicant proposes to mitigate for all removed trees on site and in the appropriate locations for the proposed development.

Protection of Preserved Trees

Tree Protection During Construction

Section 4.620.10

C14. Criteria: “Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:” Listed A. through D.

Response: Condition of Approval PDC 5 assures the applicable requirements of this Section will be met.

Engineering Conditions and Requirements for Proposed Development

From: Steve Adams, PE Development Engineering Manager
To: Kimberly Rybold, AICP
Date: September 12, 2017
Proposal: DW Fritz site Modifications

Engineering Division Conditions:

Request A: DB17-0008 Stage II Final Plan Revision

PF 1.	Public Works Plans and Public Improvements shall conform to the "Public Works Plan Submittal Requirements and Other Engineering Requirements" in Exhibit C1.
PF 2.	Site access shall be via the two existing driveways located on Boeckman Road. It should be noted that with the reclassification of Boeckman Road to a minor arterial in the 2013 Transportation System Plan these driveways no longer comply with access spacing requirements of 1,000 feet preferred and 600 feet minimum for minor arterials. However, the driveways align with existing driveways on the north side of the road and a waiver to access spacing standards is allowed.
PF 3.	No site access shall be taken to/from Kinsman Road.
PF 4.	City records indicate no Public Utility Easement exists on the property fronting Boeckman Road. The City's 2013 Transportation System Plan classifies Boeckman Road as a Minor Arterial. Per Section 101.8.14 of the Public Works Standards, applicant shall be required to dedicate a 10-ft wide Public Utility Easement along all property fronting Boeckman Road.
PF 5.	Both Boeckman Road and Kinsman Road (under construction) are or will be fully developed and in compliance with the 2013 Transportation System Plan and to Public Works Standards. No improvements to either road are required and no additional right-of-way is needed.

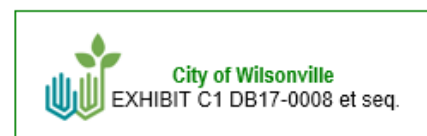


Exhibit C1
Public Works Plan Submittal Requirements
and Other Engineering Requirements

1. All construction or improvements to public works facilities shall be in conformance to the City of Wilsonville Public Works Standards - 2015.
2. Applicant shall submit insurance requirements to the City of Wilsonville in the following amounts:

Coverage (<i>Aggregate, accept where noted</i>)	Limit
<u>Commercial General Liability:</u>	
▪ General Aggregate (per project)	\$3,000,000
▪ General Aggregate (per occurrence)	\$2,000,000
▪ Fire Damage (any one fire)	\$50,000
▪ Medical Expense (any one person)	\$10,000
<u>Business Automobile Liability Insurance:</u>	
▪ Each Occurrence	\$1,000,000
▪ Aggregate	\$2,000,000
<u>Workers Compensation Insurance</u>	\$500,000

3. No construction of, or connection to, any existing or proposed public utility/improvements will be permitted until all plans are approved by Staff, all fees have been paid, all necessary permits, right-of-way and easements have been obtained and Staff is notified a minimum of 24 hours in advance.
4. All public utility/improvement plans submitted for review shall be based upon a 22" x 34" format and shall be prepared in accordance with the City of Wilsonville Public Work's Standards.
5. Plans submitted for review shall meet the following general criteria:
 - a. Utility improvements that shall be maintained by the public and are not contained within a public right-of-way shall be provided a maintenance access acceptable to the City. The public utility improvements shall be centered in a minimum 15-ft. wide public easement for single utilities and a minimum 20-ft wide public easement for two parallel utilities and shall be conveyed to the City on its dedication forms.
 - b. Design of any public utility improvements shall be approved at the time of the issuance of a Public Works Permit. Private utility improvements are subject to review and approval by the City Building Department.
 - c. In the plan set for the PW Permit, existing utilities and features, and proposed new private utilities shall be shown in a lighter, grey print. Proposed public improvements shall be shown in bolder, black print.

- d. All elevations on design plans and record drawings shall be based on NAVD 88 Datum.
 - e. All proposed on and off-site public/private utility improvements shall comply with the State of Oregon and the City of Wilsonville requirements and any other applicable codes.
 - f. Design plans shall identify locations for street lighting, gas service, power lines, telephone poles, cable television, mailboxes and any other public or private utility within the general construction area.
 - g. As per City of Wilsonville Ordinance No. 615, all new gas, telephone, cable, fiber-optic and electric improvements etc. shall be installed underground. Existing overhead utilities shall be undergrounded wherever reasonably possible.
 - h. Any final site landscaping and signing shall not impede any proposed or existing driveway or interior maneuvering sight distance.
 - i. Erosion Control Plan that conforms to City of Wilsonville Ordinance No. 482.
 - j. Existing/proposed right-of-way, easements and adjacent driveways shall be identified.
 - k. All engineering plans shall be printed to PDF, combined to a single file, stamped and digitally signed by a Professional Engineer registered in the State of Oregon.
 - l. All plans submitted for review shall be in sets of a digitally signed PDF and three printed sets.
6. Submit plans in the following general format and order for all public works construction to be maintained by the City:
- a. Cover sheet
 - b. City of Wilsonville construction note sheet
 - c. General construction note sheet
 - d. Existing conditions plan.
 - e. Erosion control and tree protection plan.
 - f. Site plan. Include property line boundaries, water quality pond boundaries, sidewalk improvements, right-of-way (existing/proposed), easements (existing/proposed), and sidewalk and road connections to adjoining properties.
 - g. Grading plan, with 1-foot contours.
 - h. Composite utility plan; identify storm, sanitary, and water lines; identify storm and sanitary manholes.
 - i. Detailed plans; show plan view and either profile view or provide i.e.'s at all utility crossings; include laterals in profile view or provide table with i.e.'s at crossings; vertical scale 1"= 5', horizontal scale 1"= 20' or 1"= 30'.
 - j. Street plans.
 - k. Storm sewer/drainage plans; number all lines, manholes, catch basins, and cleanouts for easier reference
 - l. Water and sanitary sewer plans; plan; number all lines, manholes, and cleanouts for easier reference.
 - m. Detailed plan for storm water detention facility (both plan and profile views), including water quality orifice diameter and manhole rim elevations. Provide detail of inlet structure and energy dissipation device. Provide details of drain inlets, structures, and

- piping for outfall structure. Note that although storm water detention facilities are typically privately maintained they will be inspected by engineering, and the plans must be part of the Public Works Permit set.
- n. Detailed plan for water quality facility (both plan and profile views). Note that although storm water quality facilities are typically privately maintained they will be inspected by Natural Resources, and the plans must be part of the Public Works Permit set.
 - o. Composite franchise utility plan.
 - p. City of Wilsonville detail drawings.
 - q. Illumination plan.
 - r. Striping and signage plan.
 - s. Landscape plan.
7. Design engineer shall coordinate with the City in numbering the sanitary and stormwater sewer systems to reflect the City's numbering system. Video testing and sanitary manhole testing will refer to City's numbering system.
 8. The applicant shall install, operate and maintain adequate erosion control measures in conformance with the standards adopted by the City of Wilsonville Ordinance No. 482 during the construction of any public/private utility and building improvements until such time as approved permanent vegetative materials have been installed.
 9. Applicant shall work with City Engineering before disturbing any soil on the respective site. If 5 or more acres of the site will be disturbed applicant shall obtain a 1200-C permit from the Oregon Department of Environmental Quality. If 1 to less than 5 acres of the site will be disturbed a 1200-CN permit from the City of Wilsonville is required.
 10. The applicant shall be in conformance with all stormwater and flow control requirements for the proposed development per the Public Works Standards.
 11. A storm water analysis prepared by a Professional Engineer registered in the State of Oregon shall be submitted for review and approval by the City.
 12. The applicant shall be in conformance with all water quality requirements for the proposed development per the Public Works Standards. If a mechanical water quality system is used, prior to City acceptance of the project the applicant shall provide a letter from the system manufacturer stating that the system was installed per specifications and is functioning as designed.
 13. Storm water quality facilities shall have approved landscape planted and/or some other erosion control method installed and approved by the City of Wilsonville prior to streets and/or alleys being paved.
 14. The applicant shall contact the Oregon Water Resources Department and inform them of any existing wells located on the subject site. Any existing well shall be limited to irrigation purposes only. Proper separation, in conformance with applicable State standards, shall be

maintained between irrigation systems, public water systems, and public sanitary systems. Should the project abandon any existing wells, they shall be properly abandoned in conformance with State standards.

15. All survey monuments on the subject site, or that may be subject to disturbance within the construction area, or the construction of any off-site improvements shall be adequately referenced and protected prior to commencement of any construction activity. If the survey monuments are disturbed, moved, relocated or destroyed as a result of any construction, the project shall, at its cost, retain the services of a registered professional land surveyor in the State of Oregon to restore the monument to its original condition and file the necessary surveys as required by Oregon State law. A copy of any recorded survey shall be submitted to Staff.
16. Sidewalks, crosswalks and pedestrian linkages in the public right-of-way shall be in compliance with the requirements of the U.S. Access Board.
17. No surcharging of sanitary or storm water manholes is allowed.
18. The project shall connect to an existing manhole or install a manhole at each connection point to the public storm system and sanitary sewer system.
19. A City approved energy dissipation device shall be installed at all proposed storm system outfalls. Storm outfall facilities shall be designed and constructed in conformance with the Public Works Standards.
20. The applicant shall provide a 'stamped' engineering plan and supporting information that shows the proposed street light locations meet the appropriate AASHTO lighting standards for all proposed streets and pedestrian alleyways.
21. All required pavement markings, in conformance with the Transportation Systems Plan and the Bike and Pedestrian Master Plan, shall be completed in conjunction with any conditioned street improvements.
22. Street and traffic signs shall have a hi-intensity prismatic finish meeting ASTM 4956 Spec Type 4 standards.
23. The applicant shall provide adequate sight distance at all project driveways by driveway placement or vegetation control. Specific designs to be submitted and approved by the City Engineer. Coordinate and align proposed driveways with driveways on the opposite side of the proposed project site.
24. The applicant shall provide adequate sight distance at all project street intersections, alley intersections and commercial driveways by properly designing intersection alignments, establishing set-backs, driveway placement and/or vegetation control. Coordinate and align proposed streets, alleys and commercial driveways with existing streets, alleys and

commercial driveways located on the opposite side of the proposed project site existing roadways. Specific designs shall be approved by a Professional Engineer registered in the State of Oregon. As part of project acceptance by the City the Applicant shall have the sight distance at all project intersections, alley intersections and commercial driveways verified and approved by a Professional Engineer registered in the State of Oregon, with the approval(s) submitted to the City (on City approved forms).

25. Access requirements, including sight distance, shall conform to the City's Transportation Systems Plan (TSP) or as approved by the City Engineer. Landscaping plantings shall be low enough to provide adequate sight distance at all street intersections and alley/street intersections.
26. Applicant shall design interior streets and alleys to meet specifications of Tualatin Valley Fire & Rescue and Allied Waste Management (United Disposal) for access and use of their vehicles.
27. The applicant shall provide the City with a Stormwater Maintenance and Access Easement (on City approved forms) for City inspection of those portions of the storm system to be privately maintained. Stormwater or rainwater LID facilities may be located within the public right-of-way upon approval of the City Engineer. Applicant shall maintain all LID storm water components and private conventional storm water facilities; maintenance shall transfer to the respective homeowners association when it is formed.
28. The applicant shall "loop" proposed waterlines by connecting to the existing City waterlines where applicable.
29. Applicant shall provide a minimum 6-foot Public Utility Easement on lot frontages to all public right-of-ways. An 8-foot PUE shall be provided along Collectors. A 10-ft PUE shall be provided along Minor and Major Arterials.
30. For any new public easements created with the project the Applicant shall be required to produce the specific survey exhibits establishing the easement and shall provide the City with the appropriate Easement document (on City approved forms).
31. Mylar Record Drawings:

At the completion of the installation of any required public improvements, and before a 'punch list' inspection is scheduled, the Engineer shall perform a record survey. Said survey shall be the basis for the preparation of 'record drawings' which will serve as the physical record of those changes made to the plans and/or specifications, originally approved by Staff, that occurred during construction. Using the record survey as a guide, the appropriate changes will be made to the construction plans and/or specifications and a complete revised 'set' shall be submitted. The 'set' shall consist of drawings on 3 mil. Mylar and an electronic copy in AutoCAD, current version, and a digitally signed PDF.

Natural Resource Findings, Conditions, and Requirements for Proposed Development

From: Kerry Rappold, Natural Resources Manager
To: Kimberly Rybold, Associate Planner
Date: September 12, 2017
Proposal: DB17-0008 – DW Fritz Parking Lot Expansion and Site Revisions

Natural Resources Division Conditions:

All Requests

NR 1. Natural Resource Division Requirements and Advisories listed in Exhibit C2 apply to the proposed development.
--

Exhibit C2
Natural Resources Findings & Requirements

Findings for DB17-0008 through DB17-0010

Stormwater Management Requirements

1. Pursuant to the 2015 Public Works Standards, infiltration testing shall be conducted to determine the site's suitability for the proposed stormwater management facilities. Testing shall be conducted or observed by a qualified individual working under the supervision of a Professional Engineer, Registered Geologist, or Certified Engineering Geologist licensed in the State of Oregon.
2. Provide profiles, plan views, landscape information, and specifications for the proposed stormwater facilities consistent with the requirements of the 2015 Public Works Standards.
3. Pursuant to the 2015 Public Works Standards, the applicant shall submit an updated maintenance plan (including the City's stormwater maintenance and access easement) for the proposed stormwater facilities prior to approval for occupancy of the associated development.
4. Pursuant to the 2015 Public Works Standards, access shall be provided to all areas of the proposed stormwater facilities. At a minimum, at least one access shall be provided for maintenance and inspection.

Other Requirements

5. The applicant shall comply with all applicable state and federal requirements for the proposed construction activities (e.g., DEQ NPDES #1200-CN permit).

Building Conditions, Requirements, & Advisories for Proposed Development

From: Don Walters, Plans Examiner, Building Division
To: Kimberly Rybold, AICP, Associate Planner
Proposal: DWFritz Trash Enclosure and Parking Lot Expansion Terrace
Case File: DB17-0009

Building Division Conditions:

BD 1. Accessible Parking. While what is shown on these preliminary plans appears to be in general compliance with the code. The plans do not contain sufficient information to fully review the accessible parking or the accessible drop-off zone. The additional information available at the building permit submittal may require changes to their design.



From: [BROOKING Joshua C](#)
To: [Rybold, Kim](#)
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)
Date: Tuesday, September 12, 2017 12:34:59 PM
Attachments: [image001.png](#)
[DB17-0008 et seq DW Fritz DRT Notice.pdf](#)

Hi Kim,

Based on ODOT Planning and ODOT Rail & Public Transit Division review of the application (including parking lot expansion, trash enclosure revisions, landscaping modifications), the proposal does not materially alter the site's access. With that said, however, there is potential concerns moving forward with the increased traffic through the crossing and the future development potential of the site. The comments below are intended to be advisory to the City and future development within the crossing area, particularly related to the vacant areas of this site.

Future land development, partition/subdivisions, planning actions, zone changes, design reviews, etc., need to be reviewed by ODOT RPTD Crossing Safety Unit and may require further traffic study(ies) and/or access modifications – these modifications may include turning movement restrictions. Alterations to the crossing require authorization via the ODOT crossing Order process that includes input from the road authority, the railroad(s), and ODOT RPTD. Barrier (i.e. fencing) between railroad property and that of the development is strongly recommended to assist with trespass prevention.

The Oregon Department of Transportation appreciates participating in the City's land use process and opportunity to comment. Please feel free to let me know if you have any questions.

Thank you!

Josh

Joshua Brooking
Planner
Region 1, Planning
Oregon Department of Transportation
503.731.3049
joshua.c.brooking@odot.state.or.us

From: Rybold, Kim [mailto:rybold@ci.wilsonville.or.us]
Sent: Monday, September 11, 2017 10:57 AM
To: BROOKING Joshua C
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Josh,

The fencing and gates facing Boeckman Road are demolished by necessity for the paving and landscaping work. The fencing at the east side rail ROW is to remain.

Kim Rybold, AICP
Associate Planner

503.570.1583
rybold@ci.wilsonville.or.us



Disclosure Notice: Messages to and from this e-mail address may be subject to the Oregon Public Records Law.

From: BROOKING Joshua C [<mailto:Joshua.C.BROOKING@odot.state.or.us>]
Sent: Friday, September 08, 2017 10:38 AM
To: Rybold, Kim
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

One item I missed, do you know if the site's fencing and gate are to remain? Particularly along the rail ROW and the gate at the easternmost access.

Let me know! Thanks!

Josh

Joshua Brooking
Planner
Region 1, Planning
Oregon Department of Transportation
503.731.3049
joshua.c.brooking@odot.state.or.us

From: BROOKING Joshua C
Sent: Thursday, September 07, 2017 11:34 AM
To: 'White, Shelley'; 'rybold@ci.wilsonville.or.us'
Subject: RE: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Never mind. You attached it here. Thanks!

From: White, Shelley [<mailto:swhite@ci.wilsonville.or.us>]
Sent: Tuesday, September 05, 2017 11:41 AM
To: Andrew Schafer (Andrew.Schafer@pgn.com); Stone, Andy; Gray, Arnie; Jacobson, Barbara; Ben Baldwin (DevelopmentReview@trimet.org); EBELING Robert W; Brian Harper (Brian.Harper@oregonmetro.gov); Brian Kelley (Brian.Kelley@nwnatural.com); Stevenson, Brian; Cosgrove, Bryan; Neamtzu, Chris; Cindy Crowder (crowderc@wlwv.k12.or.us); Carlson, Dan; Stark, Dan; Pauly, Daniel; Kerber, Delora; Walters, Don; Brashear, Dwight; Loomis, Eric; Frank Lonergan ; Parent, Gail; PECK Heather; James Rhodes (JRhodes@clackamas.us); Jason Arn (Jason.Arn@tvfr.com); LaBrie, Jason; Stoller, Kate; Dr. Kathy Ludwig (ludwigk@wlwv.k12.or.us); Kenneth Parris (kenneth_parris@cable.comcast.com); Rappold, Kerry; Lance Cheeley (Lance.Cheeley@nwnatural.com); Ottenad, Mark; Baker, Matt; McCarty, Mike; Ward, Mike; Kraushaar, Nancy; Duke, Pat; Watson, Randy; Region 1 DEVREV Applications; Rich Girard ; Simonton, Scott; Adams, Steve; Tiffany Ritchey (tiffany.ritchey@pgn.com); Woodley, Tim; Blankenship, Tod
Subject: Wilsonville Development Review Team Mailing (DB17-0008 et seq DW Fritz Renovation - 9600 SW Boeckman Rd)

Development Review Team,

Please find the attached Development Review Team Mailing for your review:

[DB17-0008 et seq](#) [DW Fritz Renovation: Site Modifications to 9600 SW Boeckman Road](#)

Please note that comments/conditions are due to Kimberly Rybold by 4 p.m. on September 12, 2017.

Thank you,

Shelley White

Administrative Assistant
City of Wilsonville

503.570.1575

swhite@ci.wilsonville.or.us

www.ci.wilsonville.or.us



29799 SW Town Center Loop East, Wilsonville, OR 97070

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130 Lakeside, Suite 250
 Seattle, Washington 98122
 (206)325-2553
 (206)328-0554 Fax



Date: 5/8/17
 Page 1

Project Narrative:

Job: **DWFRITZ Renovation**
 9900 SW Boeckman Road
 Wilsonville, OR 97070

Job No. 16-066

1. **Project Narrative:** This portion of the project is submitted for Site Design Review for:
 - a. Site work for additional paving for parking, service areas, and circulation to serve the DWFRITZ interior tenant improvements currently in permit review (submitted by Hacker). The site work includes civil design, landscaping, and site lighting.
 - b. The new small Lobby addition by Hacker.
 - c. The new stair, ramp, trash/recycle enclosure on the East side by Hacker.

The following is an item by item response to the Incomplete Application Notice of 3/28/17:

Parking, Access, and Circulation:

2. **Bicycle Parking:** (Note, quality bike parking is important to DWFRITZ for happy employees, and an example is their current Wilsonville building with indoor bike parking with adjacent showers.) For this facility DWFRITZ's longer range plan includes indoor bike storage near showers in the proposed Fitness Facility, a later phase to be located in the current Chapel area. Below is our temporary proposal for this permit:

Code bike parking count calculations [per Section 4.155 (.04) and Table 5 Parking Standards] are under Statistics in Sheet A1.1. Our proposal is to locate bike parking in two areas:

- **Short-term bike parking near lobby:** A permanent uncovered stylish rack (serves 2 bikes) is proposed at the new Lobby addition for occasional guests. See attached information on this bike rack on sheet A-101C.
- **Long-term bike parking for employees:** Interior bike parking is proposed as a TI (by Hacker), and current planning proposes wall-mounted bike racks in a dedicated room at the SW corner of the building. It will have an outside entrance and is adjacent to the proposed fitness area showers. Note this room allocates space for (31) - 2' x 6' stalls and code minimum would be 16 inside. The room will be secured and monitored by DWFRITZ. See attached sheet A-101C, which is preliminary but shows design intent for TI.

3. **Loading Area Information:** Code calculations for commercial and industrial use requirements for over 100,000sf buildings [per Section 4.155 (.05), A., 1.] are under Statistics in Sheet A1.1. Three is the code minimum and we propose 7, and we exceed size and clearance minimum requirements.
4. **Pedestrian Circulation:** Site details are added to further define the pedestrian circulation conditions. The new ADA ramp and stair on the East side is a TI item by Hacker, and we've added Hacker's Sheet A-420 to this set for review. Note this sheet was submitted for TI permit by Hacker recently.
5. **Identification of Existing versus New Parking Spaces:** We've added civil drawings to the submittal, and Sheet C1.0 clarifies new versus existing paving clearly.
6. **Carpool/Vanpool parking Spaces:** Code calculations for carpool/vanpool [per Section 4.155 (.06), A., 1.] are under Statistics in Sheet A1.1. Location is near the new lobby addition and priority is given to be nearest the entry door.

Stormwater:

7. **Prelim Civil drawings** are added to the submittal drawings. Note this is a progress drawing pending Public Works confirmation.

Trees and Landscaping

8. **Final landscaping** plan is included for review.
9. **Tree Maintenance & Protection Plan & Report** by arborist with protection details is added.
10. **Significant Resource Overlay Zone** boundary as identified on the survey is on our coordinated site plans.

Traffic:

11. **A Traffic Study Analysis** has been ordered by the owners from DKS Engineering.

Solid Waste/Recyclable Enclosures:

12. **Solid Waste/Recyclable Enclosures:** Code calculations for solid waste/recyclable enclosures [*per Section 4.179 (.06), B., 1.& 3.*] are under Statistics in Sheet A1.1. We propose the enclosures will be located in two areas:
 - a. A new enclosure with stair and ramp in on the east side of the building is a TI item by Hacker. We've attached Hacker's Sheet A-420 to define this area for review. Note this sheet was submitted for TI permit by Hacker recently.
 - b. A greatly enlarged existing solid waste/recyclable enclosure at the SW corner of the building. See the enlarged plan that defines the enclosure. See the landscaping plan for the additional plant material for visually screening the enclosure.

Outdoor Lighting

13. **Lighting performance:** Exterior lighting is 100% new LED fixture heads, although we reuse many existing lighting poles to mount the new fixtures. Performance is calculated on the non-residential prescriptive method of lighting conformance.
 - a. **Lighting Overlay Zones:** Our site is LZ2 per Section 4.199.30 (.02) B.
 - b. **Pole Heights** fall well under the maximum height limits on Table 8 of Section 4.199.60.
 - c. **Luminaire Setback:** We meet this requirement because the adjacent properties are the same LZ2, per Section 4.199.40 (.01) B. 4. a. Exception 1.
 - d. **Lighting Plan** includes lighting by type and location, as well as a fixture schedule and point by point lighting levels.
 - e. **Fixture Cuts** are attached for each fixture typek.
14. **Lighting performance:** See attached Com Chk document confirming we are 64% better than the code prescriptive method of lighting conformance.
15. **Lighting Curfew:** per Section 4.199.60 (Table 10); exterior lighting curfew for our LZ2 Lighting Zone in 10:00PM.

Site Design Review

16. Site Design Review

Section 4.440.(01): This defines submission requirements.

- B. Our resubmittal adds the tree maintenance and protection plan by an arborist (item #9 above).
- E. No signage plan is proposed at this time. It will be a separate permit review.

Section 4.440.(02): We acknowledge there will be a Design Review Board hearing after the Staff Report is prepared..

CITY OF WILSONVILLE

29799 SW Town Center Loop East
Wilsonville, OR 97070
Phone: 503.682.4960
Fax: 503.682.7025

Web: www.ci.wilsonville.or.us

Pre-Application meeting date:

Planning Division Development Permit Application

Final action on development application or zone change is required within 120 days in accordance with provisions of ORS 227.175

A pre application conference is normally required prior to submittal of an application. Please visit the City's website for submittal requirements

Incomplete applications will not be scheduled for public hearing until all of the required materials are submitted.

TO BE COMPLETED BY APPLICANT: Please PRINT legibly

Applicant:

Mac Martin, W-4 LLC

Address: PO Box 15523, Seattle WA 98115

Phone: 206.399.6676

Fax:

E-mail: macmartinis@gmail.com

Authorized Representative:

SAME AS APPLICANT

Address:

Phone:

Fax:

E-mail:

Property Owner:

SAME AS APPLICANT

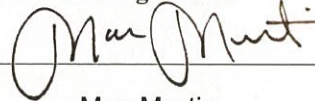
Address:

Phone:

Fax:

E-mail:

Property Owner's Signature:



Printed Name: Mac Martin

Date: 3/15/17

Applicant's Signature (if different from Property Owner):

Printed Name:

Date:

Site Location and Description:

Project Address if Available: 9600 Boeckman Road, Willsonville OR 97224 Suite/Unit

Project Location: 05008927;

Tax Map #(s): Tax Lot #(s): 00810331; 05021199 County: Washington Clackamas

Request: Site Design Review of the revised existing site plan and lobby addition, to accommodate the DWFRITZ Precision Automation renovation of the existing building. This is a phased fast-track project, and the existing building shell is currently being constructed under building permit BB16-0650. Building permits will be needed for the site work, the lobby addition, and the tenant improvements; and the work must be approved prior to occupancy.

Project Type: Class I Class II Class III

Residential

Commercial

Industrial

Other (describe below)

Application Type:

Annexation

Appeal

Comp Plan Map Amend

Conditional Use

Final Plat

Major Partition

Minor Partition

Parks Plan Review

Plan Amendment

Planned Development

Preliminary Plat

Request to Modify Conditions

Request for Special Meeting

Request for Time Extension

Signs

Site Design Review

SROZ/SRIR Review

Staff Interpretation

Stage I Master Plan

Stage II Final Plan

Type C Tree Removal Plan

Tree Removal Permit (B or C)

Temporary Use

Variance

Villebois SAP

Villebois PDP

Villebois PDP

Waiver

Zone Map Amendment

Other



DW Fritz Site Modifications – Wilsonville, Oregon
Tree Maintenance and Protection Plan
May 13, 2017
Revised: August 2, 2017

MHA17027

Purpose

This Tree Maintenance and Protection Plan for the DW Fritz Site Modifications project located in Wilsonville, Oregon, is provided pursuant to City of Wilsonville Development Code, Section 4.610.40. This arborist report describes the existing trees located on 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 May 2, 2017. This report was revised on August 2, 2017, to account for removal of tree #1 for proposed ramp construction.

Scope of Work and Limitations

Morgan Holen & Associates, LLC, was contracted by Lance Mueller & Associates to visually assess existing trees measuring six inches in diameter and larger in terms of general condition and suitability for preservation with development, and to develop a tree maintenance and protection plan for the project. The project proposes site modifications, including renovations to the existing building and parking lot, a new parking lot, and landscaping. A site plan was provided by Lance Mueller & Associates illustrating the location of existing individual trees, four stands of trees, and potential construction impacts.

Stands 1-4 were generally assessed in terms of species composition and overall condition. Visual Tree Assessment (VTA¹) was performed on existing individual trees located on and directly adjacent to the project site, except for 10 individual trees shown on the survey well beyond the proposed limits of work just west of Stand 2. Individual trees were evaluated in terms species, size, general condition, and potential construction impacts, and treatment recommendations include: retain, remove, or protect (separate classification for off-site trees). Following the inventory fieldwork, we coordinated with Lance Mueller & Associates to discuss and finalize treatment recommendations based on the proposed site plan and provide specifications for the Tree Protection Plan drawing.

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 DW Fritz Site Modifications project is located at 9900 SW Boeckman Road in Wilsonville. There are two egresses to the site along the south side of SW Boeckman Road, with driveways leading south and around the existing building to parking lots east, south and southwest of the building. The existing trees are located around the building, in the parking lot, in the right-of-way along SW Boeckman Road, and in the undeveloped portion of the site to the west. A portion of the site to the west includes Significant Resource Overlay Zone (SROZ), which encompass Stands 2 and 3.

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.

Stand 1 is located west of the building, adjacent to Grace Chapel. Trees located in this stand are primarily mature Douglas-fir (*Pseudotsuga menziesii*) with some ponderosa pine (*Pinus ponderosa*) scattered along the west and north sides of the stand. There is recent storm damage to a few trees along the west side of stand 1 and individual trees are in variable condition, but overall the stand is in good condition as an intact and undisturbed group. Tree protection fencing is recommended along the edges of the stand, including tree driplines to the north and south, along the existing driveway to the west, and at driplines or the edge of the existing sidewalk to the east.

Stand 2 is the largest stand on the site. It is located in the southwest quadrant of the site and within the boundaries of the SROZ. This stand is dominated by Oregon ash (*Fraxinus latifolia*), but includes a mix of other native species such as Douglas-fir, ponderosa pine, bigleaf maple (*Acer macrophyllum*), and Oregon white oak (*Quercus garryana*). Individual trees are in variable condition, but overall the stand is in good condition as an intact and undisturbed group. Stand 2 is unaffected by the project, but tree protection fencing is recommended along the edge of the existing driveway and parking lot to create a physical barrier to prevent access into the stand during construction.

Stand 3 is also located in the SROZ, in the northwest corner of the site, but is separate from Stand 2. Stand 3 is composed of mature Douglas-fir in poor condition. Trees in this stand are dead or in a state of progressive decline. Root rot is suspected. A tree risk assessment is recommended for this stand because Boeckman Road is a primary target for tree failure and dead and dying trees with root disease have an increased risk of failure. However, for the purposes of this project, stand 3 is unaffected and no tree protection measures are needed.

Stand 4 is located west of the existing parking lot near the southern boundary of the site. It is a small group of trees consisting primarily of Douglas-fir, with two Oregon white oaks and one madrone (*Arbutus menziesii*). Stand 4 is in generally good condition as an intact group and tree protection fencing is recommended at the edge of the existing parking lot.

The enclosed tree data provides a complete description of 74 existing individual trees measuring 6-inches and larger in diameter that are located outside of stand boundaries. The inventory includes seven different trees species, including eight willows located in the right of way along SW Boeckman Road and three Oregon white oaks located off-site along the southern boundary of the project site. Table 1 provides a summary of the number of inventoried trees by species.

Table 1. Count of Trees by Species and Location – DW Fritz, Wilsonville, OR.

Common Name	Species Name	Total	%*
black cottonwood	<i>Populus trichocarpa</i>	1	1%
Douglas-fir	<i>Pseudotsuga menziesii</i>	40	54%
Oregon white oak	<i>Quercus garryana</i>	10	14%
ponderosa pine	<i>Pinus ponderosa</i>	6	8%
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	7	9%
scarlet oak	<i>Quercus coccinea</i>	2	3%
Willow	<i>Salix</i> spp.	8	11%
Total		74	100%

Tree Plan Recommendations

Of the 74 inventoried trees, 67 are planned for retention with protection during construction, including the three trees located off-site to the south. As shown on the Tree Protection Plan drawing, protection fencing is recommended at tree driplines or the limits of existing infrastructure that will remain. Tree #30 is the only tree potentially impacted by the proposed site modifications because parking lot and pathway construction is proposed beneath the dripline area. However, the potential impacts can be minimized and adequate protection is possible so long as tree protection specifications 5 and 6 (provided on the next page) are followed and construction beneath the dripline is performed under the guidance of a Qualified Arborist.

The other seven trees are planned for removal, including:

- **#1** – A 16-inch diameter Douglas-fir in good condition planned for removal for proposed ramp construction. Adequate protection is not possible based on the proposed site plan.
- **#2** – A 13-inch diameter Douglas-fir in poor condition that is dying and not viable. This tree is located east of the building and within striking distance of the building and parking lot. Like tree #1, this tree is also impacted by the proposed ramp construction.
- **#7** – An 18-inch diameter Douglas-fir in fair condition with codominant leaders and included bark. This tree has increased risk of leader failure and the building and parking lot are primary targets. The stump of this tree should remain in the ground, be removed by stump grinding, or extracted from the ground under arborist supervision in order to prevent impacts to the likely interconnected roots of adjacent tree #6.
- **#8** – A 24-inch diameter Douglas-fir in fair condition with reduced vigor, pitch at the base of the trunk on the east and north faces, and a large *Phaeolus schweinitzii* mushroom positively identified on the east buttress root of the tree near the trunk. This tree is infected with red-brown cubical root and butt rot and has increased probability of whole tree failure with the building and parking lot being the primary targets. The stump and buttress roots of this tree should be extracted from the ground under arborist supervision.
- **#31** – A 26-inch diameter scarlet oak (*Quercus coccinea*) in fair condition with moderate crown structure. This tree will be removed for parking lot renovations. The stump of this tree should remain in the ground, be removed by stump grinding, or extracted from the ground under arborist supervision in order to prevent impacts to the likely interconnected roots of adjacent tree #30.
- **#62** – A 7-inch diameter willow (*Salix* spp.) located in the right-of-way just west of the eastern egress to the site in poor condition with substantial dieback. This tree is not viable and should be replaced with a new street tree.
- **#63** – A 10-inch diameter black cottonwood (*Populus trichocarpa*) in fair condition that appears to have sprouted from natural regeneration. This tree is growing against a small retaining wall east of the parking lot just south of the eastern egress to the site. Black cottonwood is a fast growing and short-lived tree with inherent species limitations.

As described in the enclosed tree data, individual trees were assigned a general condition rating as follows:

- D:** Dead
- P:** Poor Condition
- F:** Fair Condition
- G:** Good Condition
- E:** Excellent Condition

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

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

Treatment	General Condition Rating					Total
	D	P	F	G	E	
Protect (Off-Site Tree)	-	-	1	2	-	3 (4%)
Retain	1	4	19	39	1	64 (86%)
Remove	-	2	4	1	-	7 (9%)
Total	1 (1%)	6 (8%)	24 (32%)	42 (57%)	1 (1%)	74 (100%)

*Percent total may not sum to 100 due to rounding.

Mitigation Requirements

All 74 inventoried trees are 6-inches or larger in diameter, including three off-site trees to be protected, 64 on-site trees to be retained, and seven trees planned for removal. The seven trees planned for removal will require mitigation per Section 4.620.00; removed trees shall be replaced on a basis of one tree planted for each tree removed. Therefore, seven trees measuring at least 2-inches in diameter shall be planted as mitigation for tree removal.

Tree Protection Standards

The on-site trees planned for retention and off-site trees adjacent to the project site will need special consideration to assure their protection during construction. We recommend a preconstruction meeting with the owner, contractors, and project arborist to review tree protection measures and address questions or concerns on site. Tree protection measures include:

1. **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines or the limits of existing infrastructure that will remain. Fences shall be a minimum 5-foot high steel on concrete blocks or posts driven into the ground. The contractor is responsible for coordinating with the project arborist prior to opening or making adjustments to tree protection fencing.
2. **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.

3. **Tree Removal.** The seven trees to be removed have been identified with numbered aluminum tags and yellow plastic flagging (#1, #2, #7, #8, #31, #62 and #63). The stumps from trees #7 and #31 shall either be cut flush with the ground surface and remain in place, removed by stump grinding, or extracted from the ground under arborist supervision, in order to help minimize impacts to the likely interconnected roots of nearby protected trees. The stump and buttress roots from tree #8 shall be extracted from the ground under arborist supervision.
4. **Pruning.** Pruning may be needed at trees #3, #4, #5 and #6 to provide for building clearance, and elsewhere to provide overhead clearance and 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.
5. **Excavation.** Excavation beneath the dripline of protected trees shall be avoided if alternatives are feasible. Excavation immediately adjacent to roots larger than 2-inches in diameter beneath the dripline of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, major roots shall be protected by tunneling or other means to avoid destruction or damage. Exceptions can be made if, in the opinion of the project arborist, unacceptable damage will not occur to the tree. Where soil grade changes affect the root protection area, the grade line should be meandered wherever practicable. This will require on-site coordination to ensure a reasonable balance between engineering, construction, and the need for tree protection.
6. **Surfacing.** Where new surfacing is proposed beneath the dripline of protected trees, coordinate with the project arborist to monitor construction. Avoid excavation and use a modified profile to build up from existing grade (Figure 1). The profile includes a layer of permeable geotextile fabric on the ground surface and clean crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials.

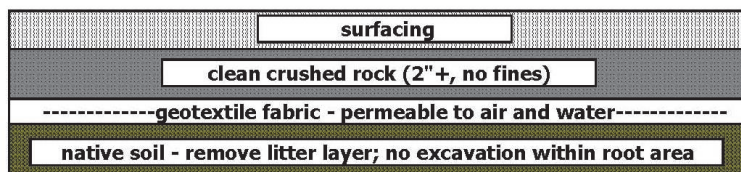


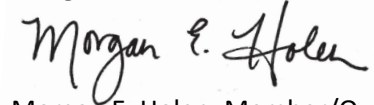
Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

7. **Landscaping.** Following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the dripline of protected trees in a minimum 5-foot radius around tree trunks; do not pile mulch directly against tree trunks. Shrubs and ground cover plants may be planted within tree protection areas. If irrigation is used, use drip irrigation or low flow emitters installed at native grade (no trenching) only beneath the driplines of protected trees. Landscaping shall be performed by hand and with hand tools only beneath protected tree driplines; adjust the location of plants to avoid tree root impacts.

- 8. Quality Assurance.** The project 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 DW Fritz Site Modifications 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/Owner
ISA Board Certified Master Arborist, PN-6145B
ISA Tree Risk Assessment Qualified
Forest Biologist

Enclosures: MHA17027 DW Fritz – Tree Data 5-2-17 Rev. 8-2-17

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
1	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	9	G	8-2-17: remove for ramp construction	remove
2	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	14	P	dying, not viable	remove
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	14	F	reduced vigor; prune for building clearance	retain
4	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	20	F	old broken top, codominant leaders, large diameter surface roots; prune for building clearance	retain
5	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	20	G	large diameter surface roots; prune for building clearance	retain
6	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	20	G	large diameter surface roots; prune for building clearance	retain
7	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	16	F	codominant leaders with included bark, increased risk potential	remove
8	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	20	F	pitch at base on east and north faces, large <i>P. schweinitzii</i> mushroom on east buttress root, increased risk potential	remove
9	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	18	G		retain
10	Oregon white oak	<i>Quercus garryana</i>	2x22	25	G	codominant leaders with included bark and seam, one-sided crown	retain
11	Douglas-fir	<i>Pseudotsuga menziesii</i>	48	25	E		retain
12	Oregon white oak	<i>Quercus garryana</i>	28	30	G		retain
13	Oregon white oak	<i>Quercus garryana</i>	10,16	20	F	one-sided crown	protect
14	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	14	10	G		retain
15	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	10	G		retain
16	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	10	G		retain
17	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	10	12	G		retain
18	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	10,12	12	G		retain
19	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	14	12	G		retain
20	Oregon white oak	<i>Quercus garryana</i>	4x18	22	G		protect
21	Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i>	12	12	G		retain

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
22	Oregon white oak	<i>Quercus garryana</i>	20	22	G		retain
23	Oregon white oak	<i>Quercus garryana</i>	22	18	G		retain
24	Oregon white oak	<i>Quercus garryana</i>	14	24	G	one-sided crown	retain
25	Oregon white oak	<i>Quercus garryana</i>	14	14	G		protect
26	Oregon white oak	<i>Quercus garryana</i>	2x16	18	G		retain
27	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	16	G	base surrounded by blackberries	retain
28	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	14	G		retain
29	ponderosa pine	<i>Pinus ponderosa</i>	16	12	G		retain
30	scarlet oak	<i>Quercus coccinea</i>	21	26	G		retain
31	scarlet oak	<i>Quercus coccinea</i>	26	32	F	moderate crown structure	remove
32	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	20	F	reduced vigor	retain
33a	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	20	F		retain
33b	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	20	F		retain
33c	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	8	P	suppressed, top dieback	retain
33d	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	20	F		retain
34	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	20	G	trunk sweep, pitch seam 0-4' north face	retain
35a	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	20	F	reduced vigor	retain
35b	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	P	suppressed	retain
35c	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	24	G		retain
36a	Douglas-fir	<i>Pseudotsuga menziesii</i>	7	6	D	dead, low risk, some habitat value	retain
36b	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	6	P	suppressed	retain
36c	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	8	F	suppressed	retain
36d	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	18	G	one-sided crown	retain
37a	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	14	F		retain
37b	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	22	F		retain
37c	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	24	G		retain
37d	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	24	G		retain
38	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	26	G	broken top, multiple new leaders, pitch seam 0-8' on northwest face	retain

No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
39	ponderosa pine	<i>Pinus ponderosa</i>	39	30	G	western gall rust	retain
40	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	26	F	overtopped by #41	retain
41	ponderosa pine	<i>Pinus ponderosa</i>	36	16	F	self-correcting lean	retain
42	ponderosa pine	<i>Pinus ponderosa</i>	16	16	F	poor crown structure	retain
43	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	18	G	lower trunk wound on north face	retain
44	Oregon white oak	<i>Quercus garryana</i>	12,26	40	F	poor structure	retain
45	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	14	F	reduced vigor	retain
46	ponderosa pine	<i>Pinus ponderosa</i>	38	26	G		retain
47	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	16	F	some branch dieback	retain
48	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	22	F		retain
49	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	22	G	few dead branches with decay	retain
50	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	20	G	dense group	retain
51	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	10	P	dense group, suppressed	retain
52	ponderosa pine	<i>Pinus ponderosa</i>	32	22	G	dense group	retain
53	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	18	F	dense group, intermediate crown class	retain
54	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	22	F	dense group, moderate structure	retain
55	willow	<i>Salix</i> spp.	8	10	G	street tree	retain
56	willow	<i>Salix</i> spp.	9	12	G	street tree, moderate structure, few dead branches in upper crown	retain
57	willow	<i>Salix</i> spp.	8	11	G	street tree, moderate structure	retain
58	willow	<i>Salix</i> spp.	8	10	G	street tree	retain
59	willow	<i>Salix</i> spp.	7	8	G	street tree	retain
60	willow	<i>Salix</i> spp.	8	9	G	street tree	retain
61	willow	<i>Salix</i> spp.	8	10	G	street tree	retain
62	willow	<i>Salix</i> spp.	7	4	P	street tree, substantial dieback, not viable	remove
63	black cottonwood	<i>Populus trichocarpa</i>	10	12	F	natural regeneration	remove

¹DBH is tree diameter measured at 4.5-feet above the ground level in inches; multiple trunks splitting below DBH are measured separately and individual trunk measurements are separated by a comma, except multiple trunks of the same size are indicated with an asterisk (quantity x size); ²C-Rad is the average crown radius measured in feet; ³Cond is an arborist assigned rating to generally describe the condition of individual trees as follows- Dead; Poor; Fair; Good; or Excellent Condition.



Date: May 5, 2017

Sea-Tac Lighting & Controls, LLC
4439 S. 134th Place Bld. E
Tukwila WA 98168
Phone: (206) 575-6865
Fax:

Job Name
DWFRITZ Renovation
SEATAC-WWA17-36040
WILSONVILLE WA

Bid Date
May 5, 2017

Submittal Date
May 5, 2017

Architect:
Lance Mueller & Assoc. - Seattle
130 Lakeside Ave.
Seattle WA 98122



Transmittal

Sea-Tac Lighting & Controls, LLC
4439 S. 134th Place Bld. E
Tukwila WA 98168
Phone: (206) 575-6865
From: Jake Pack

Project DWFRITZ Renovation
Quote# SEATAC-WWA17-36040
Location WILSONVILLE WA
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|-----------------------------------|---|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications | Other: |
| <input type="checkbox"/> Prints | <input type="checkbox"/> Information | |
| <input type="checkbox"/> Plans | <input type="checkbox"/> Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| <input type="checkbox"/> Prior Approval | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input type="checkbox"/> Approval | <input type="checkbox"/> Corrections | Bids due on: |
| <input type="checkbox"/> Approval as Submitted | <input type="checkbox"/> Your Use | Other: |
| <input type="checkbox"/> Approval as Noted | <input type="checkbox"/> Review and Comment | |

Type	MFG	Part
P0	Tech Lighting	700OCTUR12SCIUNV830C
P1	Visionaire Lighting, LLC	VMX-1-T3-32LC-5-4K-UNV
P2	Visionaire Lighting, LLC	VMX-1-T4-96LC-7-4K-UNV
P3	Visionaire Lighting, LLC	VMX-1-T3-64LC-7-4K-UNV
P4	Visionaire Lighting, LLC	VMX-1-T4-96LC-7-4K-UNV
P5	Visionaire Lighting, LLC	VMX-1-T5W-64LC-7-4K-UNV
W1	Visionaire Lighting, LLC	VMX-1-T4-64LC-7-4K-UNV
W2	Industrial Lighting Products	WPCM-60WLED-UNIV-4000K 60W LED Forward Throw Full cutoff Medium Wall Pack 4000K, 120-277V, bronze finish, DLC listed
W3	Tech Lighting	700WTUR18SCC8401201
L1	Design Plan	RE11005DB

**Job Name:**DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)**Catalog Number:**

700OCTUR12SCIUNV830C

Type:**P0****Notes:**

SEATAC-WWA17-36040

TURBO LIGHT COLUMN



The distinctively modern Turbo cylindrical light column is a powerful outdoor LED solution for general illumination and area lighting. The Turbo light column has symmetric optics with beam spread options 20° or 40° as well as two different lumen output options.

High quality LM80-tested LEDs

for consistent long-life performance and color

Universal 120-277V driver with integral transient surge protection**Outstanding protection against the elements:**

- Marine-grade powder coat finishes
- Stainless Steel mounting hardware
- Impact-resistant, UV stabilized frosted acrylic lensing

Beam spread options, 20 degree and 40 degree

SPECIFICATIONS

DELIVERED LUMENS	2100 or 4517
WATTS	28 or 60
VOLTAGE	Universal 120-277V, with integral transient 2.5kV surge protection (driver)
SECONDARY SURGE PROTECTOR	10kA
DIMMING	0-10
LIGHT DISTRIBUTION	Symmetric
OPTICS	20° or 40°
MOUNTING OPTIONS	Bolt
PERFORMANCE OPTIONS	Photocontrol / In-line Fuse
CCT	3000K or 4000K
CRI	80
COLOR BINING	3 Step
BUG RATING	B1-U2-G0
DARK SKY	Compliant
WET LISTED	IP65
GENERAL LISTING	ETL, Title 24
START TEMP	-30°C
FIELD SERVICEABLE LED	Yes
CONSTRUCTION	Aluminum
HARDWARE	Stainless Steel
FINISH	Marine Grade Powder Coat
LED LIFETIME	L70; 70,000 Hours
WARRANTY*	5 Years

* Visit techlighting.com for specific warranty limitations and details.TURBO COLUMN
shown in bronzeTURBO COLUMN
shown in charcoal

ORDERING INFORMATION

700OCTUR	CRI/CCT	LENGTH	BEAM SPREAD	FINISH	VOLTAGE	OUTPUT	DISTRIBUTION	OPTIONS
830	80 CRI, 3000K	12' 12"	20° 20° NARROW	Z BRONZE	UNV 120V-277V	1 55W / 3800 LUMENS	S SYMMETRIC	NONE
840	80 CRI, 4000K		40° 40° WIDE	H CHARCOAL		2 25W / 1800 LUMENS		PC BUTTON PHOTOCONTROL LF IN-LINE FUSE PCLF BUTTON PHOTOCONTROL & IN-LINE FUSE



Job Name:
 DWFRITZ Renovation
 Architect: Lance Mueller & Assoc. - Seattle
 (Seattle)

Catalog Number:
 700OCTUR12SCIUNV830C

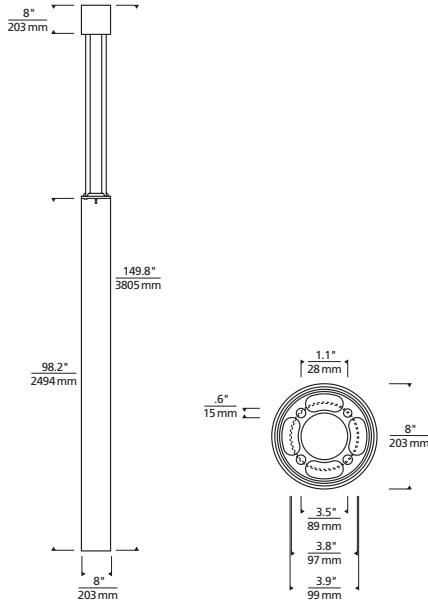
Notes:

Type:

P0

SEATAC-WWA17-36040

TURBO LIGHT COLUMN



Turbo Column

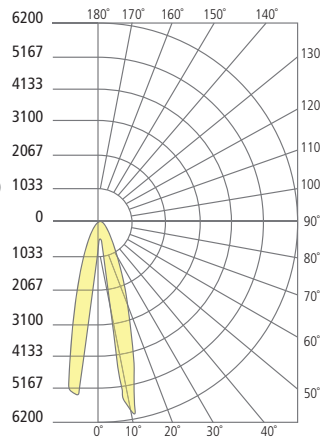
Anchor Plate Bolt Pattern

PHOTOMETRICS*

*For latest photometrics, please visit www.techlighting.com/OUTDOOR

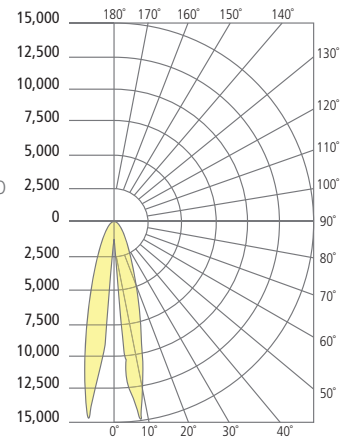
TURBO COLUMN 20° LOW OUTPUT

Total Lumen Output: 2100
 Total Power: 28
 Luminaire Efficacy: 75
 Color Temp: 4000K
 CRI: 80+
 BUG Rating: B1-U2-GO



TURBO COLUMN 40° HIGH OUTPUT

Total Lumen Output: 4517
 Total Power: 60.4
 Luminaire Efficacy: 75
 Color Temp: 4000K
 CRI: 80+
 BUG Rating: B1-U2-GO



PROJECT INFO

FIXTURE TYPE & QUANTITY

JOB NAME & INFO

NOTES



GENERATION BRANDS
 7400 Linder Avenue, Skokie, Illinois 60077
 T 847.410.4400 F 847.410.4500



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Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T3-32LC-5-4K-UNV

Notes:

Type:
P1
SEATAC-WWA17-36040

VMX LED

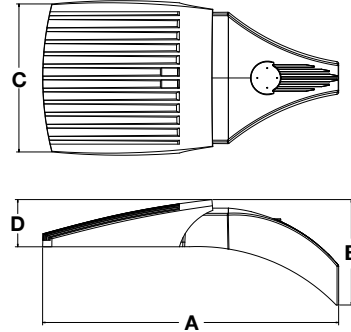
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

AREA

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I (T1)	# of LEDs 32 (32LC)	350 (3)	3000K *Warm white (3K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	Photocell & Receptacle <small>*Specify voltage</small> (PCR120) (PCR208) (PCR240) (PCR277)
	Type II (T2)	64 (64LC)	530 (5)	4000K *Neutral white (4K)	480* (5)	Wall Mount <small>*Cast Wall Plate (BAWP) to be ordered separately</small> (WM)	Black (BK)	Photo Receptacle (PER) <small>*With shorting cap</small>
	Type III (T3)	96 (96LC)	700 (7)	5000K *Cool white (5K)	347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	Round Pole Plate Adaptor For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5)
	Type IV (T4)	<small>*Not available in 1000mA</small>	1000 (10)	<small>*Not available in 96LC</small>	<small>*347V & 480V no available in 32LC 350mA</small>	VMX DRILL DIAGRAM	White (WH)	Cast Wall Plate (BAWP)
	Type IV-A (T4A)						0-10v Dimming Driver No Controls (DIM)	
	Type V (T5)					<small>*UPMA to be ordered separately</small>	Smooth White (SWH)	Motion Sensor <small>*Works with FSP-211</small> (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height
	Type V-W (T5W)						Graphite (GP)	<small>This option will require (1) FSIR 100 remote for programming</small>
							Grey (GY)	Wireless Control Consult Factory (WC)
							Silver Metallic (SL)	Universal Pole Mount Adaptor (UPMA)
							Custom Color (CC)	Cutoff Louver Shield (CLS)

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting, LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.





Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T3-32LC-5-4K-UNV

Type:
P1
SEATAC-WWA17-36040

Notes:

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is cUL Listed
- IP65 Rated
- Powder Coated Tough
- DLC Listed



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts				
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.

*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22



Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-96LC-7-4K-UNV

Notes:

Type:
P2

SEATAC-WWA17-36040

VMX LED

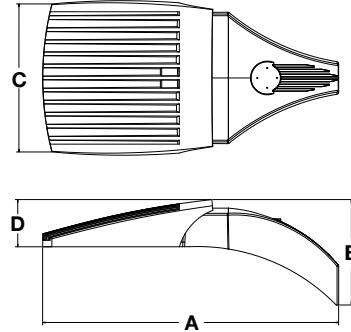
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

AREA

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I (T1) 	# of LEDs 32 (32LC)	mA 350 (3)	3000K *Warm white (3K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	Photocell & Receptacle <small>*Specify voltage</small> (PCR120) (PCR208) (PCR240) (PCR277)
	Type II (T2) 	64 (64LC)	530 (5)	4000K *Neutral white (4K)	480* (5)	Wall Mount <small>*Cast Wall Plate (BAWP) to be ordered separately</small> (WM)	Black (BK)	Photo Receptacle (PER) <small>*With shoring cap</small>
	Type III (T3) 	96 (96LC)	700 (7)	5000K *Cool white (5K)	347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	Round Pole Plate Adaptor For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5)
	Type IV (T4) 	<small>*Not available in 1000mA</small>	*1000 (10)	<small>*Not available in 96LC</small>	<small>*347V & 480V no available in 32LC 350mA</small>	VMX DRILL DIAGRAM 	White (WH)	Cast Wall Plate (BAWP)
	Type IV-A (T4A) 					<small>*UPMA to be ordered separately</small> 	Smooth White (SWH)	0-10v Dimming Driver No Controls (DIM)
Type V (T5) 						Graphite (GP)	Motion Sensor <small>*Works with FSP-211</small> (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height	
Type V-W (T5W) 						Grey (GY)	<small>This option will require (1) FSIR 100 remote for programming</small>	
						Silver Metallic (SL)	Wireless Control Consult Factory (WC)	
						Custom Color (CC)	Universal Pole Mount Adaptor (UPMA)	
							Cutoff Louver Shield (CLS)	

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting, LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.





Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-96LC-7-4K-UNV

Notes:

Type:
P2

SEATAC-WWA17-36040

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is cUL Listed
- IP65 Rated
- Powder Coated Tough
- DLC Listed



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts				
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	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

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*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22



Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T3-64LC-7-4K-UNV

Notes:

Type:
P3

SEATAC-WWA17-36040

VMX LED

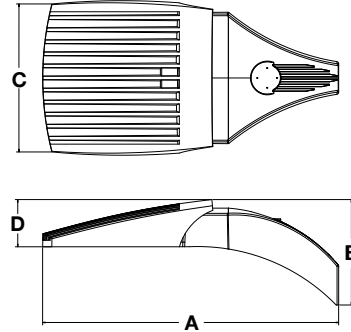
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
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AREA

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The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I (T1) 	# of LEDs 32 (32LC)	mA 350 (3)	3000K *Warm white (3K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	Photocell & Receptacle <small>*Specify voltage</small> (PCR120) (PCR208) (PCR240) (PCR277)
	Type II (T2) 	64 (64LC)	530 (5)	4000K *Neutral white (4K)	480* (5)	Wall Mount <small>*Cast Wall Plate (BAWP) to be ordered separately</small> (WM)	Black (BK)	Photo Receptacle (PER) <small>*With shoring cap</small>
	Type III (T3) 	96 (96LC)	700 (7)	5000K *Cool white (5K)	347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	Round Pole Plate Adaptor For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5)
	Type IV (T4) 	<small>*Not available in 1000mA</small>	<small>*1000 (10)</small>	<small>*347V & 480V no available in 32LC 350mA</small>		VMX DRILL DIAGRAM 	White (WH)	Cast Wall Plate (BAWP)
	Type IV-A (T4A) 		<small>*Not available in 96LC</small>				Smooth White (SWH)	0-10v Dimming Driver No Controls (DIM)
	Type V (T5) 					<small>*UPMA to be ordered separately</small> 	Graphite (GP)	Motion Sensor <small>*Works with FSP-211</small> (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height
	Type V-W (T5W) 						Grey (GY)	<small>This option will require (1) FSIR 100 remote for programming</small>
							Silver Metallic (SL)	Wireless Control Consult Factory (WC)
							Custom Color (CC)	Universal Pole Mount Adaptor (UPMA)
								Cutoff Louver Shield (CLS)

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting, LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.





Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T3-64LC-7-4K-UNV

Notes:

Type:
P3

SEATAC-WWA17-36040

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is cUL Listed
- IP65 Rated
- Powder Coated Tough
- DLC Listed



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts				
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.

*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22



Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-96LC-7-4K-UNV

Notes:

Type:
P4

SEATAC-WWA17-36040

VMX LED

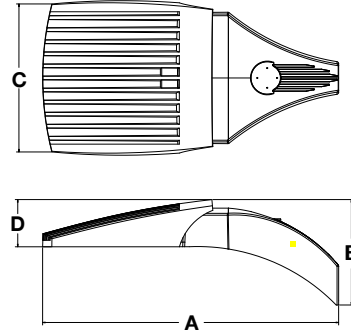
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

AREA

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I (T1) 	# of LEDs 32 (32LC)	mA 350 (3)	3000K *Warm white (3K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	Photocell & Receptacle <small>*Specify voltage</small> (PCR120) (PCR208) (PCR240) (PCR277)
	Type II (T2) 	64 (64LC)	530 (5)	4000K *Neutral white (4K)	480* (5)	Wall Mount <small>*Cast Wall Plate (BAWP) to be ordered separately</small> (WM)	Black (BK)	Photo Receptacle (PER) <small>*With shorting cap</small>
	Type III (T3) 	96 (96LC)	700 (7)	5000K *Cool white (5K)	347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	Round Pole Plate Adaptor For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5)
	Type IV (T4) 	<small>*Not available in 1000mA</small>	*1000 (10)	<small>*Not available in 96LC</small>	<small>*347V & 480V no available in 32LC 350mA</small>	VMX DRILL DIAGRAM 	White (WH)	Cast Wall Plate (BAWP)
	Type IV-A (T4A) 					<small>*UPMA to be ordered separately</small> 	Smooth White (SWH)	0-10v Dimming Driver No Controls (DIM)
Type V (T5) 						Graphite (GP)	Motion Sensor <small>*Works with FSP-211</small> (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height	
Type V-W (T5W) 						Grey (GY)	<small>This option will require (1) FSIR 100 remote for programming</small>	
						Silver Metallic (SL)	Wireless Control Consult Factory (WC)	
						Custom Color (CC)	Universal Pole Mount Adaptor (UPMA)	
							Cutoff Louver Shield (CLS)	

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Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-96LC-7-4K-UNV

Notes:

Type:
P4

SEATAC-WWA17-36040

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is cUL Listed
- IP65 Rated
- Powder Coated Tough
- DLC Listed



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts				
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.

*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22



Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T5W-64LC-7-4K-UNV

Notes:

Type:
P5

SEATAC-WWA17-36040

VMX LED

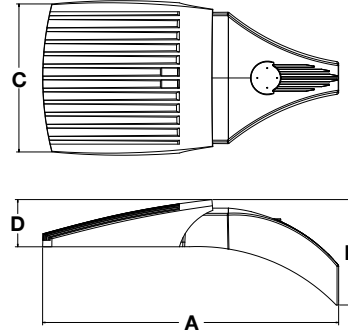
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

AREA

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type I (T1) 	# of LEDs 32 (32LC)	mA 350 (3)	3000K *Warm white (3K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	Photocell & Receptacle <small>*Specify voltage</small> (PCR120) (PCR208) (PCR240) (PCR277)
	Type II (T2) 	64 (64LC)	530 (5)	4000K *Neutral white (4K)	480* (5)	Wall Mount <small>*Cast Wall Plate (BAWP) to be ordered separately</small> (WM)	Black (BK)	Photo Receptacle (PER) <small>*With shorting cap</small>
	Type III (T3) 	96 (96LC)	700 (7)	5000K *Cool white (5K)	347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	Round Pole Plate Adaptor For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5)
	Type IV (T4) 	<small>*Not available in 1000mA</small>	*1000 (10)	<small>*Not available in 96LC</small>	<small>*347V & 480V no available in 32LC 350mA</small>	VMX DRILL DIAGRAM 	White (WH)	Cast Wall Plate (BAWP)
	Type IV-A (T4A) 					<small>*UPMA to be ordered separately</small> 	Smooth White (SWH)	0-10v Dimming Driver No Controls (DIM)
Type V (T5) 						Graphite (GP)	Motion Sensor <small>*Works with FSP-211</small> (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height	
Type V-W (T5W) 						Grey (GY)	<small>This option will require (1) FSIR 100 remote for programming</small>	
						Silver Metallic (SL)	Wireless Control Consult Factory (WC)	
						Custom Color (CC)	Universal Pole Mount Adaptor (UPMA)	
							Cutoff Louver Shield (CLS)	

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Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T5W-64LC-7-4K-UNV

Notes:

Type:
P5

SEATAC-WWA17-36040

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 3000K, 70 for 4000K and 70 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is cUL Listed
- IP65 Rated
- Powder Coated Tough
- DLC Listed



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts				
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.

*For 4000K multiply values by 0.95 *For 3000K multiply values by 0.90

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22



Job Name:
DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-64LC-7-4K-UNV

Type:
W1

Notes:

SEATAC-WWA17-36040

VMX LED

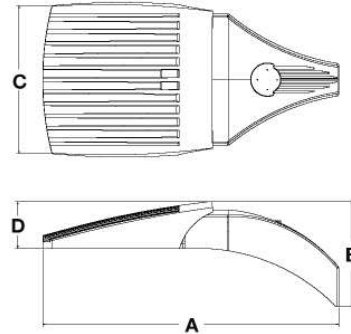
Project Name:

Catalog Number:

Type



Dimensional Drawings



Fixture	A	B	C	D	Max. Watts	Lbs
VMX-1	29"	10.75"	15.5"	4"	214	49

AREA

The new VMX LED Series offers clean, functional styling that is defined by its sleek low profile design and rugged construction. It combines LED performance and advanced LED thermal management technology and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED light assemblies come with 32 to 96 LEDs. Seven optical distribution patterns are available. Choose between 4000 or 5000 Kelvin temperature of the LEDs.

The LED's performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy tool-less access for mounting and maintenance.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VMX LED series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

Model	Optics	Source	Current	Kelvin	Voltage	Mounting	Finish	Options
VMX-1	Type II (T2)	# of LEDs 32 (32LC)	350 (3)	4000K *Neutral white (4K)	120-277 *Universal voltage (UNV)	Arm Mount (AM)	Bronze (BZ)	<u>Photocell & Receptacle</u> *Specify voltage (PCR120) (PCR208) (PCR240) (PCR277) Photo Receptacle (PER) **With shunting cap <u>Round Pole Plate Adaptor</u> For 3" Pole (RPP3) For 4" Pole (RPP4) For 5" Pole (RPP5) Cast Wall Plate (BAWP) 0-10v Dimming Driver No Controls (DIM) Motion Sensor *Works with FSP-211 (WSC-8) 8" Mounting Height (WSC-20) 9-20" Mounting Height (WSC-40) 21-40" Mounting Height Wireless Control Consult Factory (WC) Universal Pole Mount Adaptor (UPMA) Cutoff Louver Shield (LS)
	Type III (T3)	64 (64LC)	530 (5)	5000K *Cool white (5K)	480* (5)	Wall Mount *Cast Wall Plate (BAWP) to be ordered separately (WM)	Black (BK)	
	Type IV (T4)	96 (96LC)	700 (7)		347* (8)	Round Pole Plate Adaptors (RPP) are to be ordered separately.	Smooth Black (SBK)	
	Type IV-A (T4A)		*Not available in 1000mA			VMX DRILL DIAGRAM	White (WH)	
	Type V (T5)		*1000 (10)				Smooth White (SWH)	
	Type V-W (T5W)		*Not available in 96LC			*UPMA to be ordered separately	Graphite (GP)	
							Grey (GY)	
						Silver Metallic (SL)		
						Custom Color (CC)		

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting, LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.





Job Name:
DWFRTIZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
VMX-1-T4-64LC-7-4K-UNV

Notes:

Type:
W1

SEATAC-WWA17-36040

VMX LED

Heatsink

• Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting Arm/Driver Compartment

• Durable two-piece die cast aluminum driver compartment utilizes a tool-less push button latch for ease of maintenance and sealed with a one-piece silicone gasket.

Thermal Management

• The VMX series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
• The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The VMX series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System

• The highest lumen output, Evo/C LEDs are utilized in the VMX series. IES distribution Types I, II, III, IV, IV-A, V and V-W are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
• CRI values are 70 for 4000K and 75 for 5000K.

Quali-Guard® Finish

• The finish is a Quali-Guard® textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400° F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
• Finish is guaranteed for five (5) years.

Electrical Assembly

• The VMX LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -40°C operations.

- 10 kV surge protector supplied as standard.
- Terminal block supplied as standard.

Warranty

• Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options

- Photocell & receptacle
- Photo receptacle
- Round pole plate adapter
- Cast Wall Plate
- 0-10v Dimming Driver
- Motion Sensor
- Wireless Control
- Universal Pole Mount Adaptor
- Cut-Off Louver Shield

Listings

- The VMX Series is UL Listed
- DLC Listed
- IP65 Rated
- Powder Coated Tough



DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. <http://www.designlights.org/>

VMX LUMEN DATA

Updated Lumen Chart 08.27.15

# LEDs	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
32	350	5134	2	0	2	4557	1	0	2	4777	1	0	1	4612	1	0	1	5141	1	0	1	4950	2	0	1	4837	3	0	1	36
	530	7230	3	0	3	6417	2	0	2	6728	1	0	2	6496	1	0	2	7240	1	0	1	6972	3	0	1	6812	3	0	1	55
	700	9150	3	0	3	8122	2	0	2	8515	1	0	2	8221	2	0	2	9163	2	0	1	8824	3	0	1	8621	3	0	2	74
	1000	12774	3	0	3	11338	2	0	3	11887	2	0	2	11477	2	0	2	12792	2	0	2	12318	3	0	2	12035	4	0	2	115
64	350	9325	3	0	3	8277	2	0	2	8677	1	0	2	8378	2	0	2	9338	2	0	1	8992	3	0	1	8785	3	0	2	71
	530	13197	3	0	3	11714	2	0	3	12281	2	0	2	11857	2	0	2	13216	2	0	2	12726	3	0	2	12434	4	0	2	109
	700	16756	4	0	4	14873	3	0	3	15592	2	0	3	15054	3	0	3	16780	2	0	2	16158	4	0	2	15786	4	0	2	145
96	350	13649	3	0	3	12115	3	0	3	12701	2	0	2	12262	2	0	2	13668	2	0	2	13162	3	0	2	12859	4	0	2	102
	530	19578	4	0	4	17377	3	0	3	18218	2	0	3	17589	3	0	3	19606	3	0	2	18879	4	0	2	18445	4	0	2	163
	700	23343	4	0	4	20719	3	0	4	21722	3	0	3	20972	3	0	3	23376	3	0	3	22510	4	0	2	21992	5	0	3	214

Visit www.visionairelighting.com for up-to-the-minute chart information, including types not listed here.
*For 4000K multiply values by 0.95

EPA Data



0.75



1.47



1.5



2.22



2.1



2.22

**Job Name:**DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)**Catalog Number:**

WPCM-60WLED-UNIV-4000K

Notes:

Type:**W2**

SEATAC-WWA17-36040

Project Name:	
Catalog Number:	Fixture Type:
Volts / Watts:	Lamps / Board:

**FULL CUTOFF FORWARD THROW - 60W LED**

WALL PACK

FEATURES

- Die Cast Aluminum Housing
- Hinged Full Cutoff Front Frame
- ½" Coin Plugs with O-rings for Conduit & Photocell
- Textured Architectural Bronze Powdercoat Finish Over a Chromate Conversion Coating
- Forward Throw Optic Lens
- Cast-in Template for Mounting Directly Over a 4" Recessed Outlet Box
- 60W, 5000K (Std)
- ETL Listed for Wet Locations
- Meets Dark Sky Requirements
- Custom Colors Available Upon Request
- DesignLights Consortium® Qualified ⁽²⁾

REPLACES 175W MH**LED SYSTEM**

Board (CREE Chips)	4 x 6
Calculated L ₇₀ (TM-21)	134,000 hours ⁽¹⁾
Delivered Lumens	5,248 lm
Total Input Watts	66.7 W
Luminaire Efficacy Rating (LER)	78.7 lm/W
Correlated Color Temperature (CCT)	5000 K
Color Rendering Index (CRI)	69.1
Max Ambient Temp	127°F
Universal Driver	120-277 V

LED System data above based on WPCM-60WLED-UNIV-5000K

⁽¹⁾ LED Lumen Maintenance Estimates based on TM-21 projections for the light source at 25°C ambient⁽²⁾ Specific Configurations Listed on DLC.**SUITABLE APPLICATIONS**

- Parking lots
- Buildings
- General area lighting

**ORDERING GUIDE**

Series	LED	Driver	Color	Options
<input type="checkbox"/> WPCM Full Cutoff Wall Pack	<input type="checkbox"/> 60WLED 4x6 Board	<input type="checkbox"/> UNIV 120-277 Driver	<input type="checkbox"/> 4000K <input type="checkbox"/> 5000K*	<input type="checkbox"/> WPC25LG Clear PC Vandal Resistant Guard <input type="checkbox"/> WPC25WG Wire Guard, SS Construction <input type="checkbox"/> CORDx Cord (X = ft) <input type="checkbox"/> DIM 0-10V Dimmable Driver <input type="checkbox"/> USDC User Selectable Dimming Control <input type="checkbox"/> PCxxx Photocell (xxx = Voltage)

*DLC Listed Configuration

**Job Name:**

DWFRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

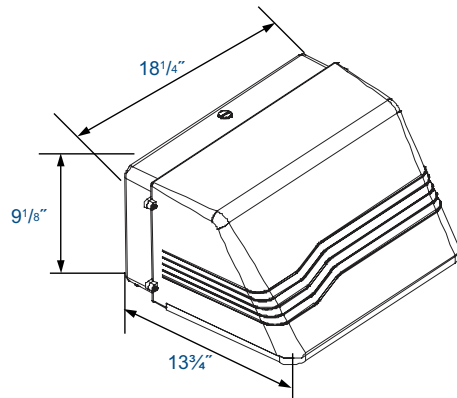
Catalog Number:

WPCM-60WLED-UNIV-4000K

Type:**W2**

Notes:

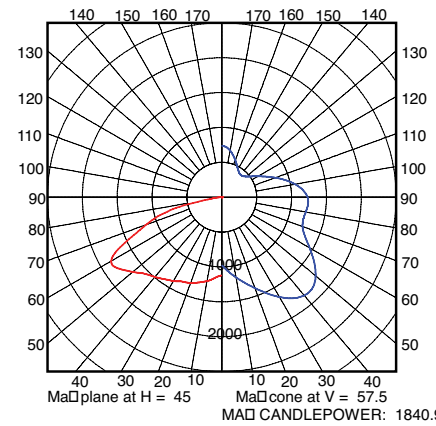
SEATAC-WWA17-36040

FULL CUTOFF - 60W LED**FORWARD THROW WALL PACK****WPCM-60WLED-UNIV**

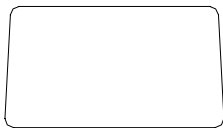
LUMINAIRE OUTPUT = 5064 LMS
120.04 VAC, 554.94 mA, 66.421 W, 0.9971 PF

SUMMARY DATA

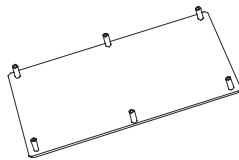
HEMISPHERES TESTED:	BOTH
EFFICIENCY (Total):	100.0 %
EFFICIENCY (Down / Up):	100.0 % / 0.0 %
EFFICIENCY (Street / House):	65.9 % / 34.1 %
ROADWAY CLASSIFICATION:	TYPE IV, SHORT
CUTOFF CLASSIFICATION:	FULL CUTOFF
LUMENS/LAMP:	5066.907
NO. OF LAMPS:	1
LUMINOUS OPENING: RECTANGULAR	
Width:	0.46 (Feet)
Length:	0.58
Height:	0.00
INPUT WATTS:	66.4

PLANE AND CONE DIAGRAM

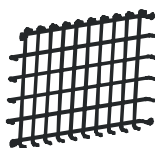
Photometric values based upon tests performed in compliance with LM-79. IES files can be downloaded at www.ilp-inc.com

ACCESSORIES

WPC25GLC



WPC25LG



WPC25WG

**Job Name:**DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)**Catalog Number:**

700WTUR18SCC8401201

Notes:

Type:**W3**

SEATAC-WWA17-36040

TURBO WALL SCNCE



Offering an inviting and open cylindrical silhouette with decorative fins evenly spaced around the circumference, the Turbo LED wall sconce adds a modern aesthetic to any façade. Mounting options enable the fixture to be mounted in three different height positions relative to the back plate position to meet a variety of installation needs and aesthetic preferences.

High quality LM80-tested LEDs

for consistent long-life performance and color

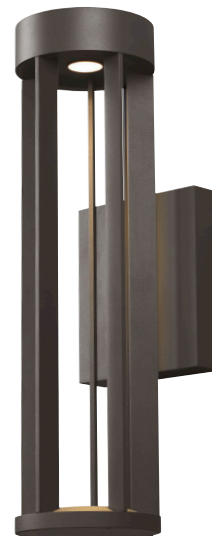
Outstanding protection against the elements:

- Marine-grade powder coat finishes
- Stainless Steel mounting hardware
- Impact-resistant, UV stabilized frosted acrylic lensing

Three-position mounting option allows variable height adjustment to back plate

SPECIFICATIONS

DELIVERED LUMENS	598
WATTS	15.7
VOLTAGE	Universal 120-277V, with integral transient 2.5kV surge protection (driver)
DIMMING	0-10, ELV
LIGHT DISTRIBUTION	Symmetric
OPTICS	40°
MOUNTING OPTIONS	3-Position Variable Height
PERFORMANCE OPTIONS	Photocontrol / In-Line Fuse / Surge Protector
CCT	3000K or 4000K
CRI	80+
COLOR BINNING	3 Step
BUG RATING	B1-U2-G0
DARK SKY	Compliant
WET LISTED	IP65
GENERAL LISTING	ETL, Title 24
START TEMP	-30°C
FIELD SERVICEABLE LED	Yes
CONSTRUCTION	Aluminum
HARDWARE	Stainless Steel
FINISH	Marine Grade Powder Coat
LED LIFETIME	L70; 70,000 Hours
WARRANTY*	5 Years

* Visit techlighting.com for specific warranty limitations and details.TURBO WALL
shown in bronzeTURBO WALL
shown in charcoal

ORDERING INFORMATION

700OWTUR	CRI/CCT	LENGTH	LENS	FINISH	VOLTAGE	DISTRIBUTION	OPTIONS
830	80 CRI, 3000K	18 18"	C CLEAR FLAT	Z BRONZE	UNV 120V-277V	S SYMMETRIC	NONE
840	80 CRI, 4000K			H CHARCOAL			PC BUTTON PHOTOCONTROL
							LF IN-LINE FUSE
							SP SURGE PROTECTION
							PCLF BUTTON PHOTOCONTROL & IN-LINE FUSE
							PCSP BUTTON PHOTOCONTROL & SURGE PROTECTION
							LFSP IN-LINE FUSE & SURGE PROTECTION
							PCLFSP BUTTON PHOTOCONTROL, IN-LINE FUSE & SURGE PROTECTION

Submitted by Sea-Tac Lighting & Controls, LLC



Job Name:
DWFTRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:
700WTUR18SCC8401201

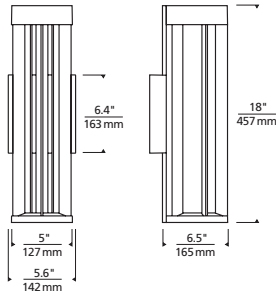
Notes:

Type:

W3

SEATAC-WWA17-36040

TURBO WALL SCNCE



Turbo Sconce



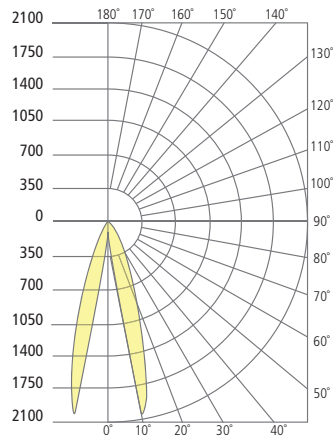
Integrated height adjustment system allows you to customize your fixture position. Low, Mid or High.

PHOTOMETRICS*

*For latest photometrics, please visit www.techlighting.com/OUTDOOR

TURBO WALL

Total Lumen Output: 598
 Total Power: 15.7
 Luminaire Efficacy: 37.8
 Color Temp: 3000K
 CRI: 80+
 BUG Rating: B1-U2-G0



PROJECT INFO

FIXTURE TYPE & QUANTITY

JOB NAME & INFO

NOTES



GENERATION BRANDS
 7400 Linder Avenue, Skokie, Illinois 60077
 T 847.410.4400 F 847.410.4500



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**Job Name:**

DWFRITZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)

Catalog Number:

RE11005DB

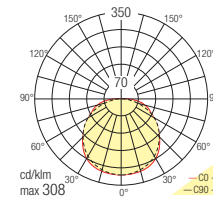
Notes:

Type:**L1**

SEATAC-WWA17-36040

RIO 1.1-1.4

Application	Continuous line for architectural lighting
Installation	purpose linear driveover (11,000 lbs), profile for indoor and outdoor application
Mounting	recessed (wall, floor)
Material	PMMA, stainless steel
N° and type of LED	power LED SMD
Nom. power consumption	3.5W/ft
Power supply	24Vdc
Power supply unit	Order separately
Power supply cables	included a neoprene cable of 4.92'
Total Delivered Lumens	168 lm/3.28' (2800K) diffused
Optics	white: 2600K, 2800K, 3700K
LED color	IP67
Ingress protection	IK10
Impact resistance	
Features	dimmable, NTC temperature control, tropicalized PCB, driveover (11,000 lbs), no dark zone between lighting fixtures

**D - Diffused (Rio 1.1)**

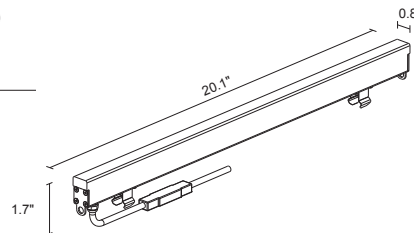
Fc max (3000K)

H (ft)	Ø (ft)	19
1.64	5.51	5
3.28	11.1	1
6.56	22.1	.7
8.20	27.6	6
9.84	33.2	

6W (8.5W RGB) - 24Vdc - 20.1" (510 mm)

RE1100 ■ D B

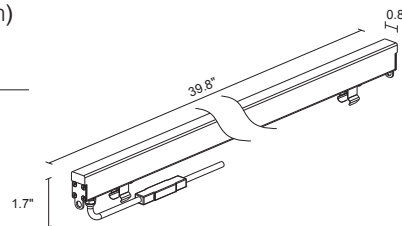
■ LED color

9 - 3700K**5** - 2800K**F** - 2600K**6** - RGB

12W (17W RGB) - 24Vdc - 39.8" (1010 mm)

RE1200 ■ D B

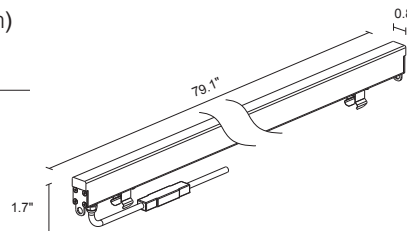
■ LED color

9 - 3700K**5** - 2800K**F** - 2600K**6** - RGB

24W (34W RGB) - 24Vdc - 79.1" (2010 mm)

RE1400 ■ D B

■ LED color

9 - 3700K**5** - 2800K**F** - 2600K**6** - RGB

Rated IP67

designplan

sales@designplan.com
www.designplan.com

**Job Name:**DWFRTZ Renovation
Architect: Lance Mueller & Assoc. - Seattle
(Seattle)**Catalog Number:**

RE11005DB

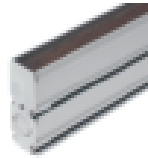
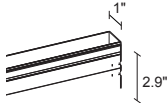
Notes:

Type:**L1**

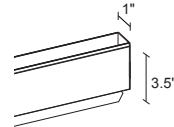
SEATAC-WWA17-36040

ACCESSORIES

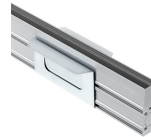
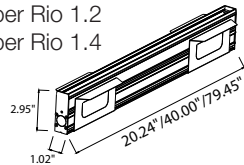
Aluminium outer casing

WC8111 20.24" per Rio 1.1**WC8112** 40.00" per Rio 1.2**WC8114** 79.45" per Rio 1.4

Stainless steel outer casing

WC8151 20.20" per Rio 1.1**WC8152** 39.96" per Rio 1.2**WC8154** 79.41" per Rio 1.4

Aluminium outer casing for plasterboard

WC8311 20.24" per Rio 1.1**WC8312** 40.00" per Rio 1.2**WC8314** 79.45" per Rio 1.4Extractors pair
(Rio 1.1 - 1.2 - 1.4)**WN8001**

Fixing kit for stainless steel outer casing

WN8011*Not to be used with aluminum
outer casing.

Fixing kit for aluminium outer casing

WN8010*Not to be used with stainless
steel outer casing.

POWER SUPPLIES

24vDC

		6W	12W	24W
PPLT00155 90-265vAC TO 24vDC 30W	Class 2	1-4 Fixtures	1-2 Fixtures	N/A
PPLT00157 90-265vAC TO 24vDC 60W	Class 2	1-8 Fixtures	1-4 Fixtures	1-2 Fixtures
PPLT00158 90-265vAC TO 24vDC 100W	Class 2	1-13 Fixtures	1-6 Fixtures	1-3 Fixtures
PPLT00143 120-277vAC to 24vDC 96W 0-10vDIM IP64	Class 2 w/ 0-10vDIM via PWM	1-12 Fixtures	1-6 Fixtures	1-3 Fixtures

Other power supplies available on request. Consult factory for RGB power supplies.

designplan 

sales@designplan.com
www.designplan.com

MAIN BUILDING

NEW COPING: GALVANIZED METAL, PRE-PAINTED, COLOR " Silver Metallic" by Cascadia Metals. (METAL COLOR 1)

EXISTING PRECAST WALL COLOR: PAINTED, COLOR: Benjamin Moore's 1610 "French Beret" (PAINT 1)

STOREFRONT: NOMINAL 2" X 4 1/2" ALUMINUM, COLOR "Clear Anodized" (METAL COLOR 1)

GLASS: CLEAR INSULATED LOW E (PPG SOLARBAN 60, COLOR CLEAR)

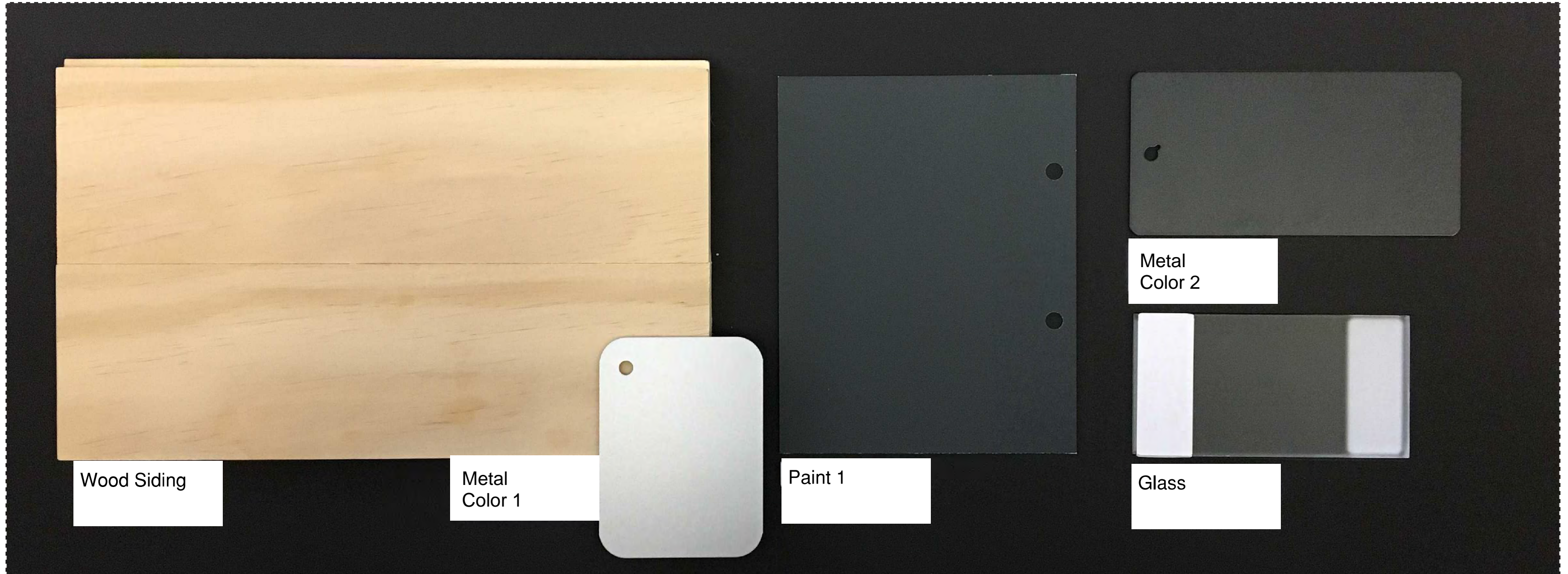
ENTRY ADDITION

METAL PANEL SYSTEM: SKYLINE SHEET METAL SSMPEX SYSTEM, COLOR "BLACK ANODIZED" (METAL COLOR 2)

WOOD SIDING: CEDAR T&G SIDING WITH CLEAR SEALER FINISH, Miller "Storm System," Transparent Natural Oil NR 10040 Clear. (WOOD SIDING)

STOREFRONT: NOMINAL 2"X10" ALUMINUM, COLOR "Black Anodized" (METAL COLOR 2)

GLASS: CLEAR INSULATED LOW E (PPG SOLARBAN 60, COLOR CLEAR)



MATERIAL BOARD



DW Fritz

PRELIMINARY STORMWATER REPORT & CALCULATIONS

9900 SW Boeckman Rd,
Wilsonville, Oregon, 97070

May 8, 2017
AAI PROJECT NUMBER: A16143.11

AAI Engineering
4875 S.W. Griffith Drive
Suite 300
Beaverton, Oregon 97005
PH 503.620.3030 FX 503.620.5539
EMAIL: delmore@aaieng.com

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I. Project Summary.....	3
II. Stormwater Design	3
III. Conveyance Calculations	4
IV. Engineering Conclusion.....	4

Tables and Figures

Table 2.1: On-Site Basin Properties	4
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Appendices

Appendix A

Existing Conditions

Appendix B

Site Plan

Appendix C

Storm Plans

Appendix D

Stormwater Calculations

Appendix E

Conveyance Calculations

I. Project Summary

This report has been prepared to outline the existing and proposed on-site stormwater conditions for the DW Fritz project. The report is based on field observations, existing survey data and a site geotechnical report.

The project site is located in Wilsonville, Oregon south of SW Boeckman Road. The project site is bordered by SW Boeckman Road to the north, Oregon Electric Railroad tracks to the east, New Kinsman Road to the west, and Oldcastle Precast to the south. The total project property is approximately 24.5AC. The existing project site currently consists of one building, concrete pads, asphalt parking and pedestrian areas. The site in general slopes from the north to the southwest corner of the property. The existing stormwater improvements collect the site runoff and outfall it to the wetland area to the southwest corner of the property.

See Appendix A – Existing Conditions for additional information on the existing site layout and improvements.

The primary purpose of this project is to improve the site for a proposed additional parking lots. The site improvements will consist of new parking lots, islands, and a building addition. In addition to the site improvements there are proposed stormwater improvements. The proposed stormwater system will outfall into the existing wetland after running through multiple onsite stormwater facilities.

See Appendix B – Site Plan and Appendix C – Storm Plans for additional site improvements information.

II. Stormwater Design

The existing wetland is currently managing the entire runoff from the site. The runoff from the proposed site improvements will be collected by new catch basins and conveyance system and outfall into the wetland after running through onsite vegetated flow-through basins (VFB). No runoff from adjacent properties are anticipated to be collected by the onsite improvements.

See Table 2.1 – On-Site Basin Properties for site runoff area information.

TABLE 2.1: On-Site Basin Properties

Basin	Drainage Source	Area (sf)				Collection Type
		Total	Impervious	Pervious	Roof	
1	Parking	16,130	13,615	2,237	0	VFB-01
2	Parking	12,720	11,270	1,172	0	VFB-02
3	Parking	11,650	10,840	540	0	VFB-03
4	Parking/Roof	24,990	19,935	3,437	365	VFB-04
5	Parking	11,035	10,270	765	0	VFB-05
Total		76,525	65,930	8,151	365	

See Appendix D – Stormwater Calculations for additional swale and orifice sizing information.

III. Conveyance Calculations

All proposed pipes are sized to convey the 25-year storm event.

See Appendix E – Conveyance Calculations for pipe sizing information.

IV. Engineering Conclusion

Based on the requirements of using low impact development and the BMP sizing tool the proposed site facilities will be adequately designed to manage the proposed development conditions and should be approved as designed.

Appendix A

Existing Conditions

(SINCE 1852)
ANDY PARIS AND ASSOCIATES, INC.
 PROFESSIONAL LAND SURVEYORS
 16057 BOONES FERRY ROAD
 LAKE OSWEGO, OREGON 97035
 PH: 503-636-3341
 www.andyparis.com

SURVEY NOTES

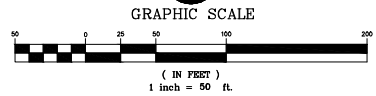
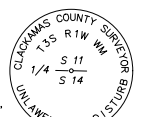
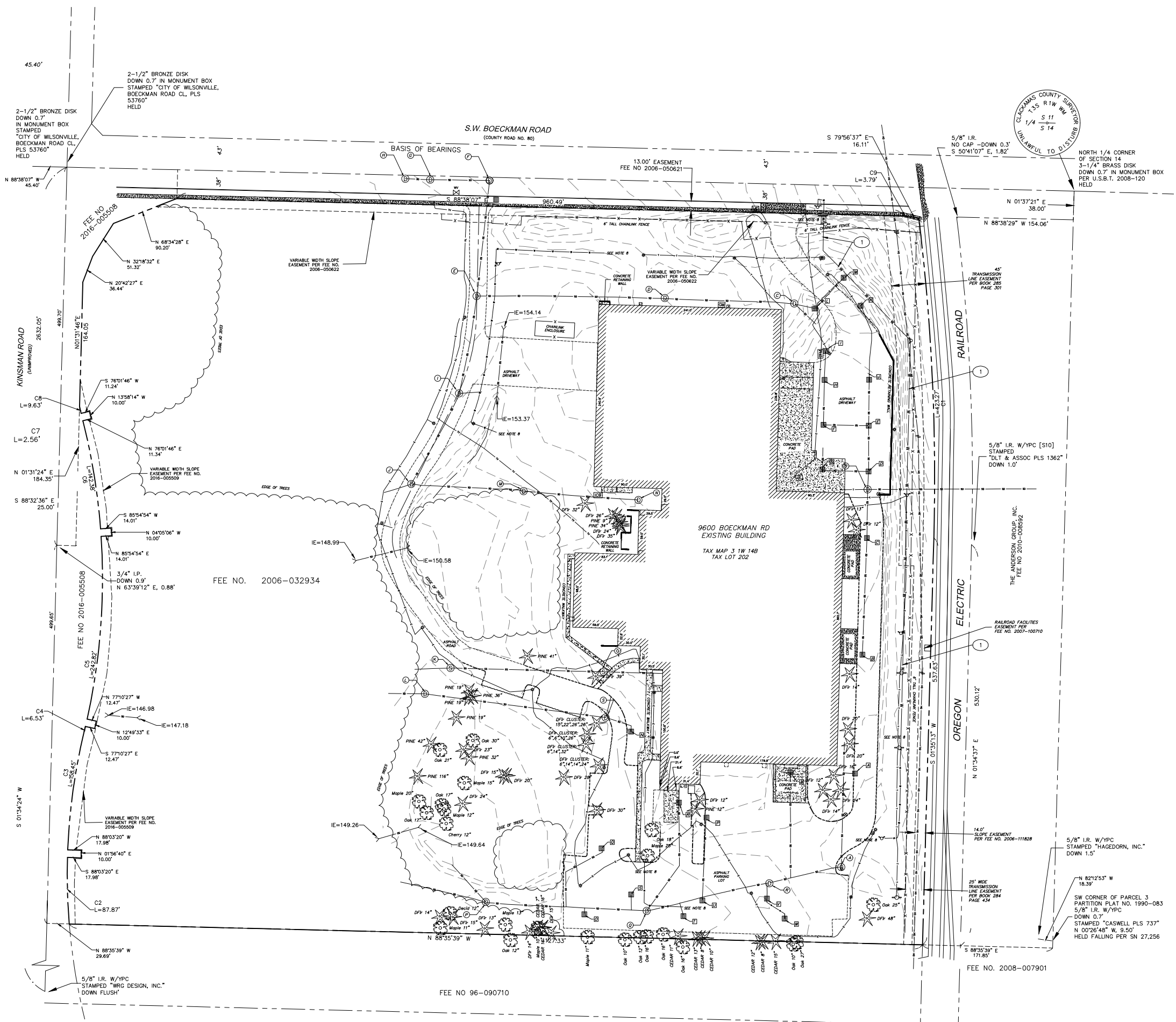
1. VERTICAL DATUM IS NAVD88 BASED ON OPUS SOLUTION OF STATIC GPS OBSERVATION.
2. THE BOUNDARIES AS SHOWN ON THIS MAP ARE BASED ON RECORD DATA AND FOUND MONUMENTS. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED, BUT WAS DONE FOR SITE/TOPO INFORMATION ONLY.
3. THE LOCATION AND OR EXISTENCE OF UTILITY SERVICE LINES AS SHOWN ON THIS MAP ARE BASED ON FIELD OBSERVATION ONLY. THERE MAY EXIST ADDITIONAL SERVICE LINES NOT SHOWN ON THIS SURVEY.
4. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
5. PRIVATE UTILITY LOCATOR UNABLE TO DETERMINE LOCATION OF PRIVATE WATER LINE. SUSPECTED PLASTIC PIPE BURIED WITHOUT MAGNETIC LOCATING STRIPS. WATER SYSTEM IS ASSUMED TO BE A LOOPED SYSTEM THAT CIRCLES THE EXISTING BUILDING.

(X) UTILITY NOTES

1. APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN SHOWN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO CONSTRUCTION.

SURVEY LEGEND

- FOUND MONUMENT AS NOTED
- ⊙ SANITARY SEWER MANHOLE
- ⊕ STORM DRAIN MANHOLE
- CATCH BASIN
- ⊗ GAS METER
- ⊙ UTILITY POLE
- ⊙ METAL LIGHT POLE
- ⊙ METAL BOLLARD
- ⊙ WATER VALVE
- ⊙ FIRE HYDRANT
- ⊙ FDC
- ⊙ ELECTRIC VAULT
- ⊙ WATER VAULT
- ⊙ TRANSFORMER
- ⊙ IRRIGATION CONTROL BOX
- ss — SANITARY SEWER LINE
- sd — STORM DRAIN LINE
- w — WATER LINE
- tv — UNDERGROUND TELEVISION CABLE LINE
- t — UNDERGROUND COMMUNICATIONS LINE
- e — UNDERGROUND ELECTRICAL LINE
- o — OVERHEAD UTILITY LINE
- x — FENCE LINE



date	revision	no.	checked	drawn	job no.
5/8/17					16-006



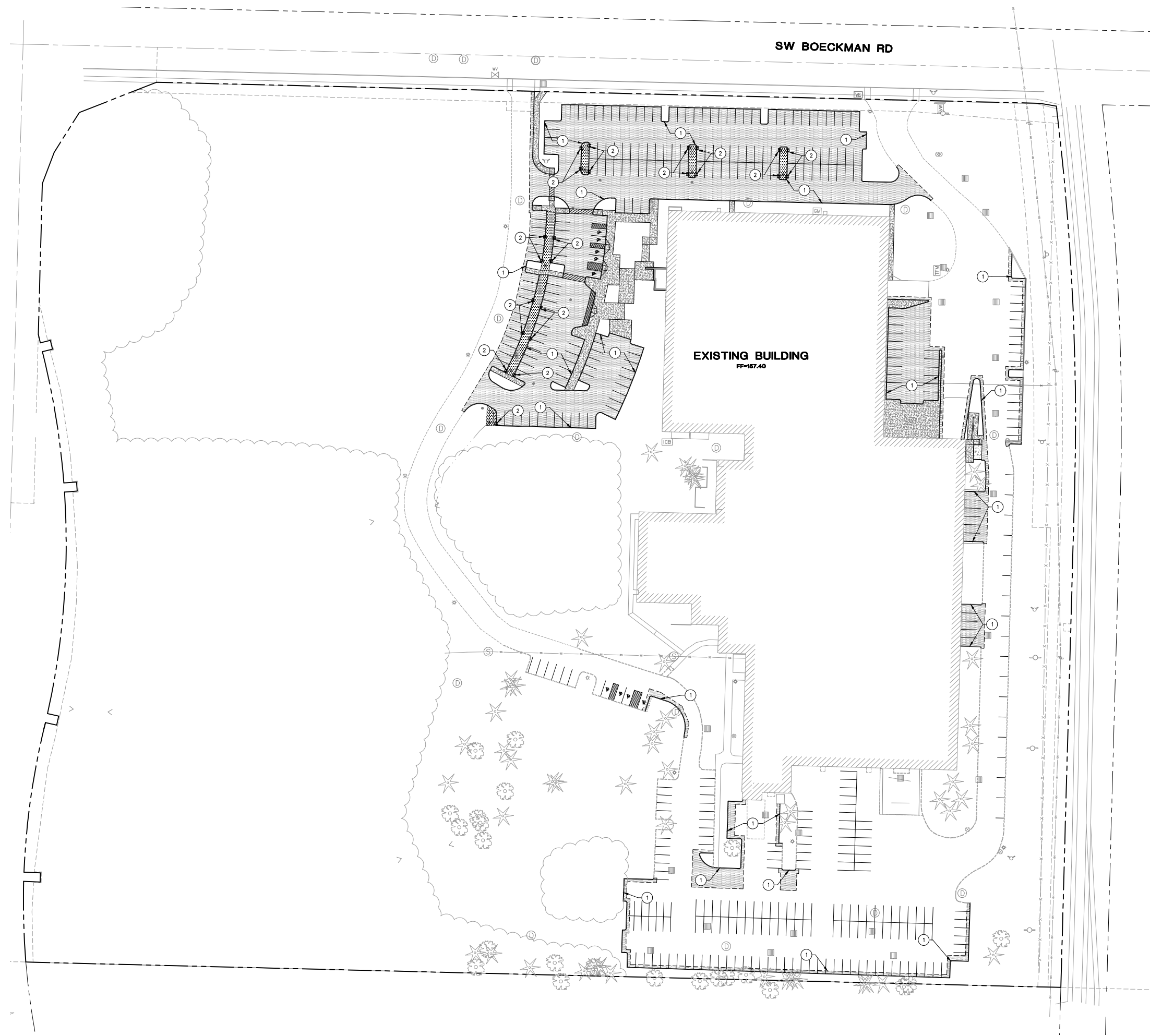
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sheet
C0.2

Appendix B

Site Plan



SW BOECKMAN RD

EXISTING BUILDING
FF#167.40

SHEET NOTES

- SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
- THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
- THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

SITE NOTES

- CONSTRUCT TYPICAL CURB PER DETAIL 1/C4.0
- CONSTRUCT CONCRETE CURB INLET PER DETAIL 2/C4.0

LEGENDS

- PROPERTY LINE
- PROPOSED CURB
- SIDEWALK PER DETAIL 3/C4.0
- ASPHALT SURFACING PER DETAIL 4/C4.0
- VEGETATED FLOW-THROUGH BASINS (VFB)

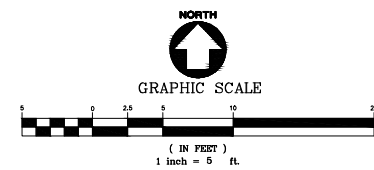
no.	revision	date
1	SEE ESDR REVISION #1	5/8/17

16-006
job no.
CCH
checked
01-23-17
date



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SITE PLAN
sheet
C1.0

Appendix C

Storm Plans

SHEET C3.1

SW BOECKMAN RD

SHEET C3.2

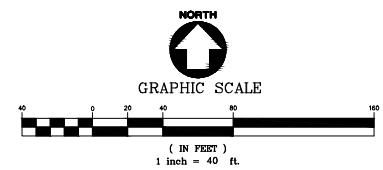
EXISTING BUILDING
FF=167.40

- SHEET NOTES**
- SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
 - PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 5/C4.0.
 - INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 6/C4.0.
 - THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
 - CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. NOT ALL REQUIRED CLEAN OUTS ARE SHOWN.
 - DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
 - UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
 - INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.

LEGEND

STORM LINE ————

FIRE LINE — FP — FP — FP — FP —



16-006	job no.	16-006	no.	1	revision	5/8/17	date
16-006	job no.	16-006	no.	1	revision	5/8/17	date
16-006	job no.	16-006	no.	1	revision	5/8/17	date

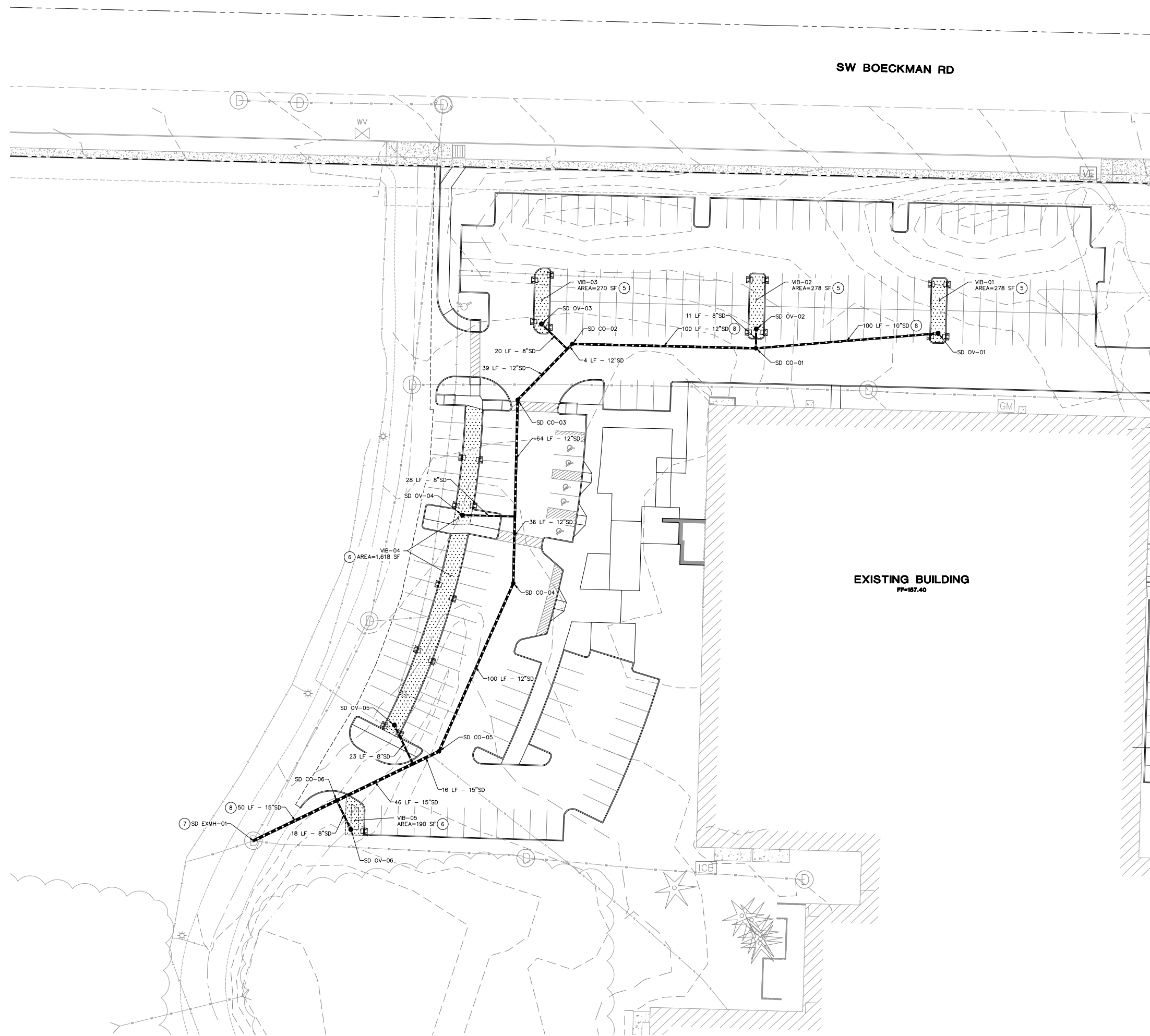


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UTILITY PLAN

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sheet
C3.0



SHEET NOTES

- SEE SHEETS C0.1 AND C3.0 FOR SHEET NOTES AND LEGEND.
- ALL HORIZONTAL AND PIPE INVERT ELEVATIONS ARE BASED ON THE CENTER OF THE STRUCTURE.

UTILITY NOTES

- APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO ORDERING MATERIALS.
- CONNECT TO EXISTING WATER MAIN WITH 10"x8" TAPPING SLEEVE.
- CONNECT TO EXISTING BUILDING SERVICE. SEE PLUMBING PLANS FOR CONTINUATION.
- INSTALL M&M 8" 45' BEND.
- CONSTRUCT STORMWATER PLANTER, PER DETAIL 7/C4.0.
- CONSTRUCT STORMWATER SWALE, PER DETAIL 8/C4.0.
- CONNECT TO EXISTING STORMWATER STRUCTURE. CONTRACTOR TO VERIFY PIPE INVERTS PRIOR TO CONSTRUCTION.
- INSTALL DIP PIPING

LABEL LEGEND

PIPE LABELS

UTILITY LENGTH
UTILITY SIZE
UTILITY TYPE
XXLF - XX" XX
S=X.XXX
SLOPE (WHERE APPLICABLE)

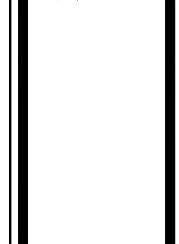
STRUCTURE LABELS

UTILITY TYPE (SD=STORM DRAINAGE, FP= FIRE PROTECTION)
STRUCTURE TYPE CALLOUT (SEE BELOW)
ID NUMBER (WHERE APPLICABLE)
XX XX-XX
RM=XX.XX
IE IN=XX.X
IE OUT=XX.X
STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

CALLOUT	DESCRIPTION
CB	CATCH BASIN, PER DETAIL 9/C4.0
CO	CLEAN OUT, PER DETAIL 10/C4.0
GV	GATE VALVE, PER DETAIL 11/C4.0
MH	48" MANHOLE, PER DETAIL 12/C4.0
PIV	POST INDICATOR VALVE, PER DETAIL 13/C4.0
OV	OVERFLOW INLET, PER DETAIL 14/C4.0

no.	revision	date
1	THE EXISTING RESUME OF PRELIMINARY PLAN	5/8/17

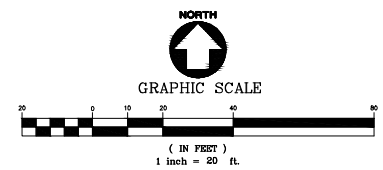


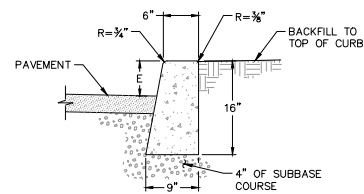
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UTILITY ENLARGEMENT

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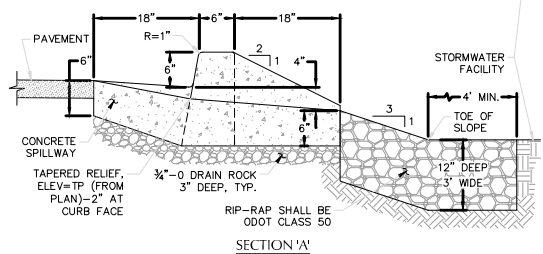
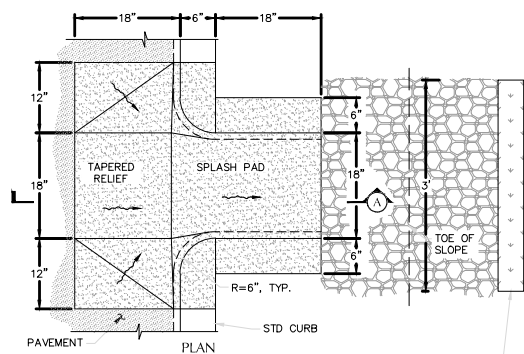
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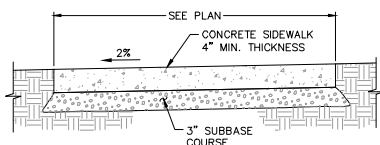


- NOTES:
 1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
 2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMP. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
 3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
 4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

1 CONCRETE CURB - STANDARD
 SCALE: NTS

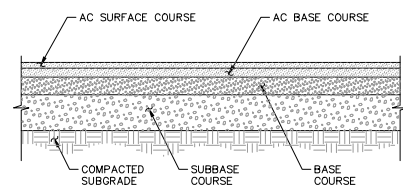


2 CONCRETE CURB INLET
 SCALE: NTS



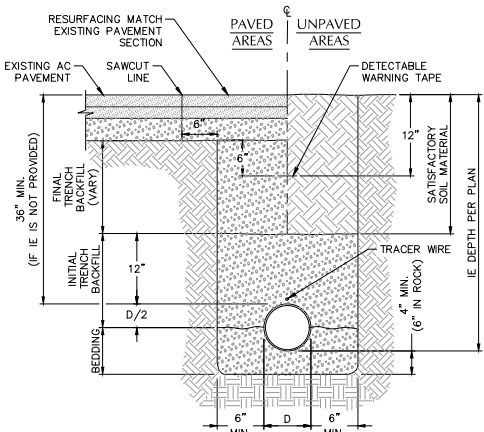
- NOTES:
 1. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMP. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING, AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY, UNLESS NOTED OTHERWISE.

3 CONCRETE SIDEWALK
 SCALE: NTS

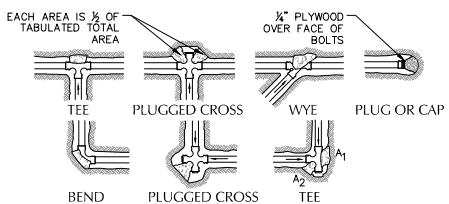


- NOTES:
 1. MATCH EXISTING ASPHALT PAVEMENT, WHICHEVER IS GREATER.

4 ASPHALT PAVEMENT SECTION
 SCALE: NTS



5 TYPICAL PIPE BEDDING AND BACKFILL
 SCALE: NTS



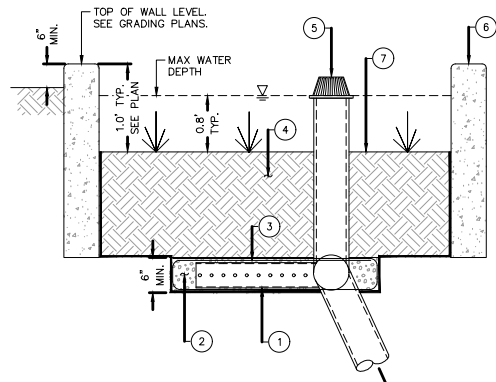
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
 2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
 3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCLOSED ON THE PLAN; e.g. (15) INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
 4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES) STATED IN THE SPECIAL SPECIFICATIONS.
 5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.

BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

FITTING SIZE	TEE, WYE, BEND, PLUG, OR CAP	TEE PLUGGED ON RUN		45° BEND	22 1/2° BEND	11 1/2° BEND
		A1	A2			
4	1.0	1.4	1.9	1.4	1.0	
6	2.1	3.0	4.3	3.0	1.6	1.0
8	3.8	5.3	7.6	5.4	2.9	1.5
10	5.9	8.4	11.8	8.4	4.6	2.4

NOTE:
 ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 p.s.i.. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURE AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150)x(2000/SOIL BEARING STRESS)x(TABLE VALUE).

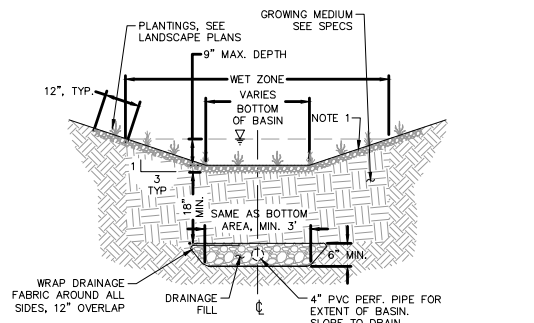
6 THRUST BLOCK
 SCALE: NTS



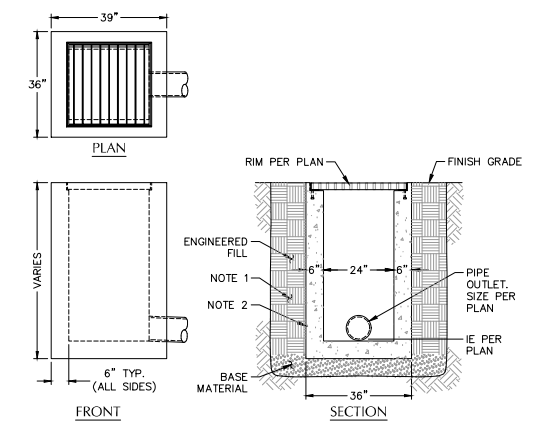
X KEYNOTES

1. 4" PVC PERF. PIPE FOR EXTENT OF FACILITY. SLOPE TO DRAIN.
 2. DRAINAGE FILL, MIN. THICKNESS AS SHOWN.
 3. WRAP DRAINAGE FABRIC AROUND ALL SIDES OF DRAINAGE FILL ZONE, 12" OVERLAP.
 4. GROWING MEDIUM PER SOIL PREPARATION SPECIFICATIONS. THICKNESS AS SHOWN.
 5. OVERFLOW INLET, SEE PLAN FOR TYPE.
 6. CONCRETE CURB WALL.
 7. PLANTINGS. SEE LANDSCAPE PLANS.

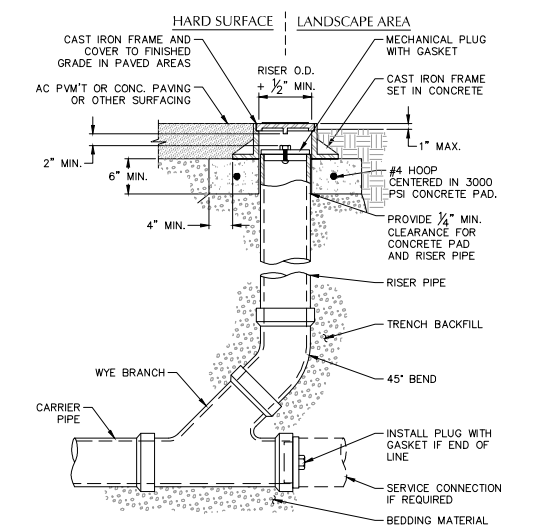
7 TYPICAL FLOW-THROUGH PLANTER
 SCALE: NTS



8 TYPICAL FLOW-THROUGH BASIN
 SCALE: NTS

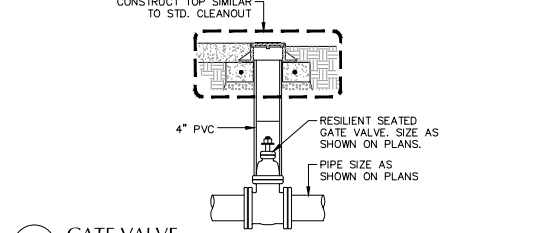


9 CONCRETE CATCH BASIN
 SCALE: NTS

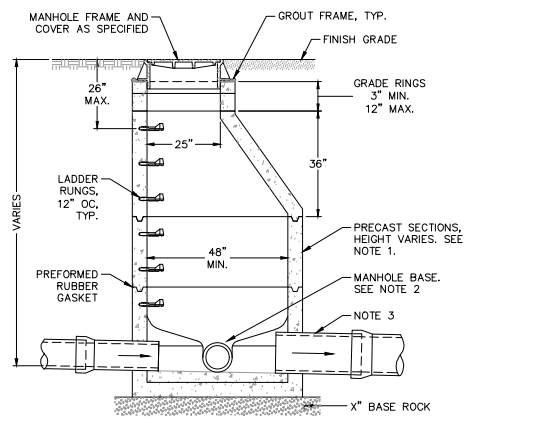


- NOTES:
 1. CAST IRON FRAME AND COVER SHALL MEET H-20 LOAD REQUIREMENT.
 2. FOR CARRIER PIPE SIZE 6" AND LESS, PROVIDE RISER PIPE SIZE TO MATCH CARRIER PIPE.
 3. FOR CARRIER PIPE SIZE 8" AND LARGER, RISER PIPE SHALL BE 6".
 4. RISER PIPE MATERIAL TO MATCH CARRIER PIPE MATERIAL.

10 STANDARD CLEANOUT (COTG)
 SCALE: NTS

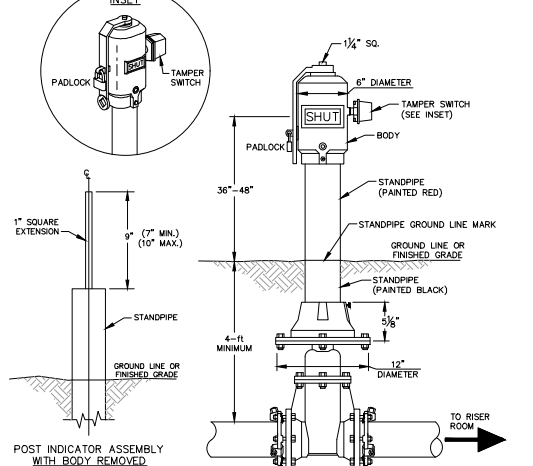


11 GATE VALVE
 SCALE: NTS



- NOTES:
 1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
 2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
 3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT.

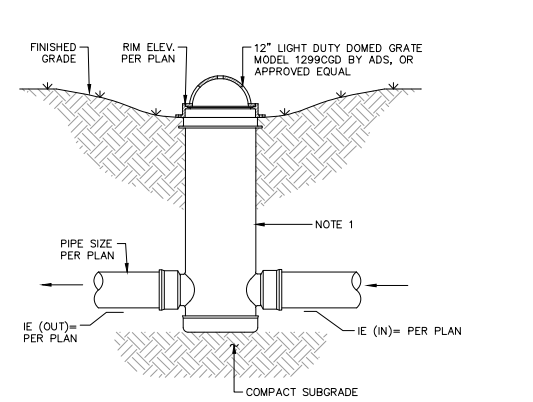
12 STANDARD MANHOLE
 SCALE: NTS



- FIELD ADJUSTMENT INSTRUCTIONS:
 1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
 2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
 3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
 4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
 5. RE-ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
 6. ALL POST INDICATOR VALVES SHALL BE INSTALLED WITH AN ELECTRONIC UL LISTED TAMPER SWITCH.
 7. THERE SHALL BE 36" OF UNOBSTRUCTED CLEARANCE AROUND THE PERIMETER OF ALL POST INDICATOR VALVES. POST INDICATOR VALVE SHALL BE LOCATED AT A MINIMUM 5'-0" FROM BUILDING.

- NOTES:
 1. VALVE CONTROLLING THE WATER SUPPLIES SHALL BE SUPERVISED IN THE OPEN POSITION SO THAT A CHANGE IN THE NORMAL POSITION OF THE VALVE WILL GENERATE A SUPERVISORY SIGNAL AT THE SUPERVISORY STATION.

13 STANDARD POST INDICATOR VALVE
 SCALE: NTS



- NOTES:
 1. 12" NYLOPLAST DRAIN BASIN, OR APPROVED EQUAL

14 OVERFLOW INLET
 SCALE: NTS

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Appendix D

Stormwater Calculations

WES BMP Sizing Report

Project Information

Project Name	DW Fritz
Project Type	Addition
Location	
Stormwater Management Area	76525
Project Applicant	
Jurisdiction	CCSD1NCSA

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
B1-Impervious	13,615	Forested	ConventionalConcrete	B	B1-Planter
B1-Pervious	2,237	Grass	Grass	B	B1-Planter
B2-Impervious	11,270	Grass	ConventionalConcrete	B	B2-Planter
B2-Pervious	1,172	Grass	Grass	B	B2-Planter
B3-Impervious	10,840	Grass	ConventionalConcrete	B	B3-Planter
B3-Pervious	540	Grass	Grass	B	B3-Planter
B4-Impervious	19,935	Grass	ConventionalConcrete	B	B4-Swale
B4-Pervious	3,437	Grass	Grass	B	B4-Swale
B5-Impervious	10,270	Grass	ConventionalConcrete	B	B5-Swale
B5-Pervious	575	Grass	Grass	B	B5-Swale

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
B4-Swale	WaterQuality	Rain Garden - Infiltration	A1	314.0	1,618.0	0.0
B5-Swale	WaterQuality	Rain Garden - Infiltration	A1	156.6	190.0	0.0
B1-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	214.0	278.0	0.0

B2-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	174.1	278.0	0.0
B3-Planter	WaterQuality	Stormwater Planter - Infiltration	A1	164.9	270.0	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.

Appendix E

Conveyance Calculations

Storm Conveyance Calculations

General		Connected Basin			Cumulative Basin				Piping										
Upstream Structure	Downstream Structure	Design Storm (yr)	Impervious Area (sf)	Pervious Area (sf)	Total Area (sf)	Impervious Area (sf)	Pervious Area (sf)	Weighted Runoff Coefficient	Total Basin Area (sf)	Total Area (ac)	Time of Concentration (min)	I (in/hr)	Q (cfs)	% Full (Q/Q _{max})	Size (in)	Slope (%)	Design Pipe Velocity (ft/s)	Full Pipe Velocity (ft/s)	Max Allowable Q (cfs)
OV-01	CO-01	25	13615	2515	16130	13615	2515	0.80	16130	0.37	5.00	3.90	1.15	47.91%	10	0.50%	4.52	4.52	2.41
OV-02	CO-01	25	11270	1450	12720	11270	1450	0.83	12720	0.29	5.00	3.90	0.94	50.10%	8	1.00%	5.51	5.51	1.88
CO-01	CO-02	25	0	0	0	24885	3965	0.81	28850	0.66	5.00	3.90	2.09	53.49%	12	0.50%	5.11	5.11	3.91
OV-03	CO-02	25	10840	810	11650	10840	810	0.85	11650	0.27	5.00	3.90	0.89	47.49%	8	1.00%	5.51	5.51	1.88
CO-02	CO-03	25	0	0	0	35725	4775	0.82	40500	0.93	5.00	3.90	2.99	76.27%	12	0.50%	5.11	5.11	3.91
OV-04	CO-03	25	9968	2527	12495	9968	2527	0.77	12495	0.29	5.00	3.90	0.86	45.79%	8	1.00%	5.51	5.51	1.88
CO-03	CO-04	25	0	0	0	45693	7302	0.81	52995	1.22	5.00	3.90	3.85	75.79%	12	0.84%	6.62	6.62	5.07
CO-04	CO-05	25	0	0	0	45693	7302	0.81	52995	1.22	5.00	3.90	3.85	75.79%	12	0.84%	6.62	6.62	5.07
OV-05	CO-05	25	9968	2527	12495	9968	2527	0.77	12495	0.29	5.00	3.90	0.86	45.79%	8	1.00%	5.51	5.51	1.88
CO-05	CO-06	25	0	0	0	55661	9829	0.80	65490	1.50	5.00	3.90	4.71	51.15%	15	0.84%	7.68	7.68	9.20
OV-06	CO-06	25	10270	765	11035	10270	765	0.85	11035	0.25	5.00	3.90	0.84	44.99%	8	1.00%	5.51	5.51	1.88
CO-06	EXMH-01	25	0	0	0	65931	10594	0.81	76525	1.76	5.00	3.90	5.55	60.33%	15	0.84%	7.68	7.68	9.20

Area Type

Impervious	0.9	Per Clarkamas County Roadway Standards
Landscape	0.25	Per Clarkamas County Roadway Standards

Rational Method Assumptions:

(used for conveyance pipe sizing w/ 5 min duration)

2-yr Storm	2.50	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan
5-yr Storm	3.00	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan
10-yr Storm	3.45	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan
25-yr Storm	3.90	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan
50-yr Storm	4.25	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan
100-year Storm Ev	4.50	in/hours	Table 6-2 of the City of Wilsonville Stormwater Master Plan



REPUBLIC
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August 15, 2017

Bob Wells, Associate
Lance Mueller & Associates
130 Lakeside, #250
Seattle, WA 98122

Re: DW FRITZ Renovation

Dear Bob;

Thank you for sending me your site plans again for this re-development in Wilsonville along Boeckman Road. I appreciate the adjustments and location changes that you made.

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

We will be able to safely service both enclosures as designed. The access and circulation I agree, is excellent. Both sizes of the enclosures are great for present and future services. Please remember to keep in your final design plans to have enclosure gates open at least 120 degrees and be able to lock in the open position.

Thanks Bob for your help and concerns for our services prior to this project being developed.

Sincerely,

Frank J. Lonergan
Operations Manager
Republic Services Inc.

Prepared for



Wilsonville DW Fritz

Transportation Impact Analysis



Prepared by



August 2017



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

August 14, 2017

Steve Adams
City of Wilsonville
29799 Town Center Loop East
Wilsonville, OR 97070

Subject: Wilsonville DW Fritz Transportation Impact Study

P17021-003

Dear Steve,

DKS Associates is pleased to submit this transportation impact study for the proposed DW Fritz renovation and addition located at 9600 SW Boeckman Road in Wilsonville. Please feel free to call if you have any questions or comments regarding this study.

Sincerely,
DKS Associates

Scott Mansur, P.E., PTOE
Transportation Engineer



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CHAPTER 1: INTRODUCTION AND SUMMARY

This study evaluates the transportation impacts associated with the renovation of the currently vacant 155,000 square foot building located at 9600 SW Boeckman Road and the addition of a 70,000 square foot high tech building and 4,000 square foot sit-down restaurant. The proposed additions are located on the south side of Boeckman Road, just west of the Portland & Western Railroad tracks in Wilsonville, Oregon.

The purpose of this transportation impact analysis is to identify potential mitigation measures needed to offset transportation impacts that the proposed development may have on the nearby transportation network. The analysis evaluated the traffic associated with the existing building and the proposed buildings (since there is no current traffic on the City transportation system). The impact analysis is focused on the study intersections, which were selected for evaluation in coordination with City staff¹. The intersections are shown in Figure 1 and listed below:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

This chapter provides an introduction to the proposed development and the steps taken to analyze the associated impacts on the transportation network. It highlights important elements of the remaining chapters, including a description of the project and the findings of the transportation analysis.

Table 1 lists important characteristics of the study area and proposed project.



Figure 1: Study Area

¹ Phone conversation with Steve Adams, City of Wilsonville, March 29th, 2017.

Table 1: Key Study Area and Proposed Development Characteristics

Characteristics	Information
Study Area	
Number of Study Intersections	6
Analysis Period	Weekday PM Peak Hour (Peak hour between 4-6 PM)
Project Site	
Existing Land Use	155,000 sq. ft. manufacturing building (currently vacant)
Proposed Development	Phase 1: 155,000 sq. ft. manufacturing building renovation Phase 2: 70,000 sq. ft. high tech building and 4,000 sq. ft. restaurant
Project Access	Two existing driveways along Boeckman Road

Existing Intersection Operations

Existing traffic operations at the study intersection were determined for the PM peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersections.² Table 2 lists the estimated delay, LOS, and v/c ratio of each study intersection. The existing study intersections currently meet mobility targets/operating standards.

Table 2: Existing PM Peak Study Intersection Operations

Intersection	Mobility Targets/ Operating Standard	Existing PM Peak		
		Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	25.5	C	0.77
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.7	B	0.79
Boeckman Road/SW 95 th Avenue	LOS D	17.2	B	0.44
Boeckman Road/SW Parkway Avenue	LOS D	37.0	D	0.85
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.3	D	0.78
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.6	C	0.52
I-5 Southbound On-Ramp Meter	N/A	-	-	0.91
Delay = Average Intersection Delay (sec.)		LOS = Level of Service		v/c = Volume-to-Capacity Ratio

^a The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

It is important to note that the intersection operations at the study intersections shown in Table 2 represent typical operations. What this analysis does not include is incurred delay from incidents on the I-5 mainline and the ramp meter on the I-5 southbound ramp at Wilsonville Road that regulates the flow of traffic onto I-5.

² 2000 Highway Capacity Manual, Transportation Research Board, Washington DC, 2000.

The existing capacity of this ramp meter is 1,260 vehicles per hour. If the peak hour demand of the southbound on-ramp exceeds 1,260 vehicles, additional storage would be necessary to prevent spillback and associated impacts on SW Wilsonville Road.

Currently, approximately 1,144 vehicles are entering the southbound on-ramp during the peak hour which results in a volume to capacity (v/c) ratio of 0.91 which is nearing the ramp’s full capacity. When traffic incidents occur on I-5 and I-205 such that the additional traffic exceeds the 1,260 vehicles or the I-5 mainline cannot deliver the existing traffic flow, the I-5/SW Wilsonville Road interchange is significantly impacted and vehicles experience traffic delays similar to level of service “F” (greater than 80 seconds of delay).

Proposed Development

The proposed development project will be completed in two phases. The first phase involves renovating the currently vacant 155,000 square-foot building into combined office and warehouse space. The second phase will add a new 70,000 square-foot high tech building and a new 4,000 square-foot sit-down restaurant to the project site. This development will have two existing driveways along Boeckman Road.

Trip Generation

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, the trip generation was based on the ITE Trip Generation Manual. Table 3 provides the primary trip generation for the proposed renovation (Phase 1) and occupancy of the existing 155,000 square foot building. The development in Phase 1 is expected to generate approximately 105 total (38 in, 67 out) PM peak hour trips.

Table 3: PM Peak Hour Primary Trip Generation Phase 1

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	Trip Rate per 1,000 square feet		Total
				In	Out	
1	Manufacturing (140)	155,000	0.68 ^a	38	67	105
Phase 1 Total Primary Trips				38	67	105

^aRate back-calculated from ITE equation

Table 4 provides the primary trip generation for both the renovated building and the additions of the high tech building and restaurant (Phase 2). It should be noted that the Phase 2 ITE equation trip generation associated with the manufacturing land use is lower than what was assumed in Phase 1. The ITE data has a trip rate that decreases as the total square footage

increases. The proposed Phase 1 and Phase 2 development is expected to generate approximately 183 (75 in, 108 out) PM peak hour primary trips.

Table 4: PM Peak Hour Primary Trip Generation Phases 1 and 2

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1 and 2	Manufacturing (140)	155,000 + 70,000	0.64 ^a	52	92	144
2	Restaurant (932)	4,000	9.85	23	16	39
Phases 1 and 2 Total Primary Trips				75	108	183

^aRate back-calculated from ITE equation

As per ITE Trip Generation Handbook guidance,³ two reductions in primary trips were included in the trip generation analysis; internal trips and pass-by trips. The following paragraphs discuss these reductions and Table 5 displays the total net new trips after accounting for the internal and pass-by trip reductions.

Internal Trips. A reduction of internal trips was evaluated to reduce the total number of driveway trips to account for trips between uses (for example employees from the industrial uses staying to eat at the restaurant). An internal capture rate of 10% was applied to the PM peak hour primary trips of the restaurant.

Pass-By Trips. A reduction of pass-by trips was evaluated to account for traffic that currently exists on the adjacent roadways that the proposed project will have primary access. Pass-by trips are subtracted out after the internal trips are applied and for this project and were only applied to the restaurant trip generation. Pass-by rate of 43% was taken from the ITE Trip Generation Handbook. Pass-by trips result in new driveway trips only and will not increase traffic to the adjacent roadways.

³ Institute of Transportation Engineers, Trip Generation Handbook, October 1998.

Table 5: PM Peak Hour Net New Trips

	In	Out	Total
Total Primary Trips (Phases 1 and 2)	75	108	183
Internal Trip Reduction (10% of restaurant trips)	-2	-2	-4
Pass-By Trip Reduction (43% of restaurant trips)	-9	-6	-15
Net New Trips (Phase 1 and Phase 2)	64	100	164

After reducing the primary project site trips for the restaurant by the internal trip reduction of 10% and then the pass-by trip rate of 43%, the net new total trips to the project site is 164 (64 in/100 out) during the PM peak hour.

Project Trips Through City of Wilsonville Interchange Areas

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions. The proposed DW Fritz development is expected to generate 32 PM peak hour trips for Phase 1 and a total of 49 PM peak hour trips for Phases 1 and 2 through the I-5/SW Elligsen Road interchange area. The development is expected to generate 21 PM peak hour trips for Phase 1 and 33 PM peak hour trips for Phases 1 and 2 through the I-5/Wilsonville Road interchange area.

Project Traffic Impact

The impact analysis includes trip generation, trip distribution, and PM peak hour project trips for Phase 1 and Phase 2 of the project. The analysis also includes scenarios that account for Stage II approved developments in the area, including those under construction or built but not yet occupied. The scenarios include:

- Existing + Stage II (includes traffic from other developments with Stage II approval or are under construction)
- Existing + Project (Phase 1)
- Existing + Project (Phase 1) + Stage II
- Existing + Project (Phase 1 and Phase 2)
- Existing + Project (Phase 1 and Phase 2) + Stage II

The study intersection operating conditions for the project trips during Phase 1 development and future Stage II developments are listed in Table 6. All the study intersections meet operating standards for “Existing plus Phase 1,” “Existing plus Stage II,” and “Existing plus Phase 1 plus Stage II” scenarios.

Table 6: Future Phase 1 Project and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phase 1			Existing + Stage II			Existing + Phase 1 + Stage II		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	25.7	C	0.77	26.6	C	0.80	26.9	C	0.80
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.8	B	0.80	20.1	C	0.87	21.0	C	0.88
Boeckman Road/SW 95 th Avenue	LOS D	18.7	B	0.45	19.3	B	0.49	20.5	C	0.51
Boeckman Road/SW Parkway Avenue	LOS D	38.9	D	0.87	46.6	D	0.91	49.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.4	D	0.79	51.3	D	0.91	52.7	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.5	C	0.52	23.7	C	0.56	23.8	C	0.56
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99
Delay = Average Intersection Delay (sec.)		v/c = Volume-to-Capacity Ratio					LOS = Level of Service			

^aThe typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

The study intersection operating conditions for the project trips during both Phase 1 and Phase 2 development and future Stage II developments are listed in Table 7. Again, all the study intersections meet operating standards for “Existing plus Phases 1 and 2,” “Existing plus Stage II,” and “Existing plus Phases 1 and 2 plus Stage II” scenarios.

Table 7: Future Phases 1 and 2 Project and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phases 1 and 2			Existing + Stage II			Existing + Phases 1 and 2 + Stage II		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	26.0	C	0.78	26.6	C	0.80	27.1	C	0.81
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.9	B	0.81	20.1	C	0.87	21.6	C	0.89
Boeckman Road/SW 95 th Avenue	LOS D	18.9	B	0.46	19.3	B	0.49	20.7	C	0.50
Boeckman Road/SW Parkway Avenue	LOS D	39.6	D	0.87	46.6	D	0.91	50.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.5	D	0.79	51.3	D	0.91	53.4	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.4	C	0.52	23.7	C	0.56	23.9	C	0.57
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

^aThe typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

Even though the SW Wilsonville Road/Southbound I-5 intersection does meet the 0.90 v/c mobility target for both Phase 1 and Phase 2, the southbound on-ramp signal meter is expected to experience an increase in future demand volumes during the peak hour. The on-ramp meter has a capacity of 1,260 vehicles per hour. These future demand projections would result in the ramp meter experiencing volume-to-capacity ratio of 0.99 by the completion of Phase 2.

Site Plan Evaluation

A site plan showing the proposed development can be found in the appendix. The site plan shows sufficient space for two way motor vehicle circulation except for trucks attempting to reach the proposed loading dock at the south side of the high tech building. Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

The existing site accesses to the proposed DW Fritz site include two driveways along Boeckman Road. The east driveway provides access to the parking lots on the east side of the existing building. The west driveway connects to parking lots on the west side of the existing building and provides access to the proposed high tech building and restaurant.



City Code Requirement

The proposed 70,000 square-foot manufacturing building and 4,000 square-foot restaurant is required to comply with the City of Wilsonville Planning and Land Development code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.⁴ Table 8 lists the vehicular and bicycle parking requirements for both the proposed building and the entire site, which are based on the types and square footage of the various building uses. The table also lists the peak parking demand, which is estimated based on parking data published by the Institute of Transportation Engineers (ITE).⁵

Table 8: Vehicular and Bicycle Parking Summary

Land Use (ITE Code)	Size (KSF ^a)	Estimated Peak Demand ^b	Spaces Required by City Code ^c		
			Vehicle Minimum	Vehicle Maximum	Bicycle Minimum
<i>New Building</i>					
Manufacturing (Land Use 140)	70	83	112	No limit	7
Restaurant (Land Use 932)	4	65	61	92	4
Total New Building	74	148	173	No limit	11
<i>Existing Building</i>					
Manufacturing (Land Use 140)	155	183	248	No limit	16
Total Existing Building	155	183	248	No limit	16
TOTAL SITE	229	331	421	No limit	27

^a KSF = 1,000 square feet

^b Estimated demand based on 85th percentile identified in the *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

^c City of Wilsonville, Planning and Land Development Ordinance, Section 4.155, Table 5, Updated June 2013.

As shown in Table 8, 173 vehicular stalls are needed to meet the minimum City Code requirements for the new building and 148 stalls are needed to satisfy the estimated peak parking demand. For the entire site, 421 vehicular stalls are needed to meet the minimum City Code requirements and 331 stalls are needed to satisfy the estimated peak parking demand. Because the site is expected to have 529 parking stalls, the site is expected to have sufficient available parking. The table above also indicates that 27 bicycle parking spaces are needed at the project site to meet the minimum City Code requirements. Currently, the site plan does not show any bicycle parking spaces. At minimum, 27 bicycle parking spaces will need to be built on the project site and should be located near building entrances in order to provide convenient access.

Access Spacing and Sight Distance

The two existing driveways along Boeckman Road are spaced at approximately 460 feet from 95th Avenue, approximately 400 feet apart from each other, and approximately 560 feet from Kinsman and do not conform with the City's minimum access spacing standards (600 feet) in

⁴ City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

⁵ *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

the TSP⁶ for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.

Preliminary sight distance was evaluated at the existing site driveways on Boeckman Road and there were no concerns. Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

Project Impact Summary

The DW Fritz development is anticipated to result in the following impacts:

Trip Generation

- The development is expected to be completed in two phases; Phase 1 includes a 155,000 square foot renovation to a currently vacant warehouse. Phase 2 includes the addition of a 70,000 square foot high tech building and a 4,000 square foot restaurant.
- Phase 1 of the development is expected to generate an additional 105 (38 in, 67 out) PM peak hour trips and Phases 1 and Phase 2 of the development is expected to generate an additional 164 (64 in, 100 out) net new PM peak hour trips.
- Of the 105 total Phase 1 project trips, 32 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 21 PM peak hour trips through the I-5/Wilsonville Road interchange area.
- Of the 164 total Phase 1 and Phase 2 project trips, 49 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 33 PM peak hour trips through the I-5/Wilsonville Road interchange area.

Intersection Operations

- All the study intersections meet the City's operating standard and ODOT mobility targets for all scenarios.

Site Plan Evaluation

- Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

⁶ City of Wilsonville Transportation System Plan, Table 3-2, Amended June 2016.

- The City Code requirement for vehicular parking is 421 parking stalls at the project site and the parking demand is estimated at 331 parking stalls. The site plan proposes 529 stalls, meeting the city code requirement and parking demand. The minimum bicycle parking stall requirement per City Code is 27 stalls. The site plan does not currently show any bicycle parking stalls.

Access Spacing and Sight Distance

- The driveways along Boeckman Road do not conform with the current minimum access spacing standards (600 feet) in the TSP for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.
- Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

CHAPTER 2: EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, and existing traffic volumes and operations. Supporting details are provided in the appendix.

Project Site

The project sponsor plans to renovate the currently vacant manufacturing building (155,000 square feet) as part of Phase 1. A new high tech building (70,000 square feet) and restaurant (4,000 square feet) will be completed in Phase 2. The renovated manufacturing building and high tech building both include a combination of office space and warehouse space.

Study Area Roadway Network

Key roadways in the study area are summarized in Table 9 along with their existing (or proposed) roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the *City of Wilsonville Transportation System Plan (TSP)*.⁷

Table 9: Study Area Roadway Characteristics (within the Study Area)

Roadway	Classification	No. of Lanes	Posted Speed	Sidewalks	Bike Lanes	On-Street Parking
SW Elligsen Road	Major Arterial	4	35 mph	Yes	Yes	No
Boeckman Road	Minor Arterial	2	40 mph	Yes/No ^a	Yes	No
SW Parkway Avenue	Minor Arterial	3	45 mph	Yes/No ^b	Yes/No ^b	No
SW 95th Avenue	Minor Arterial	3	35 mph	Yes/No ^c	Yes	No
SW Wilsonville Road	Major Arterial	4	25 - 35 mph	Yes	Yes	No
SW Boones Ferry Road (Day Rd to I-5 SB Ramp)	Major Arterial	3-5	35 mph	Yes/No ^d	Yes	No
SW Boones Ferry Road (south of Ridder Rd)	Collector	2-3	35 mph	Partial	Partial	No

^a No sidewalk between Parkway Ave and Boberg Rd
^b Sidewalk and bike lane missing along segments of SW Parkway Ave
^c No sidewalk on the west side between Boeckman Road and SW Hillman Ct
^d No sidewalk on the west side

⁷ *Wilsonville Transportation System Plan*, Adopted by Council, June 2013.

Pedestrian and Bicycle Facilities

Near the project site, Boeckman Road meets the City's standards for minor arterial and is improved with curbs, gutters, sidewalks and bike lanes on both sides of the street. The Kinsman Road extension that is currently under construction will run along the west side of the project site and is expected to have standard bike lanes and sidewalks once completed.

Public Transit Service

South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and the surrounding area.⁸ Route 5 travels on Boeckman Road, SW 95th Avenue, and SW Boones Ferry Road and provides service between the SMART Central station in Wilsonville to SW Pioneer Court in Wilsonville. There are two stops along Route 5 that are located on SW 95th Avenue. Route 2X provides service from the SMART Central station in Wilsonville to Barbur Station in Portland. This route travels on SW Boones Ferry Road, SW Wilsonville Road, Parkway Avenue, and SW Elligsen Road. There are two stops located near SW Parkway Avenue/Boeckman Road intersection on Route 2X. At the SW Wilsonville Road/SW Boones Ferry Road intersection, many SMART transit stops are located as the SMART transit station is located half a mile north of the intersection.

The Kinsman Road extension will include transit route and stop improvements when it is complete (it is currently under construction).

Future Planned Projects

Funded Projects

The following is a list of planned and funded projects included in the Wilsonville TSP⁹. Both of these projects are currently under design. A map of these improvements can be seen in the appendix.

- **RW-P2 Additional Queuing Lane on Southbound I-5 Ramp:** Construct a third queuing lane on the southbound I-5 ramp at the I-5/Wilsonville Road interchange.
- **RE-08 Kinsman Road Extension (South):** Construct 2-lane roadway with bike lanes, sidewalks, and transit stop improvements from Barber Street to Boeckman Road; project also includes a roundabout at Kinsman Road/Boeckman Road intersection

⁸ South Metro Area Regional Transit (SMART) operates several fixed routes that serve Wilsonville and make connections to TriMet in Portland, Cherriots in Salem, and Canby Area Transit. The City's transit center, "SMART Central at Wilsonville Station," provides connections to all SMART routes and to TriMet's Westside Express Service (WES) commuter rail station.

⁹ *Wilsonville Transportation System Plan*, Adopted by Council, June 2013.

Unfunded Projects

The following is a list of planned but unfunded projects included in the Wilsonville TSP. A map of these improvements can be seen in the appendix.

- **BW-02 95th Avenue Sidewalk Infill:** Fill in the sidewalk network on the east side of 95th Avenue from Boeckman Road to Hillman Court, and construct transit stop improvements.
- **RW-01 Boeckman Road Bridge and Corridor Improvements:** Widen Boeckman Road from Boberg Road to 500 feet east of Parkway Avenue to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes reconstruction of the bridge over I-5 and improvements at Boeckman Road/Boberg Road and Boeckman Road/Parkway Avenue intersections and adjacent transit stops.

Existing Traffic Volumes and Operations

Existing PM peak hour traffic operations were analyzed at the following study intersections based on coordination with city staff¹⁰:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

The counted volumes at these intersections were collected¹¹ during the PM peak hour when schools were in session. The volumes are shown in Figure 2. The following sections describe intersection performance measures, required operating standards, existing operating conditions, and field observations.

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations.

- **Level of service (LOS):** A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection.¹² LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D

¹⁰ Phone conversation with Steve Adams, City of Wilsonville, March 29th, 2017.

¹¹ Traffic data was collected on June 7th, 2017 by All Traffic Data.

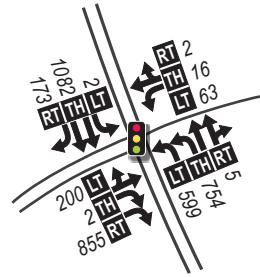
¹² A description of Level of Service (LOS) is provided in the appendix and includes a list of the delay values (in seconds) that correspond to each LOS designation.

and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.

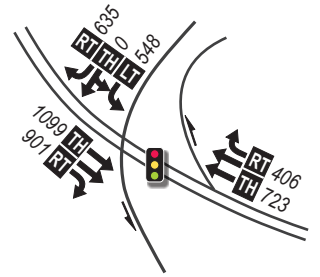
- **Volume-to-capacity (v/c) ratio:** A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.



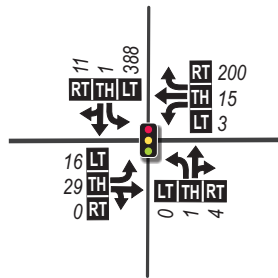
1. SW Boones Ferry Rd. @ SW 95th Ave.



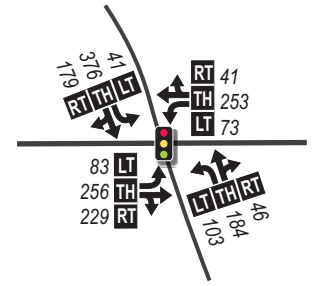
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



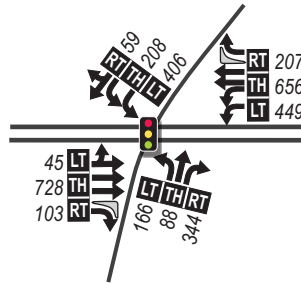
3. Boeckman Rd. @ SW 95th Ave.



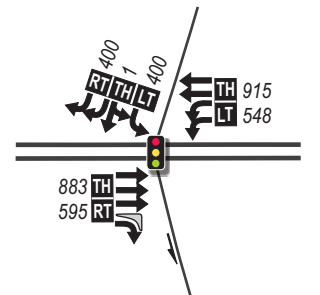
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Stop Sign
- Lane Configuration
- 000 - PM Peak Hour Traffic Volumes
- Volume Turn Movement
Left • Thru • Right

DKS



No Scale

Figure 2

**2017 Existing Conditions
PM Peak Hour
Traffic Volumes**

Required Operating Standards

The City of Wilsonville requires the study intersection of public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for peak periods.¹³ The typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio.¹⁴

However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville. While private driveway approaches are not required by City code to meet the City's LOS standard, the safety and operations of these driveways are still considered.

Existing Operating Conditions

Existing traffic operations at the study intersection were determined for the PM peak hour based on the 2000 Highway Capacity Manual methodology for signalized intersection.¹⁵ The results were then compared with the City of Wilsonville's minimum acceptable level of service (LOS) operating standard of LOS D or better and the ODOT Mobility Target of v/c ratio of 0.90 or better. Table 10 lists the estimated delay, LOS, and v/c ratio of each study intersection. The existing study intersections currently meet mobility targets and operating standards.

Table 10: Existing PM Peak Study Intersection Operations

Intersection	Mobility Targets/ Operating Standard	Existing PM Peak		
		Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	25.5	C	0.77
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.7	B	0.79
Boeckman Road/SW 95 th Avenue	LOS D	17.2	B	0.44
Boeckman Road/SW Parkway Avenue	LOS D	37.0	D	0.85
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.3	D	0.78
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.6	C	0.52
I-5 Southbound On-Ramp Meter	N/A	-	-	0.91

Delay = Average Intersection Delay (sec.) LOS = Level of Service v/c = Volume-to-Capacity Ratio

^aThe typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

It is important to note that the intersection operations at the study intersections shown in Table 2 represent typical operations. What this analysis does not include is incurred delay from incidents

¹³ *City of Wilsonville Code*, City of Wilsonville Section 4.140, p.163.

¹⁴ Table 6, Page 84, 1999 Oregon Highway Plan, Oregon Department of Transportation, Amended May 2015.

¹⁵ *2000 & 2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000/2010.

on the I-5 mainline and the ramp meter on the I-5 southbound ramp at Wilsonville Road that regulates the flow of traffic onto I-5.

The existing capacity of this ramp meter is 1,260 vehicles per hour. If the peak hour demand of the southbound on-ramp exceeds 1,260 vehicles, additional storage would be necessary to prevent spillback and associated impacts on SW Wilsonville Road.

Currently, approximately 1,144 vehicles are entering the southbound on-ramp during the peak hour which results in a volume to capacity (v/c) ratio of 0.91 which is nearing the ramp's full capacity. When traffic incidents occur on I-5 and I-205 such that the additional traffic exceeds the 1,260 vehicles or the I-5 mainline cannot deliver the existing traffic flow, the I-5/SW Wilsonville Road interchange is significantly impacted and vehicles experience traffic delays similar to level of service "F" (greater than 80 seconds of delay).

Field Observations

DKS observed the DW Fritz Renovation project area and the study intersections during the PM peak hour on a typical weekday to identify unique aspect of the project area and the study intersection operations. Observations were also taken to verify that actual intersection operations were consistent with the analysis results.¹⁶ Notable observations included:

Project Site and Driveways

- No sight distance issues were observed at either of the existing project site driveways.
- Boeckman Road in front of the project site was temporarily closed to through traffic due to construction on the Kinsman Road extension (see photo below, left).



Boeckman Road closed in front of project site due to construction (left) and queues on the southbound approach at Boeckman Road/SW Parkway Avenue

¹⁶ Field visit conducted on Thursday, July 13, 2017.

SW Boones Ferry Road/SW 95th Avenue

- Queues on the southbound approach reached as far back as the Day Rd intersection (see photo below, left) and queues on the northbound approach spilled back to the I-5 southbound off-ramp intersection (see photo below, right)



Queues at SW Boones Ferry Road/SW 95th Avenue southbound approach (left) and queues on the northbound approach (right)

Boeckman Road/SW Parkway Avenue

Approximately eleven vehicles were observed to be queuing during PM peak hour (see photo above, right) in both the southbound and eastbound directions.

- Eastbound vehicles were seen taking short gaps on right-turns-on-red.

SW Elligsen Road/I-5 Southbound Ramp

- Queues on the I-5 southbound on-ramp backed up onto Elligsen Road just past the ramp intersection. There is currently no ramp meter at this location.



Queues at SW Elligsen Road/I-5 Southbound Ramp

SW Wilsonville Road/I-5 Southbound Ramp and SW Wilsonville Road/SW Boones Ferry Road

- Queues on the I-5 southbound on-ramp reached capacity during the PM peak hour and backed up to Wilsonville Road (see two photos below)
- Queues on Wilsonville Road from the I-5 southbound ramp prevent northbound right turns and southbound left turns at SW Wilsonville Road/SW Boones Ferry Road intersection from entering the intersection during peak hours.



Looking east at the SW Wilsonville Road/I-5 southbound on-ramp intersection. Vehicle can be seen in intersection when cross traffic has green light.

CHAPTER 3: PROJECT IMPACTS

This chapter reviews the impacts that the proposed DW Fritz development may have on the study area transportation system. This analysis includes site plan evaluation, trip generation, trip distribution, and future year traffic volumes and operating conditions. The focus of the impact analysis is on the following study intersection identified by City of Wilsonville staff:

- SW Boones Ferry Road/SW 95th Avenue
- SW Elligsen Road/ I-5 Southbound Ramp
- Boeckman Road/95th Avenue
- Boeckman Road/SW Parkway Avenue
- SW Wilsonville Road/SW Boones Ferry Road
- SW Wilsonville Road/I-5 Southbound Ramp

Proposed Development

The proposed development involves renovating and occupying the existing 155,000 square foot industrial building. In addition, there will be a new 70,000 square foot high tech building and a 4,000 square foot sit-down restaurant. This development will have two existing driveways along Boeckman Road.

Trip Generation

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour). For this study, typical ITE trip generation data was used which is based on national land use data.¹⁷

Table 11 provides the trip generation for the proposed office and warehousing space renovation (Phase 1). The Phase 1 development is expected to generate approximately 105 total (38 in, 67 out) PM peak hour trips.

Table 11: PM Peak Hour Primary Trip Generation Phase 1

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1	Manufacturing (140)	155,000	0.68 ^a	38	67	105
Phase 1 Total Primary Trips				38	67	105

^aRate back-calculated from ITE equation

¹⁷ Intersection turning movements counts were collected on Tuesday, January 24, 2017. Additionally 24-hour bi-directional counts were collected on Tuesday thru Thursday, February 21, 22, and 23, 2017. Data was collected by All Traffic Data.

Table 12 provides the trip generation for both the renovated building and the additions of the high tech building and restaurant (Phase 2). It should be noted that the Phase 2 ITE equation trip generation associated with the manufacturing land use is lower than what was assumed in Phase 1. The ITE data has a trip rate that decreases as the total square footage increases. The proposed Phase 1 and Phase 2 development is expected to generate approximately 183 (75 in, 108 out) PM peak hour primary trips.

Table 12: PM Peak Hour Primary Trip Generation Phases 1 & 2

Phase	Land Use (ITE Code)	Building area (square feet)	Trip Rate per 1,000 square feet	In	Out	Total
1 and 2	Manufacturing (140)	155,000 + 70,000	0.64 ^a	52	44	144
2	Restaurant (932)	4,000	9.85	23	16	39
Phases 1 & 2 Total Primary Trips				75	108	183

^aRate back-calculated from ITE equation

As per ITE guidance,¹⁸ two reductions in primary trips were included in the trip generation analysis; internal trips and pass-by trips. The following paragraphs discuss these reductions and Table 13 displays the total net new trips after accounting for the internal and pass-by trip reductions.

Internal Trips. A reduction of internal trips was evaluated to reduce the total number of driveway trips to account for trips between uses (for example employees from the industrial uses staying to eat at the restaurant). An internal capture rate of 10% was applied to the PM peak hour primary trips of the restaurant. Internal trip reductions are shown in Table 13.

Pass-By Trips. A reduction of pass-by trips was evaluated for the proposed sit down restaurant to account for traffic that currently exists on the adjacent roadways that the proposed project will have primary access. Pass-by trips are subtracted out after the internal trips are applied and for this project, were only applied to the restaurant trip generation. Pass-by rate of 43% was taken from the ITE Trip Generation Handbook.¹⁹ Pass-by trips result in new driveway trips only and will not increase traffic to the adjacent roadways. Table 13 shows the reduction in primary trips due to pass-by trips for the sit down restaurant.

¹⁸ Institute of Transportation Engineers, Trip Generation Handbook, October 1998.

¹⁹ Institute of Transportation Engineers, Trip Generation Handbook, October 1998. Table F.30, Land Use Code 932.

Table 13: PM Peak Hour Net New Trips

	In	Out	Total
Total Primary Trips (Phases 1 and 2)	75	108	183
Internal Trip Reduction (10% of restaurant trips)	-2	-2	-4
Pass-By Trip Reduction (43% of restaurant trips)	-9	-6	-15
Net New Trips (Phase 1 and Phase 2)	64	100	164

After reducing the primary project restaurant trips in Phase 2 by the internal trip reduction of 10% and then the pass-by trips for the restaurant (43%), the net new total trips to the project site is 164 (64 in/ 100 out) during the PM peak hour.

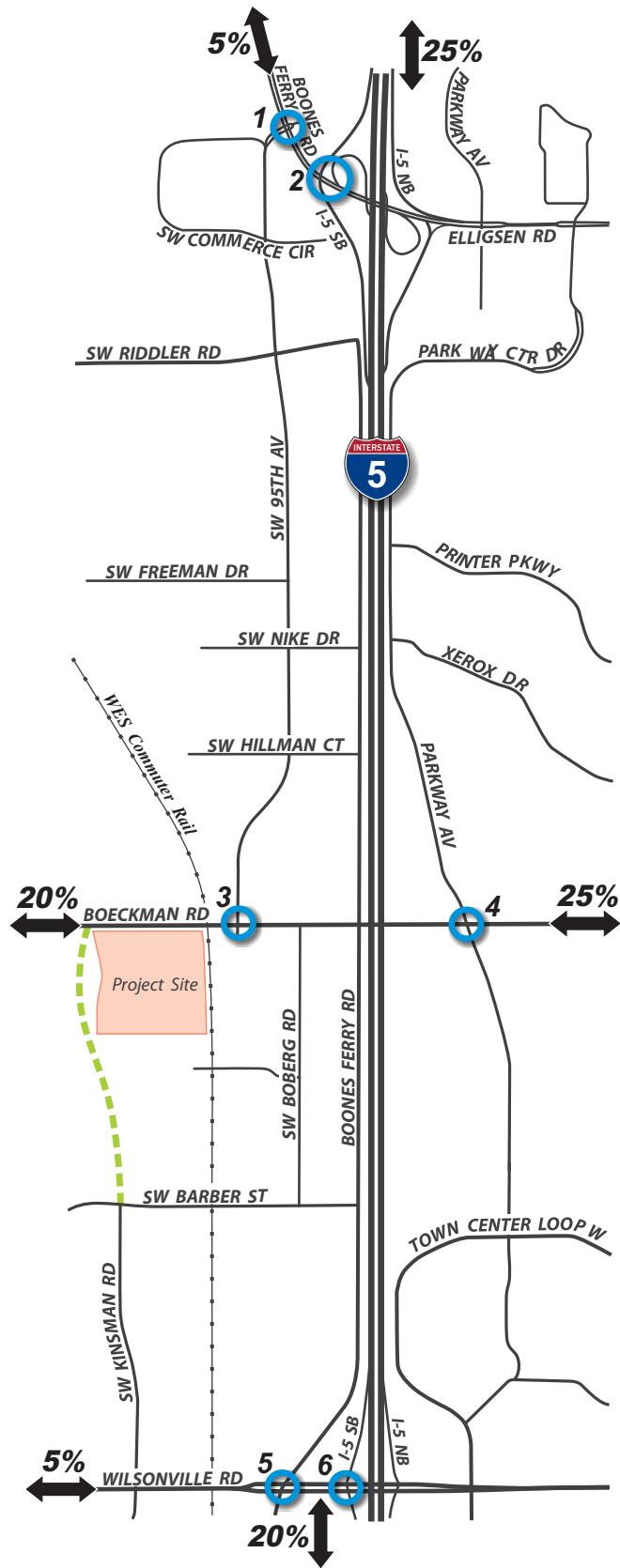
Trip Distribution

Trip distribution provides an estimate of where project-related trips would be coming from and going to. It is given as percentages at key gateways to the study area and is used to route project trips through the study intersections. Figure 3 shows the expected trip distribution and project trip routing for the additional traffic generated by the DW Fritz project. The trip distribution was estimated using the City of Wilsonville travel demand model.²⁰ The RE-08 Kinsman Road Extension (South) project is expected to be completed prior to the completion of the DW Fritz project. Therefore, project trips are shown to use this route in the trip distribution applied.

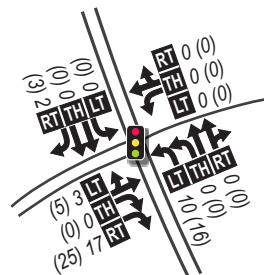
Project Trips Through City of Wilsonville Interchange Areas

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions. The proposed DW Fritz development is expected to generate 32 PM peak hour trips for Phase 1 and a total of 49 PM peak hour trips for Phases 1 & 2 through the I-5/SW Elligsen Road interchange area. The development is expected to generate 21 PM peak hour trips for Phase 1 and 33 PM peak hour trips for Phases 1 & 2 through the I-5/Wilsonville Road interchange area.

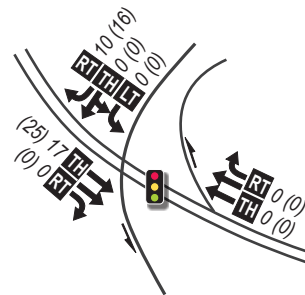
²⁰ *Wilsonville Travel Forecast Model, Select zone model run for DW Fritz Traffic Analysis Zone.*



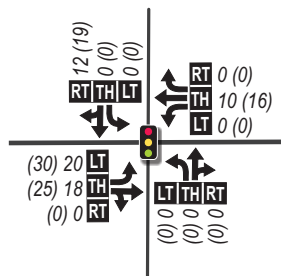
1. SW Boones Ferry Rd. @ SW 95th Ave.



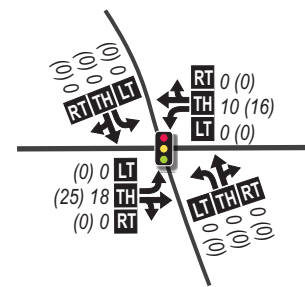
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



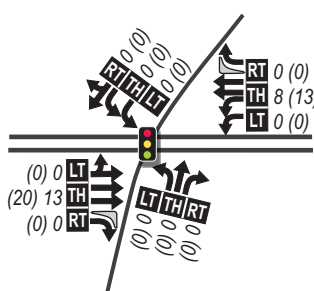
3. Boeckman Rd. @ SW 95th Ave.



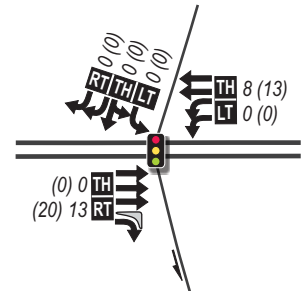
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- Stop Sign
- Lane Configuration
- 000 (000) - Phase 1 (Phases 1 & 2) PM Peak Hour Traffic Volumes
- Volume Turn Movement Left-Thru-Right
- Trip Distribution Percentage

DKS

No Scale

Figure 3

Trip Distribution & Project Trips PM Peak Hour Traffic Volumes

Future Traffic Volumes and Operating Conditions

The proposed DW Fritz renovation includes a combination of office, manufacturing, and restaurant space which will be completed in two phases. The first phase involves renovating the existing 155,000 square foot office and warehouse building. The second phase will add a new 70,000 square foot high tech building and a new 4,000 square foot sit-down restaurant to the project site. Future operating conditions were analyzed at the study intersections for the following future traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Stage II (includes traffic from other developments with Stage II approval or are under construction)
- Existing + Project Phase 1
- Existing + Project Phase 1 + Stage II
- Existing + Project (Phase 1 and Phase 2)
- Existing + Project (Phase 1 and Phase 2) + Stage II

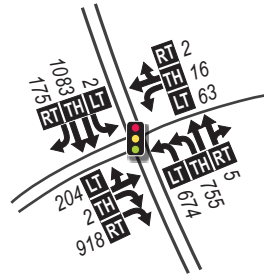
Future traffic volumes were estimated at the study intersection for each scenario. The future operating scenarios include various combinations of three types of traffic: existing, project, and Stage II. Stage II development trips are estimated based on the list of currently approved Stage II developments provided by City staff.²¹ The Stage II list and the corresponding PM peak hour trip generation estimates for these developments are included in the appendix.

Figure 4 show the PM peak hour traffic volumes used to analyze the “Existing plus Stage II” scenario. Figure 5 and Figure 6 show the PM peak hour traffic volumes used to analyze the “Existing plus Project” and “Existing plus Project plus Stage II” scenarios for each project phase.

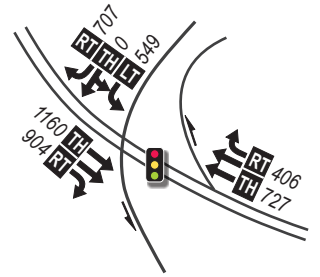
²¹ Email from Daniel Pauly, City of Wilsonville, June 16, 2017 (see appendix for Stage II list).



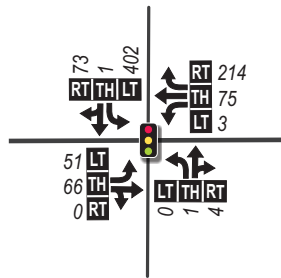
1. SW Boones Ferry Rd. @ SW 95th Ave.



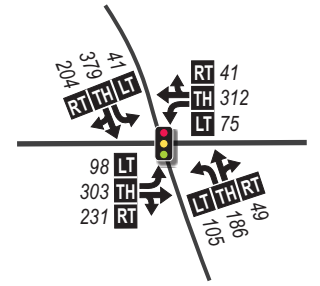
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



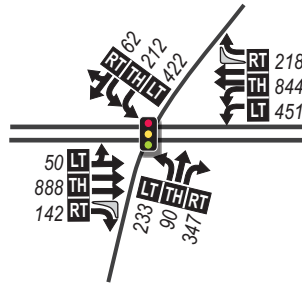
3. Boeckman Rd. @ SW 95th Ave.



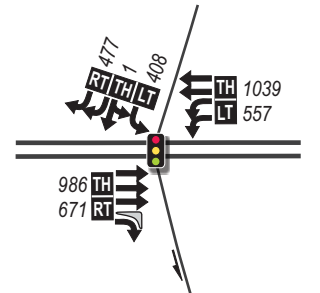
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Traffic Signal
- Planned Connection
- Stop Sign
- Lane Configuration
- Volume Turn Movement
Left • Thru • Right
- 000 - PM Peak Hour Traffic Volumes

DKS



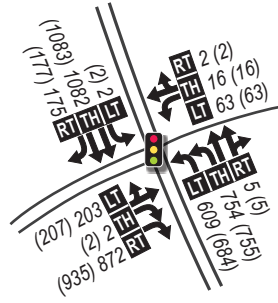
No Scale

Figure 4

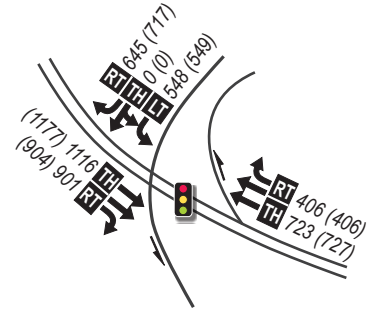
2017 Existing Conditions + Stage II PM Peak Hour Traffic Volumes



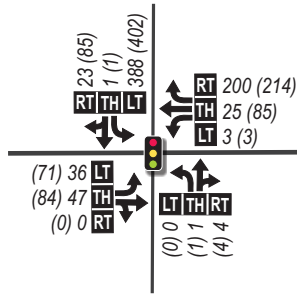
1. SW Boones Ferry Rd. @ SW 95th Ave.



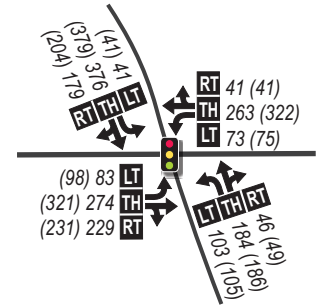
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



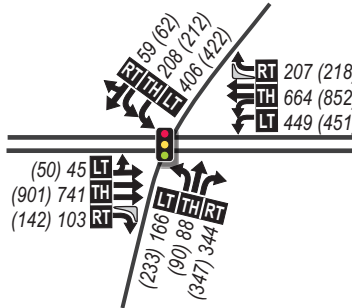
3. Boeckman Rd. @ SW 95th Ave.



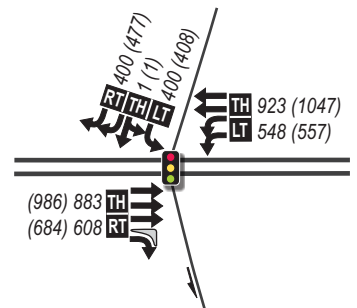
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Stop Sign
- Traffic Signal
- Planned Connection
- Lane Configuration
- Volume Turn Movement
Left • Thru • Right
- 000 (000) - Existing + Phase 1
(Existing + Phase 1 + Stage II)
PM Peak Hour Traffic Volumes

DKS



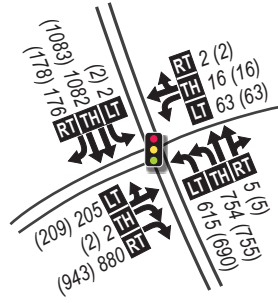
No Scale

Figure 5

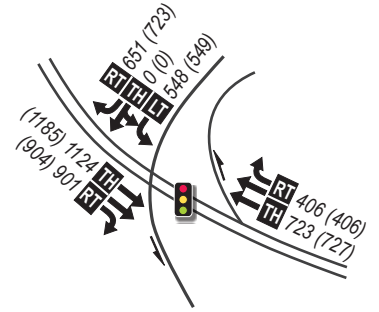
**Existing + Project Phase 1
PM Peak Hour
Traffic Volumes**



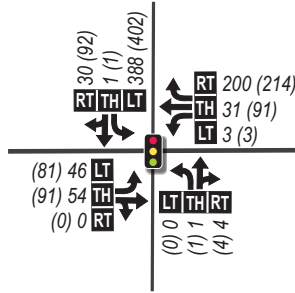
1. SW Boones Ferry Rd. @ SW 95th Ave.



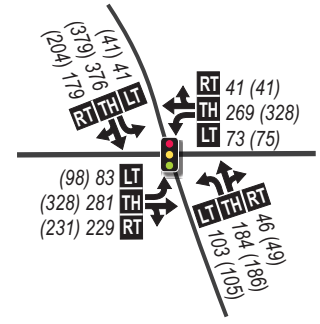
2. I-5 SB @ Elligsen Rd. / Boones Ferry Rd.



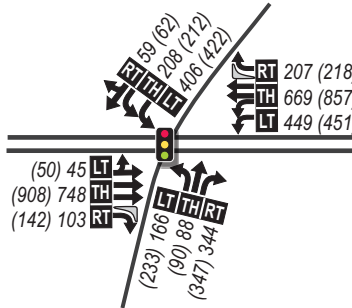
3. Boeckman Rd. @ SW 95th Ave.



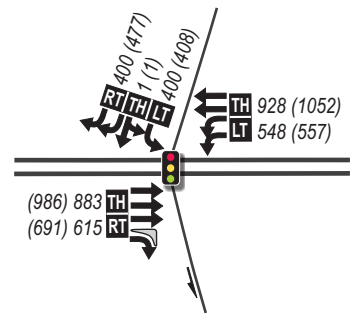
4. Boeckman Rd. @ SW Parkway Ave.



5. SW Boones Ferry Rd. @ SW Wilsonville Rd.



6. SW Wilsonville Rd. @ I-5 Southbound Ramp



LEGEND

- # - Study Intersection
- Stop Sign
- Traffic Signal
- Planned Connection
- Lane Configuration
- 000 (000) - Existing + Phases 1 & 2 (Existing + Phases 1 & 2 + Stage II) PM Peak Hour Traffic Volumes
- LT TH RT - Volume Turn Movement (Left • Thru • Right)



No Scale

Intersection Operations

The study intersection operating conditions for the project trips during Phase 1 development and future Stage II developments are listed in Table 14. All the study intersections meet operating standards for “Existing plus Phase 1,” “Existing plus Stage II,” and “Existing plus Project (Phase 1) plus Stage II” scenarios.

Table 14: Future Project (Phase 1) and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phase 1			Existing + Stage II			Existing + Phase 1 + Stage II		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	25.7	C	0.77	26.6	C	0.80	26.9	C	0.80
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.8	B	0.80	20.1	C	0.87	21.0	C	0.88
Boeckman Road/SW 95 th Avenue	LOS D	18.7	B	0.45	19.3	B	0.49	20.5	C	0.51
Boeckman Road/SW Parkway Avenue	LOS D	38.9	D	0.87	46.6	D	0.91	49.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.4	D	0.79	51.3	D	0.91	52.7	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.5	C	0.52	23.7	C	0.56	23.8	C	0.56
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99
Delay = Average Intersection Delay (sec.)		v/c = Volume-to-Capacity Ratio					LOS = Level of Service			

^aThe typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

The study intersection operating conditions for the project trips during Phases 1 and 2 development and future Stage II developments are listed in Table 15. Again, all the study intersections meet operating standards for “Existing plus Phases 1 & 2,” “Existing plus Stage II,” and “Existing plus Phases 1 and 2 plus Stage II” scenarios.

Table 15: Future Project (Phases 1 and 2) and Stage II Intersection Operations Comparison

Intersection	Mobility Target/ Operating Standard	Existing + Phases 1 and 2			Existing + Stage II			Existing + Phases 1 and 2 + Stage II		
		Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c
SW Boones Ferry Road/SW 95 th Avenue	LOS D	26.0	C	0.78	26.6	C	0.80	27.1	C	0.81
SW Elligsen Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	17.9	B	0.81	20.1	C	0.87	21.6	C	0.89
Boeckman Road/SW 95 th Avenue	LOS D	18.9	B	0.46	19.3	B	0.49	20.7	C	0.50
Boeckman Road/SW Parkway Avenue	LOS D	39.6	D	0.87	46.6	D	0.91	50.3	D	0.93
SW Wilsonville Road/SW Boones Ferry Road	LOS D	38.5	D	0.79	51.3	D	0.91	53.4	D	0.92
SW Wilsonville Road/I-5 Southbound Ramp	LOS D and 0.90 v/c ^a	23.4	C	0.52	23.7	C	0.56	23.9	C	0.57
I-5 Southbound On-Ramp Meter	N/A	-	-	0.92	-	-	0.98	-	-	0.99

Delay = Average Intersection Delay (sec.) v/c = Volume-to-Capacity Ratio LOS = Level of Service

^aThe typical ODOT mobility target for interchange ramps is a 0.85 v/c ratio. However, when the interchange vicinity is fully developed and adequate storage is available on the interchange ramp to prevent queues from backing up on the main line, then the target can be increased to a 0.90 v/c ratio. This is the case for the both I-5 interchange areas in Wilsonville.

Even though the SW Wilsonville Road/Southbound I-5 intersection does meet the 0.90 v/c mobility target for both Phase 1 and Phase 2, the southbound on-ramp signal meter is expected to experience an increase in future demand volumes during the peak hour. The on-ramp meter has a capacity of 1,260 vehicles per hour. These future demand projections would result in the ramp meter experiencing volume-to-capacity ratio of 0.99 by the completion of Phase 2.

Site Plan Evaluation

A site plan showing the proposed development can be found in the appendix. The site plan shows sufficient space for two way motor vehicle circulation except for trucks attempting to reach the proposed loading dock at the south side of the high tech building. Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

The existing site accesses to the proposed DW Fritz site include two driveways along Boeckman Road. The east driveway provides access to the parking lots on the east side of the

existing building. The west driveway connects to parking lots on the west side of the existing building and provides access to the proposed high tech building and restaurant.

City Code Requirement

The proposed 70,000 square-foot manufacturing building and 4,000 square-foot restaurant is required to comply with the City of Wilsonville Planning and Land Development code for the number of vehicular parking stalls and bicycle parking spaces that are provided on site.²² Table 16 lists the vehicular and bicycle parking requirements for both the proposed building and the entire site, which are based on the types and square footage of the various building uses. The table also lists the peak parking demand, which is estimated based on parking data published by the Institute of Transportation Engineers (ITE).²³

Table 16: Vehicular and Bicycle Parking Summary

Land Use (ITE Code)	Size (KSF ^a)	Estimated Peak Demand ^b	Spaces Required by City Code ^c		
			Vehicle Minimum	Vehicle Maximum	Bicycle Minimum
<i>New Building</i>					
Manufacturing (Land Use 140)	70	83	112	No limit	7
Restaurant (Land Use 932)	4	65	61	92	4
Total New Building	74	148	173	No limit	11
<i>Existing Building</i>					
Manufacturing (Land Use 140)	155	183	248	No limit	16
Total Existing Building	155	183	248	No limit	16
TOTAL SITE	229	331	421	No limit	27

^a KSF = 1,000 square feet

^b Estimated demand based on 85th percentile identified in the *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

^c City of Wilsonville, Planning and Land Development Ordinance, Section 4.155, Table 5, Updated June 2013.

As shown in Table 16, 173 vehicular stalls are needed to meet the minimum City Code requirements for the new building and 148 stalls are needed to satisfy the estimated peak parking demand. For the entire site, 421 vehicular stalls are needed to meet the minimum City Code requirements and 331 stalls are needed to satisfy the estimated peak parking demand. Because the site is expected to have 529 parking stalls, the site is expected to have sufficient available parking. The table above also indicates that 27 bicycle parking spaces are needed at the project site to meet the minimum City Code requirements. Currently, the site plan does not show any bicycle parking spaces. At minimum, 27 bicycle parking spaces will need to be built on the project site and should be located near building entrances in order to provide convenient access.

²² City of Wilsonville, Planning and Land Development Ordinance, Sections 4.154-4.198, Updated Feb. 2004.

²³ *Parking Generation, 4th Edition*, Institute of Transportation Engineers, 2010.

Access Spacing and Sight Distance

The two existing driveways along Boeckman Road are spaced at approximately 460 feet from 95th Avenue, approximately 400 feet apart from each other, and approximately 560 feet from Kinsman and do not conform with the City's minimum access spacing standards (600 feet) in the TSP for a minor arterial.²⁴ The existing accesses will require a variance to the City's access spacing standards.

Preliminary sight distance was evaluated at the existing site driveways on Boeckman Road and there were no concerns. Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

Project Impact Summary

The DW Fritz development is anticipated to result in the following impacts:

Trip Generation

- The development is expected to be completed in two phases; Phase 1 includes a 155,000 square foot renovation to a currently vacant warehouse. Phase 2 includes the addition of a 70,000 square foot high tech building and a 4,000 square foot restaurant.
- Phase 1 of the development is expected to generate an additional 105 (38 in, 67 out) PM peak hour trips and Phases 1 & 2 of the development is expected to generate an additional 164 (64 in, 100 out) PM peak hour trips.
- Of the 105 total Phase 1 project trips, 32 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 21 PM peak hour trips through the I-5/Wilsonville Road interchange area.
- Of the total 164 Phase 1 and Phase 2 project trips, 49 new PM peak hour trips are estimated to pass through the I-5/SW Elligsen Road interchange area and 33 PM peak hour trips through the I-5/Wilsonville Road interchange area.

Intersection Operations

- All the study intersections meet the operating standard/mobility targets for all scenarios.

Site Plan Evaluation

- Turn radius does not appear to be sufficient for trucks to arrive and depart from the loading dock based on a preliminary evaluation of the site plan provided. It is recommended that the project sponsor provide turn templates showing safe circulation

²⁴ City of Wilsonville Transportation System Plan, Table 3-2, Amended June 2016.

to the loading dock or the project site should be reconfigured to accommodate truck turning movements.

- The City Code requirement for vehicular parking is 421 parking stalls at the project site and the parking demand is estimated at 331 parking stalls. The site plan proposes 529 stalls, meeting the city code requirement and parking demand. The minimum bicycle parking stall requirement per City Code is 27 stalls. The site plan does not currently show any bicycle parking stalls.

Access Spacing and Sight Distance

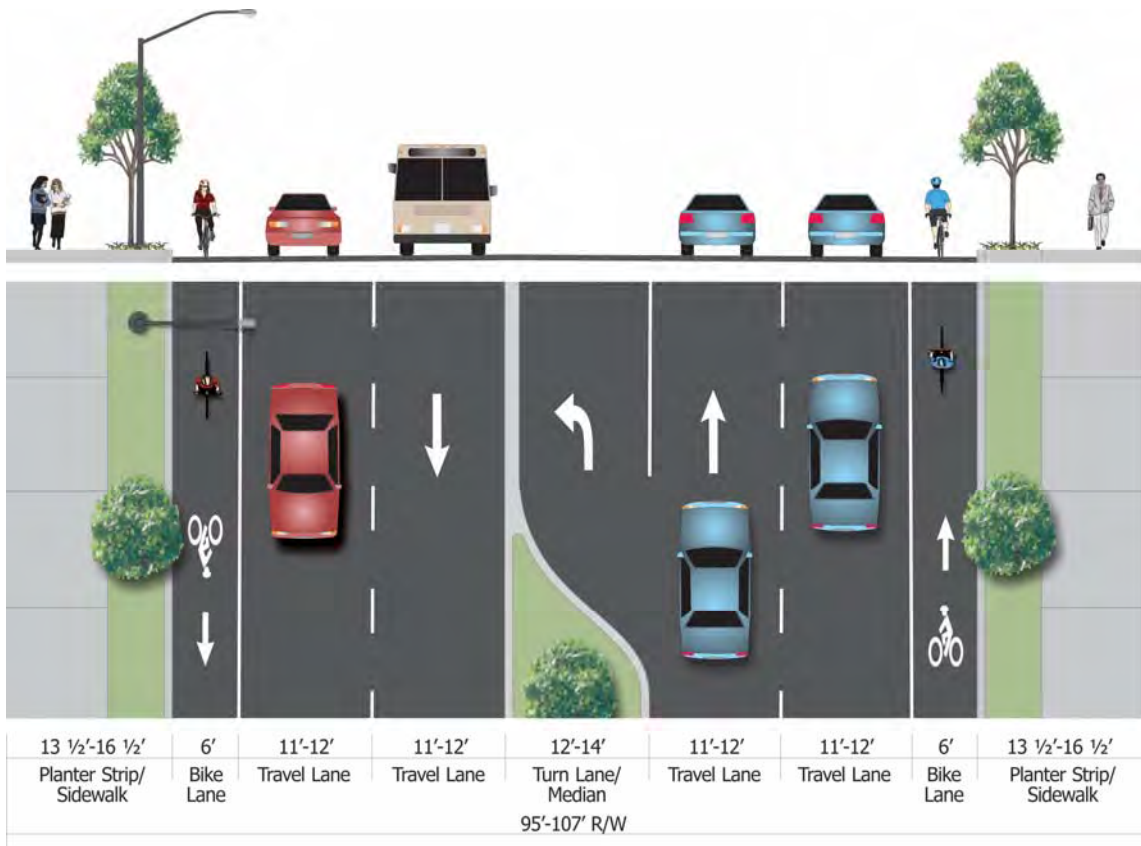
- The driveways along Boeckman Road do not conform with the current minimum access spacing standards (600 feet) in the TSP for a minor arterial. The existing accesses will require a variance to the City's access spacing standards.
- Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs or landscaping does not restrict sight distance.

APPENDIX

City of Wilsonville Cross-section Details
City of Wilsonville TSP Planned Projects
Existing PM Peak Hour Traffic Counts
Level of Service Descriptions
Trip Generation Summary
City of Wilsonville Stage II List
HCM Analysis – Existing
HCM Analysis – Existing + Stage II
HCM Analysis – Existing + Project Phase 1
HCM Analysis – Existing + Project Phase 1 + Stage II
HCM Analysis – Existing + Project Phase 2
HCM Analysis – Existing + Project Phase 2 + Stage II

City of Wilsonville Cross-section Details

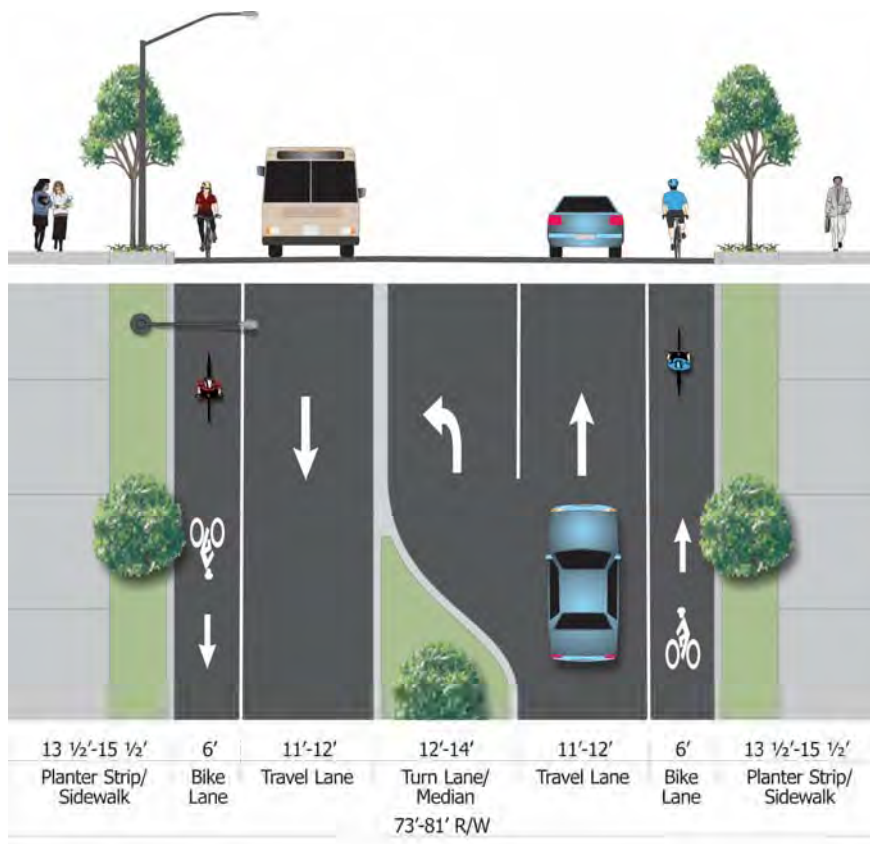
FIGURE 3-6. MAJOR ARTERIAL CROSS-SECTION



Notes:

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 16½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½-foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on major arterials (especially freight routes).

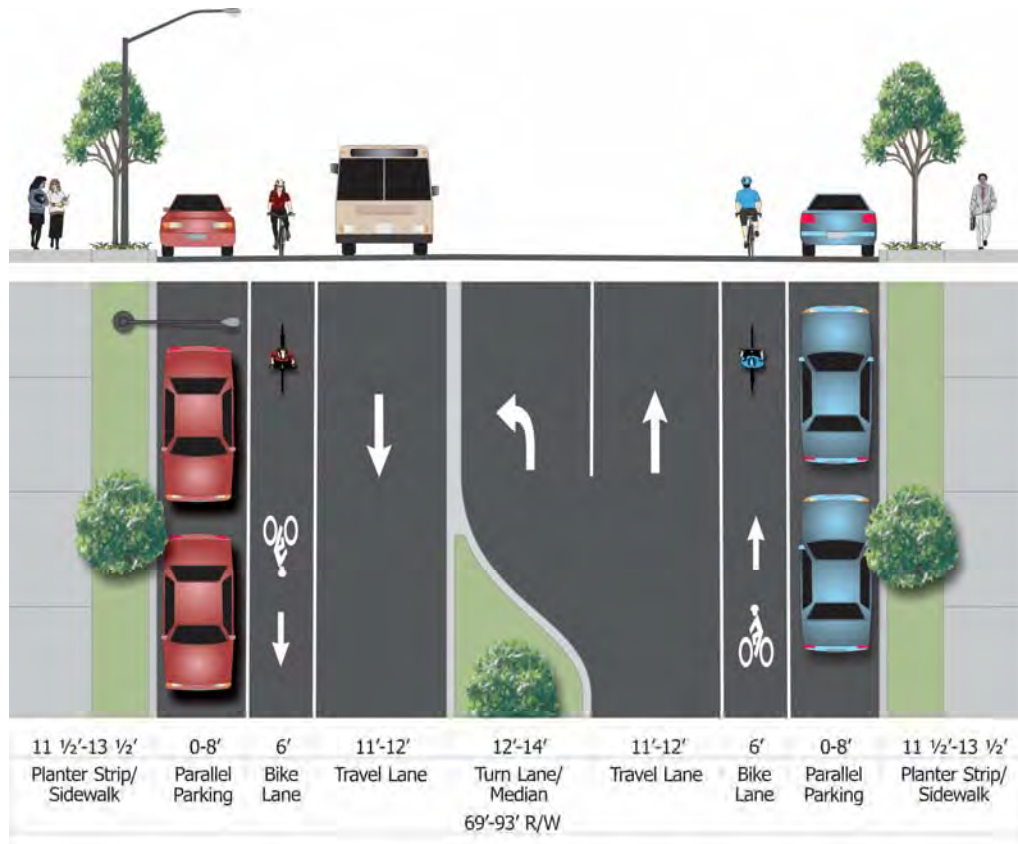
FIGURE 3-7. MINOR ARTERIAL CROSS-SECTION



Notes:

1. Travel lane and turn lane/median widths as determined by Community Development Director.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 13½ to 15½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb width of ½ foot is included in the sidewalk/planter strip width.
4. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
5. Striping and signage as required in the PW Standards.
6. On-street parking is not allowed.
7. Transit stop locations to be determined by Transit Director.
8. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
9. New streets shall incorporate low impact development design as practicable.
10. Allow for separation for bikes on minor arterials (especially freight routes).

FIGURE 3-8. COLLECTOR CROSS-SECTION



Notes:

1. Collector right-of-way varies between 59 to 89 feet as determined by Community Development Director based on surrounding planned development of residential, commercial or industrial and need for on-street parking and/or turn lane/median.
2. Minimum sidewalk width is 5 feet; actual sidewalk width as determined by Community Development Director. Width of sidewalk/planting strip may be combined in commercial/retail areas for a total width of 11½ to 13½ feet; street trees shall be located in minimum 4-foot tree wells.
3. Curb and sidewalk bulb-outs at crosswalks or street intersections as determined by Community Development Director.
4. Curb width of ½ foot is included in the sidewalk/planter strip width.
5. Street lights shall be located within the planter strip, center landscape median, or sidewalk as determined by Community Development Director.
6. Travel lane and turn lane/median widths as determined by Community Development Director. Turn lane/median may be eliminated.
7. Striping and signage as required in the PW Standards.
8. On-street parking on one or both sides is allowed.
9. Transit stop locations to be determined by Transit Director.
10. When not needed as a left-turn lane, median may be provided to serve safety, stormwater, or aesthetic objectives.
11. New streets shall incorporate low impact development design as practicable.

City of Wilsonville TSP Planned Projects

FIGURE 5-2. HIGHER PRIORITY PROJECTS

This figure provides an overall perspective of the Higher Priority projects throughout the city. Additional details are provided on the pages that follow for each of the City's four quadrants (Northwest, Northeast, Southwest, Southeast), which use I-5 and Boeckman Road as dividing lines.

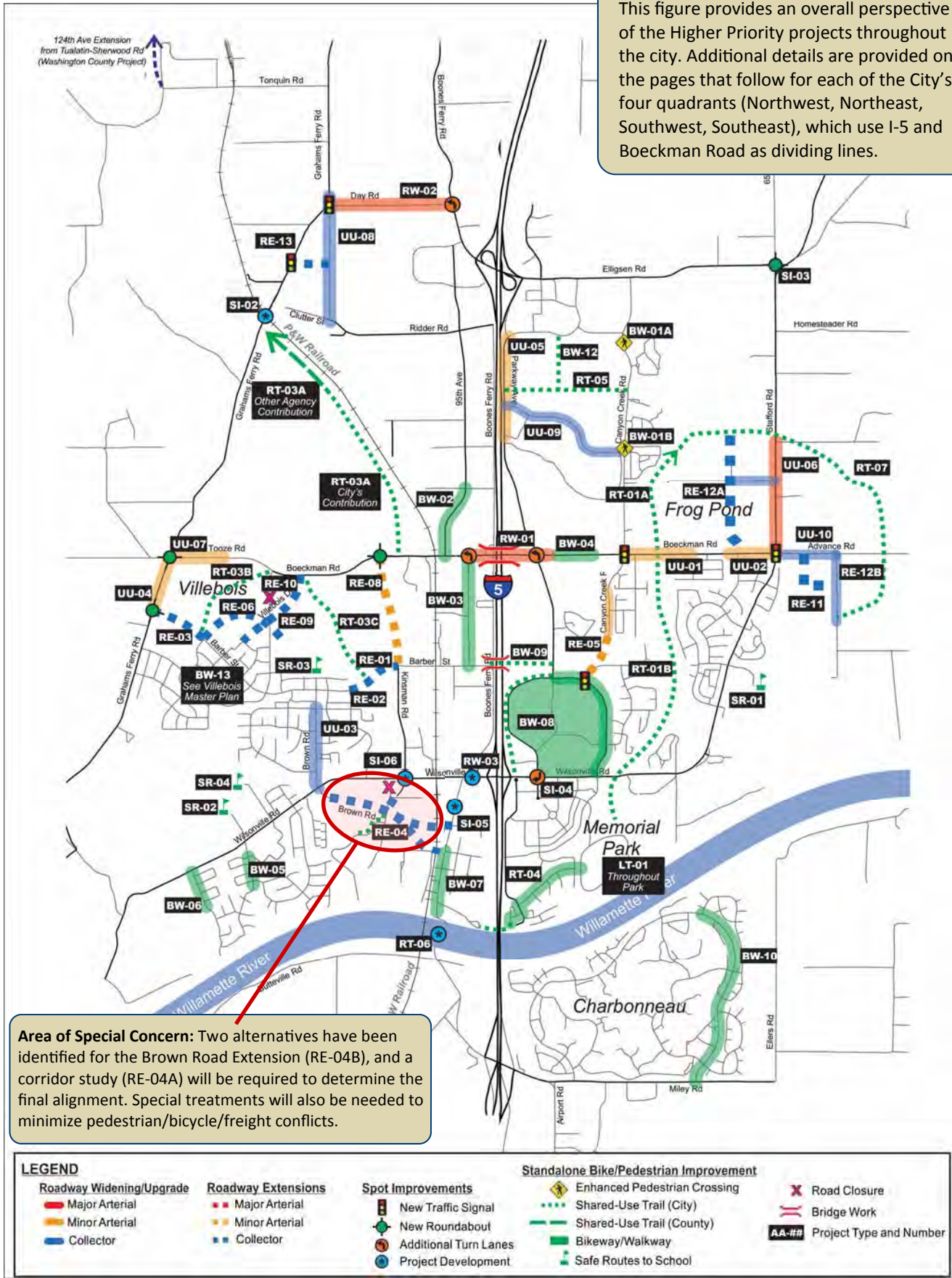
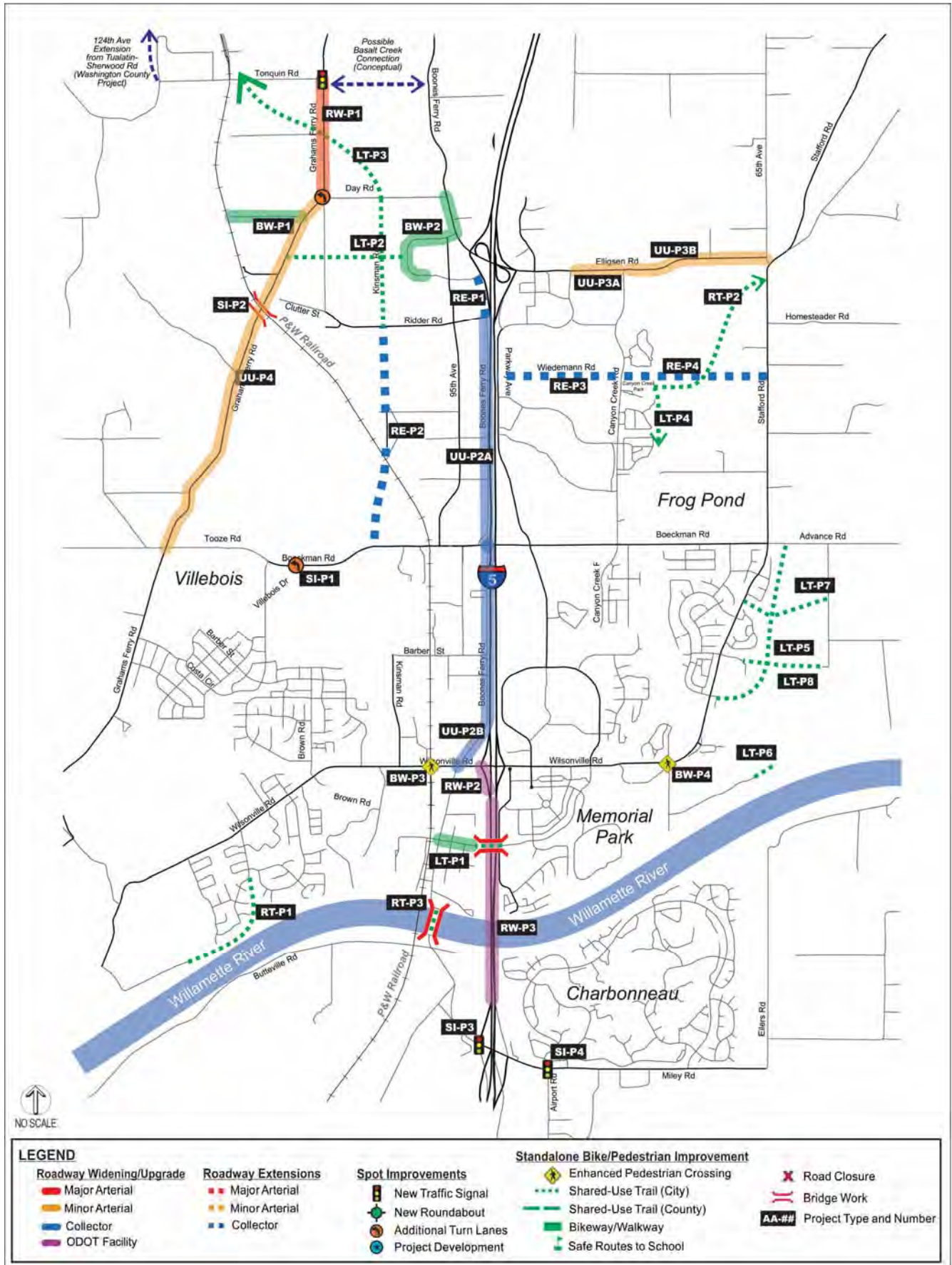


FIGURE 5-7. ADDITIONAL PLANNED PROJECTS

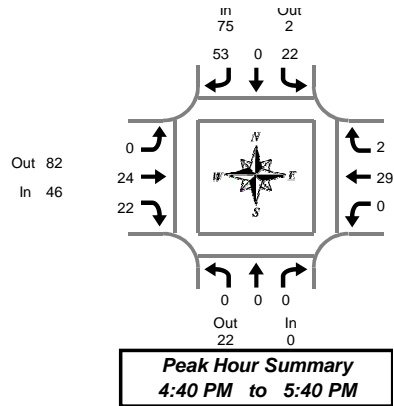


Existing PM Peak Hour Traffic Counts

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



I-5 SB Ramp & SW Elligsen Rd

Wednesday, June 07, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	2	0	5	7	0	4	4	8	0	3	0	3	18
4:05 PM	0	0	0	0	3	0	9	12	0	3	6	9	0	4	0	4	25
4:10 PM	0	0	0	0	2	0	5	7	0	3	1	4	0	2	1	3	14
4:15 PM	0	0	0	0	0	0	10	10	0	5	4	9	0	3	1	4	23
4:20 PM	0	0	0	0	2	0	6	8	0	2	2	4	0	4	1	5	17
4:25 PM	0	0	0	0	2	0	1	3	0	5	1	6	0	6	1	7	16
4:30 PM	0	0	0	0	1	0	12	13	0	4	2	6	0	4	0	4	23
4:35 PM	0	0	0	0	0	0	6	6	0	1	3	4	0	5	0	5	15
4:40 PM	0	0	0	0	1	0	10	11	0	3	3	6	0	4	0	4	21
4:45 PM	0	0	0	0	4	0	8	12	0	2	4	6	0	1	0	1	19
4:50 PM	0	0	0	0	3	0	5	8	0	1	2	3	0	2	0	2	13
4:55 PM	0	0	0	0	1	0	4	5	0	3	3	6	0	1	0	1	12
5:00 PM	0	0	0	0	2	0	1	3	0	2	1	3	0	7	1	8	14
5:05 PM	0	0	0	0	0	0	3	3	0	4	0	4	0	2	1	3	10
5:10 PM	0	0	0	0	1	0	6	7	0	2	1	3	0	0	0	0	10
5:15 PM	0	0	0	0	2	0	4	6	0	4	2	6	0	4	0	4	16
5:20 PM	0	0	0	0	3	0	1	4	0	0	4	4	0	1	0	1	9
5:25 PM	0	0	0	0	4	0	3	7	0	1	0	1	0	2	0	2	10
5:30 PM	0	0	0	0	1	0	6	7	0	0	1	1	0	4	0	4	12
5:35 PM	0	0	0	0	0	0	2	2	0	2	1	3	0	1	0	1	6
5:40 PM	0	0	0	0	3	0	4	7	0	2	0	2	0	2	0	2	11
5:45 PM	0	0	0	0	2	0	2	4	0	3	2	5	0	0	1	1	10
5:50 PM	0	0	0	0	0	0	3	3	0	2	1	3	0	3	0	3	9
5:55 PM	0	0	0	0	2	0	3	5	0	4	2	6	0	1	0	1	12
Total Survey	0	0	0	0	41	0	119	160	0	62	50	112	0	66	7	73	345

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	7	0	19	26	0	10	11	21	0	9	1	10	57
4:15 PM	0	0	0	0	4	0	17	21	0	12	7	19	0	13	3	16	56
4:30 PM	0	0	0	0	2	0	28	30	0	8	8	16	0	13	0	13	59
4:45 PM	0	0	0	0	8	0	17	25	0	6	9	15	0	4	0	4	44
5:00 PM	0	0	0	0	3	0	10	13	0	8	2	10	0	9	2	11	34
5:15 PM	0	0	0	0	9	0	8	17	0	5	6	11	0	7	0	7	35
5:30 PM	0	0	0	0	4	0	12	16	0	4	2	6	0	7	0	7	29
5:45 PM	0	0	0	0	4	0	8	12	0	9	5	14	0	4	1	5	31
Total Survey	0	0	0	0	41	0	119	160	0	62	50	112	0	66	7	73	345

Heavy Vehicle Peak Hour Summary

4:40 PM to 5:40 PM

By Approach	Northbound I-5 SB Ramp			Southbound I-5 SB Ramp			Eastbound SW Elligsen Rd			Westbound SW Elligsen Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	22	22	75	2	77	46	82	128	31	46	77	152
PHF	0.00			0.60			0.77			0.65			0.72

By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	22	0	53	75	0	24	22	46	0	29	2	31	152
PHF	0.00	0.00	0.00	0.00	0.61	0.00	0.58	0.60	0.00	0.60	0.61	0.77	0.00	0.73	0.25	0.65	0.72

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Elligsen Rd				Westbound SW Elligsen Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	21	0	81	102	0	36	35	71	0	39	4	43	216
4:15 PM	0	0	0	0	17	0	72	89	0	34	26	60	0	39	5	44	193
4:30 PM	0	0	0	0	22	0	63	85	0	27	25	52	0	33	2	35	172
4:45 PM	0	0	0	0	24	0	47	71	0	23	19	42	0	27	2	29	142
5:00 PM	0	0	0	0	20	0	38	58	0	26	15	41	0	27	3	30	129

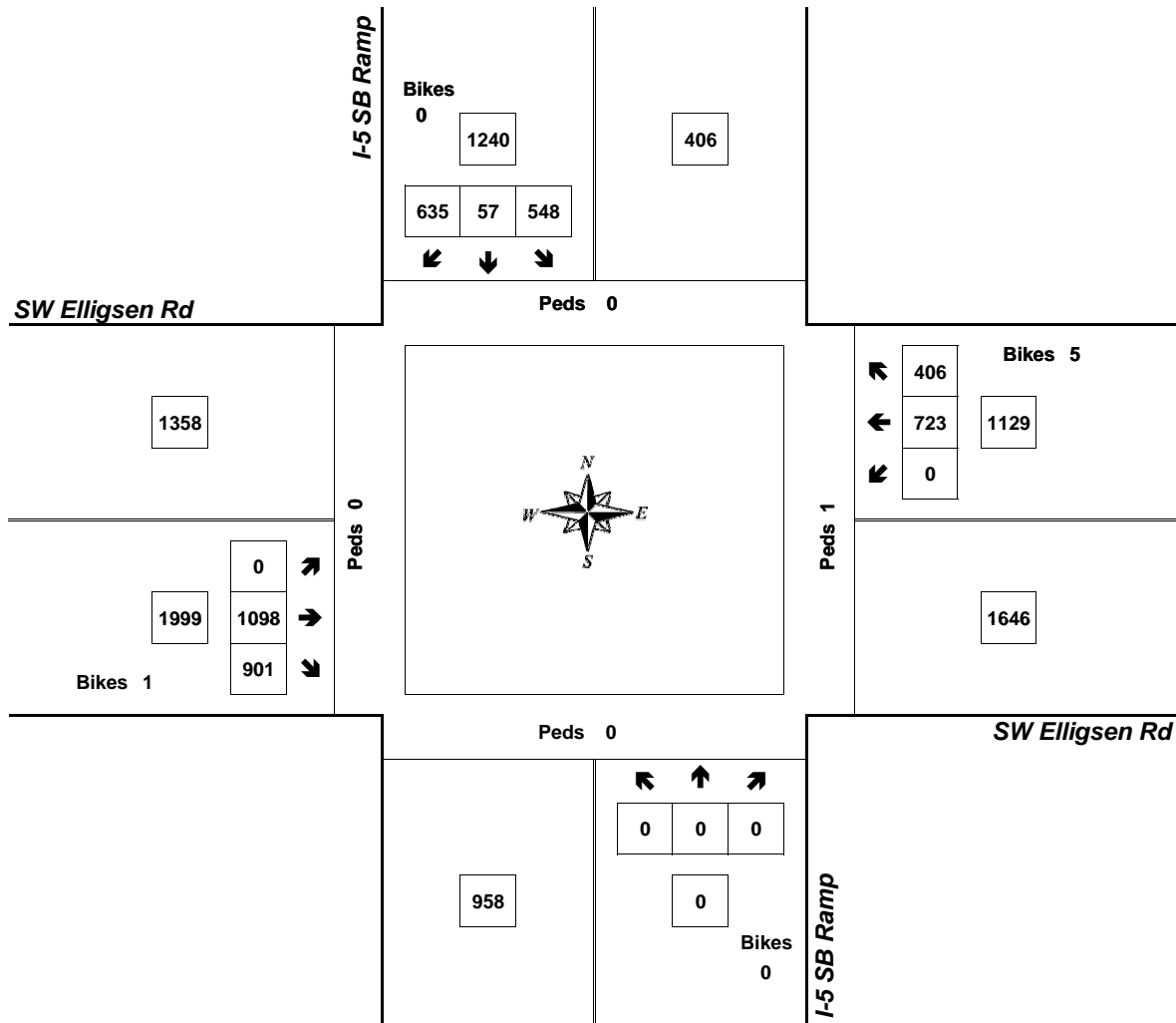
Peak Hour Summary



Clay Carney
(503) 833-2740

I-5 SB Ramp & SW Elligsen Rd

4:40 PM to 5:40 PM
Wednesday, June 07, 2017



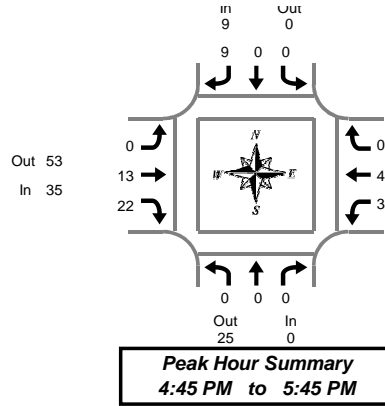
Approach	PHF	HV%	Volume
EB	0.94	2.3%	1,999
WB	0.83	2.7%	1,129
NB	0.00	0.0%	0
SB	0.94	6.0%	1,240
Intersection	0.94	3.5%	4,368

Count Period: 4:00 PM to 6:00 PM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



I-5 SB Ramp & SW Wilsonville Rd

Wednesday, June 07, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	2	0	2	7
4:05 PM	0	0	0	0	0	0	3	3	0	6	2	8	0	4	0	4	15
4:10 PM	0	0	0	0	0	0	0	0	0	3	3	6	0	2	0	2	8
4:15 PM	0	0	0	0	0	0	1	1	0	5	0	5	4	7	0	11	17
4:20 PM	0	0	0	0	0	0	1	1	0	3	2	5	0	5	0	5	11
4:25 PM	0	0	0	0	0	0	1	1	0	2	0	2	1	5	0	6	9
4:30 PM	0	0	0	0	1	0	1	2	0	1	1	2	1	4	0	5	9
4:35 PM	0	0	0	0	0	0	1	1	0	1	0	1	0	3	0	3	5
4:40 PM	0	0	0	0	1	0	0	1	0	2	3	5	1	6	0	7	13
4:45 PM	0	0	0	0	0	0	0	0	0	3	5	8	0	3	0	3	11
4:50 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	5	0	5	6
4:55 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	2	0	2	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	12	0	12	15
5:05 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	4	0	4	7
5:10 PM	0	0	0	0	0	0	2	2	0	2	1	3	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	1	1	0	1	2	3	1	3	0	4	8
5:20 PM	0	0	0	0	0	0	0	0	0	3	1	4	0	7	0	7	11
5:25 PM	0	0	0	0	0	0	1	1	0	0	1	1	0	3	0	3	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	2	4
5:35 PM	0	0	0	0	0	0	1	1	0	1	1	2	0	0	0	0	3
5:40 PM	0	0	0	0	0	0	2	2	0	1	3	4	2	3	0	5	11
5:45 PM	0	0	0	0	1	0	0	1	0	4	2	6	2	5	0	7	14
5:50 PM	0	0	0	0	0	0	1	1	0	1	0	1	1	1	0	2	4
5:55 PM	0	0	0	0	2	0	1	3	0	0	1	1	0	2	0	2	6
Total Survey	0	0	0	0	5	0	19	24	0	46	36	82	13	90	0	103	209

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	3	3	0	14	5	19	0	8	0	8	30
4:15 PM	0	0	0	0	0	0	3	3	0	10	2	12	5	17	0	22	37
4:30 PM	0	0	0	0	2	0	2	4	0	4	4	8	2	13	0	15	27
4:45 PM	0	0	0	0	0	0	1	1	0	4	7	11	0	10	0	10	22
5:00 PM	0	0	0	0	0	0	3	3	0	3	5	8	0	16	0	16	27
5:15 PM	0	0	0	0	0	0	2	2	0	4	4	8	1	13	0	14	24
5:30 PM	0	0	0	0	0	0	3	3	0	2	6	8	2	5	0	7	18
5:45 PM	0	0	0	0	3	0	2	5	0	5	3	8	3	8	0	11	24
Total Survey	0	0	0	0	5	0	19	24	0	46	36	82	13	90	0	103	209

Heavy Vehicle Peak Hour Summary

4:45 PM to 5:45 PM

By Approach	Northbound I-5 SB Ramp			Southbound I-5 SB Ramp			Eastbound SW Wilsonville Rd			Westbound SW Wilsonville Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	25	25	9	0	9	35	53	88	47	13	60	91
PHF	0.00			0.56			0.80			0.62			0.84

By Movement	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	0	0	9	9	0	13	22	35	3	44	0	47	91
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.00	0.54	0.79	0.80	0.38	0.58	0.00	0.62	0.84

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound I-5 SB Ramp				Southbound I-5 SB Ramp				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	2	0	9	11	0	32	18	50	7	48	0	55	116
4:15 PM	0	0	0	0	2	0	9	11	0	21	18	39	7	56	0	63	113
4:30 PM	0	0	0	0	2	0	8	10	0	15	20	35	3	52	0	55	100
4:45 PM	0	0	0	0	0	0	9	9	0	13	22	35	3	44	0	47	91
5:00 PM	0	0	0	0	3	0	10	13	0	14	18	32	6	42	0	48	93

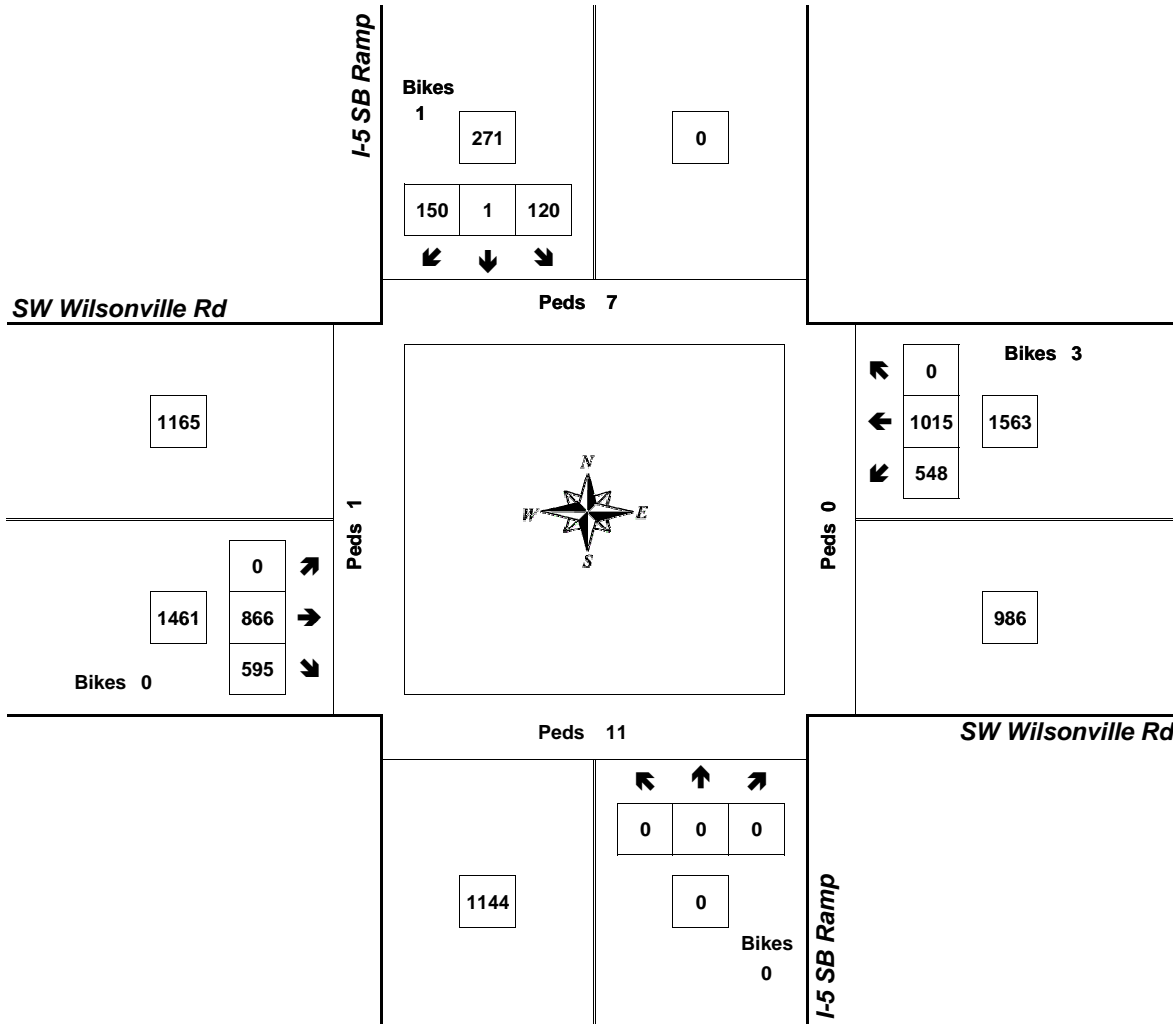
Peak Hour Summary



Clay Carney
(503) 833-2740

I-5 SB Ramp & SW Wilsonville Rd

4:45 PM to 5:45 PM
Wednesday, June 07, 2017



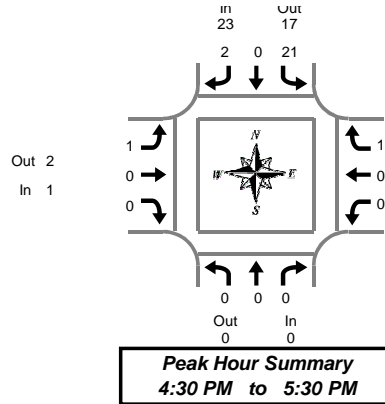
Approach	PHF	HV%	Volume
EB	0.91	2.4%	1,461
WB	0.93	3.0%	1,563
NB	0.00	0.0%	0
SB	0.81	3.3%	271
Intersection	0.98	2.8%	3,295

Count Period: 4:00 PM to 6:00 PM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



SW 95th Ave & SW Boeckman Rd

Wednesday, June 07, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	3	0	0	3	1	0	0	1	0	0	2	2	6
4:10 PM	0	0	0	0	3	0	1	4	0	0	0	0	0	0	2	2	6
4:15 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	3	6
4:20 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
4:25 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3	5
4:35 PM	0	0	0	0	4	0	1	5	0	0	0	0	0	0	3	3	8
4:40 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	2
4:45 PM	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	5
4:50 PM	0	0	0	0	2	0	0	2	1	0	0	1	0	0	3	3	6
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
5:05 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	4
5:10 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2	3
5:20 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3
5:25 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
5:40 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Survey	0	0	0	0	34	0	3	37	3	0	0	3	0	0	26	26	66

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	6	0	1	7	1	0	0	1	0	0	4	4	12
4:15 PM	0	0	0	0	4	0	0	4	1	0	0	1	0	0	4	4	9
4:30 PM	0	0	0	0	6	0	2	8	0	0	0	0	0	0	7	7	15
4:45 PM	0	0	0	0	7	0	0	7	1	0	0	1	0	0	3	3	11
5:00 PM	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	4	7
5:15 PM	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	2	7
5:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	3
5:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
Total Survey	0	0	0	0	34	0	3	37	3	0	0	3	0	0	26	26	66

Heavy Vehicle Peak Hour Summary 4:30 PM to 5:30 PM

By Approach	Northbound SW 95th Ave			Southbound SW 95th Ave			Eastbound SW Boeckman Rd			Westbound SW Boeckman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	23	17	40	1	2	3	16	21	37	40
PHF	0.00			0.52			0.25			0.57			0.67

By Movement	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	21	0	2	23	1	0	0	1	0	0	16	16	40
PHF	0.00	0.00	0.00	0.00	0.58	0.00	0.25	0.52	0.25	0.00	0.00	0.25	0.00	0.00	0.57	0.57	0.67

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound SW 95th Ave				Southbound SW 95th Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	23	0	3	26	3	0	0	3	0	0	18	18	47
4:15 PM	0	0	0	0	20	0	2	22	2	0	0	2	0	0	18	18	42
4:30 PM	0	0	0	0	21	0	2	23	1	0	0	1	0	0	16	16	40
4:45 PM	0	0	0	0	17	0	0	17	1	0	0	1	0	0	10	10	28
5:00 PM	0	0	0	0	11	0	0	11	0	0	0	0	0	0	8	8	19

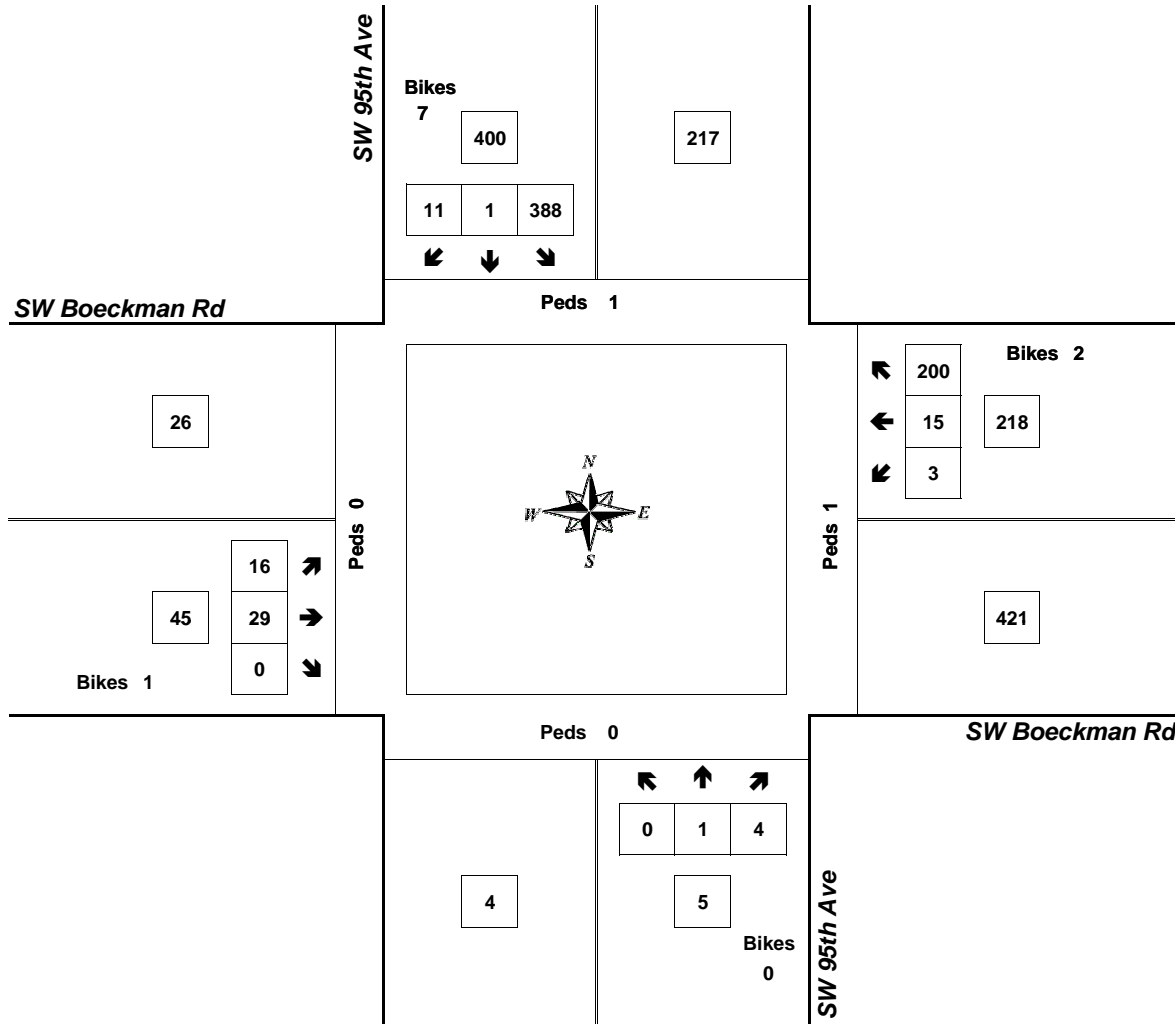
Peak Hour Summary



Clay Carney
(503) 833-2740

SW 95th Ave & SW Boeckman Rd

4:30 PM to 5:30 PM
Wednesday, June 07, 2017



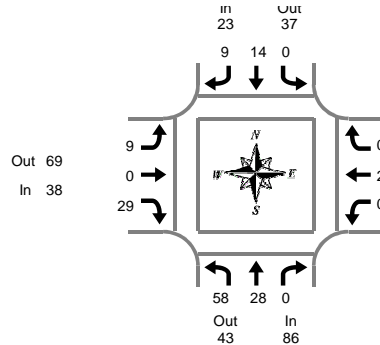
Approach	PHF	HV%	Volume
EB	0.59	2.2%	45
WB	0.77	7.3%	218
NB	0.42	0.0%	5
SB	0.88	5.8%	400
Intersection	0.89	6.0%	668

Count Period: 4:00 PM to 6:00 PM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Peak Hour Summary
4:40 PM to 5:40 PM

SW Boones Ferry Rd & SW 95th Ave

Wednesday, June 07, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	3	3	0	6	0	3	0	3	3	0	3	6	0	1	0	1	16
4:05 PM	9	3	0	12	0	1	0	1	0	0	4	4	0	0	0	0	17
4:10 PM	12	3	0	15	0	5	0	5	0	0	5	5	0	0	0	0	25
4:15 PM	6	4	0	10	0	5	0	5	1	0	3	4	0	0	0	0	19
4:20 PM	7	2	0	9	0	4	1	5	2	0	0	2	0	0	0	0	16
4:25 PM	3	2	0	5	0	3	2	5	0	0	4	4	0	0	0	0	14
4:30 PM	10	3	0	13	0	3	0	3	1	0	6	7	0	0	0	0	23
4:35 PM	9	4	0	13	0	2	1	3	0	0	1	1	0	0	0	0	17
4:40 PM	7	7	0	14	0	0	1	1	1	0	3	4	0	1	0	1	20
4:45 PM	4	8	0	12	0	3	0	3	1	0	2	3	0	0	0	0	18
4:50 PM	4	2	0	6	0	0	2	2	1	0	3	4	0	0	0	0	12
4:55 PM	5	2	0	7	0	3	2	5	1	0	4	5	0	0	0	0	17
5:00 PM	6	1	0	7	0	0	1	1	0	0	1	1	0	0	0	0	9
5:05 PM	4	1	0	5	0	1	1	2	0	0	4	4	0	0	0	0	11
5:10 PM	4	1	0	5	0	1	0	1	1	0	3	4	0	1	0	1	11
5:15 PM	8	1	0	9	0	4	0	4	1	0	5	6	0	0	0	0	19
5:20 PM	2	1	0	3	0	0	0	0	0	0	1	1	0	0	0	0	4
5:25 PM	2	2	0	4	0	0	1	1	0	0	1	1	0	0	0	0	6
5:30 PM	9	2	0	11	0	1	0	1	3	0	0	3	0	0	0	0	15
5:35 PM	3	0	0	3	0	1	1	2	0	0	2	2	0	0	0	0	7
5:40 PM	2	4	0	6	0	1	0	1	1	0	2	3	0	1	0	1	11
5:45 PM	4	0	0	4	0	2	0	2	0	0	3	3	0	0	0	0	9
5:50 PM	4	3	0	7	0	0	2	2	2	0	2	4	0	0	0	0	13
5:55 PM	0	3	0	3	0	2	0	2	1	0	4	5	0	0	0	0	10
Total Survey	127	62	0	189	0	45	15	60	20	0	66	86	0	4	0	4	339

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	24	9	0	33	0	9	0	9	3	0	12	15	0	1	0	1	58
4:15 PM	16	8	0	24	0	12	3	15	3	0	7	10	0	0	0	0	49
4:30 PM	26	14	0	40	0	5	2	7	2	0	10	12	0	1	0	1	60
4:45 PM	13	12	0	25	0	6	4	10	3	0	9	12	0	0	0	0	47
5:00 PM	14	3	0	17	0	2	2	4	1	0	8	9	0	1	0	1	31
5:15 PM	12	4	0	16	0	4	1	5	1	0	7	8	0	0	0	0	29
5:30 PM	14	6	0	20	0	3	1	4	4	0	4	8	0	1	0	1	33
5:45 PM	8	6	0	14	0	4	2	6	3	0	9	12	0	0	0	0	32
Total Survey	127	62	0	189	0	45	15	60	20	0	66	86	0	4	0	4	339

Heavy Vehicle Peak Hour Summary

4:40 PM to 5:40 PM

By Approach	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound SW 95th Ave			Westbound SW 95th Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	86	43	129	23	37	60	38	69	107	2	0	2	149
PHF	0.67			0.58			0.68			0.50			0.75

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	58	28	0	86	0	14	9	23	9	0	29	38	0	2	0	2	149
PHF	0.91	0.41	0.00	0.67	0.00	0.58	0.45	0.58	0.75	0.00	0.60	0.68	0.00	0.50	0.00	0.50	0.75

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW 95th Ave				Westbound SW 95th Ave				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	79	43	0	122	0	32	9	41	11	0	38	49	0	2	0	2	214
4:15 PM	69	37	0	106	0	25	11	36	9	0	34	43	0	2	0	2	187
4:30 PM	65	33	0	98	0	17	9	26	7	0	34	41	0	2	0	2	167
4:45 PM	53	25	0	78	0	15	8	23	9	0	28	37	0	2	0	2	140
5:00 PM	48	19	0	67	0	13	6	19	9	0	28	37	0	2	0	2	125

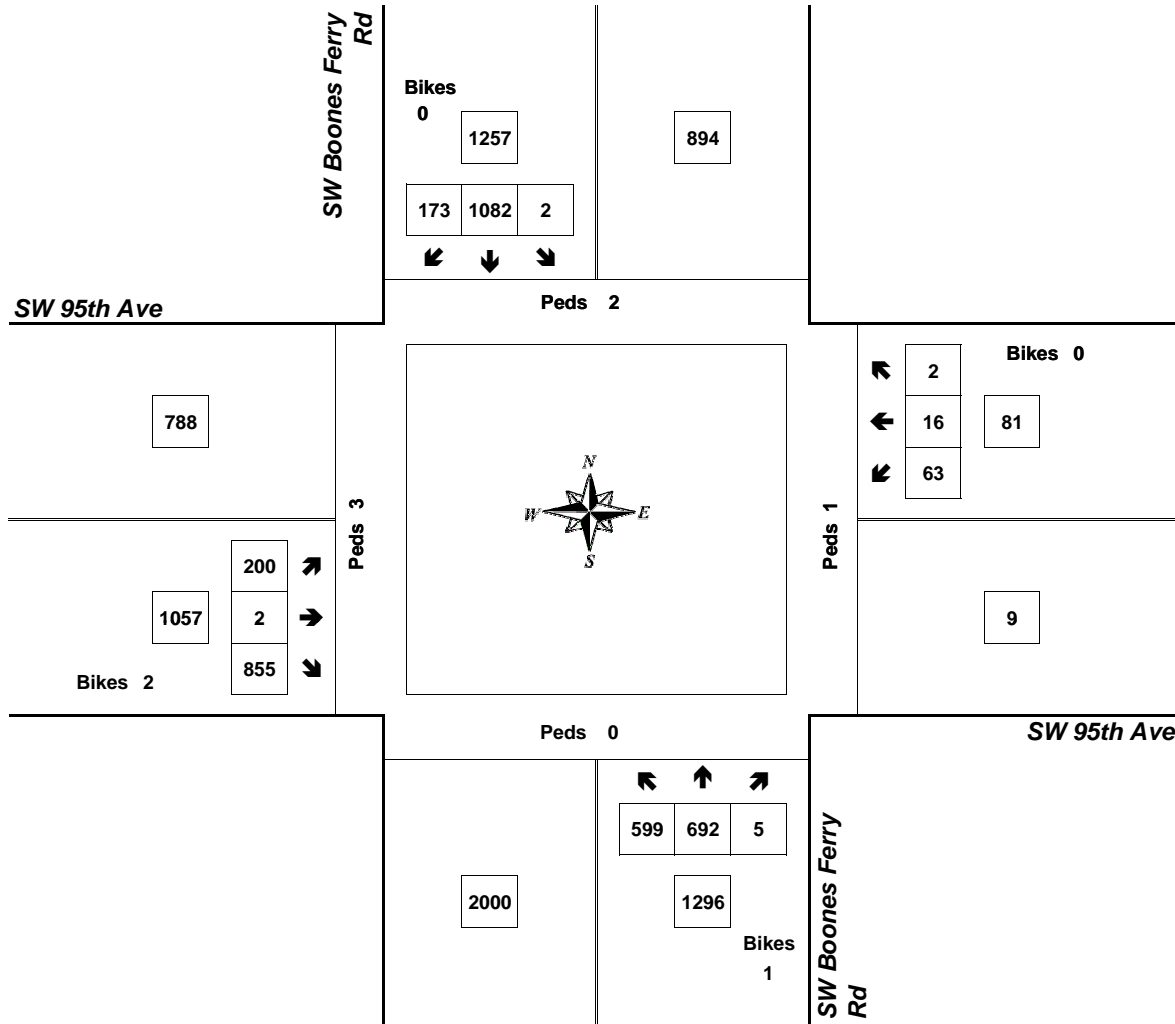
Peak Hour Summary



Clay Carney
(503) 833-2740

SW Boones Ferry Rd & SW 95th Ave

4:40 PM to 5:40 PM
Wednesday, June 07, 2017



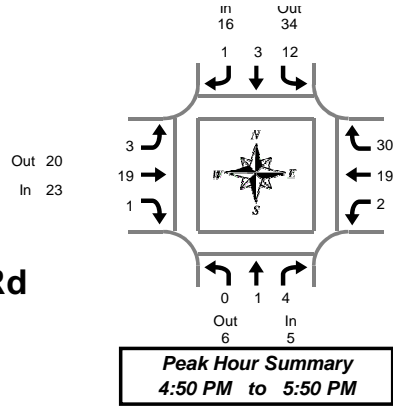
Approach	PHF	HV%	Volume
EB	0.87	3.6%	1,057
WB	0.60	2.5%	81
NB	0.93	6.6%	1,296
SB	0.88	1.8%	1,257
Intersection	0.97	4.0%	3,691

Count Period: 4:00 PM to 6:00 PM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



SW Boones Ferry Rd & SW Wilsonville Rd

Wednesday, June 07, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	5	0	5	0	1	2	3	8
4:05 PM	0	1	1	2	5	1	1	7	0	5	0	5	0	4	1	5	19
4:10 PM	0	0	0	0	1	1	0	2	0	1	1	2	0	2	1	3	7
4:15 PM	0	1	0	1	1	0	0	1	0	2	0	2	1	4	4	9	13
4:20 PM	0	2	0	2	3	1	1	5	0	4	0	4	0	2	3	5	16
4:25 PM	0	0	0	0	1	0	0	1	0	1	1	2	0	2	5	7	10
4:30 PM	0	0	0	0	0	0	0	0	1	1	0	2	1	3	4	8	10
4:35 PM	0	0	1	1	0	0	0	0	0	1	0	1	0	1	3	4	6
4:40 PM	0	0	0	0	5	1	0	6	0	2	0	2	2	0	1	3	11
4:45 PM	0	1	2	3	1	0	0	1	0	1	0	1	0	2	2	4	9
4:50 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	4	5	6
4:55 PM	0	0	0	0	2	0	0	2	0	2	0	2	0	2	0	2	6
5:00 PM	0	0	0	0	2	0	0	2	0	0	0	0	1	1	5	7	9
5:05 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	3	4	7	9
5:10 PM	0	0	1	1	2	1	0	3	0	3	0	3	0	2	3	5	12
5:15 PM	0	0	1	1	1	0	0	1	2	0	0	2	1	1	3	5	9
5:20 PM	0	1	0	1	1	0	0	1	0	3	0	3	0	4	2	6	11
5:25 PM	0	0	0	0	1	0	1	2	0	1	0	1	0	1	4	5	8
5:30 PM	0	0	0	0	0	1	0	1	1	3	0	4	0	0	2	2	7
5:35 PM	0	0	0	0	1	0	0	1	0	0	1	1	0	2	0	2	4
5:40 PM	0	0	0	0	0	1	0	1	0	4	0	4	0	0	1	1	6
5:45 PM	0	0	2	2	1	0	0	1	0	1	0	1	0	2	2	4	8
5:50 PM	0	0	0	0	1	0	0	1	0	0	0	0	1	2	1	4	5
5:55 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	1	1	2	4
Total Survey	0	7	8	15	31	7	3	41	4	42	3	49	7	43	58	108	213

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	1	2	6	2	1	9	0	11	1	12	0	7	4	11	34
4:15 PM	0	3	0	3	5	1	1	7	0	7	1	8	1	8	12	21	39
4:30 PM	0	0	1	1	5	1	0	6	1	4	0	5	3	4	8	15	27
4:45 PM	0	1	2	3	3	0	0	3	0	4	0	4	0	5	6	11	21
5:00 PM	0	0	1	1	5	1	0	6	0	4	0	4	1	6	12	19	30
5:15 PM	0	1	1	2	3	0	1	4	2	4	0	6	1	6	9	16	28
5:30 PM	0	0	0	0	1	2	0	3	1	7	1	9	0	2	3	5	17
5:45 PM	0	1	2	3	3	0	0	3	0	1	0	1	1	5	4	10	17
Total Survey	0	7	8	15	31	7	3	41	4	42	3	49	7	43	58	108	213

Heavy Vehicle Peak Hour Summary

4:50 PM to 5:50 PM

By Approach	Northbound SW Boones Ferry Rd			Southbound SW Boones Ferry Rd			Eastbound SW Wilsonville Rd			Westbound SW Wilsonville Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	5	6	11	16	34	50	23	20	43	51	35	86	95
PHF	0.42			0.67			0.64			0.67			0.74

By Movement	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	4	5	12	3	1	16	3	19	1	23	2	19	30	51	95
PHF	0.00	0.25	0.50	0.42	0.60	0.38	0.25	0.67	0.38	0.68	0.25	0.64	0.50	0.68	0.63	0.67	0.74

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Boones Ferry Rd				Southbound SW Boones Ferry Rd				Eastbound SW Wilsonville Rd				Westbound SW Wilsonville Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	5	4	9	19	4	2	25	1	26	2	29	4	24	30	58	121
4:15 PM	0	4	4	8	18	3	1	22	1	19	1	21	5	23	38	66	117
4:30 PM	0	2	5	7	16	2	1	19	3	16	0	19	5	21	35	61	106
4:45 PM	0	2	4	6	12	3	1	16	3	19	1	23	2	19	30	51	96
5:00 PM	0	2	4	6	12	3	1	16	3	16	1	20	3	19	28	50	92

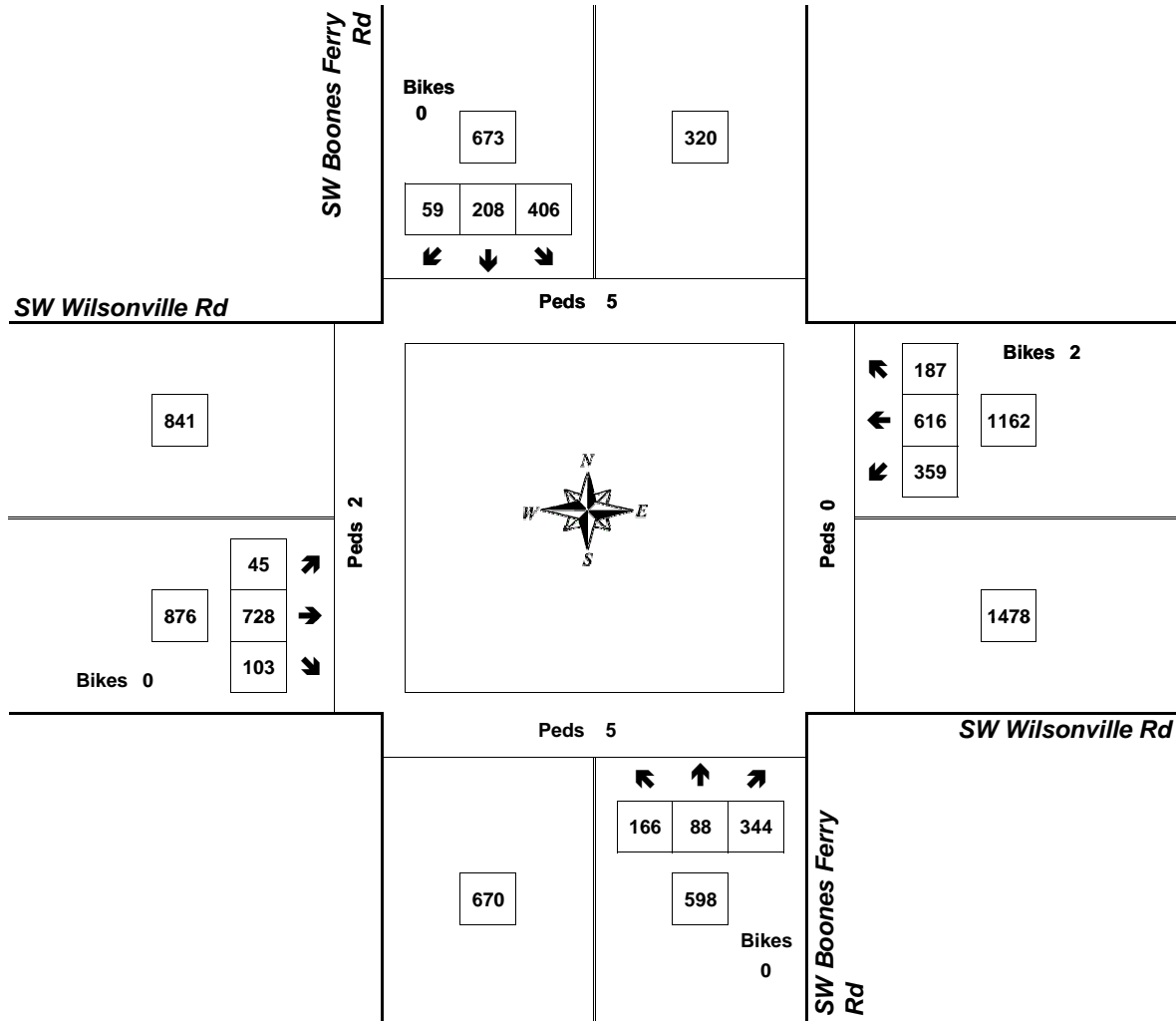
Peak Hour Summary



Clay Carney
(503) 833-2740

SW Boones Ferry Rd & SW Wilsonville Rd

4:50 PM to 5:50 PM
Wednesday, June 07, 2017



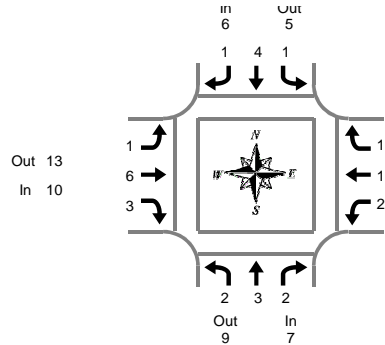
Approach	PHF	HV%	Volume
EB	0.89	2.6%	876
WB	0.93	4.4%	1,162
NB	0.91	0.8%	598
SB	0.89	2.4%	673
Intersection	0.97	2.9%	3,309

Count Period: 4:00 PM to 6:00 PM

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Peak Hour Summary
4:30 PM to 5:30 PM

SW Parkway Ave & SW Boeckman Rd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	1	1	2	0	0	2	0	2	0	2	5
4:05 PM	0	0	0	0	0	0	0	0	0	4	1	5	0	0	1	1	6
4:10 PM	0	1	0	1	0	1	0	1	0	0	0	0	1	2	0	3	5
4:15 PM	1	1	0	2	0	0	1	1	0	0	0	0	0	0	0	0	3
4:20 PM	0	2	0	2	0	0	1	1	0	2	0	2	0	2	0	2	7
4:25 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
4:30 PM	1	0	0	1	1	0	0	1	0	3	1	4	0	2	0	2	8
4:35 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	4	5
4:40 PM	0	0	0	0	0	1	0	1	0	0	1	1	1	0	0	1	3
4:45 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
4:50 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1	3
4:55 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
5:05 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	3
5:10 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
5:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
5:20 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
5:25 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
5:30 PM	0	0	0	0	0	1	0	1	0	2	0	2	0	0	0	0	3
5:35 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
5:40 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
5:45 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	3
5:50 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
5:55 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Survey	4	9	3	16	1	8	4	13	4	16	4	24	5	18	3	26	79

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	0	1	1	2	2	4	1	7	1	4	1	6	16
4:15 PM	1	4	0	5	0	1	2	3	0	2	0	2	0	3	0	3	13
4:30 PM	1	1	0	2	1	1	0	2	0	3	2	5	1	6	0	7	16
4:45 PM	0	1	1	2	0	0	1	1	1	0	1	2	0	1	0	1	6
5:00 PM	0	0	0	0	0	2	0	2	0	3	0	3	0	1	1	2	7
5:15 PM	1	1	1	3	0	1	0	1	0	0	0	0	1	2	0	3	7
5:30 PM	0	0	0	0	0	2	0	2	0	4	0	4	0	0	1	1	7
5:45 PM	1	1	1	3	0	0	0	0	1	0	0	1	2	1	0	3	7
Total Survey	4	9	3	16	1	8	4	13	4	16	4	24	5	18	3	26	79

Heavy Vehicle Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound SW Parkway Ave			Southbound SW Parkway Ave			Eastbound SW Boeckman Rd			Westbound SW Boeckman Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	7	9	16	6	5	11	10	13	23	13	9	22	36
PHF	0.58			0.75			0.50			0.46			0.56

By Movement	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	2	3	2	7	1	4	1	6	1	6	3	10	2	10	1	13	36
PHF	0.50	0.38	0.50	0.58	0.25	0.50	0.25	0.75	0.25	0.50	0.38	0.50	0.50	0.42	0.25	0.46	0.56

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound SW Parkway Ave				Southbound SW Parkway Ave				Eastbound SW Boeckman Rd				Westbound SW Boeckman Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	2	7	1	10	1	3	4	8	3	9	4	16	2	14	1	17	51
4:15 PM	2	6	1	9	1	4	3	8	1	8	3	12	1	11	1	13	42
4:30 PM	2	3	2	7	1	4	1	6	1	6	3	10	2	10	1	13	36
4:45 PM	1	2	2	5	0	5	1	6	1	7	1	9	1	4	2	7	27
5:00 PM	2	2	2	6	0	5	0	5	1	7	0	8	3	4	2	9	28

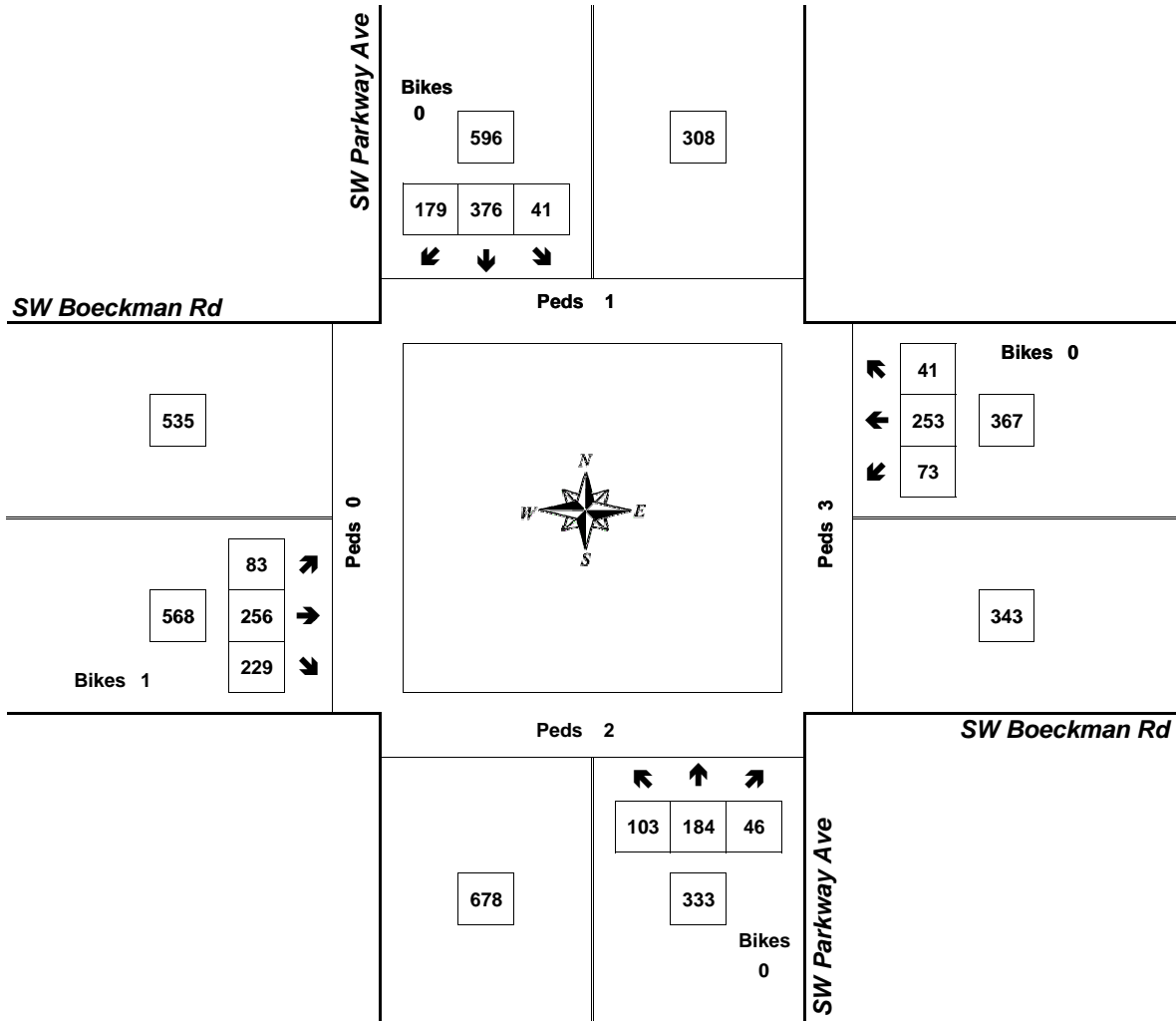
Peak Hour Summary



Clay Carney
(503) 833-2740

SW Parkway Ave & SW Boeckman Rd

4:30 PM to 5:30 PM
Tuesday, January 24, 2017



Approach	PHF	HV%	Volume
EB	0.88	1.8%	568
WB	0.81	3.5%	367
NB	0.86	2.1%	333
SB	0.88	1.0%	596
Intersection	0.90	1.9%	1,864

Count Period: 4:00 PM to 6:00 PM

Level of Service Descriptions

TRAFFIC LEVELS OF SERVICE

Analysis of traffic volumes is useful in understanding the general nature of traffic in an area, but by itself indicates neither the ability of the street network to carry additional traffic nor the quality of service afforded by the street facilities. For this, the concept of level of service has been developed to subjectively describe traffic performance. Level of service can be measured at intersections and along key roadway segments.

Levels of service categories are similar to report card ratings for traffic performance. Intersections are typically the controlling bottlenecks of traffic flow and the ability of a roadway system to carry traffic efficiently is generally diminished in their vicinities. Levels of Service A, B and C indicate conditions where traffic moves without significant delays over periods of peak travel demand. Level of service D and E are progressively worse peak hour operating conditions and F conditions represent where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak hour operation and plan for level of service C or better for all other times of the day. The Highway Capacity Manual provides level of service calculation methodology for both intersections and arterials¹. The following two sections provide interpretations of the analysis approaches.

¹ *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2000, Chapter 16 and 17.

UNSIGNALIZED INTERSECTIONS (Two-Way Stop Controlled)

Unsignalized intersection level of service is reported for the major street and minor street (generally, left turn movements). The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 2010 Highway Capacity Manual describes the detailed methodology. It is not unusual for an intersection to experience level of service E or F conditions for the minor street left turn movement. It should be understood that, often, a poor level of service is experienced by only a few vehicles and the intersection as a whole operates acceptably.

Unsignalized intersection levels of service are described in the following table.

Level-of-Service Criteria: Automobile Mode

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service is evaluated based upon average vehicle delay experienced by vehicles entering an intersection. Control delay (or signal delay) includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In previous versions of this chapter of the HCM (1994 and earlier), delay included only stopped delay. As delay increases, the level of service decreases. Calculations for signalized and unsignalized intersections are different due to the variation in traffic control. The 2000 Highway Capacity Manual provides the basis for these calculations.

Level of Service	Delay (secs.)	Description
A	<10.00	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Most vehicles do not stop at all. Progression is extremely favorable and most vehicles arrive during the green phase.
B	10.1-20.0	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles. This level generally occurs with good progression, short cycle lengths, or both.
C	20.1-35.0	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted. Higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, and the number of vehicles stopping is significant.
D	35.1-55.0	Approaching Unstable/Tolerable Delays: The influence of congestion becomes more noticeable. Drivers may have to wait through more than one red signal indication. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. The proportion of vehicles not stopping declines, and individual cycle failures are noticeable.
E	55.1-80.0	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are a frequent occurrence.
F	>80.0	Forced Flow/Excessive Delays: Represents jammed conditions. Queues may block upstream intersections. This level occurs when arrival flow rates exceed intersection capacity, and is considered to be unacceptable to most drivers. Poor progression, long cycle lengths, and v/c ratios approaching 1.0 may contribute to these high delay levels.

Source: *2000 Highway Capacity Manual*, Transportation Research Board, Washington D.C.

Trip Generation Summary

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Scenario 2 Phase 1 Trips

Report File: S:\...\Project Trips Phase 1.pdf

7/20/2017

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SW Boones Ferry Road/SW 95th Avenue	10	0	0	0	0	2	3	0	17	0	0	0	32

ID	Intersection Name	Southwestbound			Northwestbound		Southeastbound		Total Volume
		Left	Thru	Right	Thru	Right	Thru	Right	
2	SW Elligsen/I-5 SB Ramp	0	0	10	0	0	17	0	27

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Boeckman Rd/SW 95th Avenue	0	0	0	0	0	12	20	18	0	0	10	0	60

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Boeckman Road/SW Parkway Avenue	0	0	0	0	0	0	0	18	0	0	10	0	28

ID	Intersection Name	Northbound			Eastbound			Westbound			Southwestbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SW Wilsonville Road/SW Boones Ferry Road	0	0	0	0	13	0	0	8	0	0	0	0	21

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	SW Wilsonville Road/I-5 SB Ramp	0	0	0	0	13	0	8	21

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
12	West Driveway	29	0	0	0	0	0	0	0	18	0	0	0	47

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13	East Driveway	0	0	38	0	0	0	0	0	0	22	0	0	60

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Scenario 3 Phase 2 Trips

Report File: S:\...\Project Trips Phase 2.pdf

7/20/2017

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	SW Boones Ferry Road/SW 95th Avenue	15	0	0	0	0	3	5	0	23	0	0	0	46

ID	Intersection Name	Southwestbound			Northwestbound		Southeastbound		Total Volume
		Left	Thru	Right	Thru	Right	Thru	Right	
2	SW Elligsen/I-5 SB Ramp	0	0	15	0	0	23	0	38

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Boeckman Rd/SW 95th Avenue	0	0	0	0	0	18	28	21	0	0	15	0	82

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Boeckman Road/SW Parkway Avenue	0	0	0	0	0	0	0	21	0	0	15	0	36

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	SW Wilsonville Road/SW Boones Ferry Road	0	0	0	0	0	0	0	18	0	0	12	0	30

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	SW Wilsonville Road/I-5 SB Ramp	0	0	0	0	18	0	12	30

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14	West Driveway	41	0	0	0	0	0	0	0	27	0	0	0	68


























ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15	East Driveway	0	0	49	0	0	0	0	0	0	33	0	0	82

City of Wilsonville Stage II List

HCM Analysis – Existing

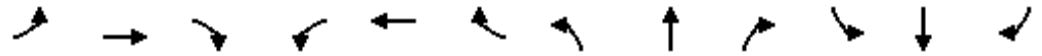
HCM Signalized Intersection Capacity Analysis

1: Boones Ferry Rd & 95th Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 				 	 			 	
Volume (vph)	200	2	855	63	16	2	599	754	5	2	1082	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.43	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	809	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	206	2	881	65	16	2	618	777	5	2	1115	178
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	89
Lane Group Flow (vph)	0	208	863	65	16	0	618	782	0	2	1115	89
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.5	49.8	21.5	21.5		28.3	70.3		1.2	43.2	43.2
Effective Green, g (s)		21.5	49.8	21.5	21.5		28.3	70.3		1.2	43.2	43.2
Actuated g/C Ratio		0.20	0.47	0.20	0.20		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		267	1400	165	345		857	2321		20	1470	615
v/s Ratio Prot			c0.17		0.01		c0.19	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.78	0.62	0.39	0.05		0.72	0.34		0.10	0.76	0.14
Uniform Delay, d1		39.5	20.5	36.1	33.5		34.8	7.4		51.4	26.4	19.3
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.62		1.00	1.00	1.00
Incremental Delay, d2		13.4	0.8	1.6	0.1		4.0	0.3		2.2	2.3	0.1
Delay (s)		52.9	21.3	37.7	33.6		42.4	4.9		53.6	28.7	19.4
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.3			36.8			21.4			27.5	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			25.5				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			74.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis























2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↘	↖	↗	
Volume (vph)	0	1099	901	0	723	406	0	0	0	548	0	635	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00	
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85	
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00	
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495	
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00	
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	0	1169	959	0	769	432	0	0	0	583	0	676	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	87	
Lane Group Flow (vph)	0	1169	959	0	769	432	0	0	0	291	292	589	
Confl. Peds. (#/hr)									1	1			
Confl. Bikes (#/hr)			1			5							
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%	
Turn Type		NA	Free		NA	Free				Split	NA	Prot	
Protected Phases		2			6					4	4	4	
Permitted Phases			Free			Free							
Actuated Green, G (s)		50.0	105.0		50.0	105.0				45.5	45.5	45.5	
Effective Green, g (s)		51.0	105.0		51.0	105.0				45.5	45.5	45.5	
Actuated g/C Ratio		0.49	1.00		0.49	1.00				0.43	0.43	0.43	
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0	
Lane Grp Cap (vph)		1718	1564		1685	1580				714	714	647	
v/s Ratio Prot		c0.33			0.22					0.18	0.18	c0.39	
v/s Ratio Perm			0.61			0.27							
v/c Ratio		0.68	0.61		0.46	0.27				0.41	0.41	0.91	
Uniform Delay, d1		20.7	0.0		17.8	0.0				20.5	20.5	27.9	
Progression Factor		0.86	1.00		1.00	1.00				1.00	1.00	1.00	
Incremental Delay, d2		1.6	1.3		0.9	0.4				0.4	0.4	17.1	
Delay (s)		19.4	1.3		18.7	0.4				20.9	20.9	44.9	
Level of Service		B	A		B	A				C	C	D	
Approach Delay (s)		11.2			12.1			0.0			33.8		
Approach LOS		B			B			A			C		
Intersection Summary													
HCM 2000 Control Delay			17.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.79										
Actuated Cycle Length (s)			105.0									Sum of lost time (s)	8.5
Intersection Capacity Utilization			66.4%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													






















HCM Signalized Intersection Capacity Analysis

3: Boeckman Rd & 95th Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	29	0	3	15	200	0	1	4	388	1	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1459		1655		1719	1369	
Flt Permitted	1.00	1.00		0.74	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1789	1900		1398	1900	1459		1655		1719	1369	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	18	33	0	3	17	225	0	1	4	436	1	12
RTOR Reduction (vph)	0	0	0	0	0	167	0	4	0	0	7	0
Lane Group Flow (vph)	18	33	0	3	17	58	0	1	0	436	6	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	3.9	2.5		20.6	14.7	14.7		0.8		22.1	22.1	
Effective Green, g (s)	3.9	2.5		20.6	14.7	14.7		0.8		22.1	22.1	
Actuated g/C Ratio	0.07	0.04		0.36	0.26	0.26		0.01		0.39	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	120	83		602	490	376		23		666	530	
v/s Ratio Prot	c0.00	c0.02		0.00	0.01			c0.00		c0.25	0.00	
v/s Ratio Perm	0.01			0.00		c0.04						
v/c Ratio	0.15	0.40		0.00	0.03	0.15		0.05		0.65	0.01	
Uniform Delay, d1	23.7	26.5		11.6	15.8	16.3		27.7		14.3	10.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.1		0.0	0.0	0.2		0.6		2.1	0.0	
Delay (s)	24.2	29.6		11.7	15.9	16.5		28.3		16.4	10.7	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		27.7			16.4			28.3			16.2	
Approach LOS		C			B			C			B	
Intersection Summary												
HCM 2000 Control Delay			17.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			57.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			49.0%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4: Parkway Ave & Boeckman Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	256	229	73	253	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1717		1752	1788		1770	1791		1766	1790	
Flt Permitted	0.37	1.00		0.14	1.00		0.11	1.00		0.55	1.00	
Satd. Flow (perm)	696	1717		261	1788		213	1791		1020	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	284	254	81	281	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	34	0	0	6	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	504	0	81	321	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	35.1	28.8		34.1	28.3		40.9	35.0		37.3	33.2	
Effective Green, g (s)	35.1	28.8		34.1	28.3		40.9	35.0		37.3	33.2	
Actuated g/C Ratio	0.39	0.32		0.38	0.31		0.45	0.39		0.41	0.37	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	345	545		193	557		197	691		453	655	
v/s Ratio Prot	0.02	c0.29		c0.03	0.18		c0.04	0.14		0.00	c0.34	
v/s Ratio Perm	0.08			0.13			0.22			0.04		
v/c Ratio	0.27	0.92		0.42	0.58		0.58	0.36		0.10	0.92	
Uniform Delay, d1	18.6	29.9		21.2	26.2		19.3	19.8		16.2	27.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	21.6		1.5	1.4		4.1	0.3		0.1	17.5	
Delay (s)	19.0	51.5		22.7	27.6		23.3	20.1		16.3	44.9	
Level of Service	B	D		C	C		C	C		B	D	
Approach Delay (s)		46.7			26.6			21.1			42.9	
Approach LOS		D			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			37.0				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			90.7			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			82.2%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Boones Ferry Rd & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖↗	↗↖	↖	↖	↗	↖↗	↖↗	↗	
Volume (vph)	45	728	103	449	656	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	751	106	463	676	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	81	0	0	48	0	10	0
Lane Group Flow (vph)	46	842	0	463	676	132	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.27		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.80		0.79	0.42	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	32.9		43.8	20.8	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.81	0.60	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	6.4		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	39.3		61.3	17.5	12.1	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		39.9			31.7			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.78	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	75.6%	19.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: I-5 SB & Wilsonville Rd




























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↗	↑↑					↘	↗	↘↗
Volume (vph)	0	883	595	548	915	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	607	559	934	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	191
Lane Group Flow (vph)	0	901	211	559	934	0	0	0	0	204	205	217
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.14									
v/c Ratio		0.52	0.41	0.65	0.43					0.42	0.42	0.28
Uniform Delay, d1		29.0	27.8	36.9	10.2					31.8	31.8	30.5
Progression Factor		0.68	0.66	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	1.8	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.5	20.1	40.6	10.8					34.4	34.4	30.6
Level of Service		C	C	D	B					C	C	C
Approach Delay (s)		20.3			22.0			0.0			32.5	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			23.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			76.0%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Analysis – Existing + Stage II

HCM Signalized Intersection Capacity Analysis

1: Boones Ferry Rd & 95th Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 				 	 			 	
Volume (vph)	204	2	918	63	16	2	674	755	5	2	1083	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	798	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	210	2	946	65	16	2	695	778	5	2	1116	180
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	212	928	65	16	0	695	783	0	2	1116	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.7	49.8	21.7	21.7		28.1	70.1		1.2	43.2	43.2
Effective Green, g (s)		21.7	49.8	21.7	21.7		28.1	70.1		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		269	1400	164	348		851	2315		20	1470	615
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.16	0.08								0.06
v/c Ratio		0.79	0.66	0.40	0.05		0.82	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	21.2	36.0	33.4		36.0	7.5		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.11	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.1	1.2	1.6	0.1		6.3	0.3		2.2	2.3	0.1
Delay (s)		53.6	22.4	37.6	33.4		46.2	4.5		53.6	28.8	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.1			36.7			24.1			27.5	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.6				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			77.2%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis






















2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘	↖	↗
Volume (vph)	0	1160	904	0	727	406	0	0	0	549	0	707
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1234	962	0	773	432	0	0	0	584	0	752
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	78
Lane Group Flow (vph)	0	1234	962	0	773	432	0	0	0	292	292	674
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		44.9	105.0		44.9	105.0				50.6	50.6	50.6
Effective Green, g (s)		45.9	105.0		45.9	105.0				50.6	50.6	50.6
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1547	1564		1517	1580				794	794	720
v/s Ratio Prot		c0.35			0.22					0.18	0.18	c0.45
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.51	0.27				0.37	0.37	0.94
Uniform Delay, d1		25.5	0.0		21.4	0.0				17.1	17.1	25.7
Progression Factor		0.90	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	19.4
Delay (s)		26.1	1.2		22.6	0.4				17.4	17.4	45.0
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.2			14.7			0.0			33.0	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.1									C
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			105.0							8.5		
Intersection Capacity Utilization			71.0%									C
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis






















3: Boeckman Rd & 95th Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	66	0	3	75	214	0	1	4	402	1	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1457		1655		1719	1338	
Flt Permitted	0.87	1.00		0.71	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1556	1900		1347	1900	1457		1655		1719	1338	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	57	74	0	3	84	240	0	1	4	452	1	82
RTOR Reduction (vph)	0	0	0	0	0	195	0	4	0	0	51	0
Lane Group Flow (vph)	57	74	0	3	84	45	0	1	0	452	32	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	11.0	4.6		22.0	11.1	11.1		0.9		22.2	22.2	
Effective Green, g (s)	11.0	4.6		22.0	11.1	11.1		0.9		22.2	22.2	
Actuated g/C Ratio	0.19	0.08		0.38	0.19	0.19		0.02		0.38	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	307	149		606	359	275		25		651	506	
v/s Ratio Prot	c0.02	c0.04		0.00	c0.04			c0.00		c0.26	0.02	
v/s Ratio Perm	0.01			0.00		0.03						
v/c Ratio	0.19	0.50		0.00	0.23	0.17		0.04		0.69	0.06	
Uniform Delay, d1	20.1	25.9		11.5	20.1	19.9		28.4		15.3	11.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.6		0.0	0.3	0.3		0.5		3.0	0.0	
Delay (s)	20.3	28.5		11.5	20.5	20.2		28.9		18.3	11.6	
Level of Service	C	C		B	C	C		C		B	B	
Approach Delay (s)		24.9			20.2			28.9			17.3	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			19.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			58.6				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			49.8%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Parkway Ave & Boeckman Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	303	231	75	312	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1729		1752	1794		1770	1788		1766	1782	
Flt Permitted	0.30	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	559	1729		244	1794		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	337	257	83	347	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	29	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	565	0	83	388	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	578		191	587		197	666		430	627	
v/s Ratio Prot	0.02	c0.33		c0.03	0.22		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.35	0.98		0.43	0.66		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.5	30.5		21.7	26.7		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	31.6		1.6	2.8		4.7	0.4		0.1	36.3	
Delay (s)	19.2	62.0		23.2	29.5		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		55.4			28.4			22.9			63.1	
Approach LOS		E			C			C			E	
Intersection Summary												
HCM 2000 Control Delay			46.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			92.6			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			86.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: Boones Ferry Rd & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖↗	↗↖	↖	↖	↗	↖↗	↖↗	↗	
Volume (vph)	50	888	142	451	844	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	915	146	465	870	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1043	0	465	870	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.24		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.07		0.83	0.59	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.1	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	49.4		9.2	1.5	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	87.1		63.4	21.3	14.7	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		85.5			32.9			40.7			48.4	
Approach LOS		F			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	51.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.91	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	79.8%	19.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: I-5 SB & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	986	671	557	1039	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	685	568	1060	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	1006	290	568	1060	0	0	0	0	208	209	342
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			0.19									
v/c Ratio		0.58	0.57	0.66	0.48					0.42	0.42	0.45
Uniform Delay, d1		29.8	29.6	37.0	10.7					31.9	31.9	32.1
Progression Factor		0.61	0.68	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.5	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.8	22.6	40.9	11.5					34.5	34.6	32.3
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		20.3			21.7			0.0			33.4	
Approach LOS		C			C			A			C	

Intersection Summary		
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.56	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 13.5
Intersection Capacity Utilization	81.1%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM Analysis – Existing + Project Phase 1

Existing + Phase 1.syn
1: Boones Ferry Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘	↖	↗		↖↗	↕↗		↖	↕↕	↗
Volume (vph)	203	2	872	63	16	2	609	754	5	2	1082	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	800	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	209	2	899	65	16	2	628	777	5	2	1115	180
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	211	881	65	16	0	628	782	0	2	1115	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.6	49.8	21.6	21.6		28.2	70.2		1.2	43.2	43.2
Effective Green, g (s)		21.6	49.8	21.6	21.6		28.2	70.2		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		268	1400	164	346		854	2318		20	1470	615
v/s Ratio Prot			c0.17		0.01		c0.20	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.79	0.63	0.40	0.05		0.74	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	20.7	36.1	33.4		35.0	7.4		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.11	0.60		1.00	1.00	1.00
Incremental Delay, d2		14.1	0.9	1.6	0.1		4.2	0.3		2.2	2.3	0.1
Delay (s)		53.6	21.6	37.6	33.5		43.1	4.8		53.6	28.7	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.7			36.7			21.8			27.5	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 1.syn

2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road

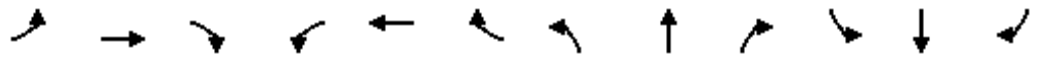


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘	↖	↗
Volume (vph)	0	1116	901	0	723	406	0	0	0	548	0	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1187	959	0	769	432	0	0	0	583	0	686
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	85
Lane Group Flow (vph)	0	1187	959	0	769	432	0	0	0	291	292	601
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		49.0	105.0		49.0	105.0				46.5	46.5	46.5
Effective Green, g (s)		50.0	105.0		50.0	105.0				46.5	46.5	46.5
Actuated g/C Ratio		0.48	1.00		0.48	1.00				0.44	0.44	0.44
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1685	1564		1652	1580				730	730	662
v/s Ratio Prot		c0.34			0.22					0.18	0.18	c0.40
v/s Ratio Perm			0.61			0.27						
v/c Ratio		0.70	0.61		0.47	0.27				0.40	0.40	0.91
Uniform Delay, d1		21.7	0.0		18.5	0.0				19.8	19.8	27.2
Progression Factor		0.86	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		1.8	1.3		0.9	0.4				0.4	0.4	16.1
Delay (s)		20.4	1.3		19.5	0.4				20.1	20.2	43.4
Level of Service		C	A		B	A				C	C	D
Approach Delay (s)		11.8			12.6			0.0			32.7	
Approach LOS		B			B			A			C	

Intersection Summary		
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.80	B
Actuated Cycle Length (s)	105.0	Sum of lost time (s)
Intersection Capacity Utilization	67.0%	8.5
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Existing + Phase 1.syn
 3: Boeckman Rd & 95th Ave

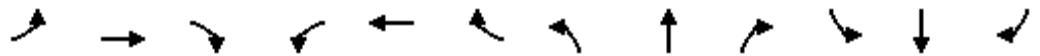


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	47	0	3	25	200	0	1	4	388	1	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1458		1655		1719	1350	
Flt Permitted	0.95	1.00		0.72	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1704	1900		1373	1900	1458		1655		1719	1350	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	53	0	3	28	225	0	1	4	436	1	26
RTOR Reduction (vph)	0	0	0	0	0	172	0	4	0	0	16	0
Lane Group Flow (vph)	40	53	0	3	28	53	0	1	0	436	11	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	8.2	4.2		22.4	13.9	13.9		0.9		22.1	22.1	
Effective Green, g (s)	8.2	4.2		22.4	13.9	13.9		0.9		22.1	22.1	
Actuated g/C Ratio	0.14	0.07		0.38	0.24	0.24		0.02		0.38	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	236	135		622	448	344		25		644	506	
v/s Ratio Prot	c0.01	c0.03		0.00	0.01			c0.00		c0.25	0.01	
v/s Ratio Perm	0.01			0.00		c0.04						
v/c Ratio	0.17	0.39		0.00	0.06	0.15		0.04		0.68	0.02	
Uniform Delay, d1	22.3	26.1		11.3	17.4	17.8		28.6		15.4	11.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.9		0.0	0.1	0.2		0.5		2.6	0.0	
Delay (s)	22.6	28.0		11.3	17.5	18.1		29.1		18.0	11.6	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		25.7			17.9			29.1			17.6	
Approach LOS		C			B			C			B	

Intersection Summary		
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.45	B
Actuated Cycle Length (s)	58.9	Sum of lost time (s)
Intersection Capacity Utilization	49.0%	18.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Existing + Phase 1.syn
 4: Parkway Ave & Boeckman Rd

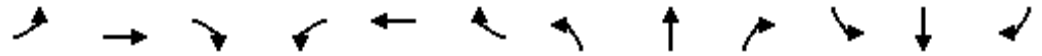


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	274	229	73	263	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1723		1752	1789		1770	1791		1766	1790	
Flt Permitted	0.36	1.00		0.14	1.00		0.11	1.00		0.55	1.00	
Satd. Flow (perm)	680	1723		254	1789		214	1791		1015	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	304	254	81	292	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	32	0	0	6	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	526	0	81	332	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	35.9	29.6		34.9	29.1		40.8	34.8		37.2	33.0	
Effective Green, g (s)	35.9	29.6		34.9	29.1		40.8	34.8		37.2	33.0	
Actuated g/C Ratio	0.39	0.32		0.38	0.32		0.45	0.38		0.41	0.36	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	343	557		192	569		197	681		447	646	
v/s Ratio Prot	0.02	c0.31		c0.03	0.19		c0.04	0.14		0.00	c0.34	
v/s Ratio Perm	0.09			0.13			0.22			0.04		
v/c Ratio	0.27	0.94		0.42	0.58		0.58	0.36		0.10	0.93	
Uniform Delay, d1	18.4	30.1		21.4	26.1		19.7	20.3		16.6	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	24.9		1.5	1.5		4.1	0.3		0.1	19.6	
Delay (s)	18.8	55.0		22.9	27.6		23.8	20.7		16.7	47.7	
Level of Service	B	E		C	C		C	C		B	D	
Approach Delay (s)		49.9			26.7			21.6			45.5	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 1.syn
 5: Boones Ferry Rd & Wilsonville Rd

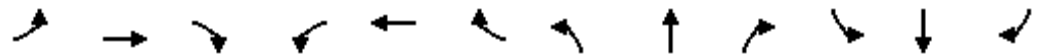


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕↕↕↕		↙↙	↕↕	↙	↙	↕	↙	↙↙	↕	
Volume (vph)	45	741	103	449	664	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	764	106	463	685	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	80	0	0	48	0	10	0
Lane Group Flow (vph)	46	855	0	463	685	133	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.28		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.81		0.79	0.43	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	33.1		43.8	20.9	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.80	0.61	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	6.8		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	39.9		61.2	17.6	12.2	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		40.5			31.6			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.79	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	75.6%	19.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Existing + Phase 1.syn
6: I-5 SB & Wilsonville Rd



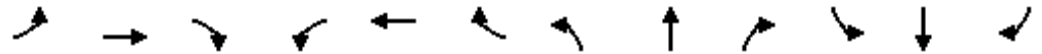
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	883	608	548	923	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	620	559	942	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	187
Lane Group Flow (vph)	0	901	224	559	942	0	0	0	0	204	205	221
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.15									
v/c Ratio		0.52	0.44	0.65	0.43					0.42	0.42	0.29
Uniform Delay, d1		29.0	28.1	36.9	10.2					31.8	31.8	30.5
Progression Factor		0.67	0.64	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.0	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.3	19.8	40.6	10.8					34.4	34.4	30.6
Level of Service		C	B	D	B					C	C	C
Approach Delay (s)		20.1			21.9			0.0			32.5	
Approach LOS		C			C			A			C	

Intersection Summary		
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.52	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 13.5
Intersection Capacity Utilization	76.8%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM Analysis – Existing + Project Phase 1 + Stage II

Existing + Phase 1 + Stage II.syn
 1: Boones Ferry Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘	↖	↘		↖↗	↕↘		↖	↕↗	↖
Volume (vph)	207	2	935	63	16	2	684	755	5	2	1083	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	789	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	213	2	964	65	16	2	705	778	5	2	1116	182
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	215	946	65	16	0	705	783	0	2	1116	91
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.8	49.9	21.8	21.8		28.1	70.0		1.2	43.1	43.1
Effective Green, g (s)		21.8	49.9	21.8	21.8		28.1	70.0		1.2	43.1	43.1
Actuated g/C Ratio		0.21	0.48	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		270	1403	163	350		851	2312		20	1467	614
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.17	0.08								0.06
v/c Ratio		0.80	0.67	0.40	0.05		0.83	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	21.3	35.9	33.3		36.2	7.5		51.4	26.5	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.9	1.3	1.6	0.1		6.6	0.3		2.2	2.4	0.1
Delay (s)		54.4	22.6	37.5	33.3		46.6	4.5		53.6	28.9	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.4			36.6			24.4			27.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 1 + Stage II.syn

2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road

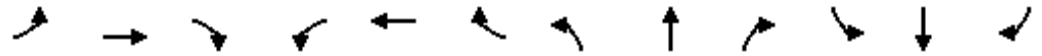


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘	↖	↗
Volume (vph)	0	1177	904	0	727	406	0	0	0	549	0	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1252	962	0	773	432	0	0	0	584	0	763
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1252	962	0	773	432	0	0	0	292	292	684
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		45.4	105.0		45.4	105.0				50.1	50.1	50.1
Effective Green, g (s)		46.4	105.0		46.4	105.0				50.1	50.1	50.1
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1563	1564		1533	1580				786	786	713
v/s Ratio Prot		c0.35			0.22					0.18	0.18	c0.46
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.50	0.27				0.37	0.37	0.96
Uniform Delay, d1		25.3	0.0		21.0	0.0				17.4	17.4	26.5
Progression Factor		0.92	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	23.8
Delay (s)		26.2	1.2		22.2	0.4				17.7	17.7	50.3
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.4			14.4			0.0			36.2	
Approach LOS		B			B			A			D	

Intersection Summary		
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	105.0	Sum of lost time (s) 8.5
Intersection Capacity Utilization	71.6%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Existing + Phase 1 + Stage II.syn
 3: Boeckman Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	84	0	3	85	214	0	1	4	402	1	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1701	1900		1805	1900	1458		1655		1719	1336	
Flt Permitted	0.69	1.00		0.70	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1244	1900		1323	1900	1458		1655		1719	1336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	80	94	0	3	96	240	0	1	4	452	1	96
RTOR Reduction (vph)	0	0	0	0	0	187	0	4	0	0	62	0
Lane Group Flow (vph)	80	94	0	3	96	53	0	1	0	452	35	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	13.6	6.7		24.9	13.5	13.5		0.9		22.0	22.0	
Effective Green, g (s)	13.6	6.7		24.9	13.5	13.5		0.9		22.0	22.0	
Actuated g/C Ratio	0.22	0.11		0.41	0.22	0.22		0.01		0.36	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	327	207		645	418	321		24		616	479	
v/s Ratio Prot	c0.03	c0.05		0.00	c0.05			c0.00		c0.26	0.03	
v/s Ratio Perm	0.03			0.00		0.04						
v/c Ratio	0.24	0.45		0.00	0.23	0.16		0.04		0.73	0.07	
Uniform Delay, d1	19.8	25.6		10.8	19.6	19.3		29.8		17.1	12.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.6		0.0	0.3	0.2		0.6		4.3	0.0	
Delay (s)	20.1	27.2		10.8	19.9	19.6		30.3		21.4	13.0	
Level of Service	C	C		B	B	B		C		C	B	
Approach Delay (s)		23.9			19.6			30.3			19.9	
Approach LOS		C			B			C			B	

Intersection Summary		
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.51	
Actuated Cycle Length (s)	61.3	Sum of lost time (s) 18.0
Intersection Capacity Utilization	49.8%	ICU Level of Service A
Analysis Period (min)	15	

c Critical Lane Group

Existing + Phase 1 + Stage II.syn
 4: Parkway Ave & Boeckman Rd

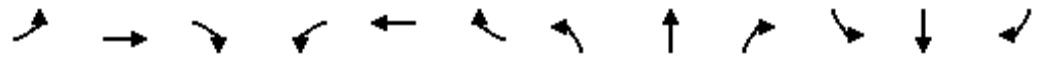


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	321	231	75	322	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1734		1752	1795		1770	1788		1766	1782	
Flt Permitted	0.28	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	534	1734		244	1795		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	357	257	83	358	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	27	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	587	0	83	399	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	306	580		191	587		197	666		430	627	
v/s Ratio Prot	0.03	c0.34		c0.03	0.22		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.36	1.01		0.43	0.68		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.6	30.8		21.9	27.0		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	40.6		1.6	3.2		4.7	0.4		0.1	36.3	
Delay (s)	19.3	71.4		23.5	30.2		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		63.5			29.1			22.9			63.1	
Approach LOS		E			C			C			E	

Intersection Summary		
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.93	D
Actuated Cycle Length (s)	92.6	Sum of lost time (s)
Intersection Capacity Utilization	87.6%	17.0
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

Existing + Phase 1 + Stage II.syn
 5: Boones Ferry Rd & Wilsonville Rd

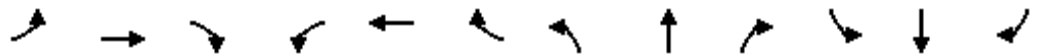


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙↙	↑↑	↗	↙	↑	↗	↙↙	↗	
Volume (vph)	50	901	142	451	852	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	929	146	465	878	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1057	0	465	878	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.24		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.08		0.83	0.59	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.2	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	54.5		9.1	1.5	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	92.2		63.3	21.3	14.6	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		90.3			32.8			40.7			48.4	
Approach LOS		F			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	52.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.92	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	79.8%	19.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Existing + Phase 1 + Stage II.syn
6: I-5 SB & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	986	684	557	1047	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	698	568	1068	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	142
Lane Group Flow (vph)	0	1006	303	568	1068	0	0	0	0	208	209	345
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			c0.20									
v/c Ratio		0.58	0.59	0.66	0.49					0.42	0.42	0.45
Uniform Delay, d1		29.8	29.9	37.0	10.8					31.9	31.9	32.1
Progression Factor		0.60	0.71	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.6	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.6	23.8	40.9	11.5					34.5	34.6	32.4
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		20.8			21.7			0.0			33.4	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			23.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			82.0%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Analysis – Existing + Project Phase 2

Existing + Phase 2.syn
1: Boones Ferry Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘	↖	↗		↖↗	↕↗		↖	↕↕	↖
Volume (vph)	205	2	880	63	16	2	615	754	5	2	1082	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2734	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.42	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2734	794	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	211	2	907	65	16	2	634	777	5	2	1115	181
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	91
Lane Group Flow (vph)	0	213	889	65	16	0	634	782	0	2	1115	90
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		21.7	49.9	21.7	21.7		28.2	70.1		1.2	43.1	43.1
Effective Green, g (s)		21.7	49.9	21.7	21.7		28.2	70.1		1.2	43.1	43.1
Actuated g/C Ratio		0.21	0.48	0.21	0.21		0.27	0.67		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		269	1403	164	348		854	2315		20	1467	614
v/s Ratio Prot			c0.17		0.01		c0.20	0.23		0.00	c0.31	
v/s Ratio Perm		c0.16	0.15	0.08								0.06
v/c Ratio		0.79	0.63	0.40	0.05		0.74	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.5	20.7	36.0	33.4		35.1	7.5		51.4	26.5	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.14	0.60		1.00	1.00	1.00
Incremental Delay, d2		14.7	0.9	1.6	0.1		4.4	0.3		2.2	2.4	0.1
Delay (s)		54.2	21.6	37.6	33.4		44.2	4.8		53.6	28.9	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		27.8			36.7			22.4			27.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 2.syn

2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road



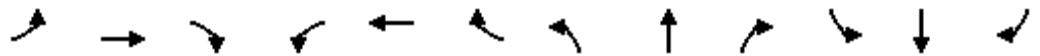
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑
Volume (vph)	0	1124	901	0	723	406	0	0	0	548	0	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1196	959	0	769	432	0	0	0	583	0	693
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	1196	959	0	769	432	0	0	0	291	292	609
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		48.3	105.0		48.3	105.0				47.2	47.2	47.2
Effective Green, g (s)		49.3	105.0		49.3	105.0				47.2	47.2	47.2
Actuated g/C Ratio		0.47	1.00		0.47	1.00				0.45	0.45	0.45
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1661	1564		1629	1580				741	741	672
v/s Ratio Prot		c0.34			0.22					0.18	0.18	c0.41
v/s Ratio Perm			0.61			0.27						
v/c Ratio		0.72	0.61		0.47	0.27				0.39	0.39	0.91
Uniform Delay, d1		22.3	0.0		19.0	0.0				19.3	19.3	26.8
Progression Factor		0.87	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		1.9	1.3		1.0	0.4				0.3	0.3	15.8
Delay (s)		21.2	1.3		20.0	0.4				19.7	19.7	42.6
Level of Service		C	A		B	A				B	B	D
Approach Delay (s)		12.3			12.9			0.0			32.1	
Approach LOS		B			B			A			C	

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 2.syn
3: Boeckman Rd & 95th Ave

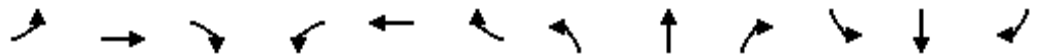


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	54	0	3	31	200	0	1	4	388	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1700	1900		1805	1900	1458		1655		1719	1345	
Flt Permitted	0.91	1.00		0.72	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1627	1900		1363	1900	1458		1655		1719	1345	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	52	61	0	3	35	225	0	1	4	436	1	34
RTOR Reduction (vph)	0	0	0	0	0	172	0	4	0	0	21	0
Lane Group Flow (vph)	52	61	0	3	35	53	0	1	0	436	14	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	8.5	4.4		22.6	14.0	14.0		0.9		22.1	22.1	
Effective Green, g (s)	8.5	4.4		22.6	14.0	14.0		0.9		22.1	22.1	
Actuated g/C Ratio	0.14	0.07		0.38	0.24	0.24		0.02		0.37	0.37	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	239	141		623	450	345		25		642	502	
v/s Ratio Prot	c0.02	c0.03		0.00	0.02			c0.00		c0.25	0.01	
v/s Ratio Perm	0.02			0.00		c0.04						
v/c Ratio	0.22	0.43		0.00	0.08	0.15		0.04		0.68	0.03	
Uniform Delay, d1	22.4	26.2		11.3	17.5	17.9		28.7		15.5	11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.3	2.1		0.0	0.1	0.2		0.5		2.6	0.0	
Delay (s)	22.7	28.3		11.3	17.6	18.1		29.2		18.1	11.7	
Level of Service	C	C		B	B	B		C		B	B	
Approach Delay (s)		25.7			17.9			29.2			17.6	
Approach LOS		C			B			C			B	

Intersection Summary		
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.46	B
Actuated Cycle Length (s)	59.1	Sum of lost time (s)
Intersection Capacity Utilization	49.0%	18.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Existing + Phase 2.syn
 4: Parkway Ave & Boeckman Rd

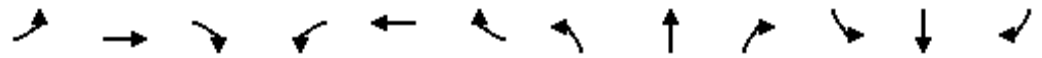


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	281	229	73	269	41	103	184	46	41	376	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1725		1752	1790		1770	1790		1766	1790	
Flt Permitted	0.36	1.00		0.14	1.00		0.12	1.00		0.54	1.00	
Satd. Flow (perm)	670	1725		249	1790		215	1790		1012	1790	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	312	254	81	299	46	114	204	51	46	418	199
RTOR Reduction (vph)	0	30	0	0	5	0	0	9	0	0	17	0
Lane Group Flow (vph)	92	536	0	81	340	0	114	246	0	46	600	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	36.4	30.1		35.4	29.6		40.7	34.7		37.1	32.9	
Effective Green, g (s)	36.4	30.1		35.4	29.6		40.7	34.7		37.1	32.9	
Actuated g/C Ratio	0.40	0.33		0.39	0.32		0.44	0.38		0.40	0.36	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	342	565		190	577		196	676		443	641	
v/s Ratio Prot	0.02	c0.31		c0.03	0.19		c0.04	0.14		0.00	c0.33	
v/s Ratio Perm	0.09			0.14			0.22			0.04		
v/c Ratio	0.27	0.95		0.43	0.59		0.58	0.36		0.10	0.94	
Uniform Delay, d1	18.3	30.1		21.3	26.0		20.0	20.6		16.8	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	25.3		1.5	1.5		4.3	0.3		0.1	21.0	
Delay (s)	18.7	55.4		22.9	27.5		24.3	20.9		16.9	49.4	
Level of Service	B	E		C	C		C	C		B	D	
Approach Delay (s)		50.3			26.7			22.0			47.2	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 2.syn
5: Boones Ferry Rd & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕↕↕		↙↙	↕↕	↙	↙	↕	↙	↙↙	↕	
Volume (vph)	45	748	103	449	669	207	166	88	344	406	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1348	1805	4600	1599	4000	1809	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	771	106	463	690	213	171	91	355	419	214	61
RTOR Reduction (vph)	0	15	0	0	0	79	0	0	48	0	10	0
Lane Group Flow (vph)	46	862	0	463	690	134	171	91	307	419	265	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	36.4		18.6	48.0	48.0	15.2	15.2	33.8	19.8	19.8	
Effective Green, g (s)	7.0	37.4		18.6	49.0	49.0	15.2	15.2	33.8	19.8	19.8	
Actuated g/C Ratio	0.06	0.34		0.17	0.45	0.45	0.14	0.14	0.31	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	1054		586	1603	600	249	635	564	720	325	
v/s Ratio Prot	0.03	c0.28		c0.13	0.19		c0.09	0.02	0.09	0.10	c0.15	
v/s Ratio Perm						0.10			0.10			
v/c Ratio	0.43	0.82		0.79	0.43	0.22	0.69	0.14	0.54	0.58	0.82	
Uniform Delay, d1	49.6	33.2		43.8	20.9	18.8	45.1	41.7	31.7	41.3	43.3	
Progression Factor	1.00	1.00		1.25	0.80	0.61	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	7.1		6.4	0.8	0.8	7.0	0.1	0.9	1.0	14.2	
Delay (s)	51.6	40.3		61.2	17.6	12.2	52.1	41.8	32.5	42.3	57.6	
Level of Service	D	D		E	B	B	D	D	C	D	E	
Approach Delay (s)		40.8			31.5			39.3			48.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 2.syn
6: I-5 SB & Wilsonville Rd



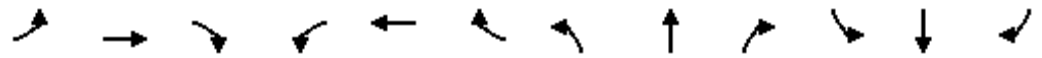
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	883	615	548	928	0	0	0	0	400	1	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	901	628	559	947	0	0	0	0	408	1	408
RTOR Reduction (vph)	0	0	396	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	901	232	559	947	0	0	0	0	204	205	223
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		c0.18		c0.16	0.27					0.12	c0.12	0.08
v/s Ratio Perm			0.15									
v/c Ratio		0.52	0.45	0.65	0.43					0.42	0.42	0.29
Uniform Delay, d1		29.0	28.3	36.9	10.3					31.8	31.8	30.6
Progression Factor		0.67	0.63	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8	2.1	3.7	0.6					2.6	2.6	0.1
Delay (s)		20.2	19.9	40.6	10.9					34.4	34.4	30.7
Level of Service		C	B	D	B					C	C	C
Approach Delay (s)		20.1			21.9			0.0			32.5	
Approach LOS		C			C			A			C	

Intersection Summary		
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.52	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 13.5
Intersection Capacity Utilization	77.2%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM Analysis – Existing + Project Phase 2 + Stage II

Existing + Phase 2 + Stage II.syn
 1: Boones Ferry Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘	↖	↘		↖↗	↕↘		↖	↕↕	↗
Volume (vph)	209	2	943	63	16	2	690	755	5	2	1083	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	0.88	1.00	1.00		0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.95	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1737	2733	1805	1686		3183	3468		1805	3574	1497
Flt Permitted		0.72	1.00	0.41	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1304	2733	786	1686		3183	3468		1805	3574	1497
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	215	2	972	65	16	2	711	778	5	2	1116	184
RTOR Reduction (vph)	0	0	18	0	2	0	0	0	0	0	0	92
Lane Group Flow (vph)	0	217	954	65	16	0	711	783	0	2	1116	92
Confl. Peds. (#/hr)	2					2	3		1	1		3
Confl. Bikes (#/hr)			2						1			
Heavy Vehicles (%)	4%	0%	3%	0%	12%	0%	10%	4%	0%	0%	1%	5%
Turn Type	Perm	NA	pm+ov	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8	1		4		1	6		5	2	
Permitted Phases	8		8	4								2
Actuated Green, G (s)		22.0	49.8	22.0	22.0		27.8	69.8		1.2	43.2	43.2
Effective Green, g (s)		22.0	49.8	22.0	22.0		27.8	69.8		1.2	43.2	43.2
Actuated g/C Ratio		0.21	0.47	0.21	0.21		0.26	0.66		0.01	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		273	1400	164	353		842	2305		20	1470	615
v/s Ratio Prot			c0.18		0.01		c0.22	0.23		0.00	c0.31	
v/s Ratio Perm		c0.17	0.17	0.08								0.06
v/c Ratio		0.79	0.68	0.40	0.05		0.84	0.34		0.10	0.76	0.15
Uniform Delay, d1		39.4	21.4	35.8	33.1		36.6	7.6		51.4	26.4	19.4
Progression Factor		1.00	1.00	1.00	1.00		1.10	0.56		1.00	1.00	1.00
Incremental Delay, d2		14.7	1.4	1.6	0.1		7.3	0.3		2.2	2.3	0.1
Delay (s)		54.0	22.8	37.4	33.2		47.6	4.6		53.6	28.8	19.5
Level of Service		D	C	D	C		D	A		D	C	B
Approach Delay (s)		28.5			36.4			25.0			27.5	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.81	
Actuated Cycle Length (s)	105.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Existing + Phase 2 + Stage II.syn

2: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Road

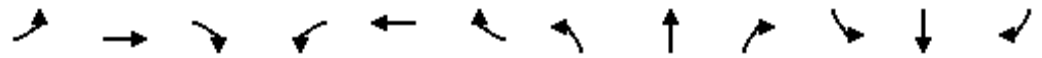


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↘	↖	↗
Volume (vph)	0	1185	904	0	727	406	0	0	0	549	0	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0				4.5	4.5	4.5
Lane Util. Factor		0.95	1.00		0.95	1.00				0.95	0.95	1.00
Frbp, ped/bikes		1.00	0.99		1.00	0.98				1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00				1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85				1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)		3539	1564		3471	1580				1649	1649	1495
Flt Permitted		1.00	1.00		1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)		3539	1564		3471	1580				1649	1649	1495
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1261	962	0	773	432	0	0	0	584	0	769
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	1261	962	0	773	432	0	0	0	292	292	690
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1			5						
Heavy Vehicles (%)	0%	2%	2%	0%	4%	0%	0%	0%	0%	4%	0%	8%
Turn Type		NA	Free		NA	Free				Split	NA	Prot
Protected Phases		2			6					4	4	4
Permitted Phases			Free			Free						
Actuated Green, G (s)		45.6	105.0		45.6	105.0				49.9	49.9	49.9
Effective Green, g (s)		46.6	105.0		46.6	105.0				49.9	49.9	49.9
Actuated g/C Ratio		0.44	1.00		0.44	1.00				0.48	0.48	0.48
Clearance Time (s)		5.0			5.0					4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1570	1564		1540	1580				783	783	710
v/s Ratio Prot		c0.36			0.22					0.18	0.18	c0.46
v/s Ratio Perm			0.62			0.27						
v/c Ratio		0.80	0.62		0.50	0.27				0.37	0.37	0.97
Uniform Delay, d1		25.2	0.0		20.9	0.0				17.6	17.6	26.9
Progression Factor		0.92	1.00		1.00	1.00				1.00	1.00	1.00
Incremental Delay, d2		3.0	1.2		1.2	0.4				0.3	0.3	26.7
Delay (s)		26.3	1.2		22.1	0.4				17.9	17.9	53.6
Level of Service		C	A		C	A				B	B	D
Approach Delay (s)		15.5			14.3			0.0			38.2	
Approach LOS		B			B			A			D	

Intersection Summary		
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	105.0	Sum of lost time (s) 8.5
Intersection Capacity Utilization	71.9%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Existing + Phase 2 + Stage II.syn
 3: Boeckman Rd & 95th Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	91	0	3	91	214	0	1	4	402	1	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97		0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.88		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1701	1900		1805	1900	1456		1655		1719	1336	
Flt Permitted	0.69	1.00		0.69	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1237	1900		1313	1900	1456		1655		1719	1336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	91	102	0	3	102	240	0	1	4	452	1	103
RTOR Reduction (vph)	0	0	0	0	0	200	0	4	0	0	66	0
Lane Group Flow (vph)	91	102	0	3	102	40	0	1	0	452	38	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)			1			2						7
Heavy Vehicles (%)	6%	0%	0%	0%	0%	8%	0%	0%	0%	5%	0%	18%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6						
Actuated Green, G (s)	16.4	6.9		23.0	10.2	10.2		0.9		22.0	22.0	
Effective Green, g (s)	16.4	6.9		23.0	10.2	10.2		0.9		22.0	22.0	
Actuated g/C Ratio	0.27	0.11		0.38	0.17	0.17		0.01		0.36	0.36	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.5	3.0		2.5	3.0	3.0		2.5		2.5	2.5	
Lane Grp Cap (vph)	407	216		602	319	245		24		624	485	
v/s Ratio Prot	c0.04	c0.05		c0.00	0.05			c0.00		c0.26	0.03	
v/s Ratio Perm	0.03			0.00		0.03						
v/c Ratio	0.22	0.47		0.00	0.32	0.16		0.04		0.72	0.08	
Uniform Delay, d1	17.4	25.1		11.7	22.2	21.6		29.4		16.7	12.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.2	1.6		0.0	0.6	0.3		0.6		3.9	0.1	
Delay (s)	17.6	26.8		11.7	22.7	21.9		30.0		20.6	12.7	
Level of Service	B	C		B	C	C		C		C	B	
Approach Delay (s)		22.4			22.0			30.0			19.1	
Approach LOS		C			C			C			B	

Intersection Summary		
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.50	
Actuated Cycle Length (s)	60.6	Sum of lost time (s) 18.0
Intersection Capacity Utilization	49.8%	ICU Level of Service A
Analysis Period (min)	15	

c Critical Lane Group

Existing + Phase 2 + Stage II.syn
 4: Parkway Ave & Boeckman Rd

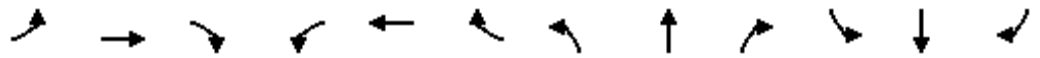


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	328	231	75	328	41	105	186	49	41	379	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	1735		1752	1796		1770	1788		1766	1782	
Flt Permitted	0.28	1.00		0.13	1.00		0.12	1.00		0.53	1.00	
Satd. Flow (perm)	520	1735		244	1796		216	1788		994	1782	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	364	257	83	364	46	117	207	54	46	421	227
RTOR Reduction (vph)	0	26	0	0	5	0	0	9	0	0	20	0
Lane Group Flow (vph)	109	595	0	83	405	0	117	252	0	46	628	0
Confl. Peds. (#/hr)	1		2	2		1			3	3		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	2%	1%	3%	4%	2%	2%	2%	4%	2%	1%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Effective Green, g (s)	37.6	31.0		36.2	30.3		40.6	34.5		36.8	32.6	
Actuated g/C Ratio	0.41	0.33		0.39	0.33		0.44	0.37		0.40	0.35	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	301	580		191	587		197	666		430	627	
v/s Ratio Prot	0.03	c0.34		c0.03	0.23		c0.04	0.14		0.00	c0.35	
v/s Ratio Perm	0.12			0.14			0.22			0.04		
v/c Ratio	0.36	1.03		0.43	0.69		0.59	0.38		0.11	1.00	
Uniform Delay, d1	18.7	30.8		21.9	27.1		21.0	21.2		17.3	30.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	44.1		1.6	3.5		4.7	0.4		0.1	36.3	
Delay (s)	19.4	74.9		23.5	30.6		25.7	21.6		17.4	66.3	
Level of Service	B	E		C	C		C	C		B	E	
Approach Delay (s)		66.7			29.4			22.9			63.1	
Approach LOS		E			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Existing + Phase 2 + Stage II.syn
 5: Boones Ferry Rd & Wilsonville Rd

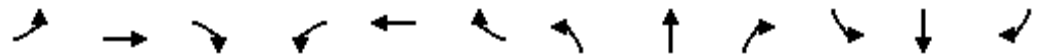


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	908	142	451	857	218	233	90	347	422	212	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0		5.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1687	3100		3467	3600	1347	1805	4600	1599	4000	1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	936	146	465	884	225	240	93	358	435	219	64
RTOR Reduction (vph)	0	18	0	0	0	70	0	0	46	0	10	0
Lane Group Flow (vph)	52	1064	0	465	884	155	240	93	312	435	273	0
Confl. Peds. (#/hr)	5		5	5		5	2					2
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	7%	3%	1%	1%	3%	16%	0%	1%	1%	3%	1%	2%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.0	33.6		17.7	44.3	44.3	18.5	18.5	36.2	20.2	20.2	
Effective Green, g (s)	7.0	34.6		17.7	45.3	45.3	18.5	18.5	36.2	20.2	20.2	
Actuated g/C Ratio	0.06	0.31		0.16	0.41	0.41	0.17	0.17	0.33	0.18	0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	2.5	0.5		2.5	4.3	4.3	2.5	2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)	107	975		557	1482	554	303	773	598	734	332	
v/s Ratio Prot	0.03	c0.34		c0.13	0.25		c0.13	0.02	0.08	0.11	c0.15	
v/s Ratio Perm						0.12			0.11			
v/c Ratio	0.49	1.09		0.83	0.60	0.28	0.79	0.12	0.52	0.59	0.82	
Uniform Delay, d1	49.8	37.7		44.7	25.2	21.5	43.9	38.8	29.9	41.1	43.2	
Progression Factor	1.00	1.00		1.21	0.79	0.63	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	57.1		9.1	1.6	1.1	12.8	0.1	0.6	1.1	14.8	
Delay (s)	52.3	94.8		63.3	21.4	14.6	56.7	38.9	30.5	42.2	58.0	
Level of Service	D	F		E	C	B	E	D	C	D	E	
Approach Delay (s)		92.8			32.8			40.7			48.4	
Approach LOS		F			C			D			D	

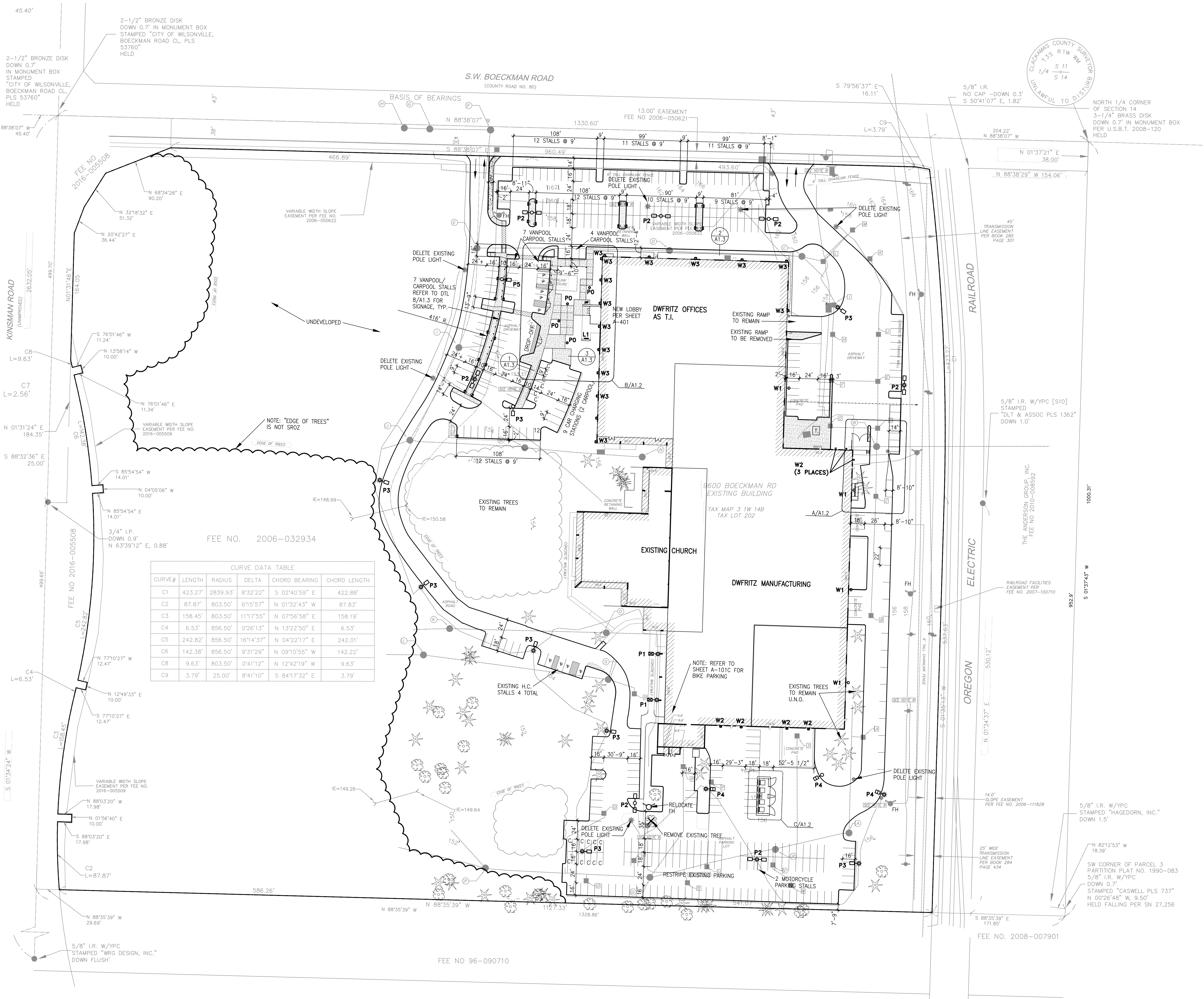
Intersection Summary		
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.92	D
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	79.8%	19.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

Existing + Phase 2 + Stage II.syn
6: I-5 SB & Wilsonville Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑	↑	↑↑
Volume (vph)	0	986	691	557	1052	0	0	0	0	408	1	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.91	1.00	0.97	0.95					0.95	0.95	0.88
Frbp, ped/bikes		1.00	0.97	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5085	1504	3467	3471					1715	1719	2682
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5085	1504	3467	3471					1715	1719	2682
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1006	705	568	1073	0	0	0	0	416	1	487
RTOR Reduction (vph)	0	0	395	0	0	0	0	0	0	0	0	141
Lane Group Flow (vph)	0	1006	310	568	1073	0	0	0	0	208	209	346
Confl. Peds. (#/hr)	7		11	11		7	1					1
Confl. Bikes (#/hr)						3						1
Heavy Vehicles (%)	0%	2%	4%	1%	4%	0%	0%	0%	0%	0%	0%	6%
Turn Type		NA	Perm	Prot	NA					Split	NA	custom
Protected Phases		2		1	6					7	7	4
Permitted Phases			2									
Actuated Green, G (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Effective Green, g (s)		37.5	37.5	27.5	69.5					31.5	31.5	31.5
Actuated g/C Ratio		0.34	0.34	0.25	0.63					0.29	0.29	0.29
Clearance Time (s)		4.5	4.5	4.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		4.9	4.9	2.3	4.9					2.3	2.3	2.3
Lane Grp Cap (vph)		1733	512	866	2193					491	492	768
v/s Ratio Prot		0.20		c0.16	0.31					0.12	0.12	c0.13
v/s Ratio Perm			c0.21									
v/c Ratio		0.58	0.60	0.66	0.49					0.42	0.42	0.45
Uniform Delay, d1		29.8	30.1	37.0	10.8					31.9	31.9	32.2
Progression Factor		0.60	0.73	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7	2.8	3.9	0.8					2.7	2.7	0.2
Delay (s)		18.6	24.6	40.9	11.6					34.5	34.6	32.4
Level of Service		B	C	D	B					C	C	C
Approach Delay (s)		21.1			21.7			0.0			33.4	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			23.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				13.5		
Intersection Capacity Utilization			82.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												



Site Design Review Scope:
 Overall the project is to renovate an existing warehouse facility to become DWFRITZ Precision Automation offices and light manufacturing. The existing Grace Chapel portion of the building will continue as a separation operation to DWFRITZ, and no renovation of this space is planned at this time, other than reroofing and insulation of the high roof portion.

Site Design Review Submittal: This submittal is limited to site work (by Lance Mueller & Associates) and the small lobby addition (by Hacker). Parking is infilled in areas that were previously in grass and the existing parking and circulation areas largely remain. Site lighting uses existing pole lights where possible, but upgrades to new LED heads.

Deferred Site Design Review submittals:
 1. Landscape Irrigation Plan
 2. Signage/Graphics proposal

Legal Description:
 A tract of land situated in Section 14, Township 3 South, Range 1 West of the Willamette Meridian, in the City of Wilsonville, Clackamas County, Oregon, more particularly described as follows: Beginning at an iron pipe at the Northwest corner of the Northeast one quarter of the Northwest one quarter of said Section 14, said point being the Northwest corner of that tract conveyed to Frederic W. Young, et ux, recorded January 13, 1947 in Book 383, Page 262, Deed Records; thence South 0° 13' East along the West line of said Young tract 499.70 feet to an iron pipe at the Southwest corner thereof, and the true point of beginning of the tract hereon to be described, thence North 85° 43' East along the South line of said Young tract 25.00 feet to a point; thence North 0° 13' West parallel with the West line of said Young tract 474.70 feet to a point that is Southerly 25.00 feet measured at right angles from the North line of said Young tract; thence North 89° 42' East parallel with the North line of said Young tract 108.00 feet, more or less, to the West line of the Oregon Electric Railway right of way, thence Southerly along the West line of said Oregon Electric Railway right of way 860.00 feet, more or less, to a point of intersection with the South boundary of the tract conveyed to Sunn Musical Equipment Company, a corporation, by deed filed May 5, 1969 as Recorder's Fee No. 69-7881, Film Records; thence South 89° 44' West along said South boundary, 116.00 feet, more or less, to the Southwest corner thereof, said point being in the Westerly boundary of the Northeast one quarter of the Northwest one quarter of said Section 14, thence North 0° 13' West along said boundary 459.7 feet to the true point of beginning, EXCEPTING THEREFROM: All that portion described in deed to the City of Wilsonville for road purposes, recorded June 2, 2006, Recorder's Fee No. 2006-050621; ALSO EXCEPTING THEREFROM: All that portion described in deed to the City of Wilsonville for road purposes, recorded January 29, 2016, Recorder's Fee No. 2016-050608.

Tax Parcel Numbers: 00810331, 05021199, 05008927

Zoning: PDI (Planned Development Industrial)

Index of Drawings:
 A1.1 Site Plan with new parking and notes
 A1.2 Enlarged Site Plans
 A1.3 Site Details
 A1.4 Site Details
 A1.4 A-152-Bike Bike Parking in Building - Temporary location
 L1.0 Landscape Plan
 L2.0 Landscape Notes and Details
 L3.0 Tree Preservation Plan, Notes, and Details
 --- Exterior Lighting Plan with Fixture Type
 --- Exterior Lighting Rendering
 --- West Elevation - Before & After (for reference, in construction under BB15-0550)
 C0.1 - C4.0 Civil Drawings (11 drawing sheets)

Statistics:

Building Area:	1st Floor SF	Upper Levels
	137,366	0
	23,468	6,900
	365	0
	161,231	6,900
	168,131	6,900

Total 1st Floor Area: 168,131
Total Floor Area (with Mezzanine): 175,031

Site Area: 24.50 Acres
 Building Coverage: 161,207sf 15% of site
 Existing Paving Area: 152,556sf
 Proposed Paving Area: 67,000sf (addition)
 227,148sf Total Paving 64% of site
 Landscape: 678,839sf 21% of site

Parking:
 Required: 277 (1,000sf office (52,799sf x 2.71/1000 => 143)
 277 (1,000sf Chapel* (33,368sf x 2.71/1000 => 90)
 1.6/1.0,000sf manu (81,964sf x 1.6/1000 => 131)
 364 (Minimum) Required
 Existing: 156 (incl. 6 Accessible)
 Proposed: 402 (incl. 9 Accessible (4 are existing) & 18 Compacts)

*** The Chapel has rec'd notification that 4/1/17 is their last day, and the space will become part of DWFRITZ Precision Engineering by separate permits. Until then DWFRITZ does not work on Sundays when the Chapel is occupied.**

Carpool/Vanpool Parking:
 Required: 5% of required parking
 Existing: Not known
 Proposed: 21 (5% x 402 = 20 minimum)

Bike Parking:
 Required: 1/15,000sf office (52,799sf / 5,000 => 10.56)
 1/15,000sf Chapel* (33,368sf / 5,000 => 6.67)
 1/10,000sf manu (81,964sf / 10,000 => 8.19)
 26 Required
 Existing: 0
 Proposed: 25 Interior - temporary room in the Chapel area
 2 Outside in commercial racks at lobby entry
 27 Total Provided (Permanent interior bike storage will move to inside the Chapel area soon.)

Loading Berths:
 Required: Minimum three (3) (sized min: 12' x 35' x 14' clear ht.)
 Existing: Five (5) Existing to remain
 Proposed: 1 two (2) new proposed
 7 total loading berths proposed

Trash/Recycle Storage Area Calculations:
 Required: 48 per 1,000sf Office (52,799sf x 48/1000 => 2128sf)
 86 per 1,000sf Chapel* (33,368sf x 86/1000 => 1828sf)
 96 per 10,000sf manu (81,964sf x 96/1000 => 4928sf)
 886sf Required
 Existing: Yes, but not used. See proposed.
 Proposed: 540sf (New Enclosure S. of building - 12' x 45')
 162sf (New Container E. of building - 8' x 20' x 4' high)
 288sf (New Enclosure E. of building - 12' x 24')
 988sf Proposed

Building Code:
 2014 Oregon Structural Specialty Code (OSSC)
 2014 Oregon Mechanical Specialty Code
 2014 Oregon Fire Code
 2014 Oregon Plumbing Code
 2014 Oregon Residential Specialty Code
 2010 Oregon Manufactured Dwelling and Parks Specialty Code
 2010 Oregon Solar Specialty Code
 2014 Oregon Energy Specialty Code

Const Type: Type III-B, Sprinklered
Occupancy Groups:
 B Office
 F-1 Factory Indust - Mod Hazard
 S-1 Moderate Hazard Storage

Allowable Floor Area: Unlimited per Section 507.3 (for sprinklered 1-story buildings of Group B, F, M, or S occupancy, other than Type V construction)

- Project Team:**
- Owner / Developer:** WA LLC, 1404 Broadmoor Drive E, Seattle, WA 98112. Contact: Jack Martin, 206-660-8483 mobile, JackMartin@Outlook.com
 - Shell Architect:** Lance Mueller & Associates / Architects, 130 Lakeside Avenue S., Suite 250, Seattle, WA 98122. Contact: Tom Rippey, 206-325-2553, Ext 120; (Fax) 206-328-0554, JackMartin@Outlook.com, BWelsh@Lmueller.com
 - Structural Engineer:** TM Rippey Consulting Engineers, 7650 SW Beveland Street, Suite 100, Tigard, OR 97224. Contact: Tom Rippey, 503-443-3900; (Fax) 503-443-3700, truppey@tmripcy.com
 - Geotechnical Engineer:** GeoDesign, Inc., 9450 SW Commerce Circle, Suite 300, Wilsonville, OR 97070. Contact: George Saunders, 503-968-9787, gsanders@geodesign.com
 - Envelope Consultant:** Franklin Engineering, 625 Fourth Avenue, Suite 202, Kirkland, WA 98033. Contact: Natalie Thawer, 425-827-3234; 425-827-6252
 - Interior Architect:** Hacker, 733 SW Oak Street, Suite 100, Portland, OR 97205. Contact: Chris McLaughlin, 503-227-1534; (Fax) 503-227-7818, ddeville@hackerarchitects.com
 - Alpha Associates, Inc.:** 4875 SW Griffin Drive, Suite 300, Beaverton, OR 97005. Contact: Craig Harbo, 503-620-3030; (Fax) 503-620-5539, craigh@aaeng.com
 - General Contractor:** Perko Construction, 16101 SW 72nd Avenue, Suite 200, Portland, OR 97224. Contact: Chris McLaughlin, 503-424-2990; (Fax) 503-439-4134, cmclaughlin@perko.biz

SITE PLAN
 1" = 50'-0"

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
 ARCHITECTS • AIA
 130 LAKESIDE • SEATTLE, WA 98122 • 206 325 2553

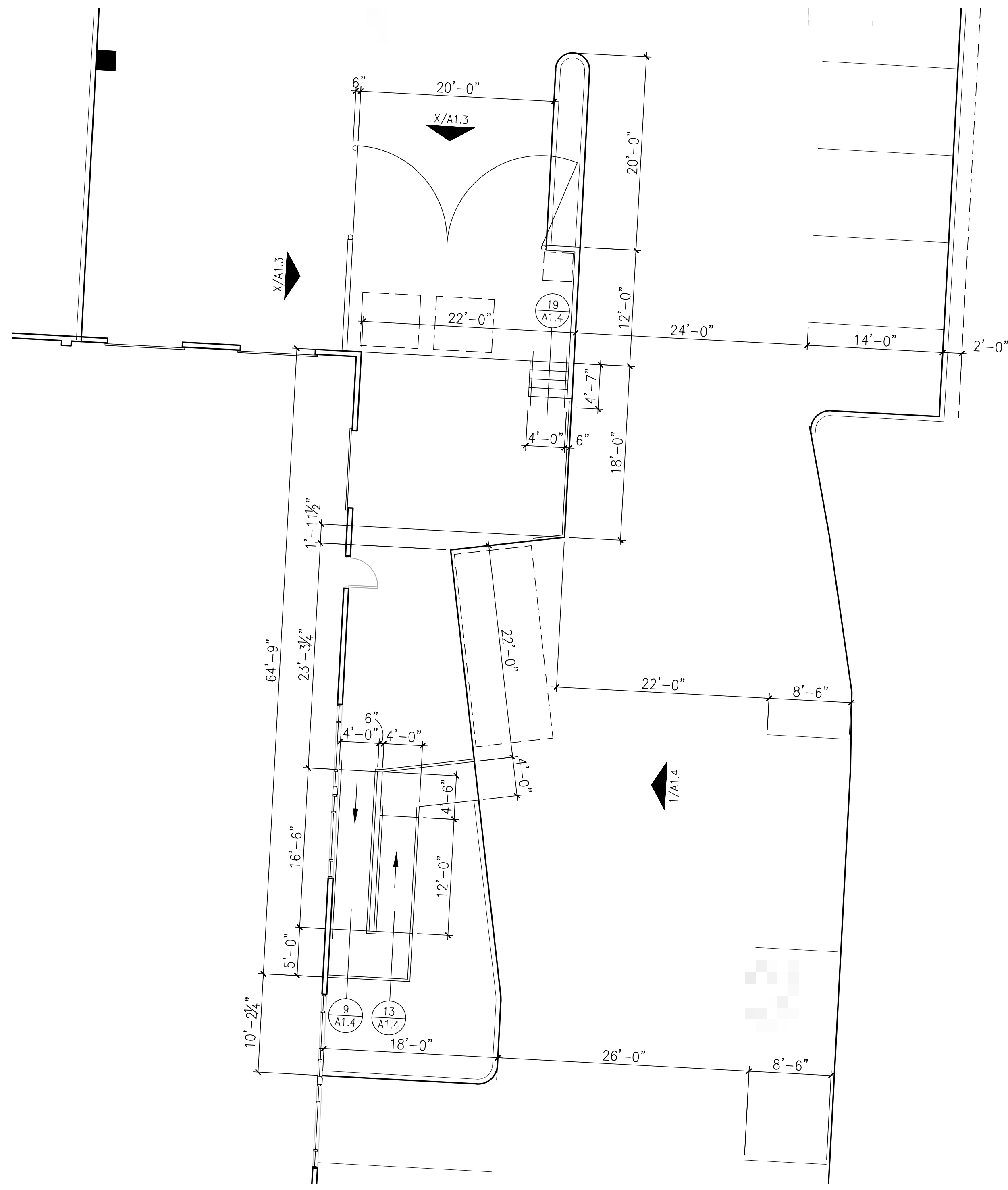
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 LANCE MUELLER
 NO. 10810
 STATE OF OREGON

16-006
 Job no.
 DW
 Drawn
 8-14-17
 5-8-17
 2-24-17
 12-15-16
 checked
 5-8-17
 date
 revision

SITE PLAN
 sheet
A1.1

SITE DESIGN REVIEW

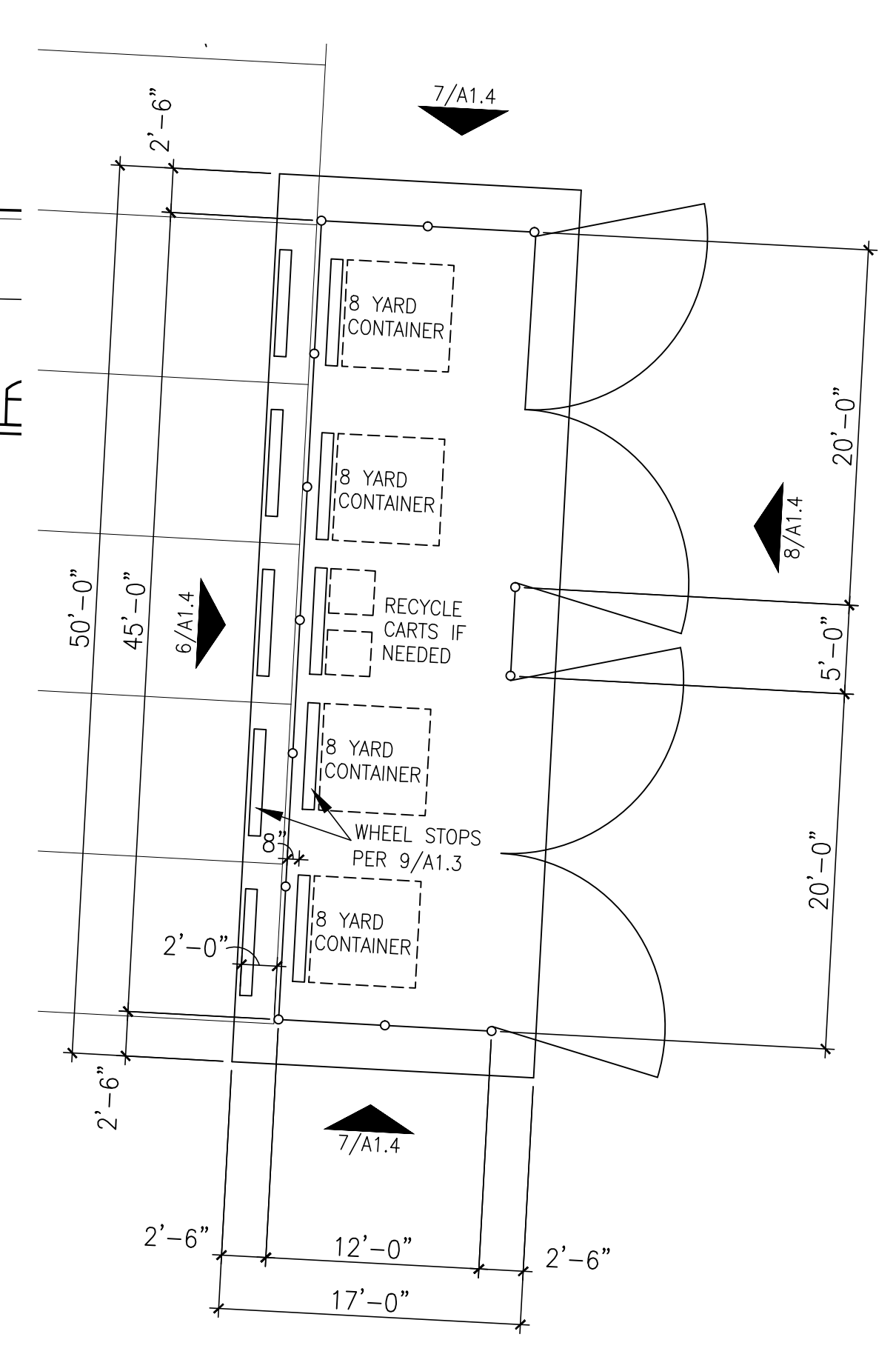




A ENLARGED SITE PLAN
1/8" = 1'-0"



B ENLARGED SITE PLAN
1/8" = 1'-0"



C ENLARGED SITE PLAN
1/8" = 1'-0"

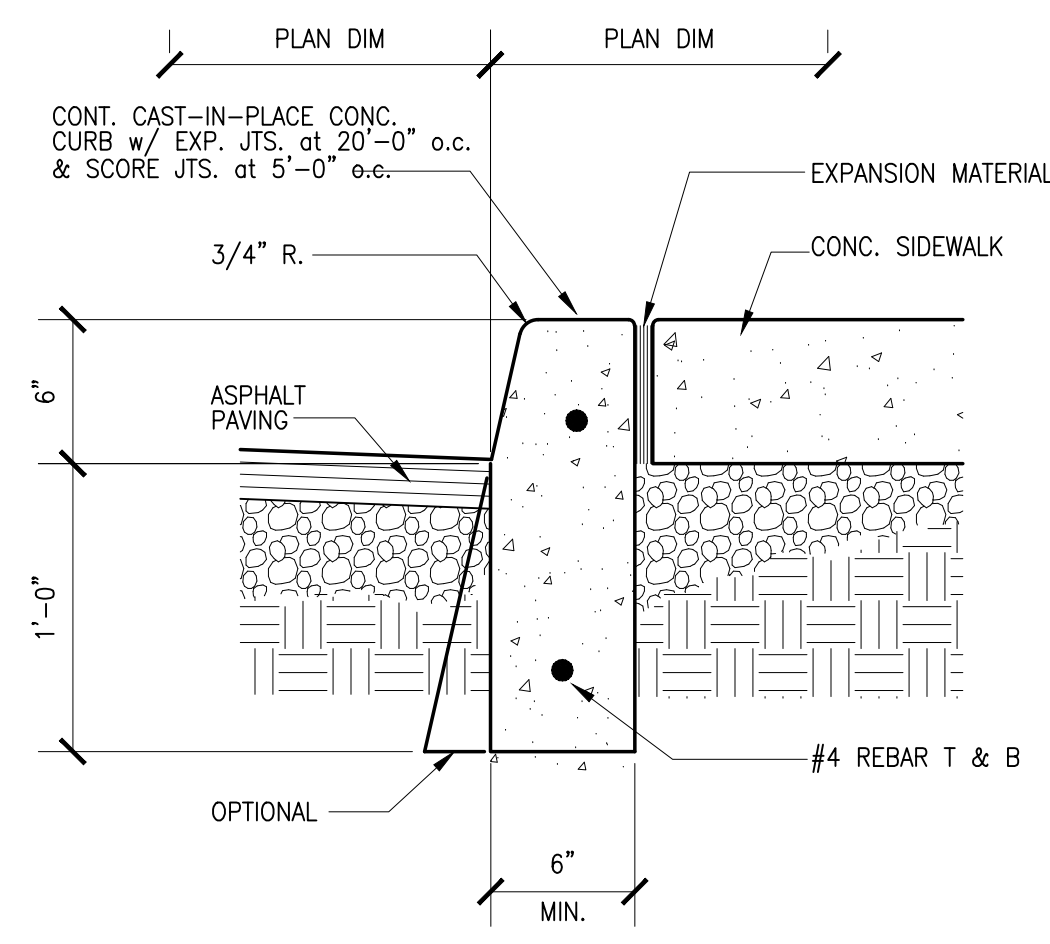
SITE DESIGN REVIEW

ENLARGED SITE PLANS AND DETAILS
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 sheet

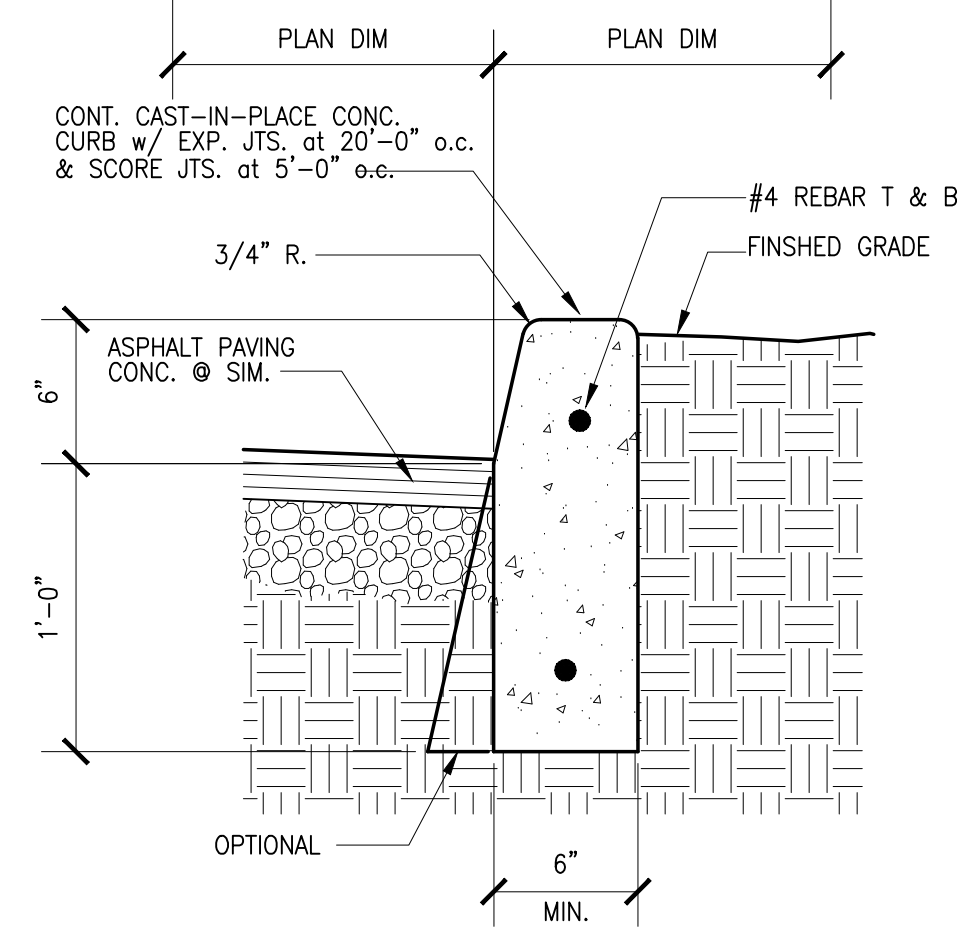
DWFRITZ Renovation
 9900 SW Boeckman Rd.
 Wilsonville, OR 97070

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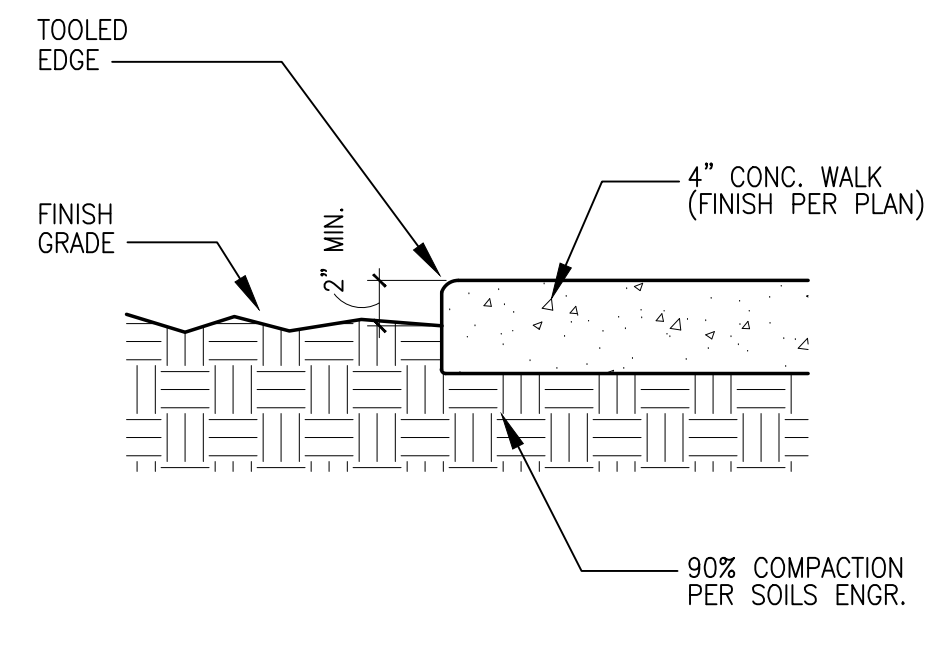
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 SEATTLE, WA 98122



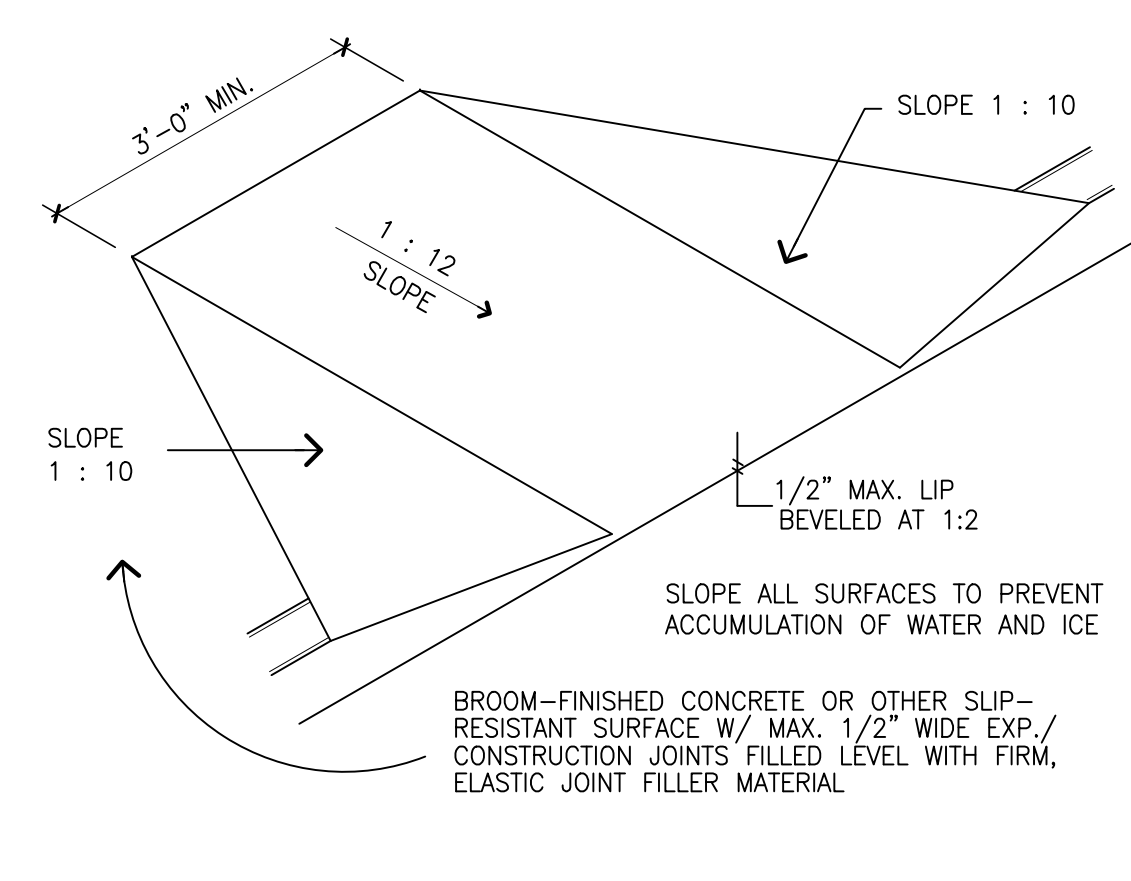
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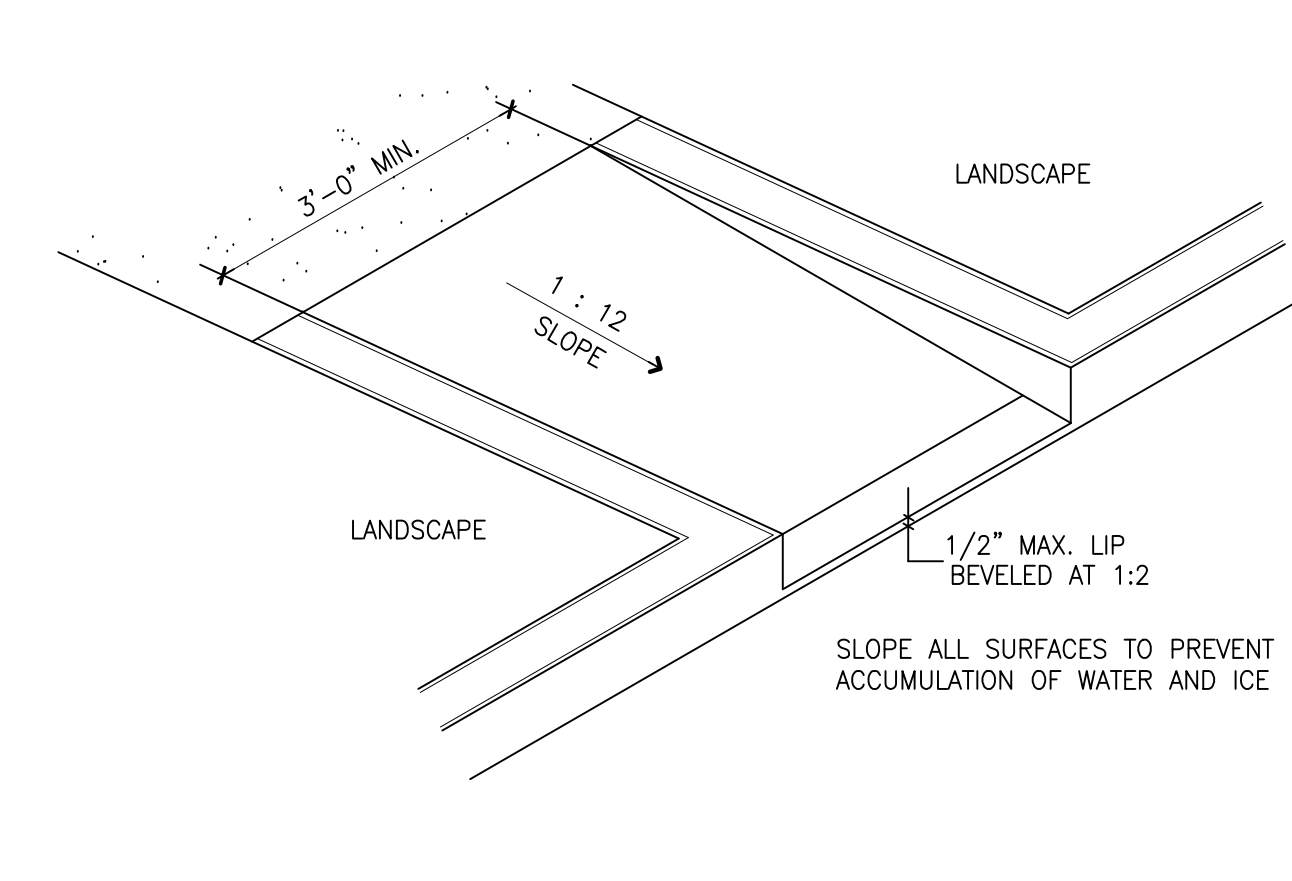
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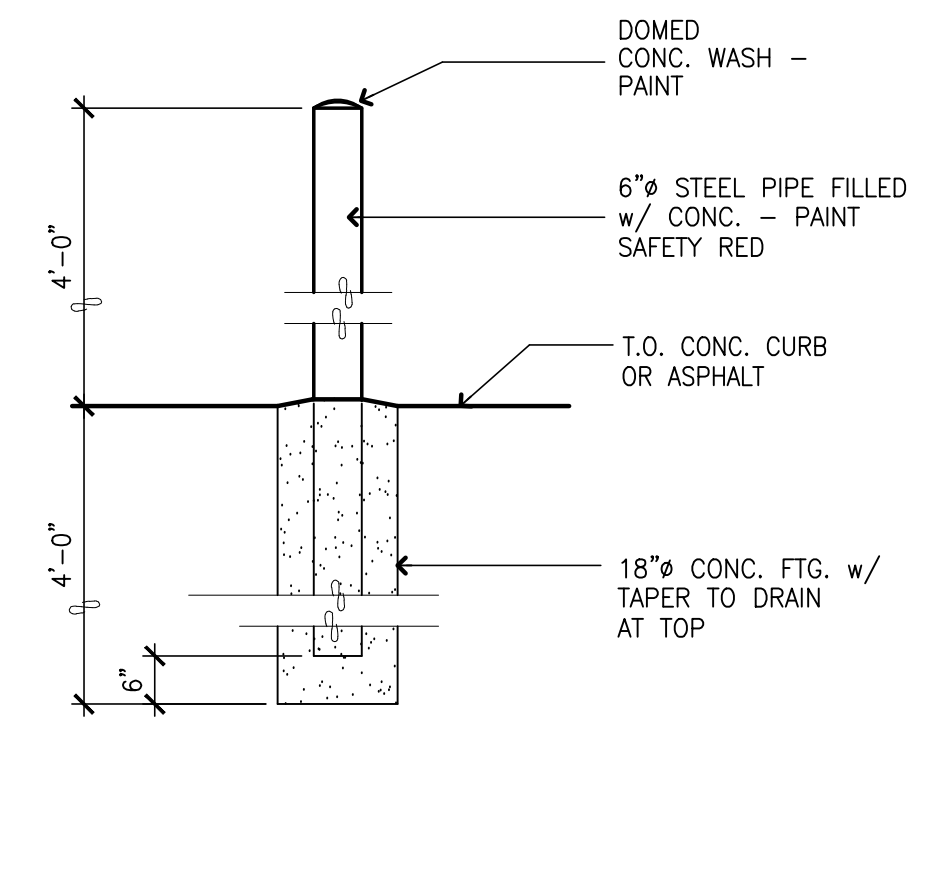
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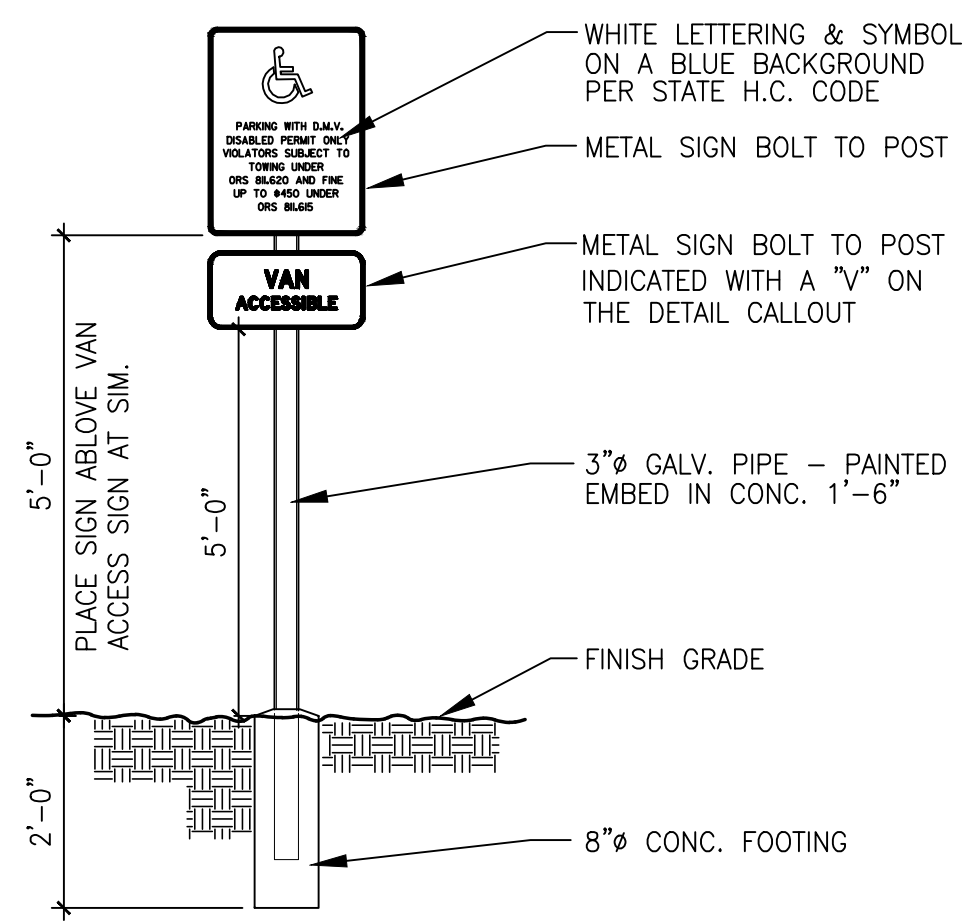
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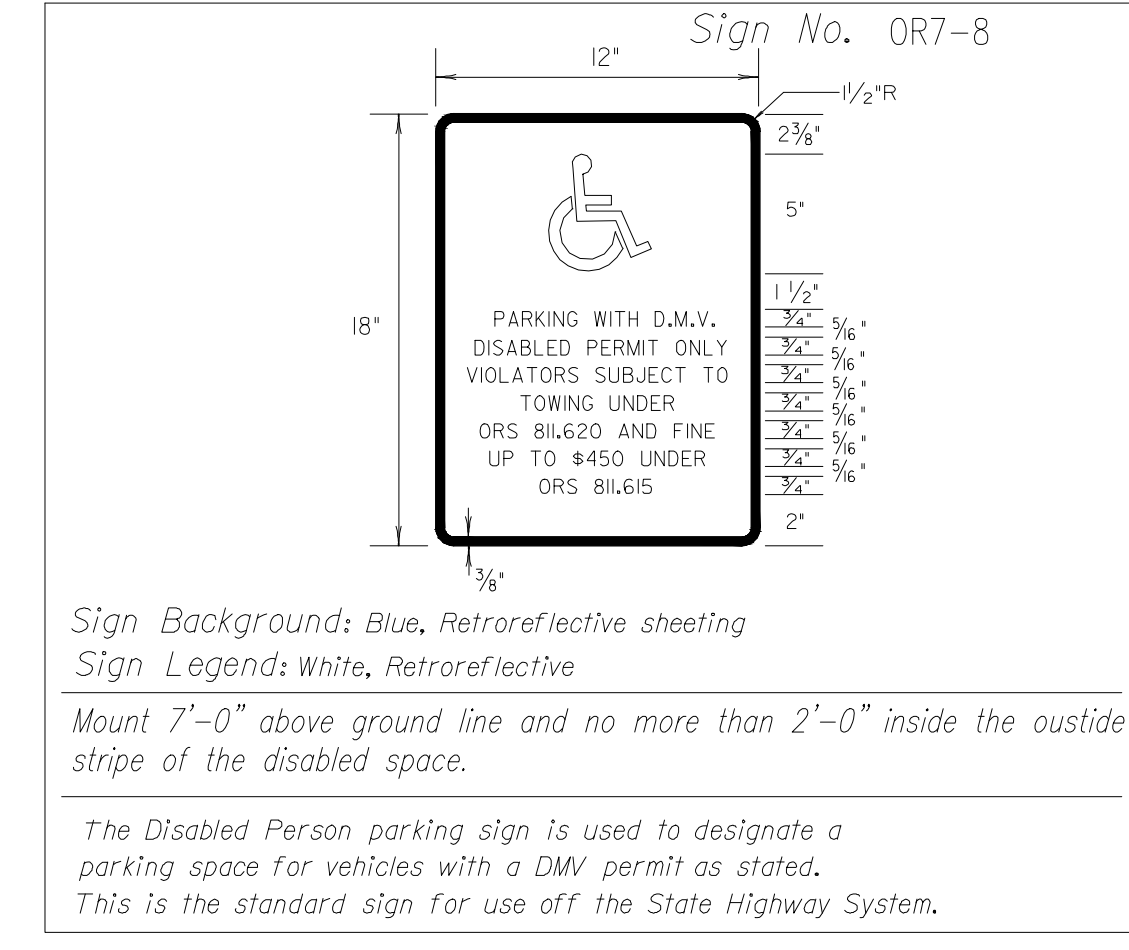
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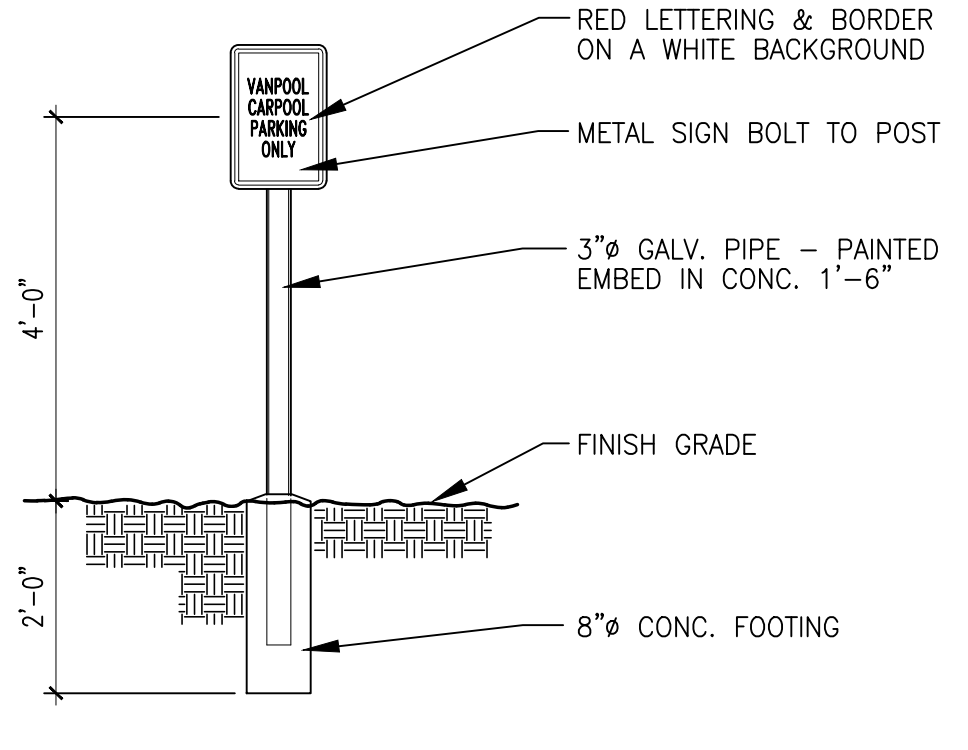
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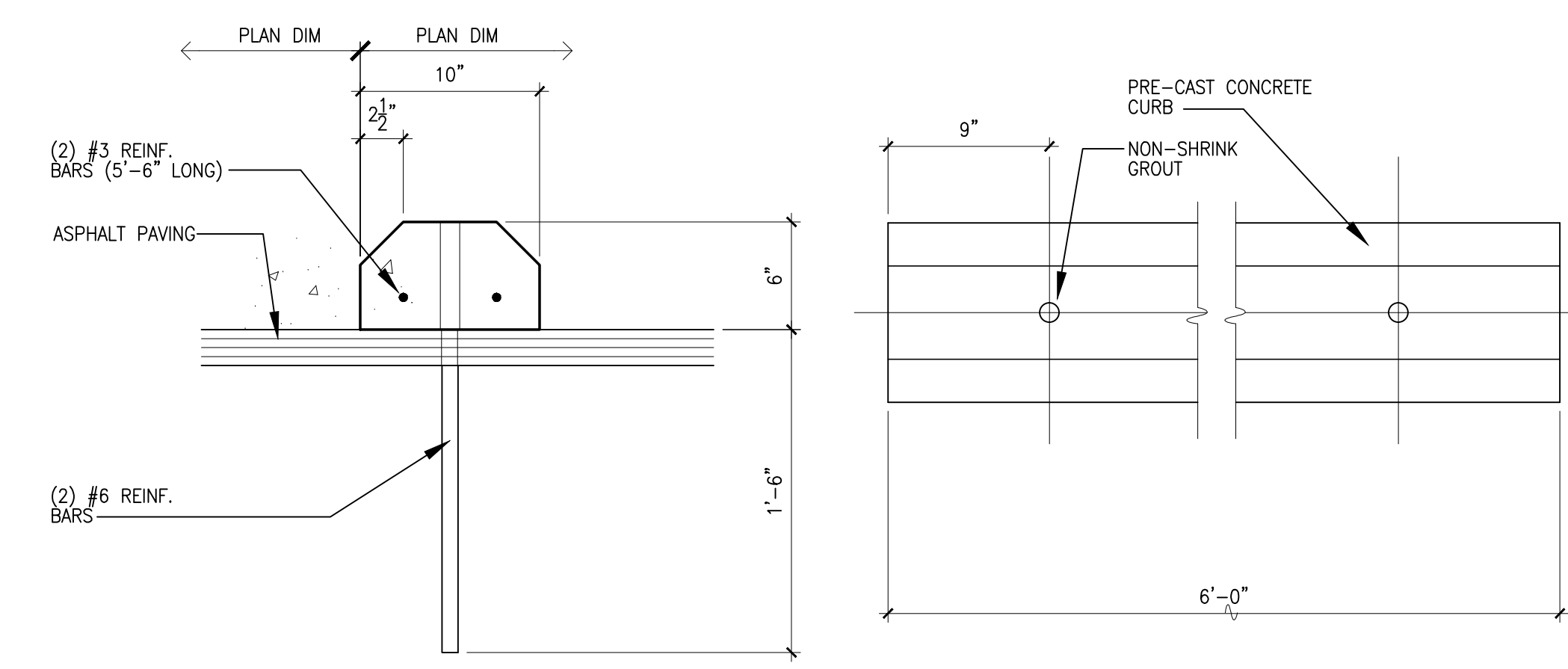
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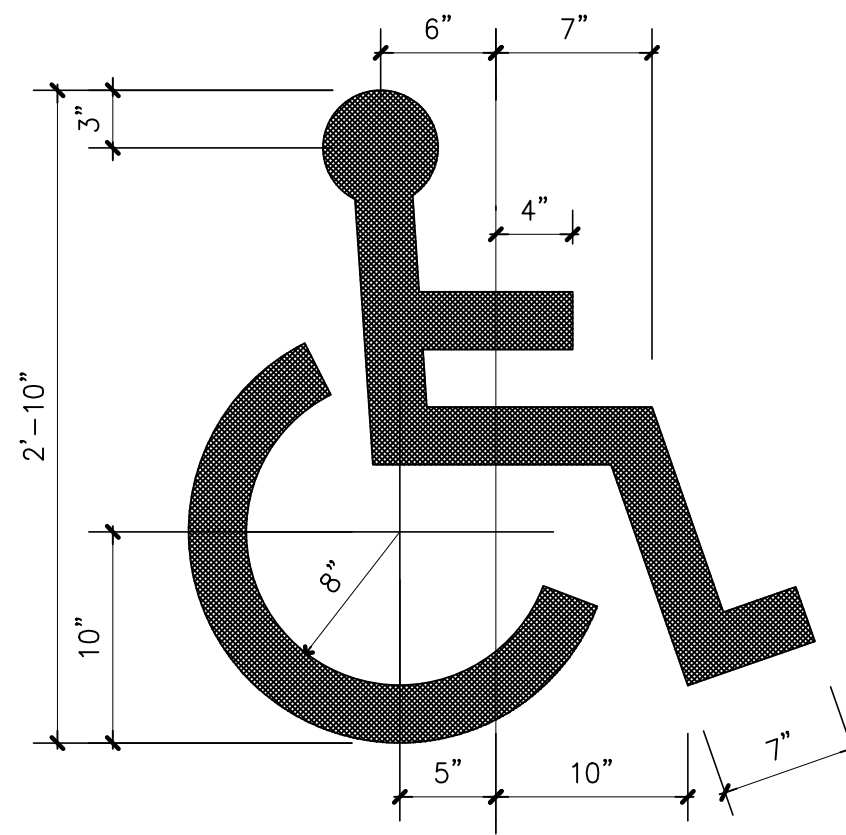
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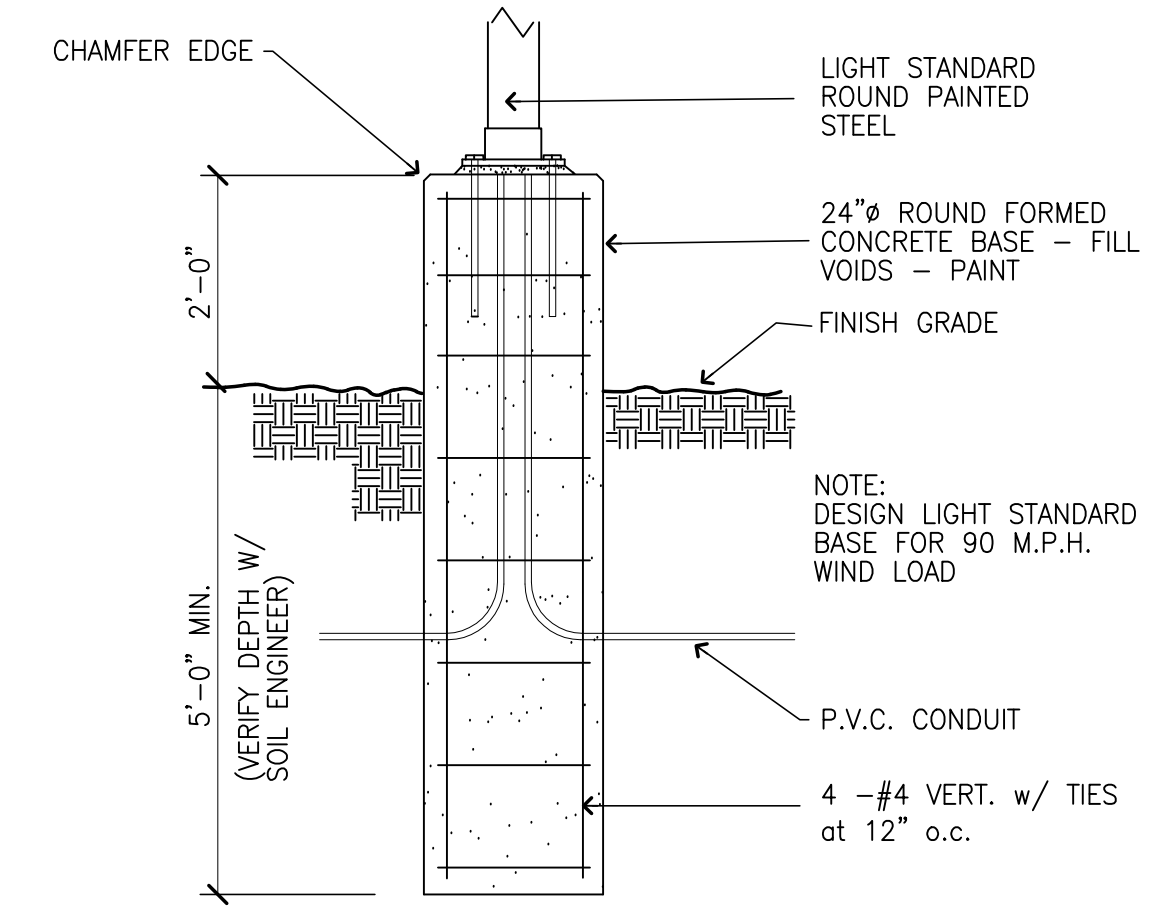
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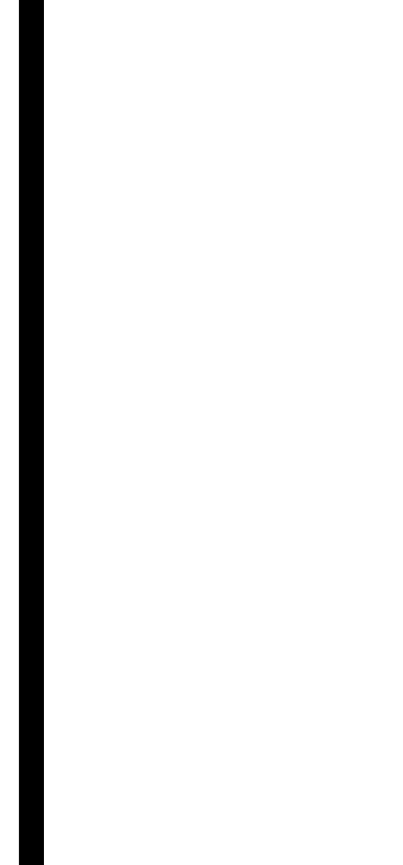
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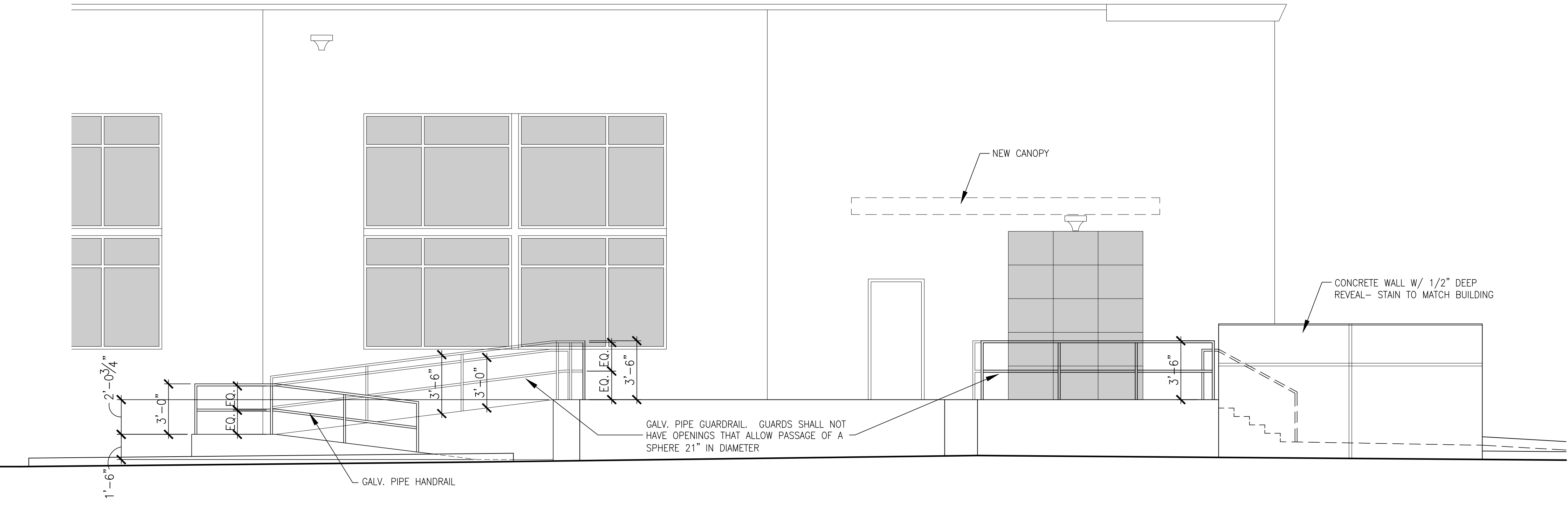
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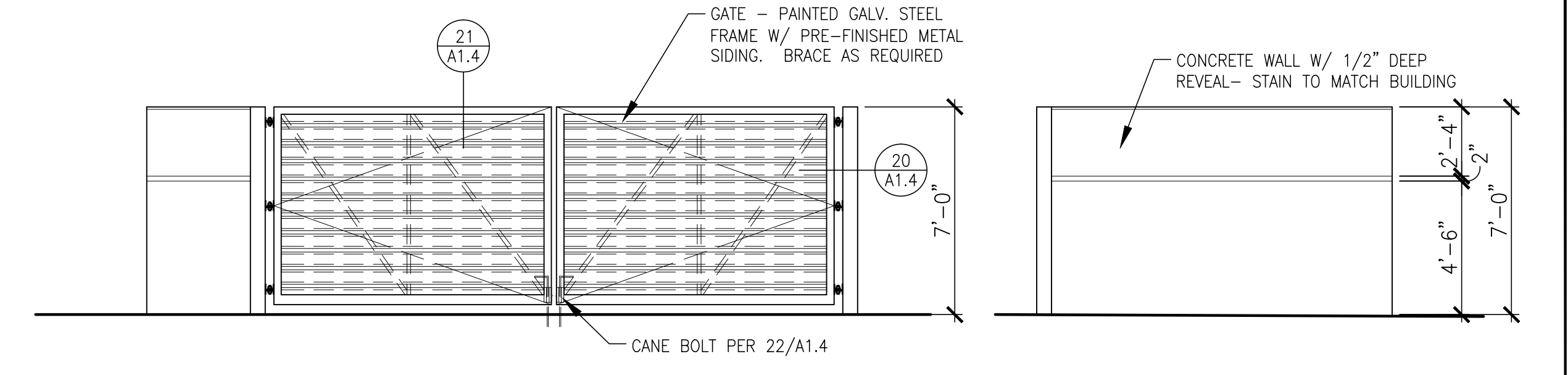
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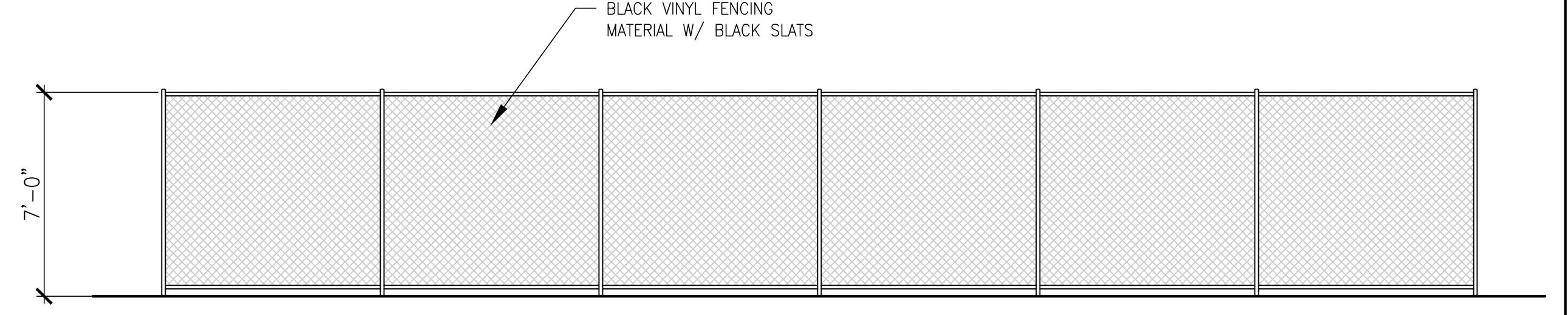
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Wilsonville, OR 97070



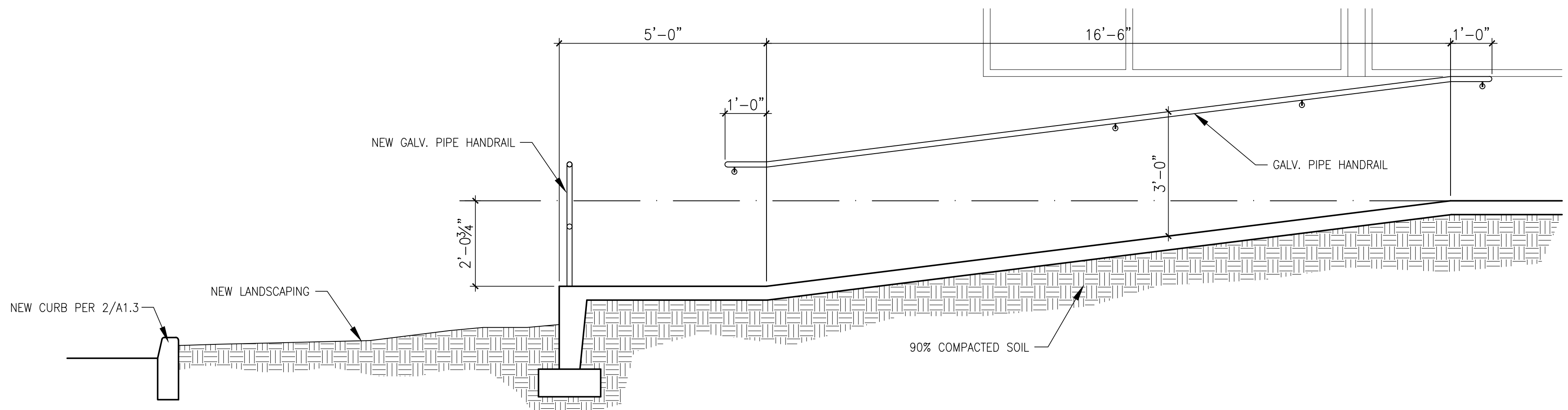
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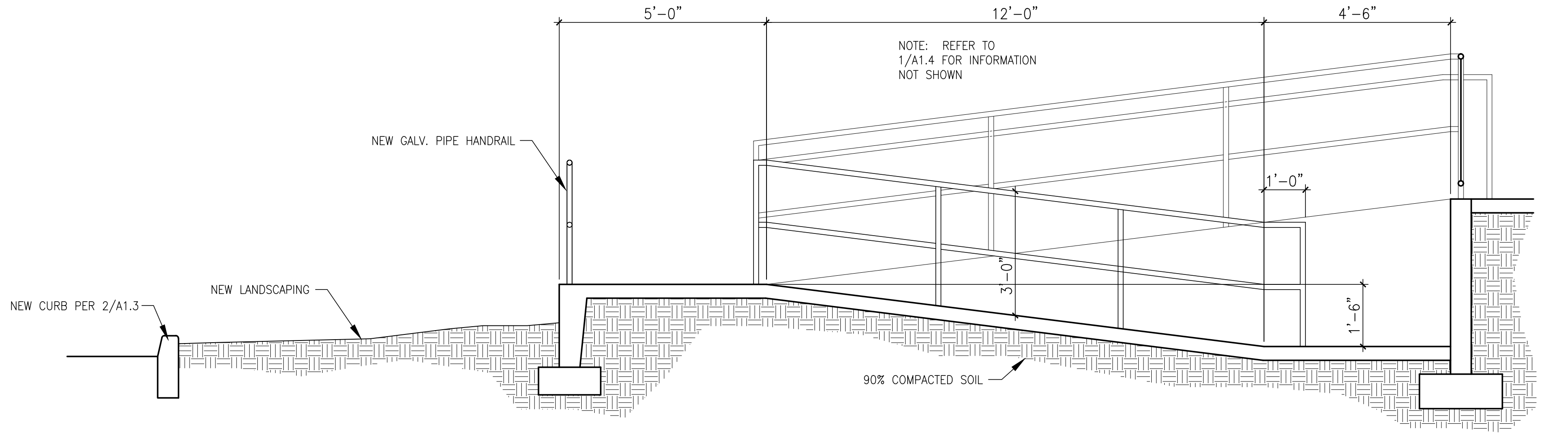
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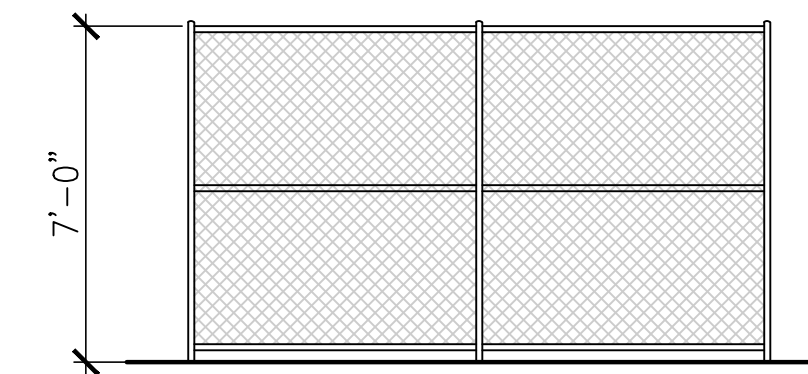
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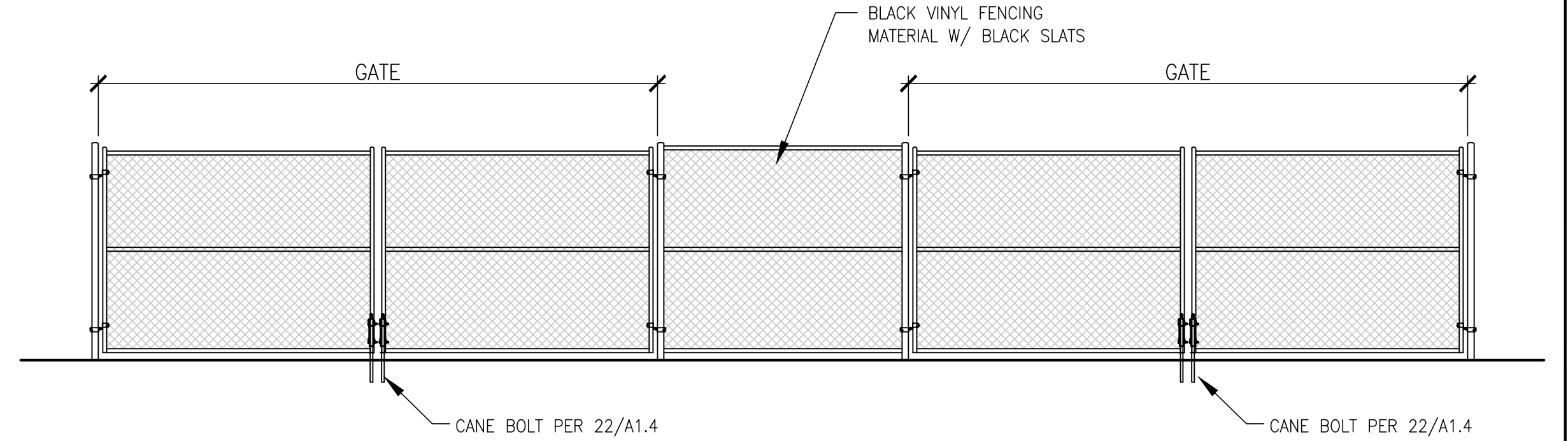
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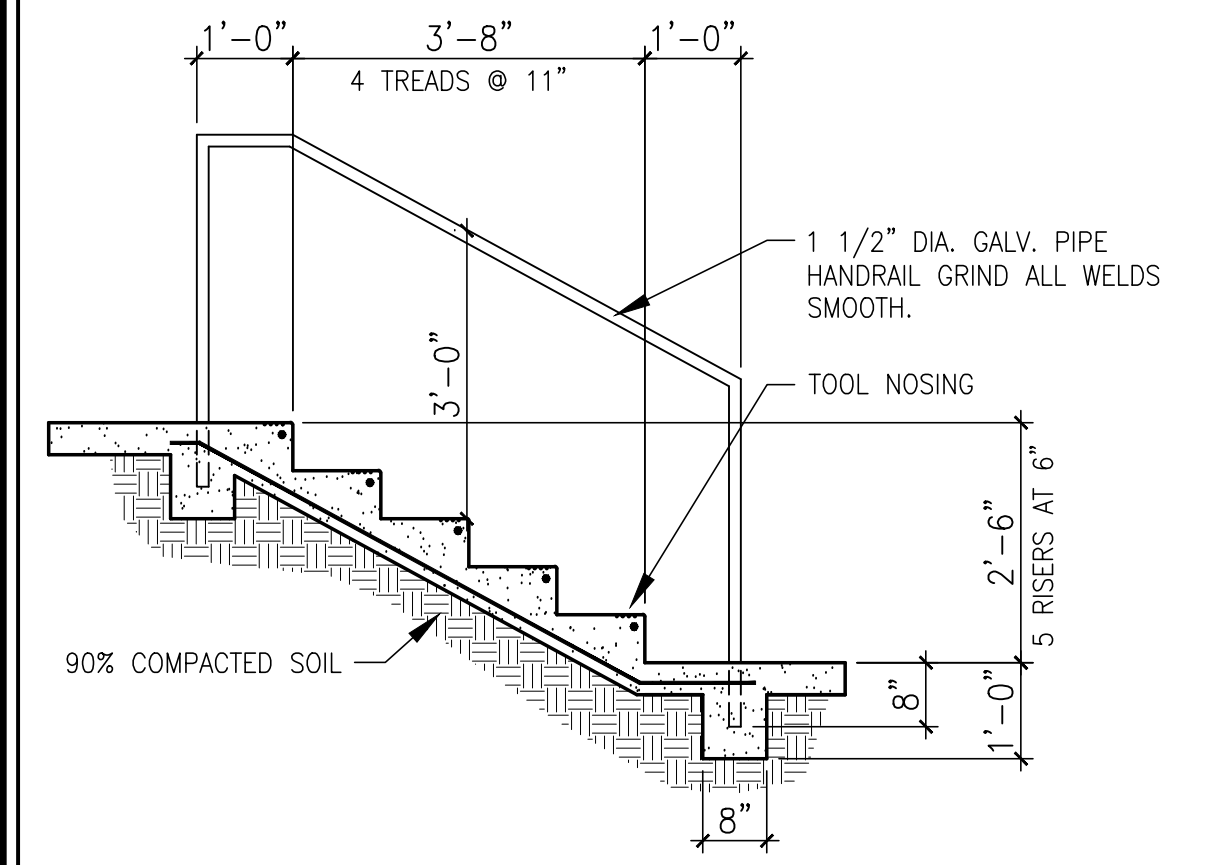
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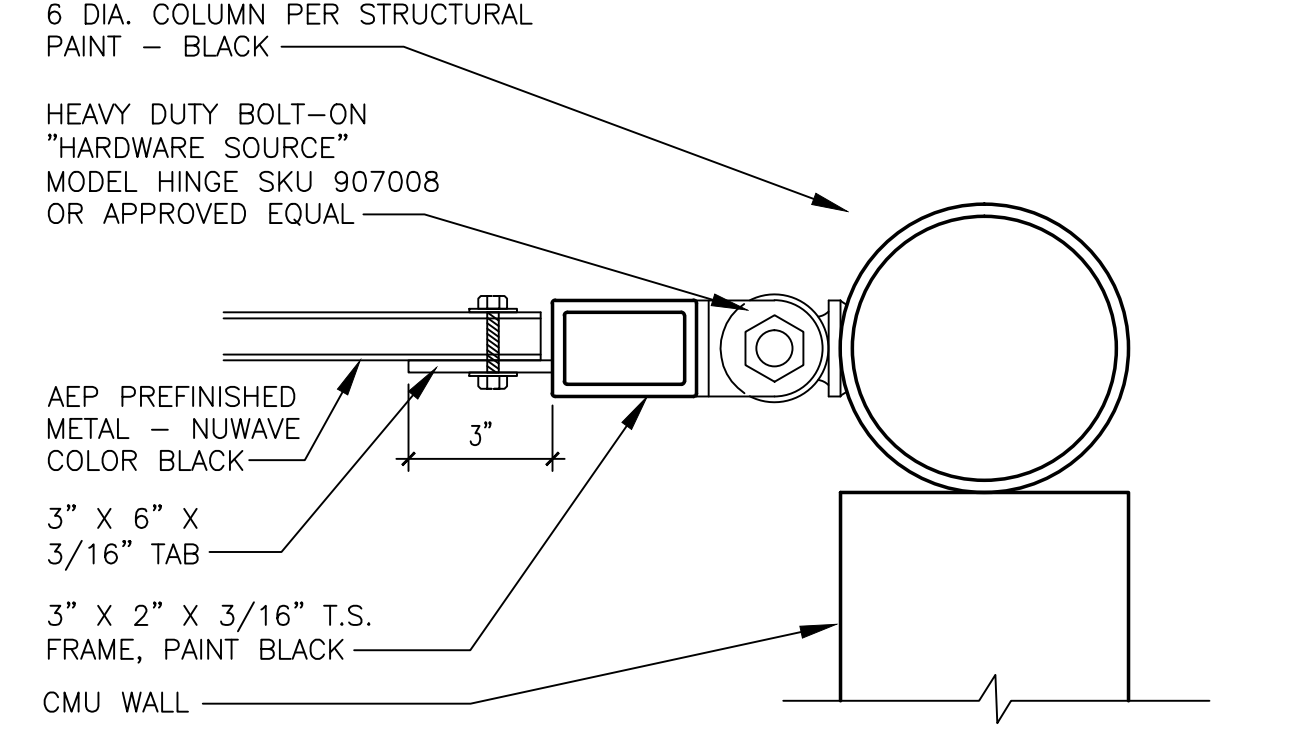
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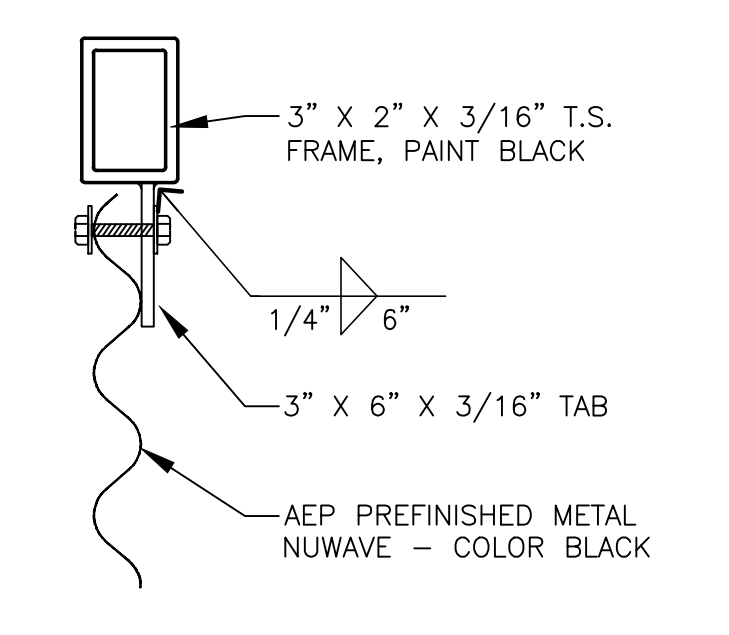
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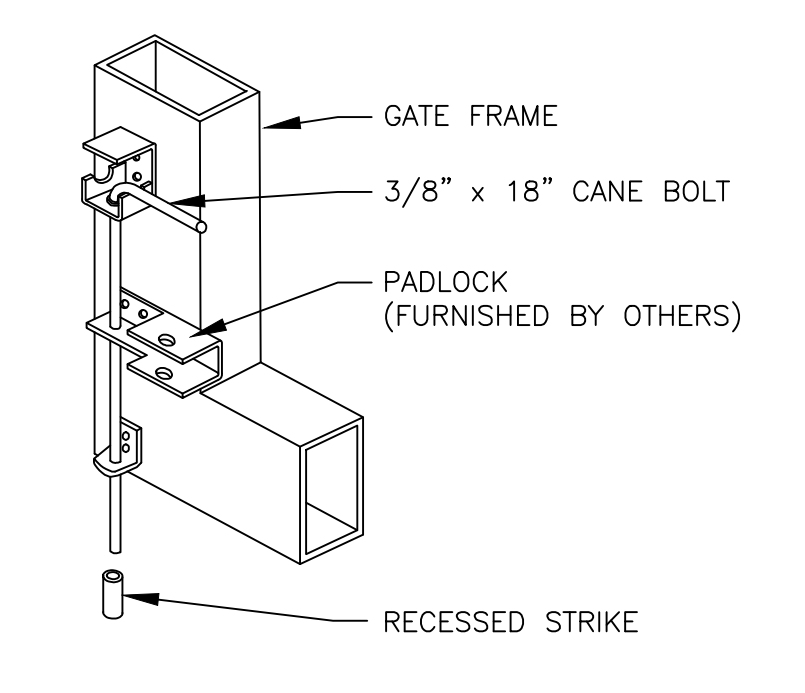
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20 SECTION
SCALE: 1/2" = 1'-0"



21 SECTION
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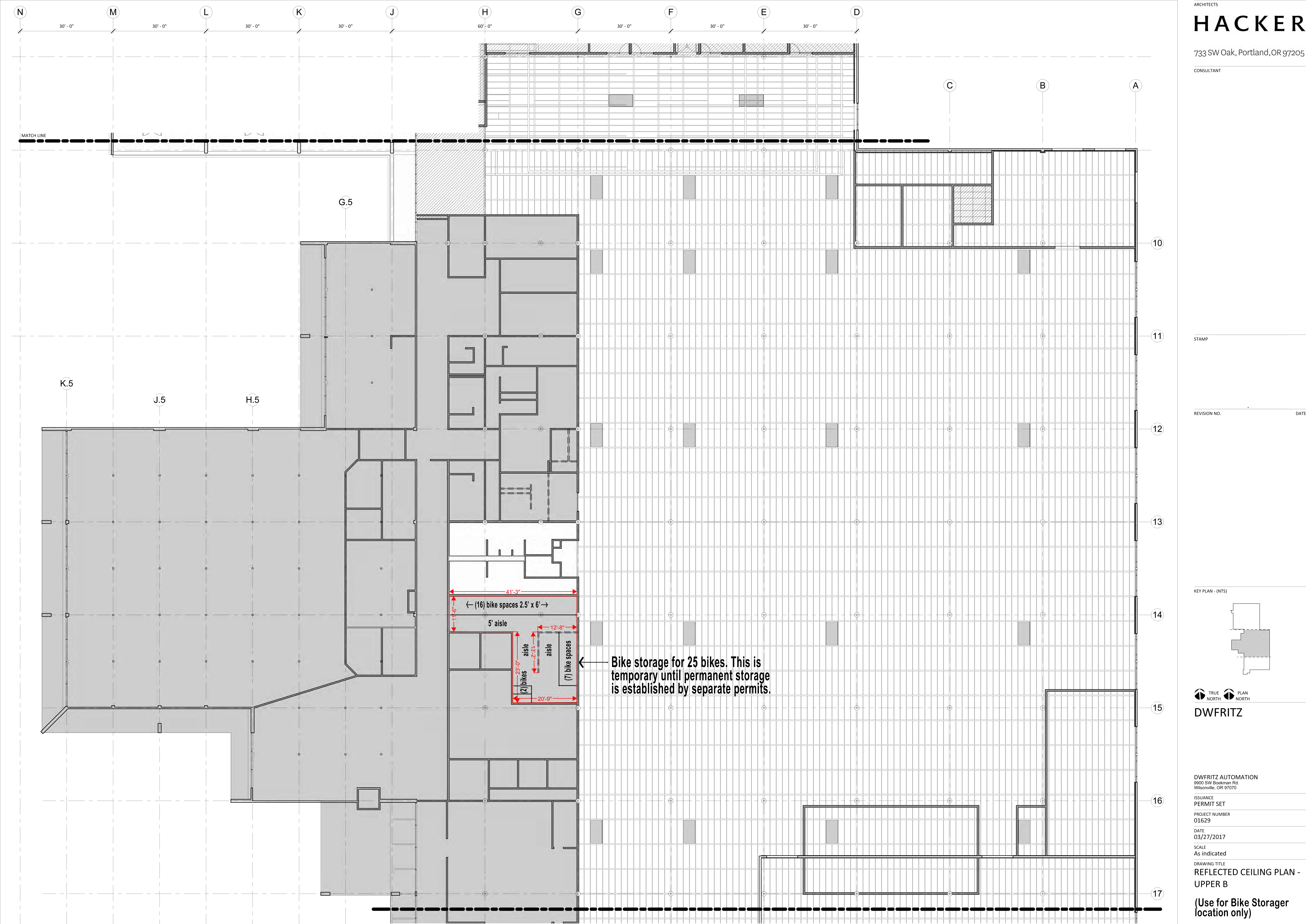
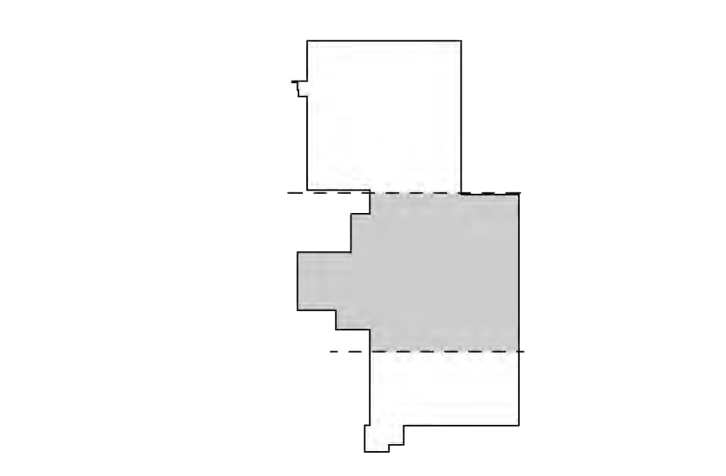


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				no.	

DWF RITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

REGISTERED ARCHITECT
LANCE MUELLER & ASSOCIATES
ARCHITECTS . AIA
130 LAKESIDE . SEATTLE, WA 98122 . 206.325.2553
sheet A1.4



PLANT LEGEND: GENERAL LANDSCAPING

SYMBOL	QTY.	SUGGESTED PLANT SPECIES	SIZE	SPACING
TREES				
	1 (*)	Street Tree (To Match Existing)	2" cal.	As Shown
	15	Marshall Seedless Ash Village Green Zelkova	2" cal.	As Shown
	3 (*)	Ponderosa Pine Western Red Cedar	6' ht.	As Shown
	5 (*)	Eastern Redbud River Birch	2" cal.	As Shown
	21 (*5)	Karpick Red Maple Columnar Tulip Tree	2" cal.	As Shown
	14	Hinoki Cypress Little Gem Magnolia	6' ht.	As Shown
SHRUBS				
	8	Summer Snowflake Viburnum Crape Myrtle Forsythia	5 gal.	6-8' o.c.
	40	Dwarf Strawberry Tree Pacific Wax Myrtle	5 gal.	6' o.c.
	27	Loropetalum Bigleaf Hydrangea Weigela	5 gal.	4' o.c.
	20	Aztec Pearl Choisya Rhododendron	5 gal.	5' o.c.
	100	Waxleaf Privet Inkberry	5 gal.	4' o.c.
	69	Gulf Stream Nandina Chuck Hayes Gardenia	2 gal.	3' o.c.
	169	David Viburnum Lucky Lots Abelia	2 gal.	3' o.c.
	95	Silver Queen Euonymus Nordic Inkberry	2 gal.	3' o.c.
	94	Compact Escallonia Ramapo Rhododendron	2 gal.	3' o.c.
	279	Neon Flash Spirea Dwarf Deutzia	2 gal.	3' o.c.
GROUND COVER				
	333	Creeping Mahonia	1 gal.	3' o.c.
	254	Liriope Wintercreeper Euonymus	1 gal.	2-3' o.c.
	500	Cotoneaster	1 gal.	4' o.c.
	117	Privet Honeysuckle	1 gal.	4' o.c.
	27	Dwarf Fountain Grass	1 gal.	2' o.c.
	212	Pachysandra	4 inch	15" o.c.
	77	Rough Seed Grass Soft Shield Fern	Seed	1 gal. 2' o.c.

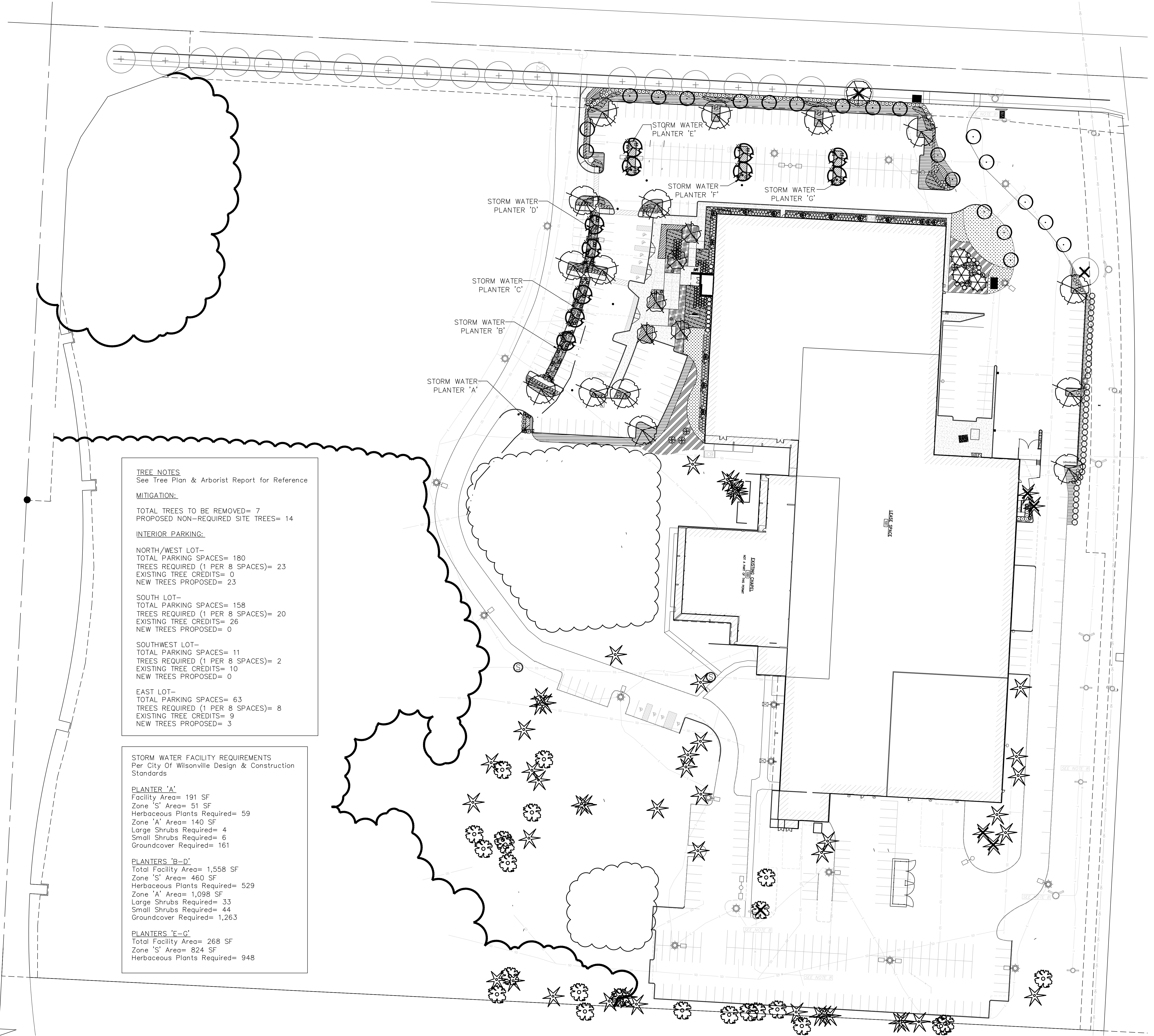
(*) = NON-REQUIRED SITE TREES / MITIGATION TREES

PLANT LIST: STORM WATER PLANTERS

SYMBOL	QTY.	LATIN NAME / Common Name	SIZE	SPACING
TREES				
	5	NYSSA SYLVATICA Black Tupelo	2" cal.	As Shown
SHRUBS				
	37	SPIRAEA DOUGLASII Douglas Spirea	30" ht.	As Shown
	50	MAHONIA AQU. 'COMPACTA' Compact Mahonia	1 gal.	As Shown
HERBACEOUS PLANTS (Alternate double rows)				
	512	CAREX OBNUPTA Slough Sedge	Plugs	1' o.c.
	512	JUNCUS PATENS Spreading Rush	Plugs	1' o.c.
	512	SCIRPUS MICROCARPUS Small Fruit Bulrush	Plugs	1' o.c.
GROUND COVER				
	1,424	FRAGARIA CHILOENSIS Beach Strawberry	1 gal.	1' o.c.

GENERAL NOTES:

- Existing landscaping to remain in all areas that are not showing new landscaping. Remove existing landscaping as needed to accommodate new plantings.
- Contractor is to verify all plant quantities.
- Adjust plantings in the field as necessary.
- Project is to be irrigated by an automatic, underground system, which will provide full coverage for all plant material. Modification of the existing system to be design/build by Landscape Contractor. Guarantee system for a minimum one year.
- All plants are to be fully foliated, well branched and true to form.
- Contractor is to notify Landscape Architect or Owner's Representative of any site changes or unforeseen conditions that may be detrimental to plant health, or cause future problems to any structural elements of the project.
- See Tree Plan for information regarding existing tree protection.



TREE NOTES
See Tree Plan & Arborist Report for Reference

MITIGATION:

TOTAL TREES TO BE REMOVED= 7
PROPOSED NON-REQUIRED SITE TREES= 14

INTERIOR PARKING:

NORTH/WEST LOT-
TOTAL PARKING SPACES= 180
TREES REQUIRED (1 PER 8 SPACES)= 23
EXISTING TREE CREDITS= 0
NEW TREES PROPOSED= 23

SOUTH LOT-
TOTAL PARKING SPACES= 158
TREES REQUIRED (1 PER 8 SPACES)= 20
EXISTING TREE CREDITS= 26
NEW TREES PROPOSED= 0

SOUTHWEST LOT-
TOTAL PARKING SPACES= 11
TREES REQUIRED (1 PER 8 SPACES)= 2
EXISTING TREE CREDITS= 10
NEW TREES PROPOSED= 0

EAST LOT-
TOTAL PARKING SPACES= 63
TREES REQUIRED (1 PER 8 SPACES)= 8
EXISTING TREE CREDITS= 9
NEW TREES PROPOSED= 3

STORM WATER FACILITY REQUIREMENTS
Per City Of Wilsonville Design & Construction Standards

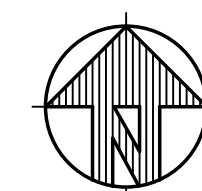
PLANTER 'A'
Facility Area= 191 SF
Zone 'S' Area= 51 SF
Herbaceous Plants Required= 59
Zone 'A' Area= 140 SF
Large Shrubs Required= 4
Small Shrubs Required= 6
Groundcover Required= 161

PLANTERS 'B-D'
Total Facility Area= 1,558 SF
Zone 'S' Area= 460 SF
Herbaceous Plants Required= 529
Zone 'A' Area= 1,098 SF
Large Shrubs Required= 33
Small Shrubs Required= 44
Groundcover Required= 1,263

PLANTERS 'E-G'
Total Facility Area= 268 SF
Zone 'S' Area= 824 SF
Herbaceous Plants Required= 948

LANDSCAPE PLAN

SCALE 1" = 40'-0"



SITE DESIGN REVIEW

SITE PLAN sheet **L1.0**

LANCE MUELLER & ASSOCIATES
ARCHITECTS & LANDSCAPE ARCHITECTS
130 LAKESIDE • SEATTLE, WA 98122 • 206 325 2553

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

16-066	Job no.	EH	drawn	JLO	checked	8-4-17	date
							no.
							revision
							date

1. Site Design Review Resubmittal #1

TREE PROTECTION SPECIFICATIONS

- FENCING.** TREES TO REMAIN ON SITE SHALL BE PROTECTED BY INSTALLATION OF TREE PROTECTION FENCING TO PREVENT INJURY TO TREE TRUNKS OR ROOTS, OR SOIL COMPACTION WITHIN THE ROOT PROTECTION AREA, WHICH GENERALLY COINCIDES WITH TREE DRIPLINES OR THE LIMITS OF EXISTING INFRASTRUCTURE THAT WILL REMAIN. FENCES SHALL BE A MINIMUM 5-FOOT HIGH STEEL OR CONCRETE BLOCKS OR POSTS DRIVEN INTO THE GROUND. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE PROJECT ARBORIST PRIOR TO OPENING OR MAKING ADJUSTMENTS TO TREE PROTECTION FENCING.
- TREE PROTECTION ZONE.** WITHOUT AUTHORIZATION FROM THE PROJECT ARBORIST, NONE OF THE FOLLOWING SHALL OCCUR BENEATH THE DRIPLINE OF ANY PROTECTED TREE:
 - GRADE CHANGE OR CUT AND FILL;
 - NEW IMPERVIOUS SURFACES;
 - UTILITY OR DRAINAGE FIELD PLACEMENT;
 - STAGING OR STORAGE OF MATERIALS AND EQUIPMENT; OR
 - 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.

- TREE REMOVAL.** THE SEVEN TREES TO BE REMOVED HAVE BEEN IDENTIFIED WITH NUMBERED ALUMINUM TAGS AND YELLOW PLASTIC FLAGGING (#1, #2, #7, #8, #31, #62 AND #63). THE STUMPS FROM TREES #7 AND #31 SHALL EITHER BE CUT FLUSH WITH THE GROUND SURFACE AND REMAIN IN PLACE, REMOVED BY STUMP GRINDING, OR EXTRACTED FROM THE GROUND UNDER ARBORIST SUPERVISION. IN ORDER TO HELP MINIMIZE IMPACTS TO THE LIKELY INTERCONNECTED ROOTS OF NEARBY PROTECTED TREES, THE STUMP AND BUTTRESS ROOTS FROM TREE #8 SHALL BE EXTRACTED FROM THE GROUND UNDER ARBORIST SUPERVISION.
- PRUNING.** PRUNING MAY BE NEEDED AT TREES #3, #4, #5 AND #6 TO PROVIDE FOR BUILDING CLEARANCE, AND ELSEWHERE TO PROVIDE OVERHEAD CLEARANCE AND 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.
- EXCAVATION.** EXCAVATION BENEATH THE DRIPLINE OF PROTECTED TREES SHALL BE AVOIDED IF ALTERNATIVES ARE FEASIBLE. EXCAVATION IMMEDIATELY ADJACENT TO ROOTS LARGER THAN 2-INCHES IN DIAMETER BENEATH THE DRIPLINE OF RETAINED TREES SHALL BE BY HAND OR OTHER NON-INVASIVE TECHNIQUES TO ENSURE THAT ROOTS ARE NOT DAMAGED. WHERE FEASIBLE, MAJOR ROOTS SHALL BE PROTECTED BY TUNNELING OR OTHER MEANS TO AVOID DESTRUCTION OR DAMAGE. EXCEPTIONS CAN BE MADE IF, IN THE OPINION OF THE PROJECT ARBORIST, UNACCEPTABLE DAMAGE WILL NOT OCCUR TO THE TREE. WHERE SOIL GRADE CHANGES AFFECT THE ROOT PROTECTION AREA, THE GRADE LINE SHOULD BE MEANDERED WHEREVER PRACTICABLE. THIS WILL REQUIRE ON-SITE COORDINATION TO ENSURE A REASONABLE BALANCE BETWEEN ENGINEERING, CONSTRUCTION, AND THE NEED FOR TREE PROTECTION.
- SURFACING.** WHERE NEW SURFACING IS PROPOSED BENEATH THE DRIPLINE OF PROTECTED TREES, COORDINATE WITH THE PROJECT ARBORIST TO MONITOR CONSTRUCTION. AVOID EXCAVATION AND USE A MODIFIED PROFILE TO BUILD UP FROM EXISTING GRADE (FIGURE 1). THE PROFILE INCLUDES A LAYER OF PERMEABLE GEOTEXTILE FABRIC ON THE GROUND SURFACE AND CLEAN CRUSHED ROCK TO RAISE THE GRADE AS NEEDED. SURFACING MAY INCLUDE ASPHALT, CONCRETE, OR OTHER MATERIALS.

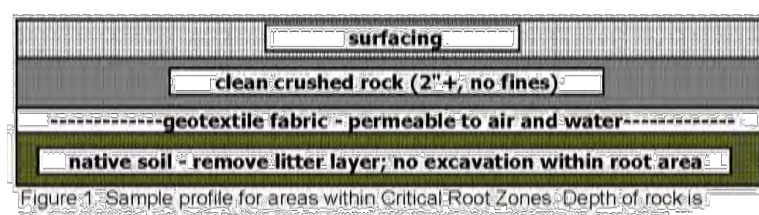


Figure 1: Sample profile for areas within Critical Root Zones. Depth of rocks dependent on grading. Technique based on best management practices.

- LANDSCAPING.** FOLLOWING CONSTRUCTION AND WHERE LANDSCAPING IS DESIRED, APPLY APPROXIMATELY 3-INCHES OF MULCH BENEATH THE DRIPLINE OF PROTECTED TREES IN A MINIMUM 5-FOOT RADIUS AROUND TREE TRUNKS. DO NOT PILE MULCH DIRECTLY AGAINST TREE TRUNKS. SHRUBS AND GROUND COVER PLANTS MAY BE PLANTED WITHIN TREE PROTECTION AREAS. IF IRRIGATION IS USED, USE DRIP IRRIGATION OR LOW FLOW EMITTERS INSTALLED AT NATIVE GRADE (NO TRENCHING) ONLY BENEATH THE DRIPLINES OF PROTECTED TREES. LANDSCAPING SHALL BE PERFORMED BY HAND AND WITH HAND TOOLS ONLY BENEATH PROTECTED TREE DRIPLINES; ADJUST THE LOCATION OF PLANTS TO AVOID TREE ROOT IMPACTS.
- QUALITY ASSURANCE.** THE PROJECT ARBORIST SHOULD SUPERVISE PROPER EXECUTION OF THIS PLAN ON-CALL DURING CONSTRUCTION ACTIVITIES THAT COULD ENDOUR ON RETAINED TREES. TREE PROTECTION SITE INSPECTION MONITORING REPORTS SHOULD BE PROVIDED TO THE CLIENT AND CITY FOLLOWING EACH SITE VISIT PERFORMED DURING CONSTRUCTION.

LEGEND:
SYMBOL DESCRIPTION

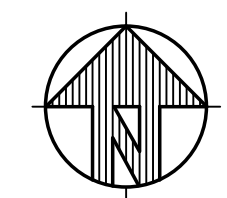
- TREES TO BE REMOVED
- TREES TO REMAIN
- TREE IDENTIFICATION NUMBER
See Arborist Report
- TREE PROTECTION FENCING



CONTRACTOR SHALL COORDINATE WITH THE PROJECT ARBORIST IN A TIMELY MANNER PRIOR TO WORKING IN THIS AREA; CONSTRUCTION BENEATH THE DRIPLINE SHALL BE PERFORMED UNDER ARBORIST SUPERVISION

TREE PROTECTION PLAN

SCALE 1" = 40'-0"



SITE DESIGN REVIEW

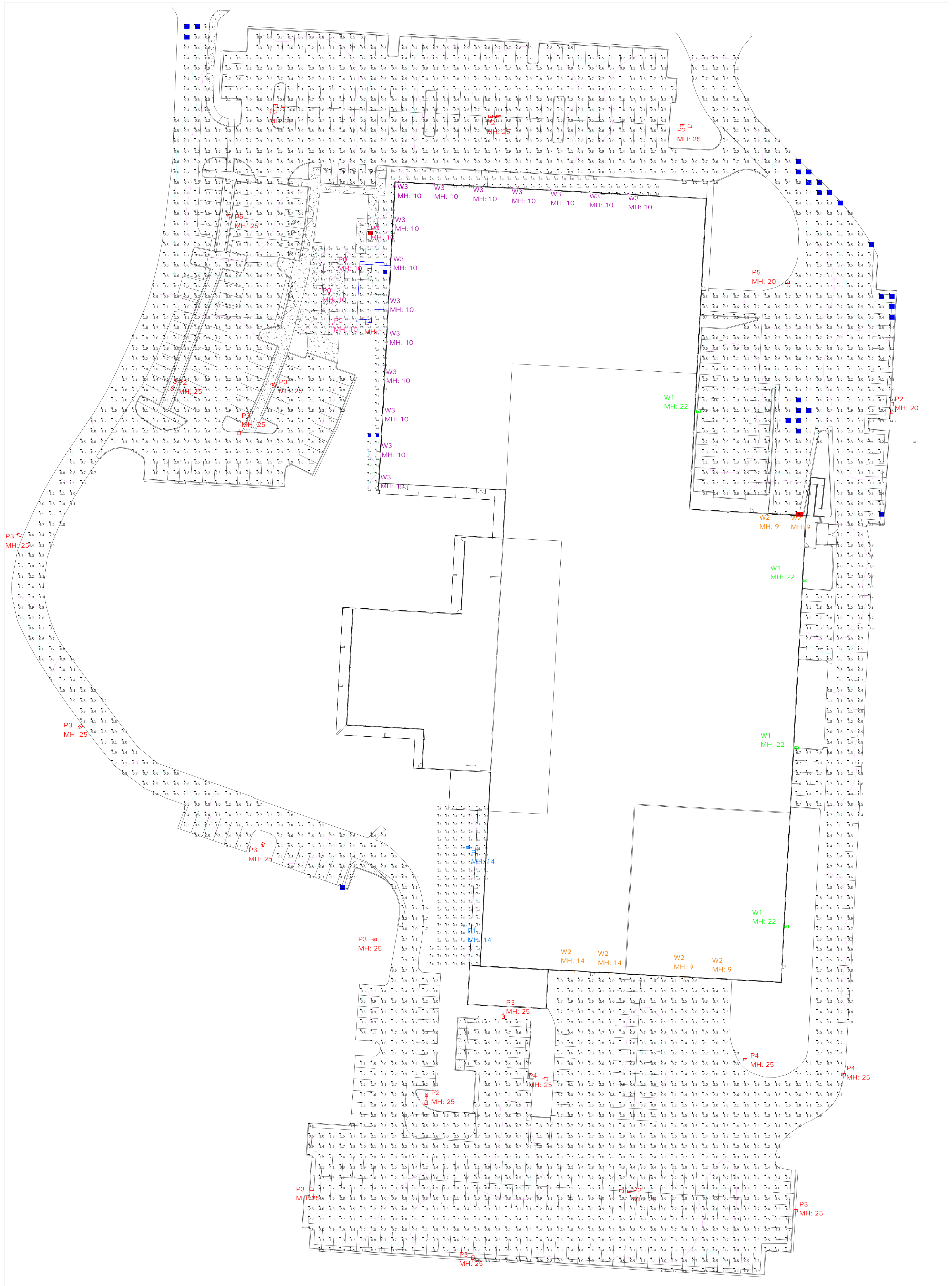
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EH		drawn		JJO		checked	
15-066		8-4-17		15-066		8-4-17	
no.		revision		no.		revision	
date		date		date		date	

REGISTERED
LANDSCAPE ARCHITECT
STATE OF OREGON
NO. 12727
LANCE MUELLER & ASSOCIATES

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

LANCE MUELLER & ASSOCIATES
ARCHITECTS • AIA
150 LAKESIDE • SEATTLE, WA 98122 • 206 325 2553

SITE PLAN sheet
L3.0



Scale: 1 inch = 38 Ft.

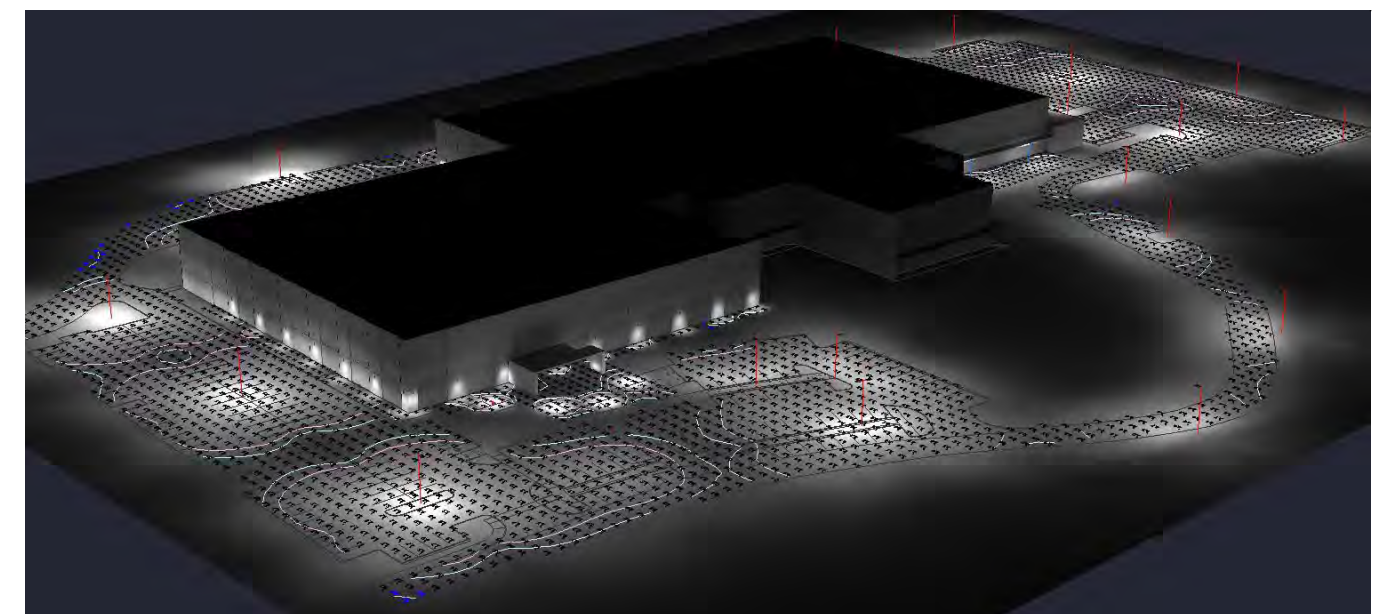
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
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Pedestrian	Illuminance	Fc	2.79	91.6	0.1	27.90	916.00

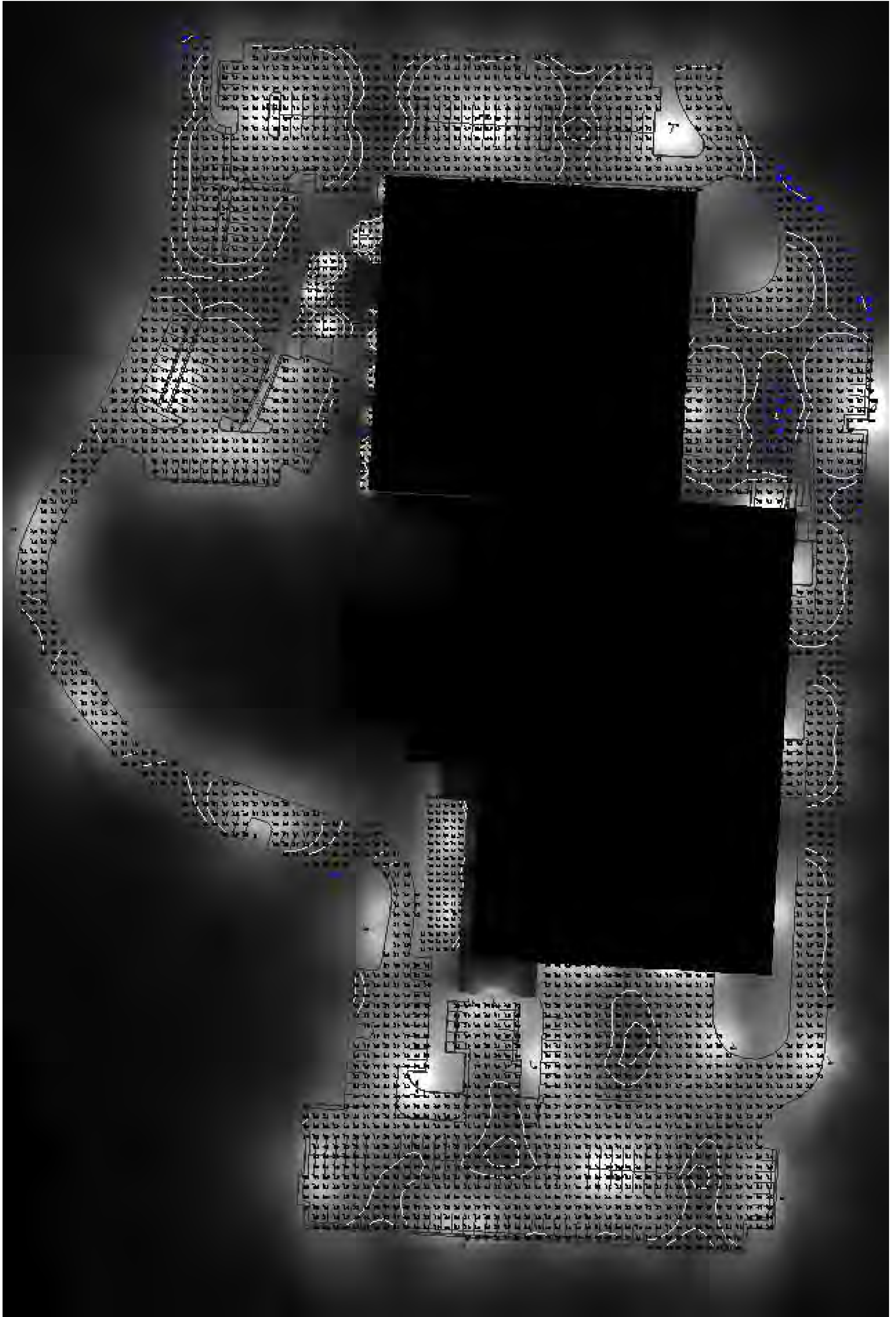
Symbol	Qty	Label	LLF	Description	Lum. Watts	Lum. Lumens
⊙	4	P0	0.900	TECH_700OCTUR12SCIUNV830C	60.4	4516
⊙	2	P1	0.900	Visionaire_VMX-1-T3-32LC-5-4K-UNV	54.8	6776
⊙	7	P2	0.900	Visionaire_VMX-1-T4-96LC-7-5K-UNV	214	21120
⊙	10	P3	0.900	Visionaire_VMX-1-T3-64LC-7-4K-UNV	145.1	15701
⊙	3	P4	0.900	Visionaire_VMX-1-T4-96LC-7-5K-UNV	214	21120
⊙	2	P5	0.900	Visionaire_VMX-1-T5W-64LC-7-4K-UNV	145.1	14996
⊙	4	W1	0.900	Visionaire_VMX-1-T4-64LC-7-4K-UNV	145.1	14301
⊙	6	W2	0.900	ILP_262974_MOD#_WPCM-60WLED-UNIV	66.4	5069
⊙	16	W3	0.900	TECH_700WTUR18SCC8401201	15.3	571
⊙	1	L1	0.900	DesignP_RIO_1_4 D [2800K 16W 24Vdc]	16	336

Isoline Legend	
Color	Value
Green	0.2
Yellow	0.6
Pink	0.9

Note:

1. Mounting height estimated Various 'MH'
2. Reflectance used 26% equivalent to asphalt
3. Lighting loss factor applied, initial values will be higher
4. Calculation zone located ground





Date:	2/27/2017
Drawn by:	Ada Vargas
Scale:	NA

PROJECT

SITE

SEATAC LIGHTING & CONTROLS, LLC
4439 S. 134th Pl. Bldg. E Seattle, WA 98168
FOR ALL DRAWING INQUIRIES PLEASE CONTACT SEATAC LIGHTING 206.325.6865



GENERAL NOTES

1. SURVEY PROVIDED BY ANDY PARIS AND ASSOCIATES, INC., DATED JANUARY 19TH, 2017. ELEVATIONS ARE BASED ON CLACKAMAS COUNTY VERTICAL DATUM.
2. CONSTRUCTION LAYOUT (ALL ACTUAL LINES AND GRADES) SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON COORDINATES, DIMENSIONS, BEARINGS, AND ELEVATIONS, AS SHOWN, ON THE PLANS.
3. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE HORIZONTAL POSITION PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
4. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE VERTICAL POSITION BASED ON THE BENCHMARK STATED HEREON, PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
5. WHEN DIMENSIONS AND COORDINATE LOCATIONS ARE REPRESENTED – DIMENSIONS SHALL HOLD OVER COORDINATE LOCATION. NOTIFY THE CIVIL ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY.
6. BUILDING SETBACK DIMENSIONS FROM PROPERTY LINES SHALL HOLD OVER ALL OTHER CALLOUTS. PROPERTY LINES AND ASSOCIATED BUILDING SETBACKS SHALL BE VERIFIED PRIOR TO CONSTRUCTION LAYOUT.
7. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED SURVEYOR.
8. SOME SITE DEMOLITION AND UTILITY RELOCATION HAS BEEN PERFORMED. SURVEY MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
9. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2014 OREGON PLUMBING SPECIALTY CODE AND REQUIREMENTS OF THE CITY OF WILSONVILLE.
10. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
11. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987). EXCAVATORS MUST NOTIFY ALL PERTINENT COMPANIES OR AGENCIES WITH UNDERGROUND UTILITIES IN THE PROJECT AREA AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS PRIOR TO COMMENCING AN EXCAVATION, SO UTILITIES MAY BE ACCURATELY LOCATED.
12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF AAI ENGINEERING, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.
13. THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
14. TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IMPLEMENTED. THE CONTRACTOR SHALL ADHERE TO CITY OF WILSONVILLE FOR MINIMUM EROSION CONTROL MEASURES. THE ESC FACILITIES SHOWN IN THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
15. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.
16. CONTRACTOR SHALL MAINTAIN ALL UTILITIES TO EXISTING BUILDINGS AT ALL TIMES DURING CONSTRUCTION.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH THE OWNER.
18. NOTIFY THE CITY INSPECTOR 72 HOURS BEFORE STARTING WORK. A PRE-CONSTRUCTION MEETING WITH THE OWNER, THE OWNER'S ENGINEER, CONTRACTOR AND THE CITY REPRESENTATIVE SHALL BE REQUIRED.

CONSTRUCTION NOTES

GENERAL

1. ACTUAL LINES AND GRADES SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON DIMENSIONS, ELEVATIONS AND BEARINGS AS SHOWN ON THE PLANS.
2. SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.
3. SPECIAL INSPECTION REQUIRED FOR ALL COMPACTION TESTING.

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS AND OTHER SITE ELEMENTS WITHIN THE SITE AREA IDENTIFIED IN THE PLANS.
2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.
3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND DELIVERED STORED AT THE PROJECT SITE AS DIRECTED BY THE OWNER.
4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.
5. CONCRETE SIDEWALKS SHOWN FOR DEMOLITION SHALL BE REMOVED TO THE NEAREST EXISTING CONSTRUCTION JOINT.
6. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.

UTILITIES

1. ADJUST ALL INCIDENTAL STRUCTURES, MANHOLES, VALVE BOXES, CATCH BASINS, FRAMES AND COVERS, ETC. TO FINISHED GRADE.
2. CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.
3. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE INSTALLATION OF OR ADJUSTMENT TO GAS, ELECTRICAL, POWER AND TELEPHONE SERVICE.
4. BEFORE BACKFILLING ANY SUBGRADE UTILITY IMPROVEMENTS CONTRACTOR SHALL SURVEY AND RECORD MEASUREMENTS OF EXACT LOCATION AND DEPTH AND SUBMIT TO ENGINEER AND OWNER.

STORM AND SANITARY

1. CONNECTIONS TO EXISTING STORM AND SANITARY SEWERS SHALL CONFORM TO THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 00490, "WORK ON EXISTING SEWERS AND STRUCTURES".
2. BEGIN LAYING STORM DRAIN AND SANITARY SEWER PIPE AT THE LOW POINT OF THE SYSTEM, TRUE TO GRADE AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. THE CONTRACTOR SHALL ESTABLISH LINE AND GRADE FOR THE STORM AND SANITARY SEWER PIPE USING A LASER.
3. ALL ROOF DRAIN AND CATCH BASIN LEADERS SHALL HAVE A MINIMUM SLOPE OF 2 PERCENT UNLESS NOTED OTHERWISE IN THE PLANS.

WATER

1. ALL WATER AND FIRE PROTECTION PIPE SHALL HAVE A MINIMUM 36-INCH COVER TO THE FINISH GRADE.
2. ALL WATER AND FIRE PRESSURE FITTINGS SHALL BE PROPERLY RESTRAINED WITH THRUST BLOCKS PER DETAIL.
3. ALL WATER MAIN / SANITARY SEWER CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT REGULATIONS, CHAPTER 333.

EARTHWORKS

1. CONTRACTOR SHALL PREVENT SEDIMENTS AND SEDIMENT LADEN WATER FROM ENTERING THE STORM DRAINAGE SYSTEM.
2. TRENCH BEDDING AND BACKFILL SHALL BE AS SHOWN ON THE PIPE BEDDING AND BACKFILL DETAIL, THE PROJECT SPECIFICATIONS AND AS REQUIRED IN THE SOILS REPORT. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER WILL NOT BE PERMITTED.

PAVING

1. SEE ARCHITECTURAL PLANS FOR SIDEWALK FINISHING AND SCORING PATTERNS.

MATERIAL NOTES

1. GENERAL: MATERIALS SHALL BE NEW. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM THE ENGINEER ON RECORD PRIOR TO INSTALLATION.
2. STORM AND SANITARY SEWER PIPING SHALL BE PVC PIPE, DUCTILE IRON PIPE, REINFORCED CONCRETE PIPE (RCP), OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE AS INDICATED IN THE PLANS. PIPES WITH LESS THAN 2' OF COVER SHALL BE C900/C905 PVC, HDPE OR DUCTILE IRON PIPE.
3. PRIVATE FIRE PROTECTION MAINS 4-INCH DIAMETER AND LARGER SHALL BE DUCTILE IRON PIPE AS INDICATED IN THE PLANS.
4. CONCRETE FOR CURBS, SIDEWALK AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,300 PSI AT 28 DAYS.

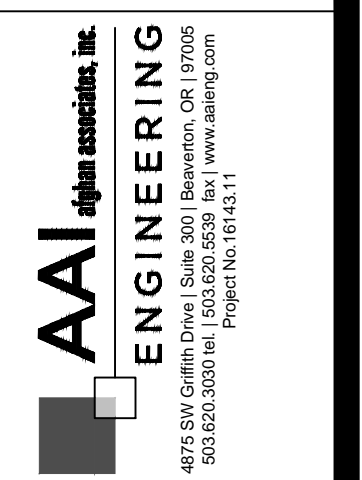
SEPARATION STATEMENT

ALL WATER AND FIRE PROTECTION MAIN CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT, CHAPTER 333. WATER MAINS SHALL CROSS OVER SANITARY SEWERS WITH A 18" MINIMUM CLEARANCE BETWEEN OUTSIDE DIAMETERS OF PIPE WITH ALL PIPE JOINTS EQUIDISTANT FROM CROSSING. HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS IN PARALLEL INSTALLATIONS SHALL BE 10'. MAINTAIN 12" MINIMUM VERTICAL DISTANCE FOR ALL OTHER UTILITY CROSSINGS AND 12" HORIZONTAL PARALLEL DISTANCE. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM 10' HORIZONTAL SEPARATION, THE WATER MAIN SHALL BE LAID ON A SEPARATE SHELVE IN THE TRENCH 18" INCHES ABOVE THE SEWER.

VEGETATED STORMWATER FACILITY NOTE

1. SUCCESSFUL CONSTRUCTION OF THE VEGETATED STORMWATER FACILITY DEPEND ON PROPER CONSTRUCTION SEQUENCING, MATERIALS, INSTALLATION, PROTECTION OF SUBGRADE AND EROSION CONTROL.
2. CONTRACTOR SHALL SETUP A PRE-CONSTRUCTION MEETING WITH CIVIL ENGINEER TO SPECIFICALLY DISCUSS THESE ITEMS. CONTACT CRAIG HARRIS WITH AAI ENGINEERING 503-620-3030.

16-086	Job no.				
DSE	drawn	CNH	checked	01-23-17	date
2	DATE REVISION	REVISION	BY	DATE	
1	SEE DESIGN REVISION #1 & PRELIMINARY			5/8/17	



DWFRITZ Renovation
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Wilsonville, OR 97070

GENERAL NOTES
sheet **C0.1**

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job no.	date	revision
16-086	01-23-17	

SURVEY NOTES

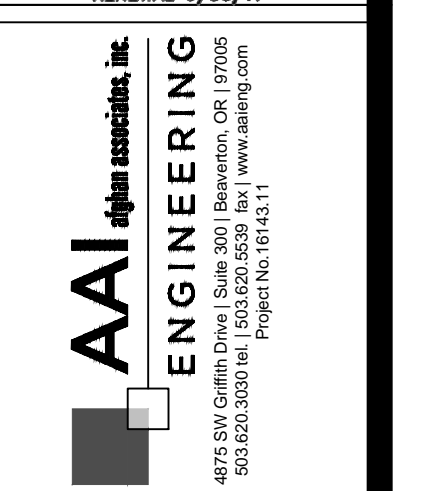
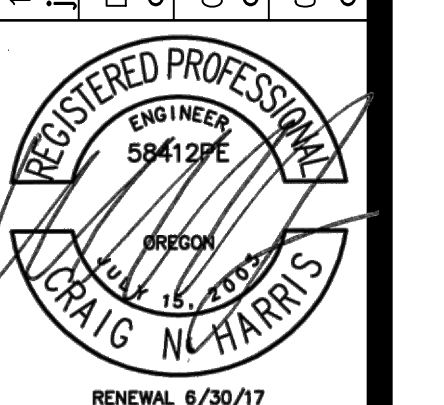
- VERTICAL DATUM IS NAVD88 BASED ON OPUS SOLUTION OF STATIC GPS OBSERVATION.
- THE BOUNDARIES AS SHOWN ON THIS MAP ARE BASED ON RECORD DATA AND FOUND MONUMENTS. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED, BUT WAS DONE FOR SITE/TOPO INFORMATION ONLY.
- THE LOCATION AND OR EXISTENCE OF UTILITY SERVICE LINES AS SHOWN ON THIS MAP ARE BASED ON FIELD OBSERVATION ONLY. THERE MAY EXIST ADDITIONAL SERVICE LINES NOT SHOWN ON THIS SURVEY.
- SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
- PRIVATE UTILITY LOCATOR UNABLE TO DETERMINE LOCATION OF PRIVATE WATER LINE, SUSPECTED PLASTIC PIPE BURIED WITHOUT MAGNETIC LOCATING STRIPS. WATER SYSTEM IS ASSUMED TO BE A LOOPED SYSTEM THAT CIRCLES THE EXISTING BUILDING.

UTILITY NOTES

- APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN SHOWN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO CONSTRUCTION

SURVEY LEGEND

- FOUND MONUMENT AS NOTED
- ⊙ SANITARY SEWER MANHOLE
- ⊙ STORM DRAIN MANHOLE
- ⊙ CATCH BASIN
- ⊙ GAS METER
- ⊙ UTILITY POLE
- ⊙ METAL LIGHT POLE
- ⊙ METAL BOLLARD
- ⊙ WATER VALVE
- ⊙ FIRE HYDRANT
- ⊙ FDC
- ⊙ ELECTRIC VAULT
- ⊙ WATER VAULT
- ⊙ TRANSFORMER
- ⊙ IRRIGATION CONTROL BOX
- ss — SANITARY SEWER LINE
- sd — STORM DRAIN LINE
- w — WATER LINE
- tv — UNDERGROUND TELEVISION CABLE LINE
- t — UNDERGROUND COMMUNICATIONS LINE
- e — UNDERGROUND ELECTRICAL LINE
- o — OVERHEAD UTILITY LINE
- x — FENCE LINE

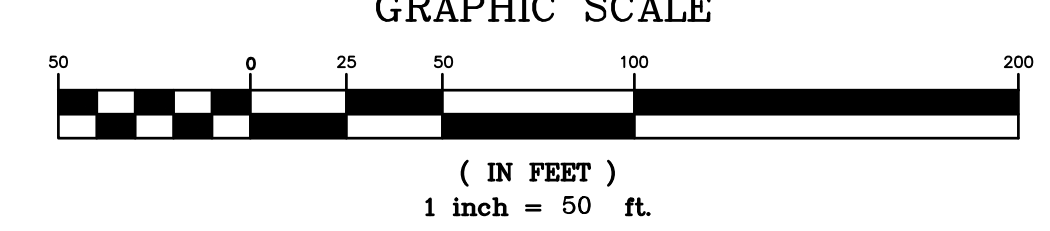
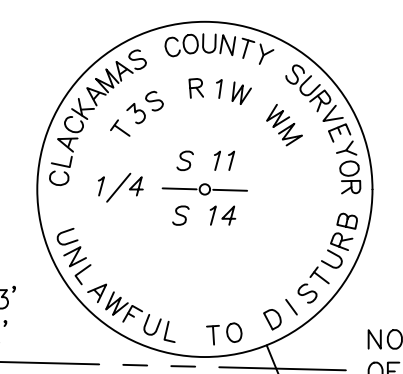
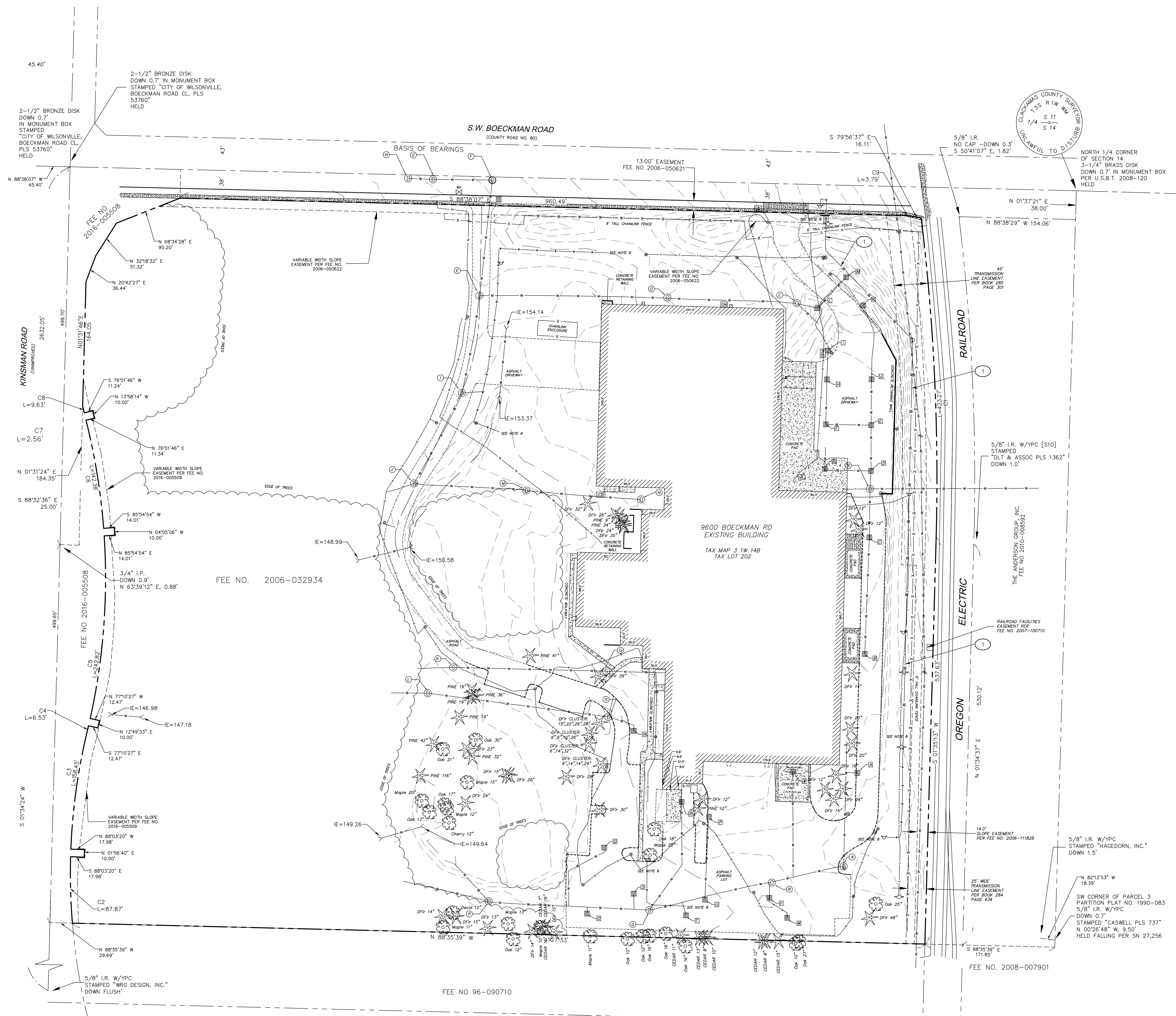


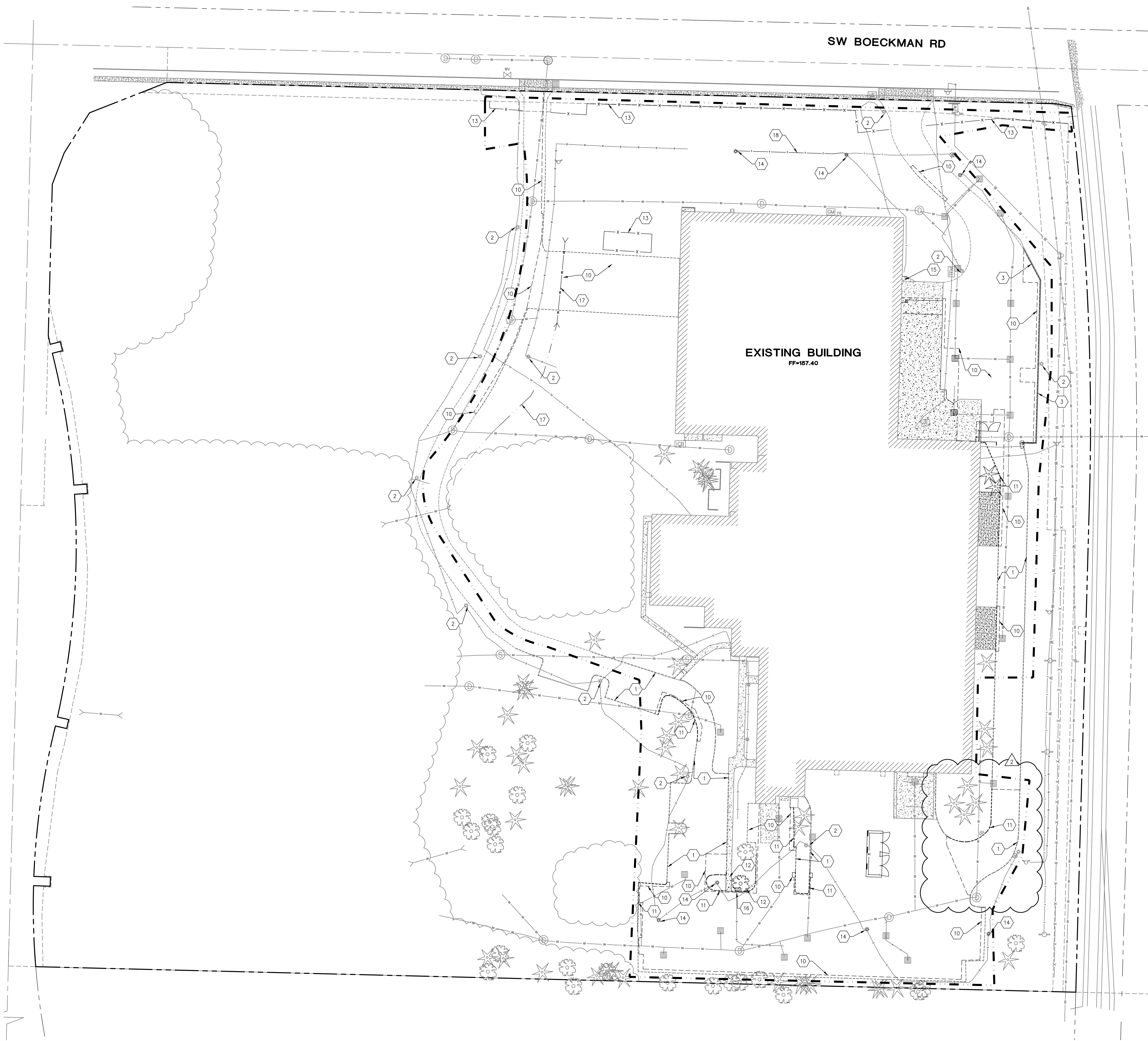
DWFRITZ Renovation
 9900 SW Boeckman Rd.
 Wilsonville, OR 97070

EXISTING CONDITIONS

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sheet **C0.2**





SW BOECKMAN RD

EXISTING BUILDING
FF=157.40

SHEET NOTES

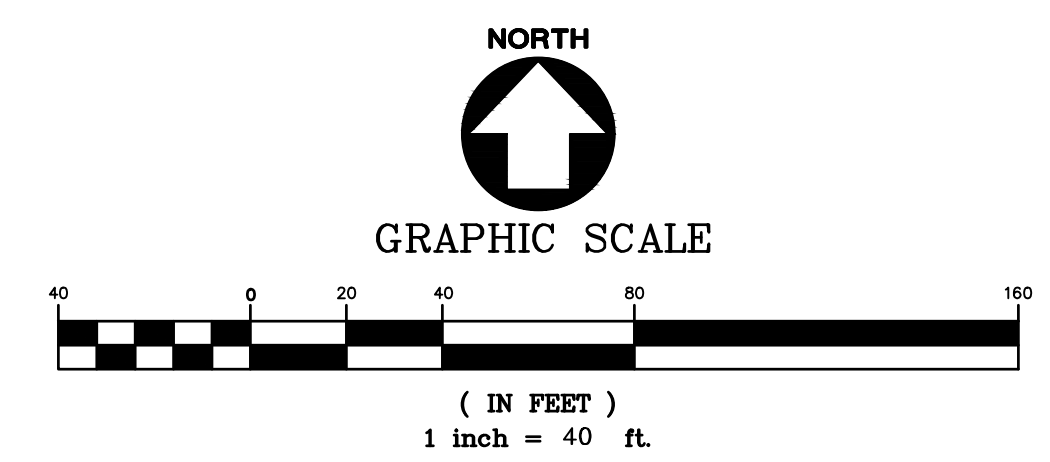
- CONTRACTOR MAY STAGE WITHIN LIMITS OF DEMOLITION.
- REMOVE ALL SITE COMPONENTS AND RECYCLE COMPONENTS AS REQUIRED IN THE SPECIFICATIONS.
- ALL TRADE LICENSES AND PERMITS NECESSARY FOR THE PROCUREMENT AND COMPLETION OF THE WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING DEMOLITION.
- THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGED OR REMOVED MONUMENTS.
- PROTECT ALL ITEMS ON ADJACENT PROPERTIES AND IN THE RIGHT OF WAY INCLUDING BUT NOT LIMITED TO SIGNAL EQUIPMENT, PARKING METERS, SIDEWALKS, STREET TREES, STREET LIGHTS, CURBS, PAVEMENT AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED ITEMS TO ORIGINAL CONDITION.
- PROTECT STRUCTURES, UTILITIES, SIDEWALKS, AND OTHER FACILITIES IMMEDIATELY ADJACENT TO EXCAVATIONS FROM DAMAGES CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS.
- SAWCUT STRAIGHT LINES IN SIDEWALK, AS NECESSARY.
- CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN.
- PROTECT ALL EXISTING UTILITY STRUCTURES AND UNDERGROUND MAINS TO REMAIN.
- PROTECT ALL EXISTING VEGETATION TO REMAIN.

KEY NOTES

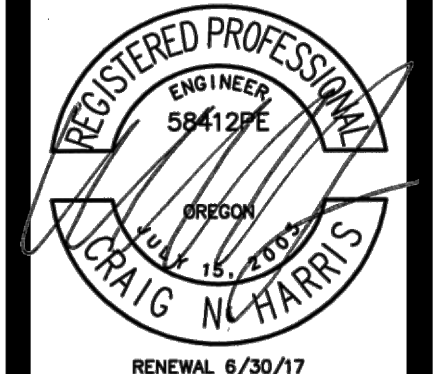
- PROTECT CURB AND SIDEWALK
- PROTECT LIGHT POLE
- PROTECT EXISTING WALL
- SAWCUT LINE AND REMOVE ASPHALT PAVEMENT OR CONCRETE SURFACING AND CRUSHED ROCK
- REMOVE CONCRETE CURB
- REMOVE TREE
- REMOVE FENCE
- REMOVE OR RELOCATE EXISTING LIGHT POLE
- REMOVE CONCRETE SURFACE
- REMOVE AND RELOCATED EXISTING FIRE HYDRANT
- ABANDON STORM DITCH AND STORM LINE
- ABANDON UNDERGROUND COMMUNICATION LINE

SHEET LEGEND

- PROPERTY LINE
- SAWCUT LINE
- DEMOLITION LIMITS



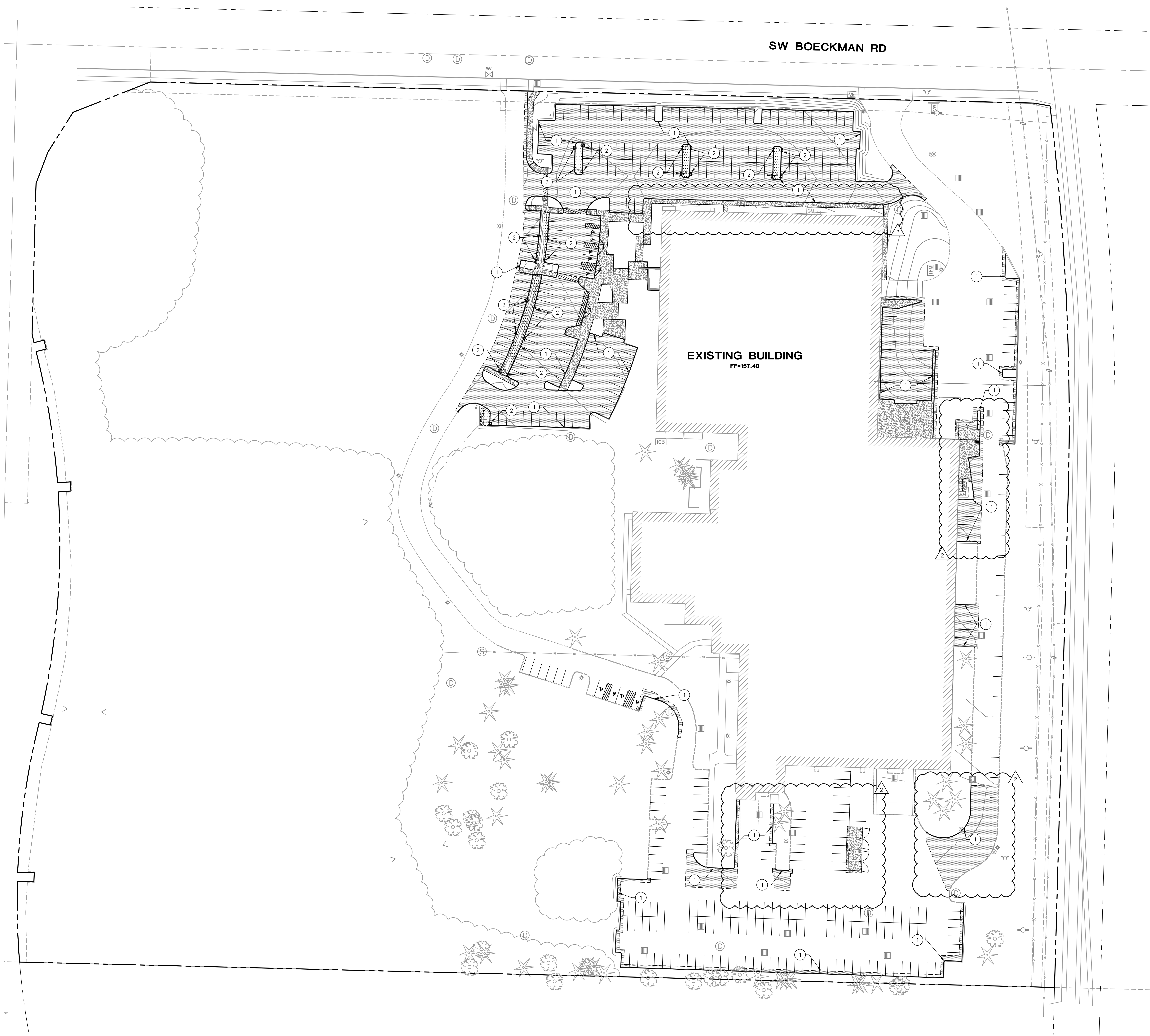
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AAI Allyn Associates, Inc.
ENGINEERING
10000 SW 10th Ave, Suite 1000, Beaverton, OR 97005
Phone: 503.638.1111

DWFRITZ Renovation
9900 SW Boeckman Rd.
Wilsonville, OR 97070

DEVELOPMENT PLAN
LANCE MUELLER & ASSOCIATES
ARCHITECTS . A . I . A
130 LAKESIDE . SEATTLE, WA 98122 . 206 325 2553
sheet
C0.3



SW BOECKMAN RD

EXISTING BUILDING
FF=157.40

SHEET NOTES

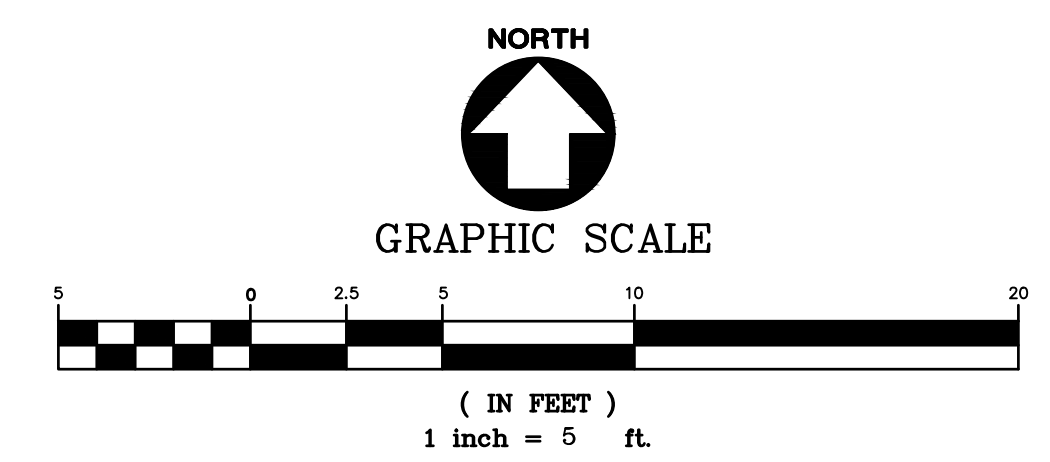
1. SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
2. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE INFORMATION.
3. THE CONTRACTOR SHALL HAVE A FULL SET OF THE CURRENT APPROVED CONSTRUCTION DOCUMENTS INCLUDING ADDENDA ON THE PROJECT SITE AT ALL TIMES.
4. THE CONTRACTOR SHALL KEEP THE ENGINEER AND JURISDICTION INFORMED OF CONSTRUCTION PROGRESS TO FACILITATE SITE OBSERVATIONS AT REQUIRED INTERVALS. 24-HOUR NOTICE IS REQUIRED.

SITE NOTES

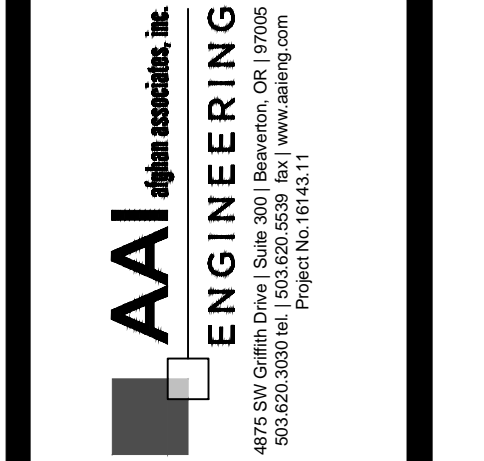
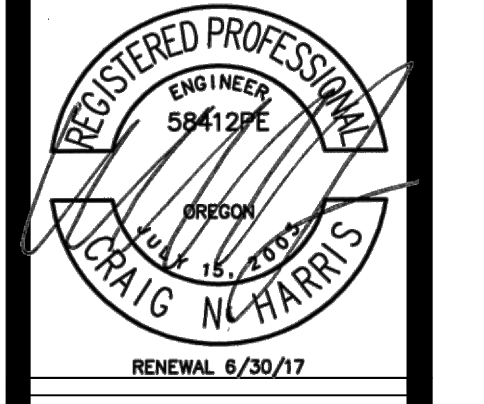
1. CONSTRUCT TYPICAL CURB PER DETAIL 1/C4.0
2. CONSTRUCT CONCRETE CURB INLET PER DETAIL 2/C4.0

LEGENDS

- PROPERTY LINE
- PROPOSED CURB
- SIDEWALK PER DETAIL 3/C4.0
- ASPHALT SURFACING PER DETAIL 4/C4.0
- VEGETATED FLOW-THROUGH BASINS (VFB)



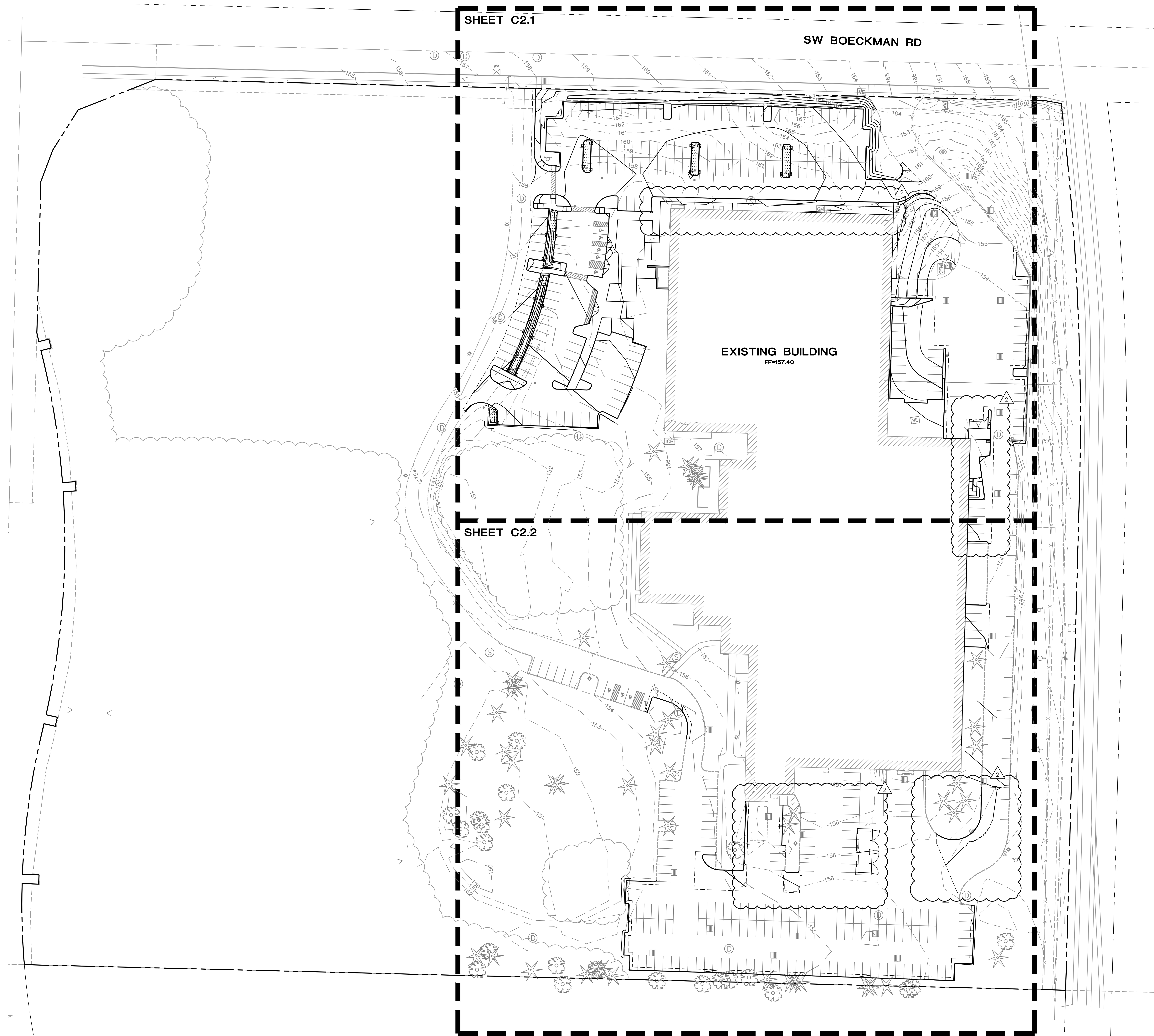
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16-086				



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sheet
C1.0

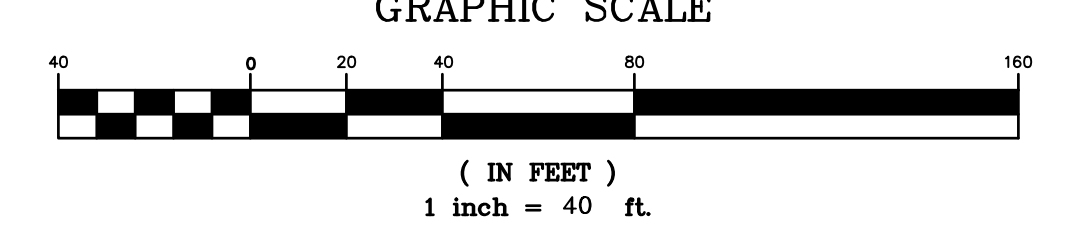


SHEET NOTES

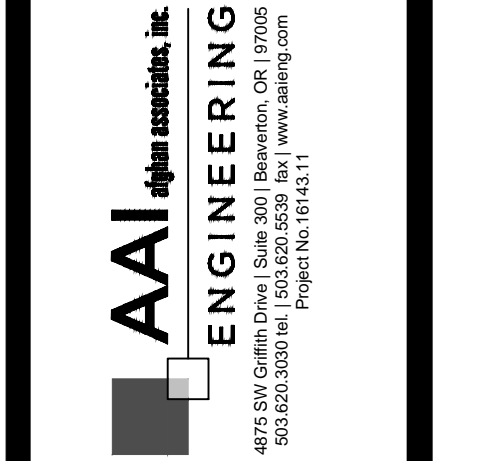
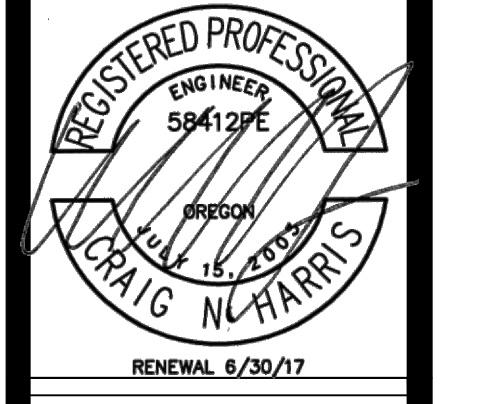
- SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
- CURB HEIGHTS ARE 6" UNLESS NOTED OTHERWISE.
- LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 2% IN ANY DIRECTION.
- ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
- ALL WALKWAYS FROM ACCESSIBLE UNITS ARE DESIGNED TO NOT REQUIRE HANDRAILS. THEREFORE, RAMPS WITH SLOPES STEEPER THAN 5.0% AND LESS THAN 8.33% SHALL NOT EXCEED 0.5' RISE OR 6.0' LENGTH.
- FINISH GRADES ARE TO BE BROUGHT TO WITHIN 0.08 FT IN 10 FT OF THE GRADES SHOWN AT SUBGRADE AND TO WITHIN 0.03 FT IN 10 FT AT FINISH GRADE. CONTRACTOR TO ALLOW FOR PLACEMENT OF REQUIRED TOPSOIL IN ROUGH GRADING.
- GRADING ELEVATIONS AS SHOWN ON SITE AND LANDSCAPE PLANS ARE FINISHED GRADE WHICH INCLUDES SUBGRADE SOIL, TOPSOIL, SOIL AMENDMENTS, ROCKERY AND RUNOFF PROTECTION. CONTRACTOR IS RESPONSIBLE TO COORDINATE GRADING WITH BOTH EXCAVATOR AND LANDSCAPE CONTRACTOR.

LEGEND

EXISTING CONTOUR MINOR	--- 102 ---
EXISTING CONTOUR MAJOR	--- 100 ---
PROPOSED CONTOUR MINOR	--- 102 ---
PROPOSED CONTOUR MAJOR	--- 100 ---



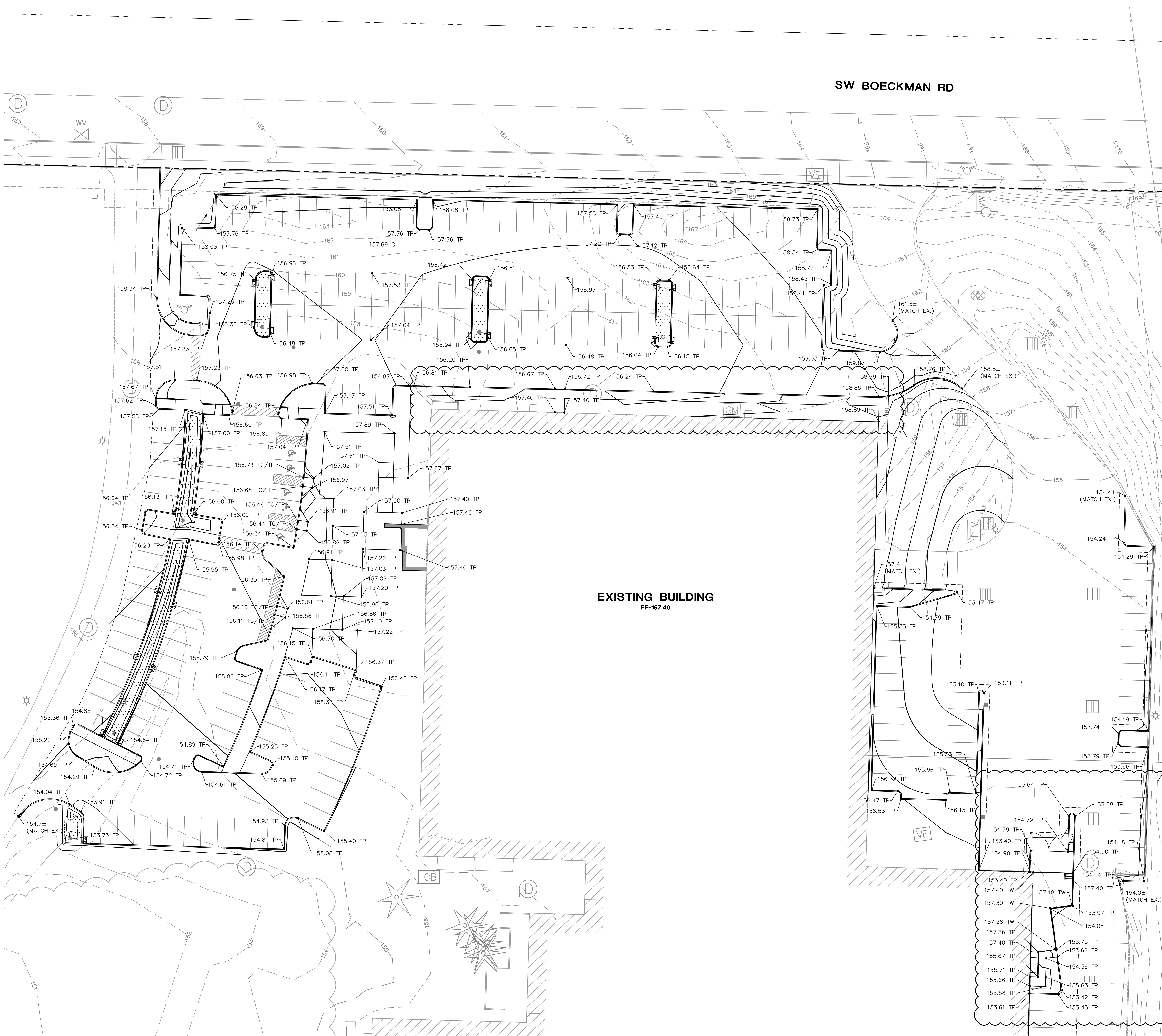
job no.	no.	revision	date
16-086			
DSE	drawn		
CNH	checked		
01-23-17	date		



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GRADING PLAN sheet **C2.0**



SHEET NOTES

1. SEE SHEETS C0.1 AND C2.0 FOR SHEET NOTES AND LEGEND

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
XX.XX	SPOT ELEVATION
	DESCRIPTION LISTED BELOW, NO DESCRIPTION MEANS TP OR TG
BS	BOTTOM OF STAIRS
EX	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
TG	TOP OF CURB
TP	TOP OF PAVEMENT
TS	TOP OF STAIRS

job no.	no.	revision	date
16-06			
DSE			
drawn			
CNH			
checked			
01-23-17			
date			



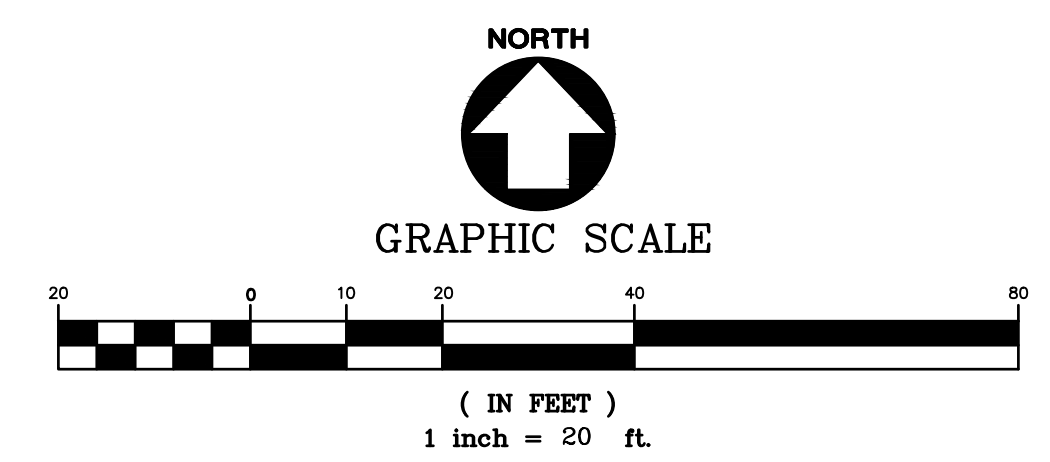
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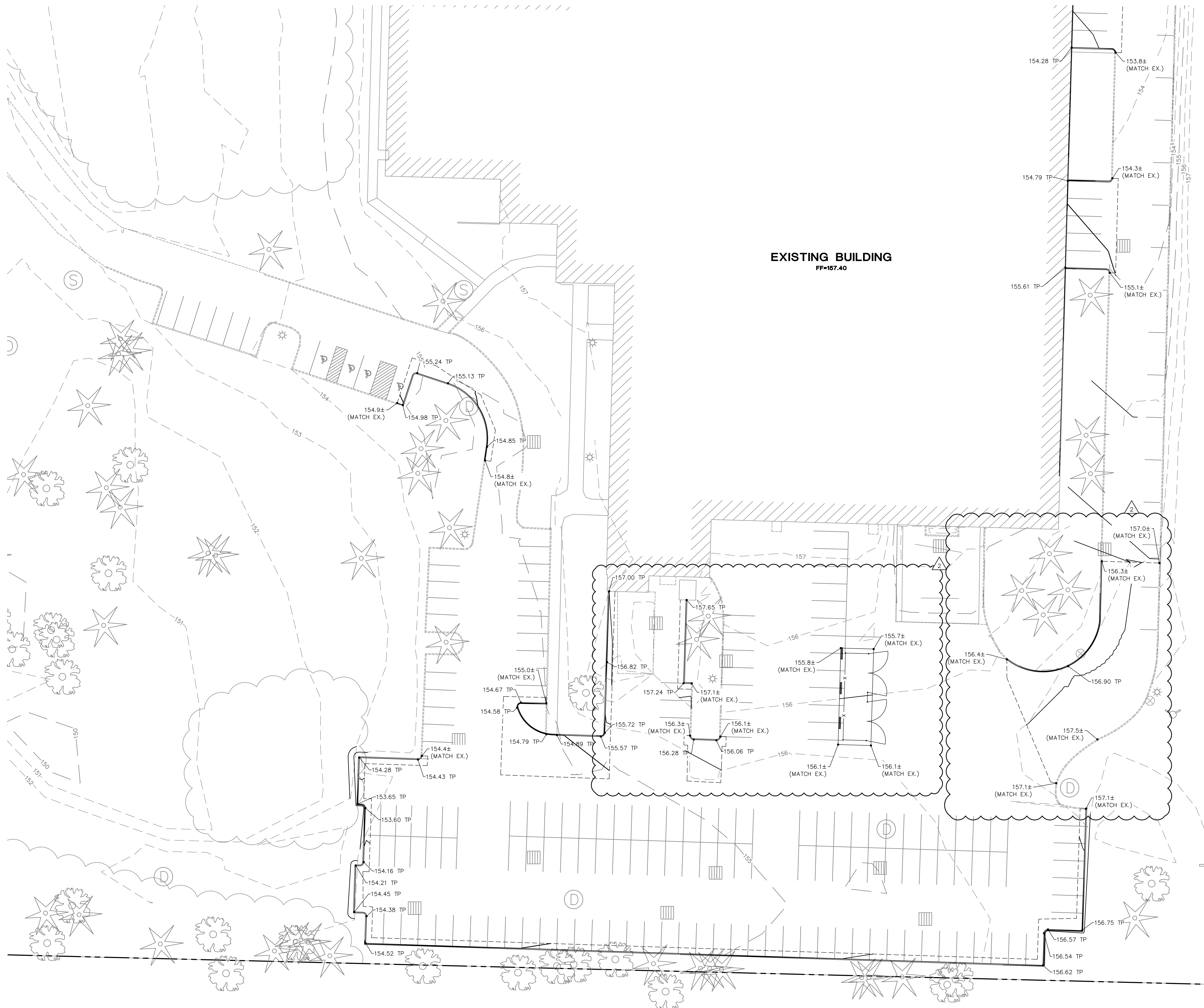
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GRADING ENLARGEMENT

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sheet **C2.1**





SHEET NOTES

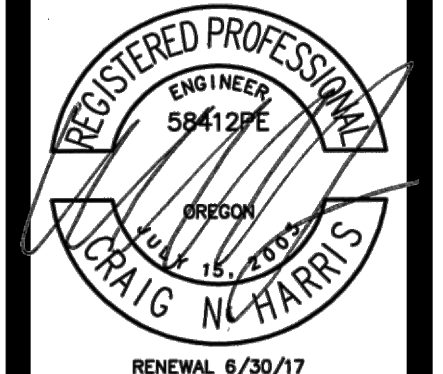
1. SEE SHEETS C0.1 AND C2.0 FOR SHEET NOTES AND LEGEND

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
XX.XX	SPOT ELEVATION
XX	DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG
BS	BOTTOM OF STAIRS
EX	EXISTING GRADE
FF	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
TG	TOP OF CURB
TP	TOP OF PAVEMENT
TS	TOP OF STAIRS

no.	revision	date
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2		5/8/17
3		5/8/17

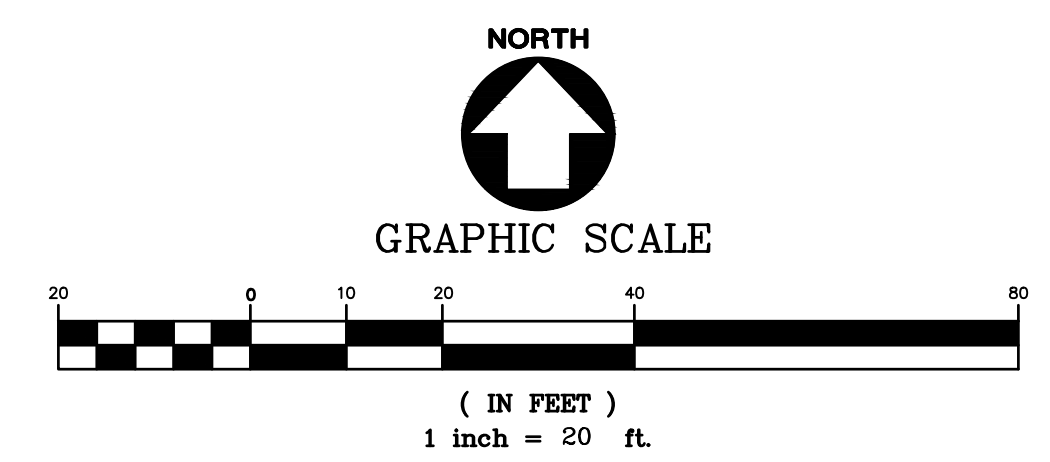
16-066
Job no.
DSE
drawn
CNH
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01-23-17
date



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sheet
C2.2



SHEET C3.1

SW BOECKMAN RD

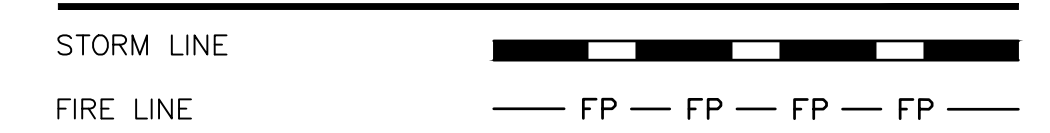
SHEET C3.2

EXISTING BUILDING
FF=157.40

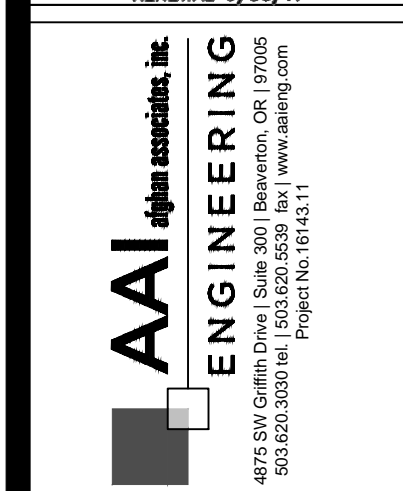
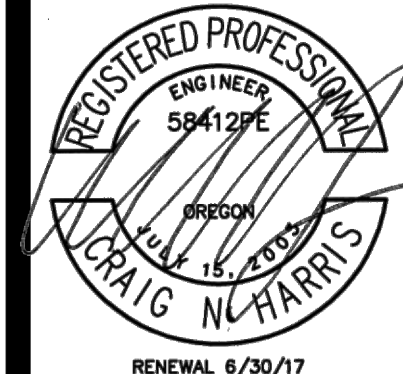
SHEET NOTES

- SEE SHEET C0.1 FOR ADDITIONAL SHEET NOTES.
- PIPE BEDDING AND BACKFILL UTILITIES SHALL BE DONE PER DETAIL 5/C4.0.
- INSTALL THRUST BLOCKS ON FIRE AND WATER LINES PER DETAIL 6/C4.0.
- THIS PLAN IS GENERALLY DIAGRAMMATIC. IT DOES NOT SHOW EVERY JOINT, BEND, FITTING, OR ACCESSORY REQUIRED FOR CONSTRUCTION.
- CLEAN OUTS SHALL BE INSTALLED IN CONFORMANCE WITH UPC CHAPTER SEVEN, SECTION 707 AND SECTION 719. NOT ALL REQUIRED CLEAN OUTS ARE SHOWN.
- DOMESTIC WATER AND FIRE LINES AND ACCESSORIES BETWEEN THE WATER METER AND THE BUILDING SHALL BE INSTALLED BY A LICENSED PLUMBER EMPLOYED BY A LICENSED PLUMBING CONTRACTOR.
- UTILITIES WITHIN FIVE FEET OF A BUILDING SHALL BE CONSTRUCTED OF MATERIALS APPROVED FOR INTERIOR USE AS DESCRIBED IN THE CURRENT EDITION OF THE UPC.
- INLETS AND OUTLETS TO ON-SITE MANHOLES SHALL HAVE FLEXIBLE CONNECTION NO CLOSER THAN 12" AND NO FARTHER THAN 36" FROM THE MANHOLE.

LEGEND



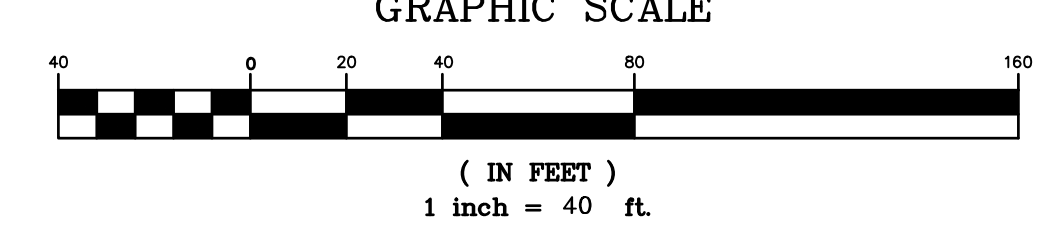
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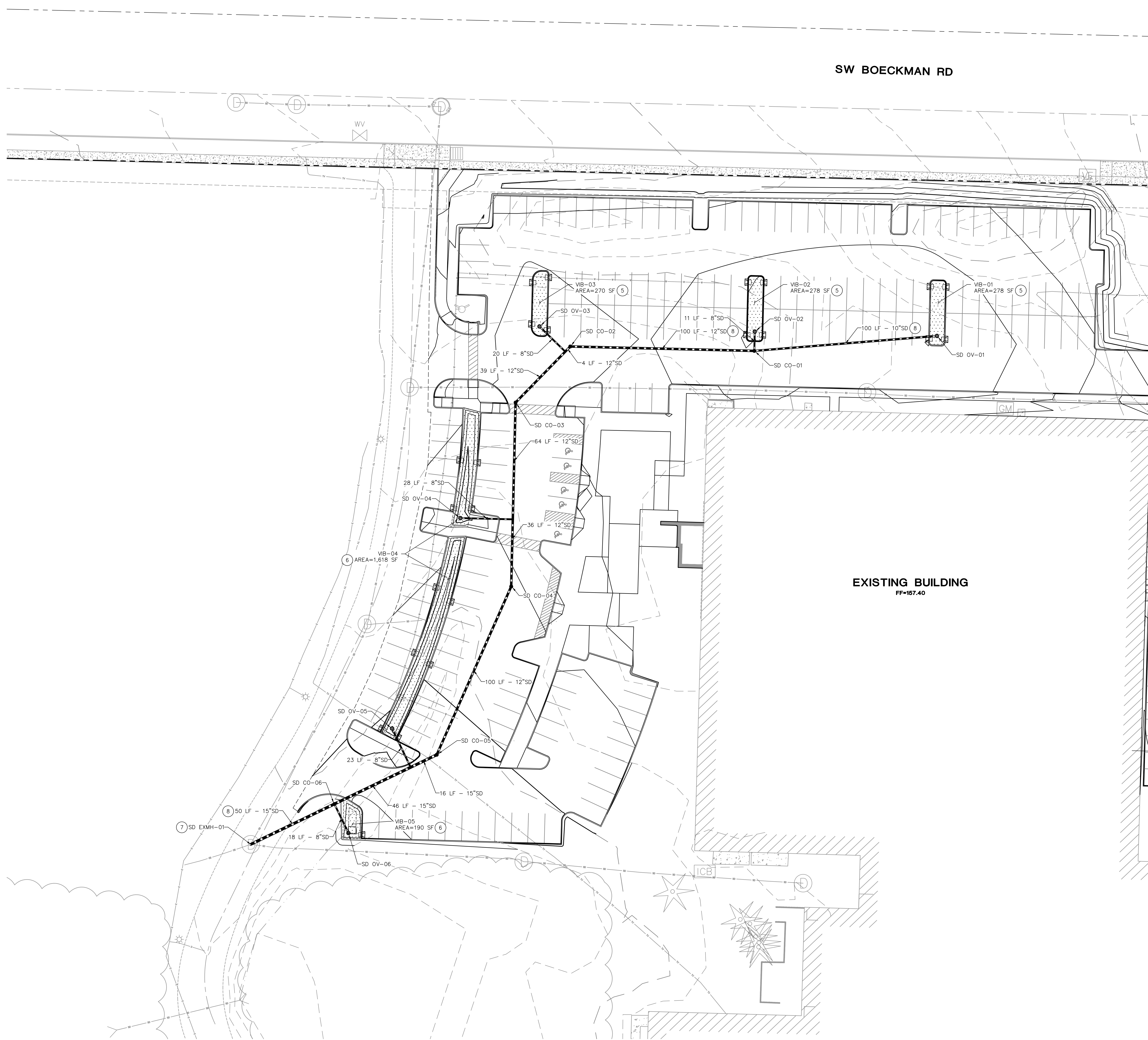


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UTILITY PLAN
sheet
C3.0





SHEET NOTES

- SEE SHEETS C0.1 AND C3.0 FOR SHEET NOTES AND LEGEND.
- ALL HORIZONTAL AND PIPE INVERT ELEVATIONS ARE BASED ON THE CENTER OF THE STRUCTURE.

UTILITY NOTES

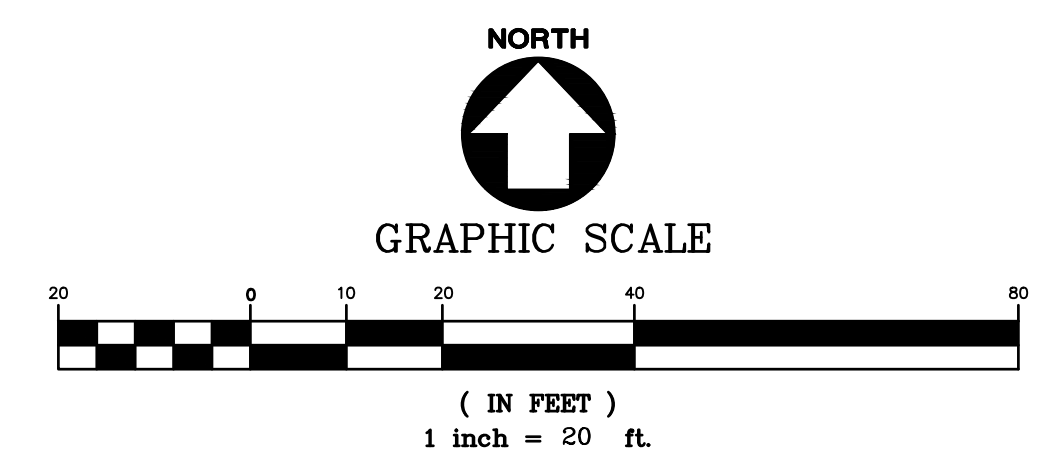
- APPROXIMATE LOCATION OF EXISTING 10" CI WATER MAIN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION PRIOR TO ORDERING MATERIALS.
- CONNECT TO EXISTING WATER MAIN WITH 10"x8" TAPPING SLEEVE.
- CONNECT TO EXISTING BUILDING SERVICE. SEE PLUMBING PLANS FOR CONTINUATION.
- INSTALL MxMJ 8" 45° BEND.
- CONSTRUCT STORMWATER PLANTER, PER DETAIL 7/C4.0.
- CONSTRUCT STORMWATER SWALE, PER DETAIL 8/C4.0.
- CONNECT TO EXISTING STORMWATER STRUCTURE. CONTRACTOR TO VERIFY PIPE INVERTS PRIOR TO CONSTRUCTION.
- INSTALL DIP PIPING

LABEL LEGEND

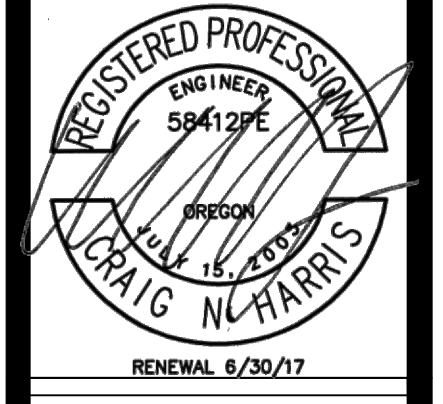
- PIPE LABELS**
- UTILITY LENGTH
 - UTILITY SIZE
 - UTILITY TYPE
- XXLF - XX" XX
- S=X.XX%
- SLOPE (WHERE APPLICABLE)
- STRUCTURE LABELS**
- UTILITY TYPE (SD=STORM DRAINAGE, FP=FIRE PROTECTION)
 - STRUCTURE TYPE CALLOUT (SEE BELOW)
 - ID NUMBER (WHERE APPLICABLE)
- XX XX-XX
RM=XX.XX
IE IN=XXX.X
IE OUT=XX.X
- STRUCTURE INFO (WHERE APPLICABLE)

STRUCTURE TYPES

CALLOUT	DESCRIPTION
CB	CATCH BASIN, PER DETAIL 9/C4.0
CO	CLEAN OUT, PER DETAIL 10/C4.0
GV	GATE VALVE, PER DETAIL 11/C4.0
MH	48" MANHOLE, PER DETAIL 12/C4.0
PIV	POST INDICATOR VALVE, PER DETAIL 13/C4.0
OV	OVERFLOW INLET, PER DETAIL 14/C4.0



job no.	no.	revision	date
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DSE			
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CNH			
checked			
01-23-17			
date			



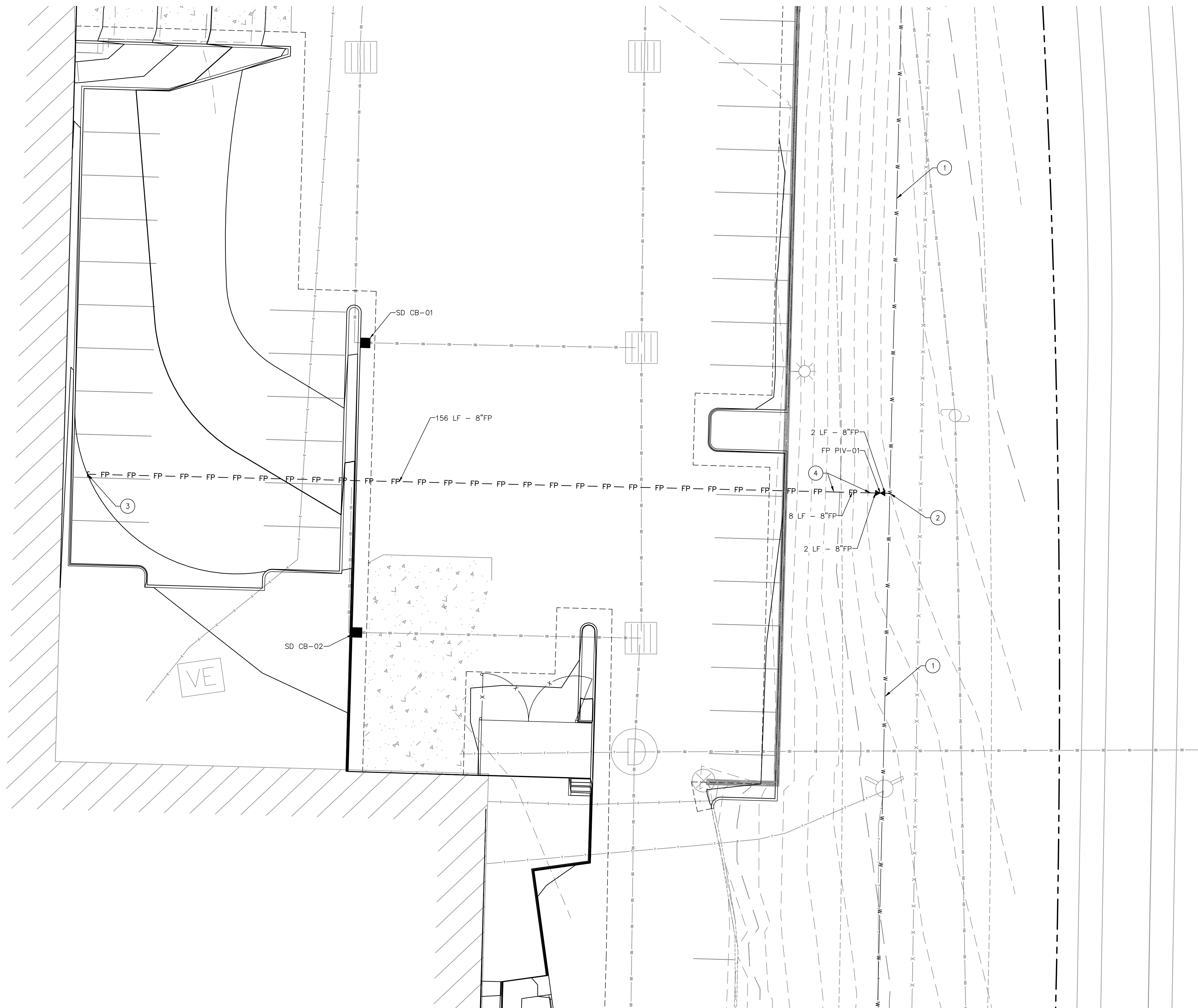
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sheet
C3.1

EXISTING BUILDING
FF=157.40



SHEET NOTES

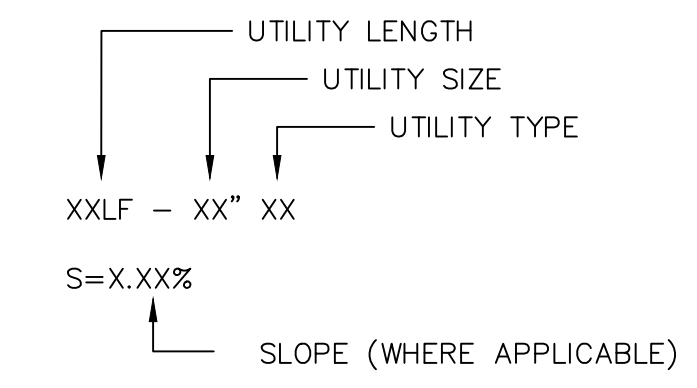
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UTILITY NOTES

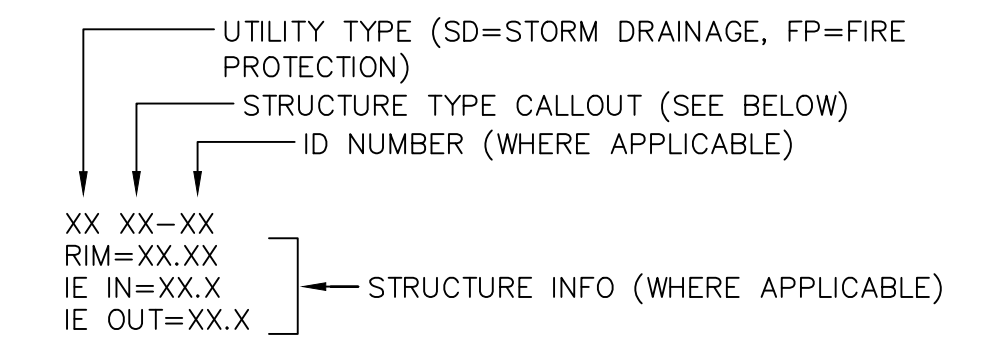
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LABEL LEGEND

PIPE LABELS

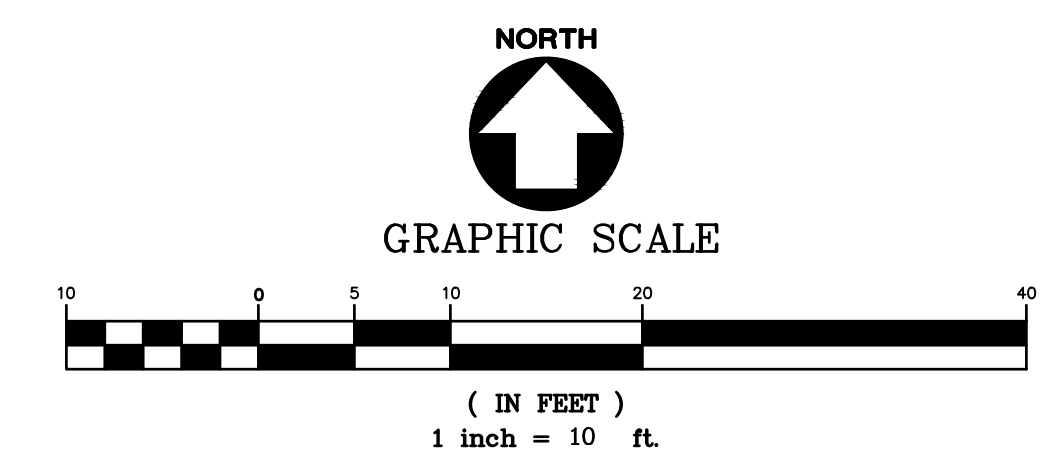
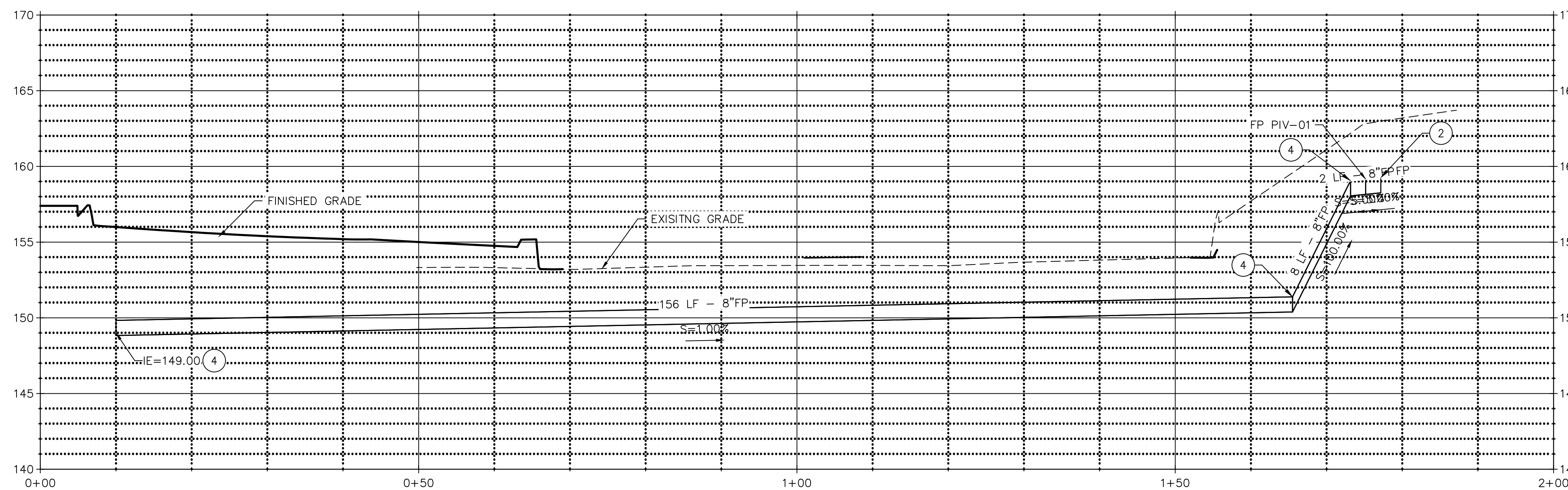


STRUCTURE LABELS

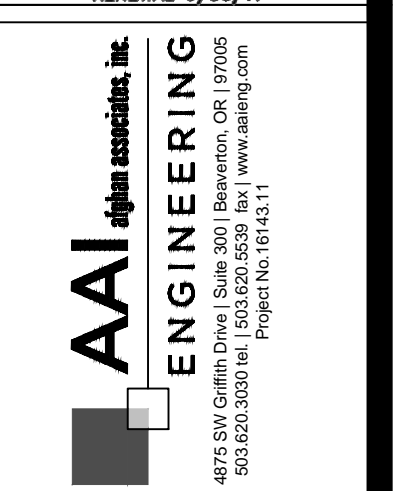


STRUCTURE TYPES

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job no.	no.	revision	date
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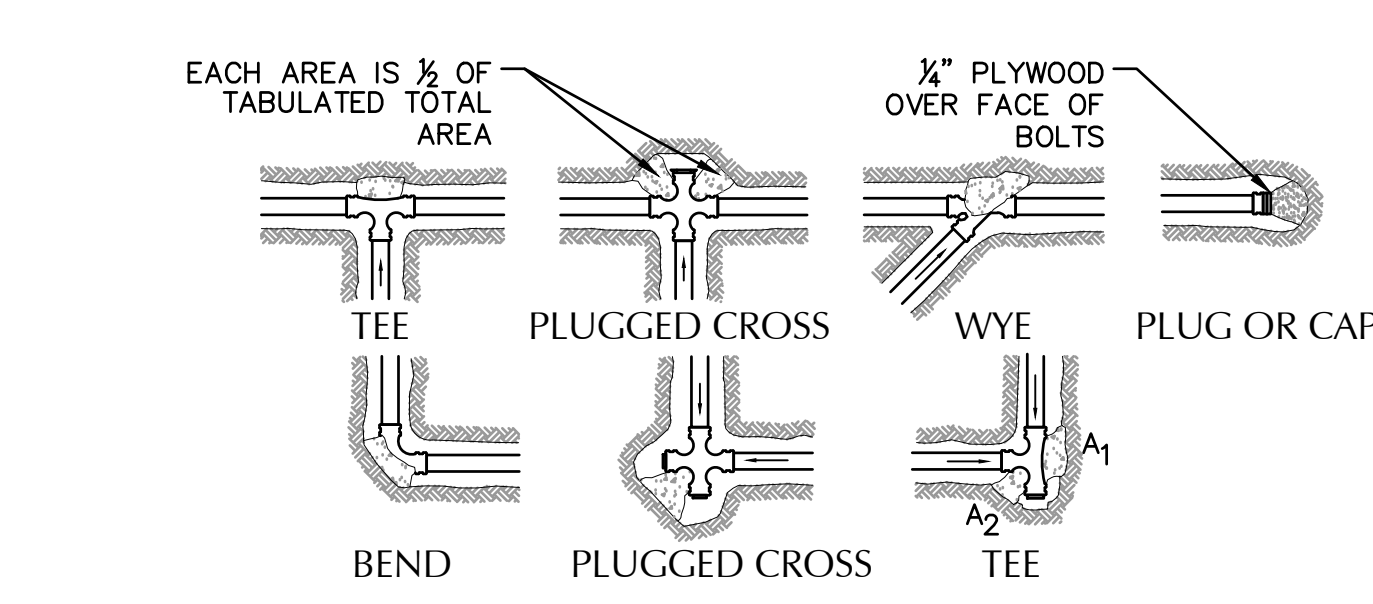
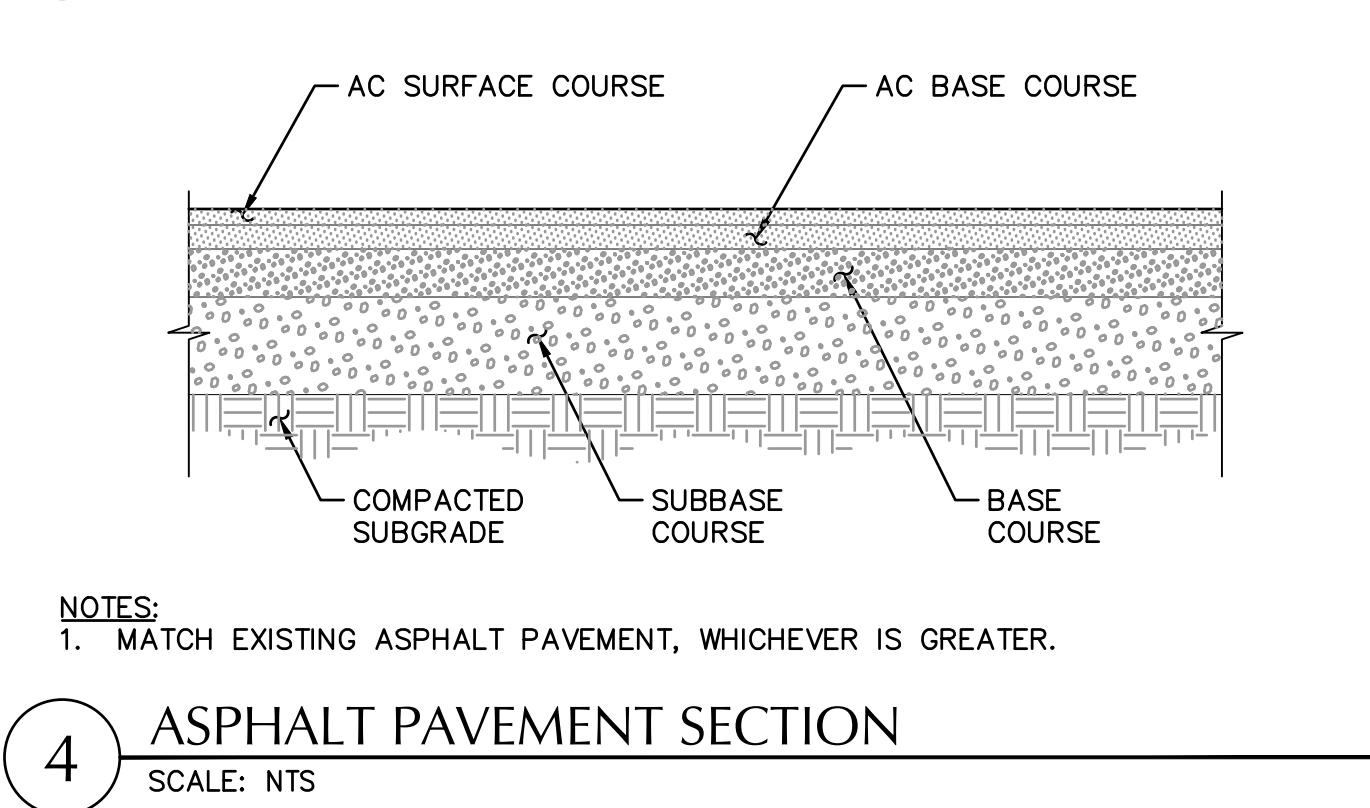
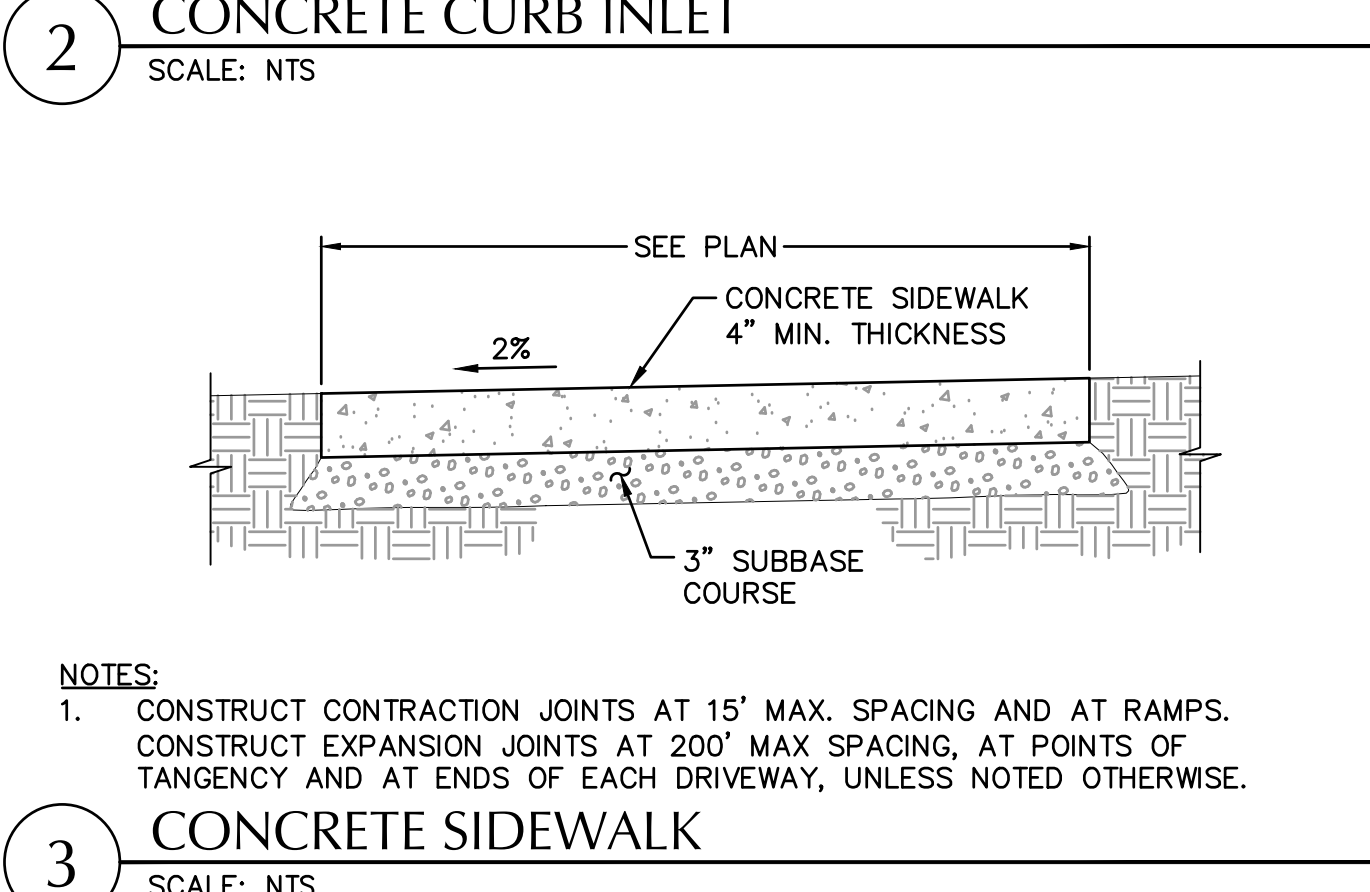
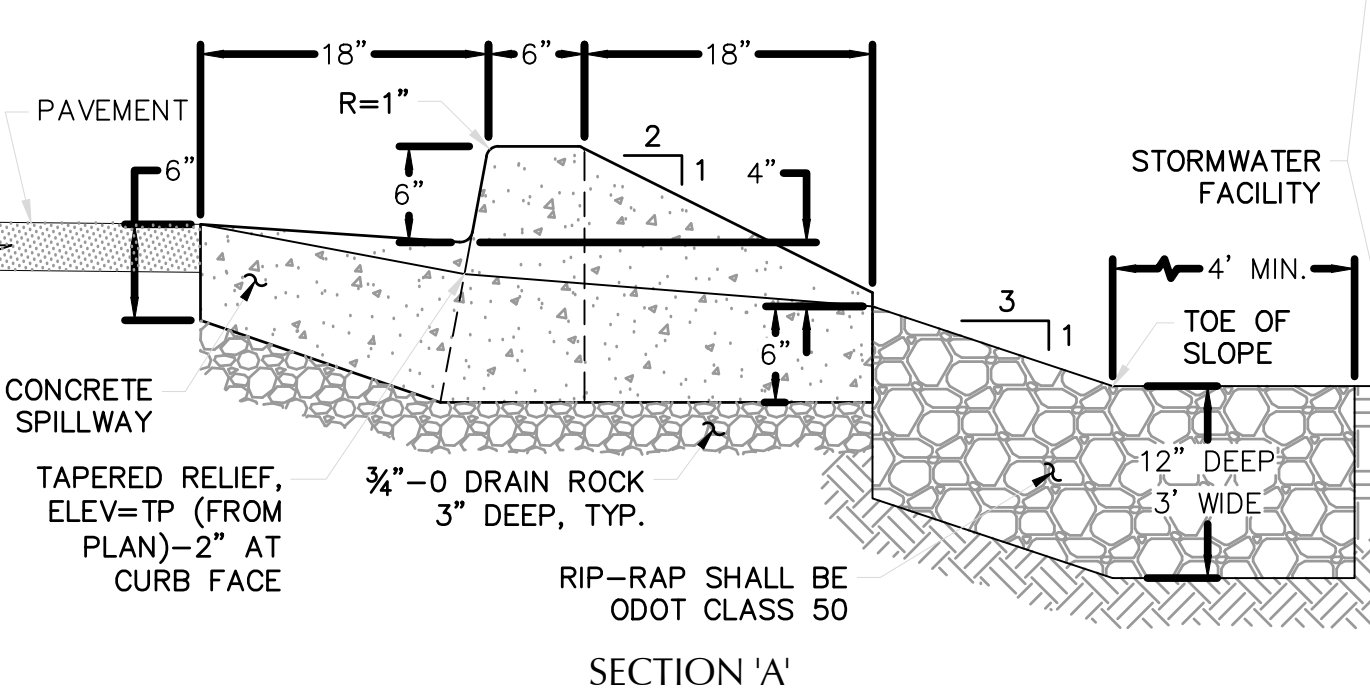
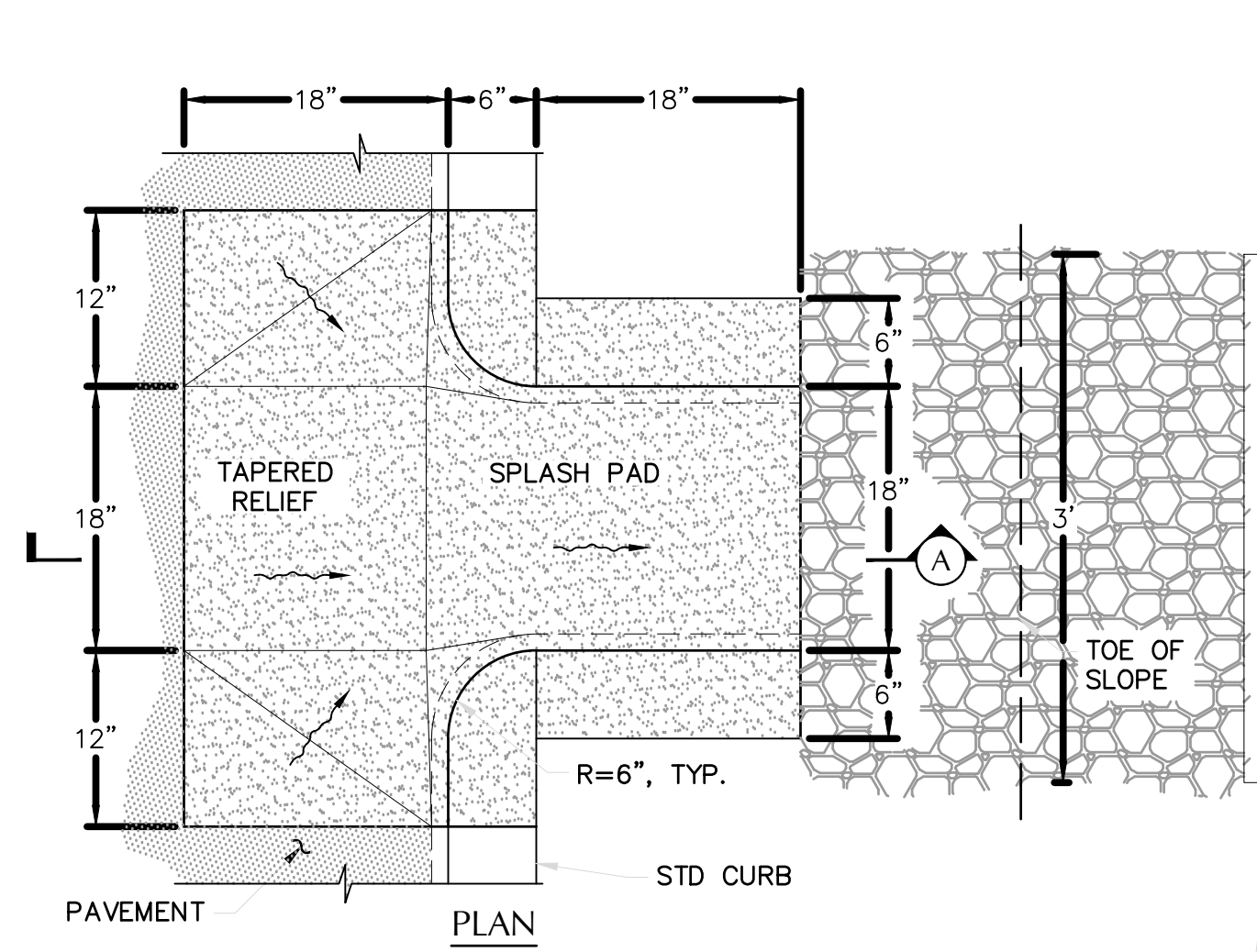
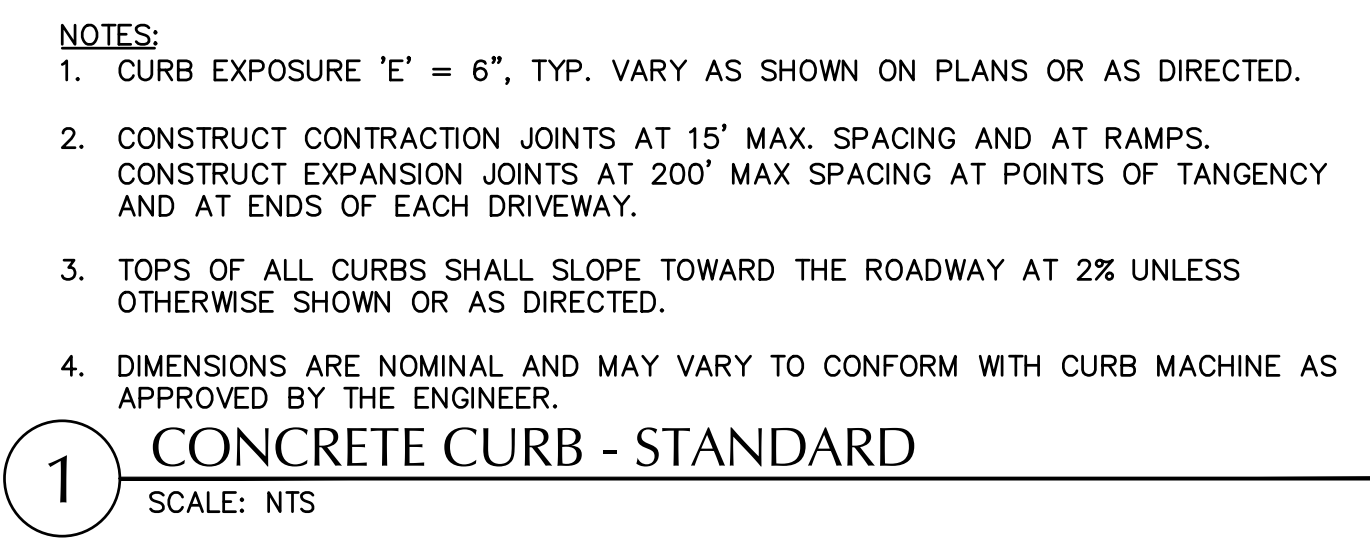


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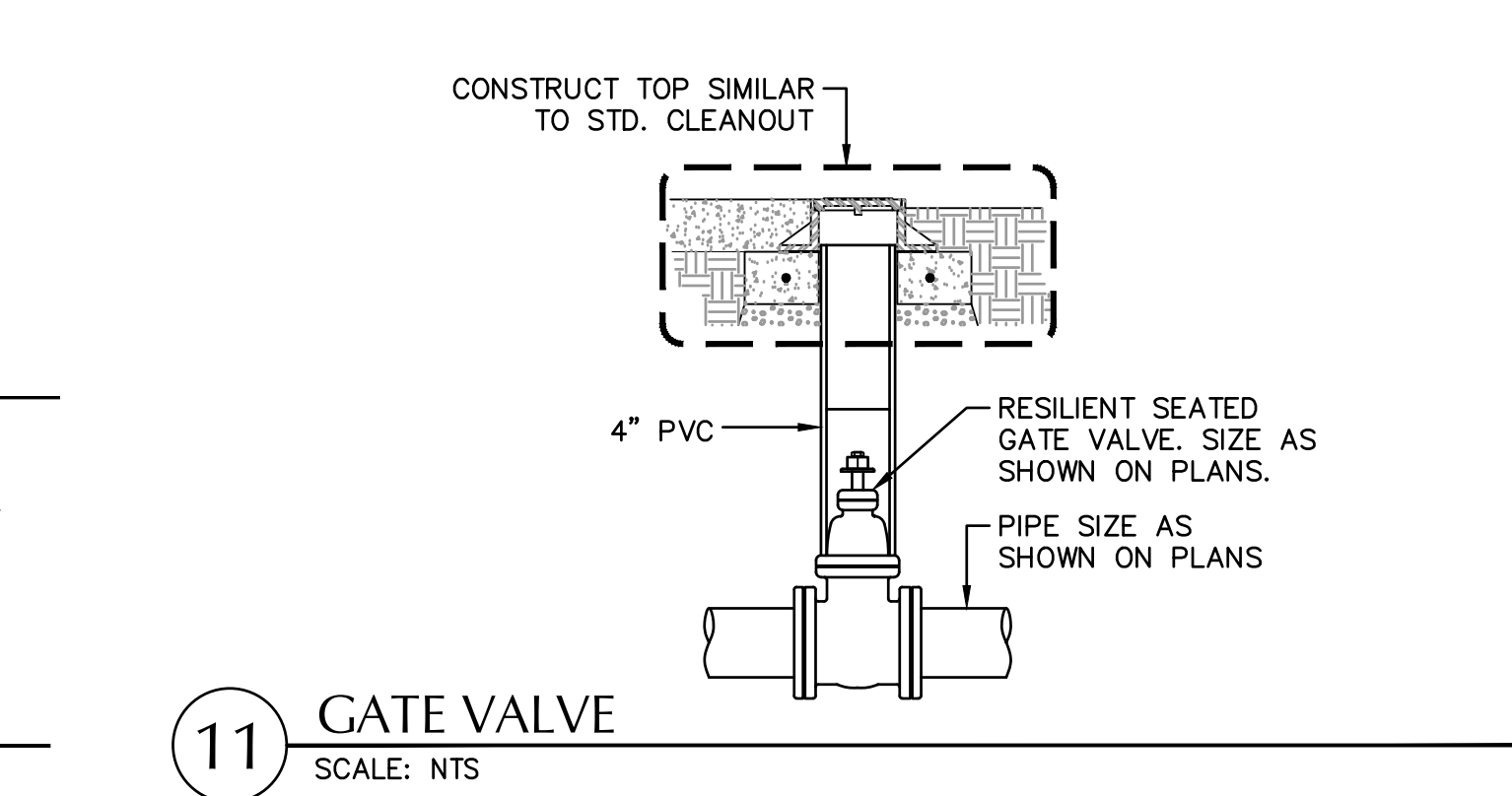
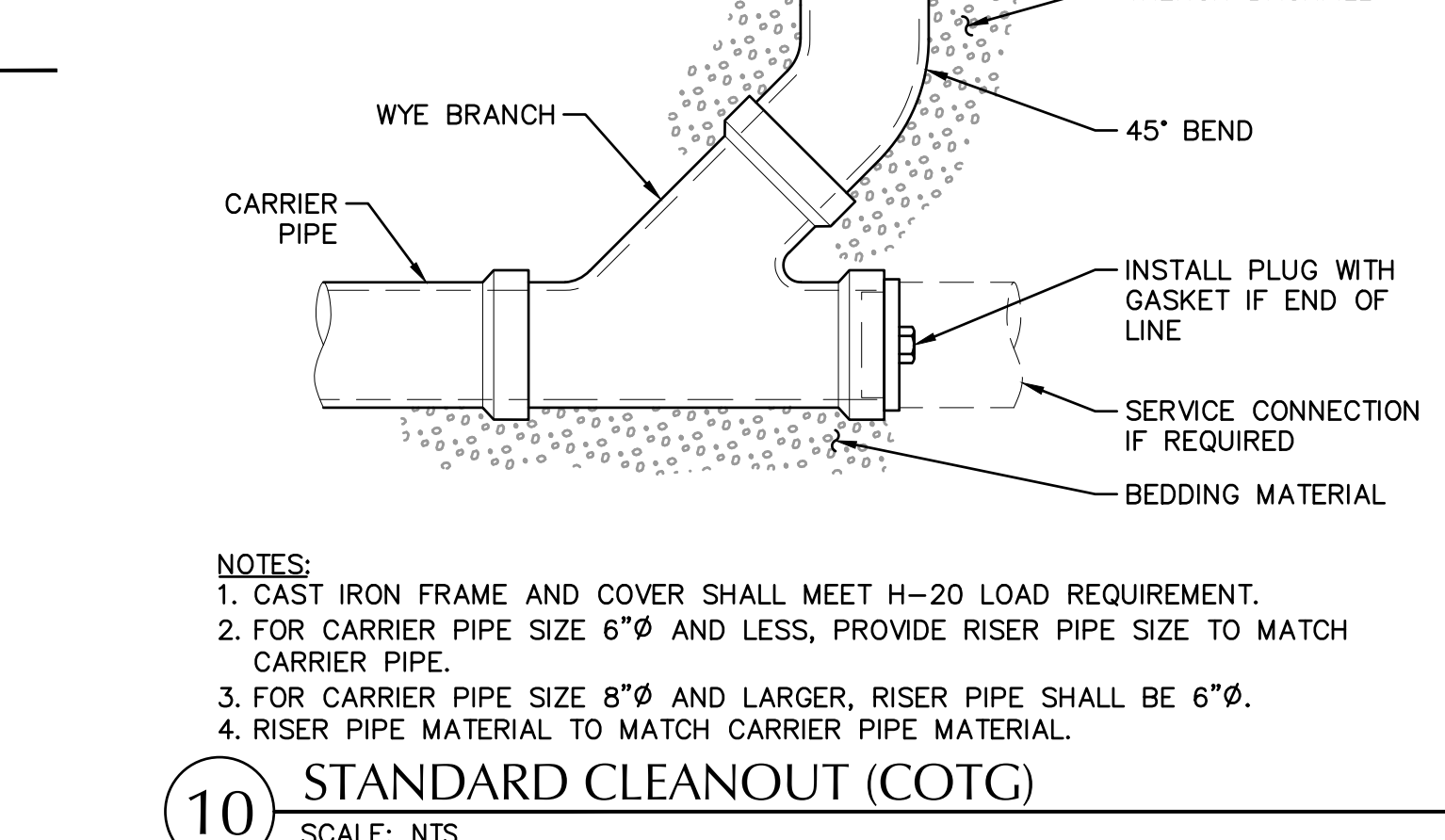
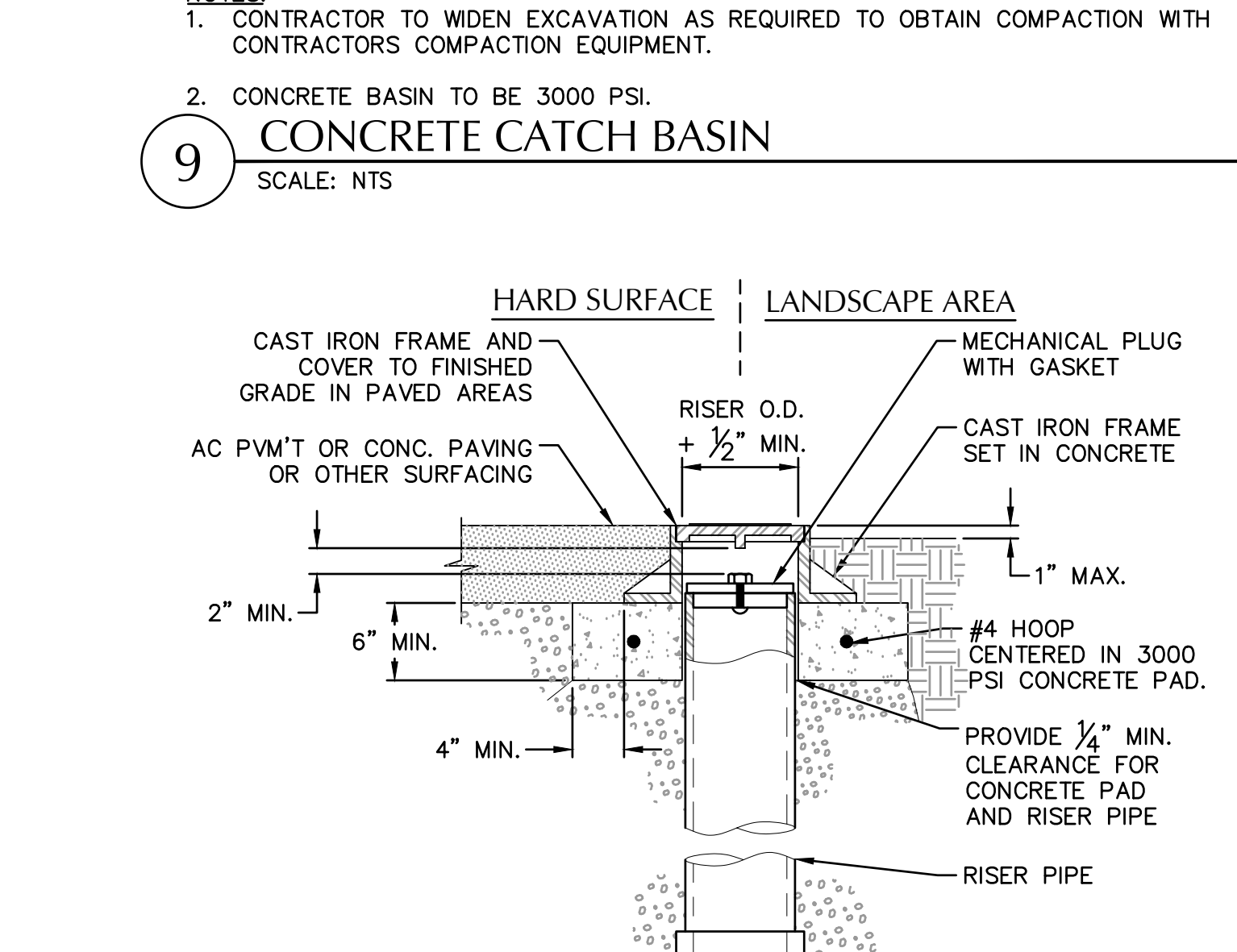
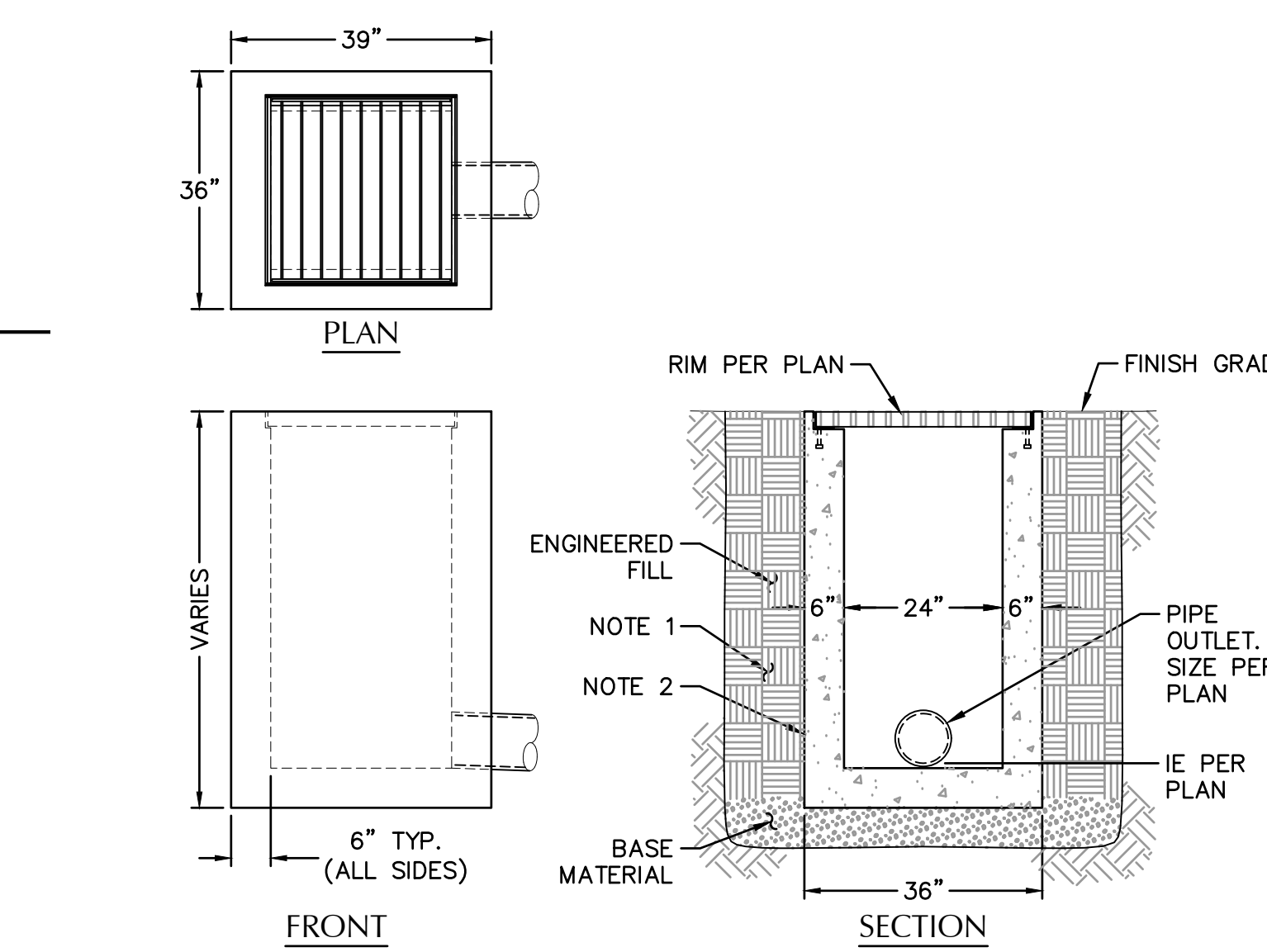
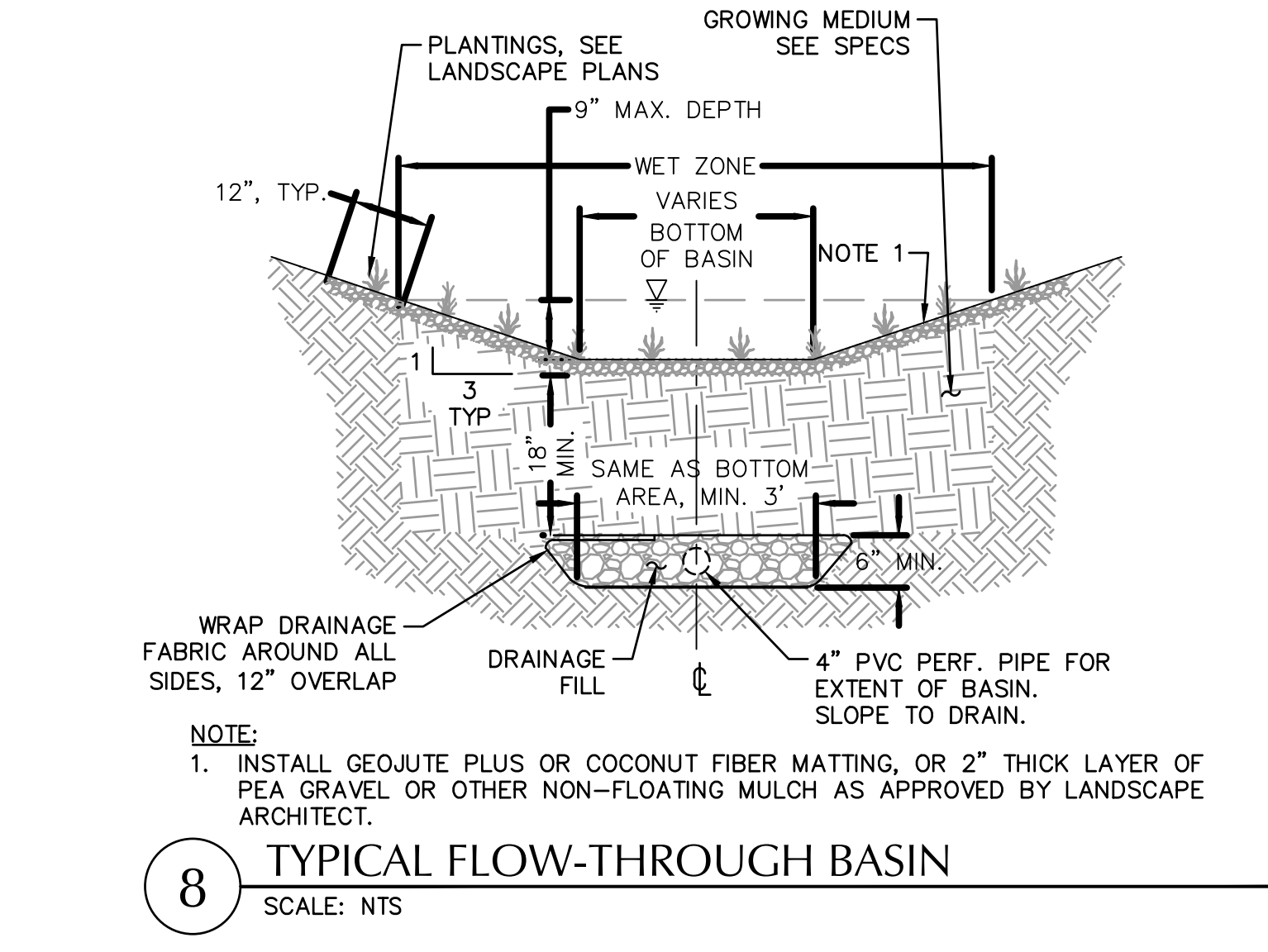
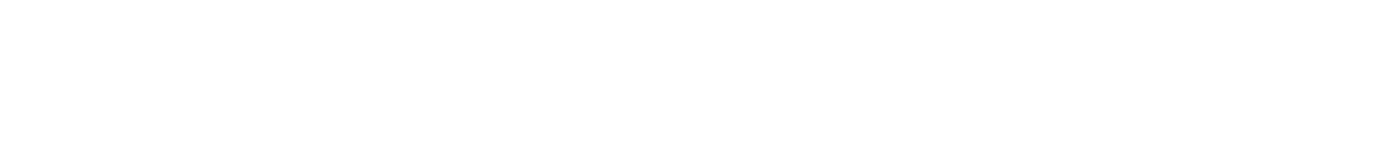
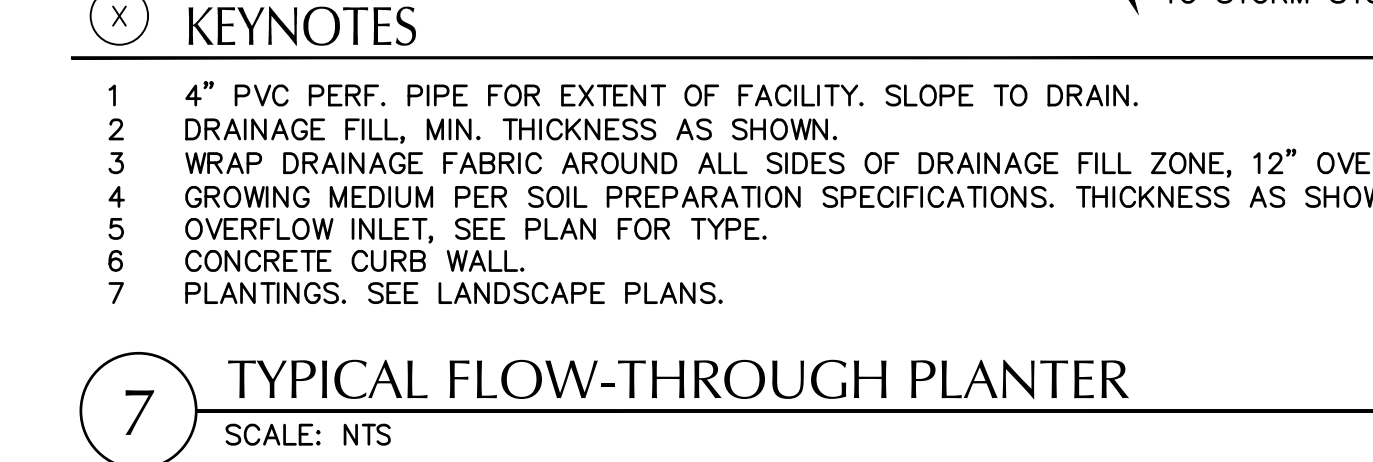
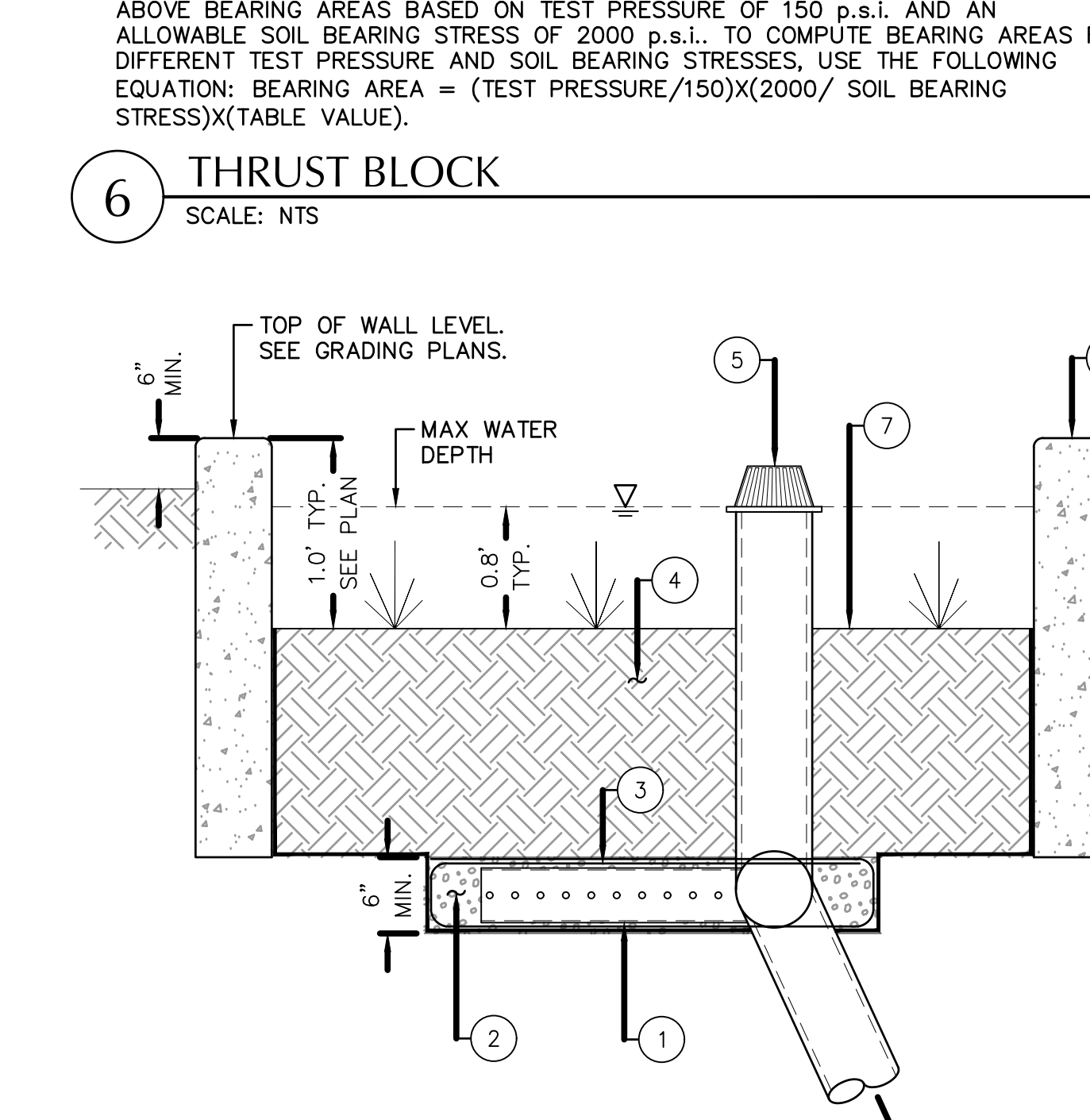
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sheet
C3.2



BEARING AREA OF THRUST BLOCK IN SQUARE FOOT

FITTING SIZE	TEE, WYE, PLUG, OR CAP	90° BEND PLUGGED CROSS		TEE PLUGGED ON RUN		45° BEND	22½° BEND	11¼° BEND
		A1	A2	A1	A2			
4	1.0	1.4	1.9	1.4	1.0			
6	2.1	3.0	4.3	3.0	1.6	1.0		
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0	
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2	



DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 25, 2017

6:30 PM

VII. Board Member Communications:

A. Results of the September 11, 2017 DRB Panel A meeting

City of Wilsonville

Development Review Board Panel A Meeting Meeting Results

DATE: SEPTEMBER 11, 2017		
LOCATION: 29799 SW TOWN CENTER LOOP EAST, WILSONVILLE, OR		
TIME START: 6:30 P.M.		TIME END: 10:58 P.M.

ATTENDANCE LOG

BOARD MEMBERS	STAFF
Ronald Heberlein	Barbara Jacobson
Fred Ruby	Daniel Pauly
James Frinell	Jennifer Scola
Joann Linville	Steve Adams
Jennifer Willard	Chris Neamtzu

AGENDA RESULTS

AGENDA	ACTIONS
CITIZENS' INPUT	None.
CONSENT AGENDA	
A. Approval of minutes of the July 10, 2017 DRB Panel A meeting	A. Approved unanimously
PUBLIC HEARING	None
<p>A. Resolution No. 337. Villebois Regional Parks 7 & 8: Polygon Northwest – Applicant. The applicant is requesting approval of a Final Development Plan with Preliminary Development Plan Refinements and Type C Tree Plan for Regional Parks No. 7 and 8. The properties are located on the eastern edge of Villebois on Tax Lots 102, 192 and 200 of Section 15 and Tax Lots 13300, 13390, 13400, 15100, 29200 and 29290 of Section 15A, T3S, R1W, Clackamas County, Oregon. Staff: Daniel Pauly</p> <p style="margin-left: 40px;">Case File: DB17-0011 Final Development Plan and Preliminary Development Plan Refinements DB17-0020 Type C Tree Plan</p> <p><i>This item was continued to this date and time certain at the July 10, 2017 DRB Panel A meeting</i></p> <p>B. Resolution No. 342. Hilton Garden Inn: Dave Kimmel, Planning Design Group – Representative for RR Hotels Portland LLC – Applicant/Owner. The applicant is requesting approval of a Stage II Final Plan Revision, Building Height and Minimum Lot Size Waivers, Site Design Review, Type C Tree Plan and Class 3 Sign Permit for construction of a new four-story, 118 room hotel with associated parking and landscaping improvements. The subject property is</p>	<p>A. Resolution No. 337 and associated staff report were approved as amended to include new condition of approval PDA-5 and the addition of a soft trail on Regional Park 7. It was approved by a 3-2-0 vote, with Jennifer Willard and Fred Ruby opposed.</p> <p>B. Resolution No. 342 and associated staff report were approved as amended to include re-written condition of approval PDA-5. It was approved by a 4-1-</p>

<p>located on Tax Lot 10201 of Section 24CB, T3S, R1W, Clackamas County, Oregon. Staff: Jennifer Scola.</p> <p>Case Files: DB17-0013 Stage II Final Plan Revision DB17-0014 Waivers (2) – Building Height & Min. Lot Size DB17-0015 Site Design Review DB17-0016 Type C Tree Plan DB17-0017 Class III Sign Permit</p>	<p>0 vote, with Ron Heberlein opposed.</p>
<p>BOARD MEMBER COMMUNICATIONS</p>	
<p>A. Results of the July 24, 2017 DRB Panel B meeting B. Results of the August 28, 2017 DRB Panel B meeting C. Recent City Council Action Minutes</p>	
<p>STAFF COMMUNICATIONS:</p>	
	<p>There were none.</p>

RECORDED BY: S. WHITE

DEVELOPMENT REVIEW BOARD MEETING

MONDAY, SEPTEMBER 25, 2017

6:30 PM

VII. Board Member Communications:

B. Recent City Council Action Minutes

City Council Meeting Action Minutes August 24, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Kimberly Rybold
Councilor Starr - Excused	Barbara Jacobson	Angela Handran
Councilor Akervall	Jeanna Troha	Miranda Bateschell
Councilor Stevens	Kimberly Veliz	Mike McCarty
Councilor Lehan	Susan Cole	

AGENDA ITEM	ACTIONS
WORK SESSION	
<ul style="list-style-type: none"> First Amendment of Parks and Recreation Master Plan with GreenPlay (McCarty) Town Center Plan / Community Block Party (Bateschell) Mayors' Compact to Combat Hate, Extremism and Bigotry 	<ul style="list-style-type: none"> Staff presented recommendations for the current Parks and Recreation Comprehensive Master Plan to be amended to include the Boones Ferry Park/Duckworth Property Master Plan. Council shared feedback heard from citizens during Community Block Partying regarding the Town Center Plan. After discussion it was decided that the Mayor would sign the Anti-Defamation League and the United States Conference of Mayors' initiative to fight extremism and bigotry and to promote the fundamental principles of justice and equality.
REGULAR MEETING	
<u>Mayor's Business</u> Upcoming Meetings	<ul style="list-style-type: none"> Upcoming meetings were announced by the Mayor as well as the regional meetings he attended on behalf of the City.
<u>Communications</u> <ul style="list-style-type: none"> Kiwanis Tourism Grant Safety Compass of Oregon 	<ul style="list-style-type: none"> Donna Bane thanked the City for supporting the annual Kiwanis Kids Fun Run .An overview of the event was provided along with an update of the adult 5K race. Safety Compass of Oregon Executive Director Esther Nelson spoke to Council about the issue of commercial sexual exploitation and sex trafficking.
<u>Consent Agenda</u> <ul style="list-style-type: none"> Resolution No. 2651 - First Amendment of Parks and Recreation Master Plan with GreenPlay (McCarty) 	<ul style="list-style-type: none"> The Consent Agenda was adopted 4-0.

<u>Continuing Business</u> <ul style="list-style-type: none"> Ordinance No. 807 – 2nd reading Annexing Approximately 2,206 Square Feet Of Territory On The South Side Of SW Advance Road West Of Future SW 63rd Avenue. (Rybold) 	<ul style="list-style-type: none"> Ordinance No. 807 was adopted on second reading by a vote of 4-0.
<u>City Manager's Business</u>	<ul style="list-style-type: none"> Mentioned that employee Melissa Gitt was recognized by her peers and received the Building Inspector of the Year award from Oregon Building Officials Association. Toured new middle school. Complimented staff on the work done to get the project completed.
<u>Legal Business</u>	<ul style="list-style-type: none"> No report.
Adjourn	7:47 p.m.

City Council Meeting Action Minutes
September 7, 2017

COUNCILORS	STAFF	STAFF
Mayor Knapp	Bryan Cosgrove	Mark Ottenad
Councilor Starr - Excused	Barbara Jacobson	Kerry Rappold
Councilor Akervall	Jeanna Troha	Delora Kerber
Councilor Stevens	Kimberly Veliz	Chris Neamtzu
Councilor Lehan - Absent	Susan Cole	Andrea Villagrana
	Nancy Kraushaar	Amanda Guile-Hinman

AGENDA ITEM	ACTIONS
WORK SESSION	
A. Resolution No. 2653 - I-5 Undercrossing Trail Improvement Project, Phase I CIP 9146 – Construction Contract Award (Rappold)	This item is on the consent agenda for action as Resolution No. 2653.
B. Solid Waste Franchise Agreement Update (Guile-Hinman/Ottenad)	Staff provided an update and received direction from Council on how to proceed with the Solid Waste Franchise Agreement.
C. Letter of Support	Willamette United Football Club South Lake Park Project letter of support was discussed in Work Session.
REGULAR MEETING	
<u>Communications</u>	
A. CCSO Behavioral Health Unit	Valentina Muggia and Teal Bohrer of CCSO Behavioral Health Unit presented on the Clackamas County Sheriff's Office partnership with Clackamas County Behavioral Health.
<u>Mayor's Business</u>	
A. Upcoming Meetings	Mayor Knapp reported on upcoming meetings and past meetings, he attended on behalf of the City.
B. Willamette United Football Club South Lake Park Project - Letter of Support	Council made a motion to accept the letter as amended in the Work Session. It was approved 3-0.
C. City Manager's Contract Renewal	Council renewed the CM's contract for an additional 2 years.
<u>Consent Agenda</u>	
A. Resolution No. 2653 - A Resolution Of The City Of Wilsonville Authorizing The City Manager To Execute A Construction Contract With 3Kings Environmental, Inc. For The I-5 Undercrossing Trail Improvement Phase I Project (Capital Improvement Project #9146).	The consent agenda was adopted 3 -0.

<p><u>Public Hearing</u></p> <p>A. Ordinance No. 808 - An Ordinance Of The City Of Wilsonville Regarding Street Lighting: Types; Infill; Rates; Billing; And Fund; Amending Wilsonville Code Sections 3.200 Through 3.204; And Repealing Ordinance Nos. 41 And 304</p> <p>B. Ordinance No. 809 - An Ordinance Of The City Of Wilsonville Revising Section 201.9.01 - Roadway And Intersection Lighting Of The City Of Wilsonville Public Works Standards – 2015 And Adding Drawings To The Public Works Standard Detail Drawing - 2014</p>	<p>Ordinance No. 808 was approved on first reading with second reading occurring at the September 18 Council meeting.</p> <p>Ordinance No. 809 was approved on first reading with amendments as noted by staff, with second reading occurring at the September 18 Council meeting.</p>
<p><u>New Business</u></p> <p>A. Resolution No. 2652 - A Resolution Pertaining To Street Lighting Charges And Types; And Amending Resolutions No. 881 And No. 1473.</p>	<p>Resolution No. 2652 was adopted 3-0.</p>
<p><u>City Manager's Business</u></p>	<p>Provided an update on Basalt Creek.</p> <p>Reminded Council of the upcoming League of Oregon Cities (LOC) conference.</p> <p>Shared that the Citizens Academy is a now accepting applications.</p>
<p><u>Legal Business</u></p>	<p>No report.</p>
<p>ADJOURN</p>	<p>8:18 p.m.</p>