STANDRIDGE INC
PLANNING | ENGINEERING | SURVEYING

TRANSMITTAL

TO: Planning Division CITY OF WILSONVILLE 29799 SW Town Center Loop East Wilsonville, OR 97070	SI PROJECT #: SYS001	DATE: March 10, 2026
FROM: Laura Standridge Standridge Inc.	PROJECT NAME: SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN	
DISTRIBUTION: 3 Hard Copies & 1 Digital Copy to City File	SUBJECT: APPLICATION RESUBMITTAL 1 Zone Map Amendment 2 Stage I Master Plan 3 Stage II Final Plan Revision 4 Site Design Review 5 Class III Sign Plan 6 Type C Tree Removal and Protection Plan 7 Significant Resource Impact Report (SRIR)	

Attachments:

1. Incompleteness response letter ***(Added)***
2. Signed Master Application Form
3. Owner Certification ***(Updated)***
4. Project Narrative ***(Updated)***
    - A. Pre-Application Notes
    - B. Preliminary Site Plans ***(Updated)***
    - C. Traffic Impact Assessment (TIA) & Transportation Planning Rule (TPR)
    - D. Tree Protection Plan
    - E. Significant Resource Impact Report
    - F. Geotechnical Engineering Report
    - G. Soils Map
    - H. Preliminary (Subdivision) Title Report
    - I. Preliminary Hydrology Report ***(Updated)***
    - J. Existing Drainage Basin Map ***(Updated)***
    - K. Proposed Drainage Basin Map ***(Updated)***
    - L. Downstream Analysis ***(Added)***
    - M. Stormwater O&M
    - N. BPA Right-of-Way Agreement
    - O. TVF&R Service Provider Letter (SPL) ***(Updated)***
    - P. Republic Service SPL ***(Updated)***
    - Q. Luminary Cutsheets ***(Added)***

City of Wilsonville
Exhibit B1 DB25-0010

STANDRIDGE INC
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March 11, 2026

Chris Myers - Senior Planner
Planning Division
Community Development Division
City of Wilsonville
29799 SW Town Center Loop Drive E
Wilsonville, OR 97070

RE: Application Number: **DB25-0010**
Sysco Wilsonville Re-Zone and Facility Expansion Master Plan
Incompleteness Responses

Dear Chris,

This letter is in response to the items listed in the January 7, 2026 correspondence that the application has been deemed incomplete.

1. Additional Applications Required for a Complete Submittal

Lot Line Adjustment
WDC Section 4.233
The proposed development spans multiple existing property lines, and the submitted narrative indicates that the proposal includes a request for the consolidation of these tax lots. A formal application for a lot line adjustment, along with the required application fee must be submitted via the City's Online Permitting Portal.

> **Response :** A formal application for the lot line adjustment, along with the required application fee, has been submitted via the City's Online Permitting Portal. Additional exhibits related to the Lot Line adjustment have been added to the Site plans. (See Sheets 02A and 02B)

Significant Resource Overlay Zone (SROZ) Map Verification
WDC Section 4.139.05
The applicant proposes development with mapped SROZ, requiring a SROZ Map Verification. A formal application, along with the required application fee of $631, must be submitted via the City's Online Permitting Portal

> **Response:** A formal application for the SROZ Map Verification and associated fee have been submitted via the City's Online Permitting Portal.

2. Complete written responses to applicable review criteria. The applicable review criteria include the following:

ZONE MAP AMENDMENT APPROVAL CRITERIA
WDC Section 4.197

The application includes a general discussion of the proposed zoning change; however, it does not provide findings demonstrating compliance with the approval criteria in WDC Section 4.197.

General or conclusory statements of consistency do not satisfy these criteria.

Response: Section 4.197 is added to the narrative and describes detailed compliance methods and procedural understanding.

GENERAL DEVELOPMENT REGULATIONS
WDC Sections 4.154 - 4.199.60 (AS APPLICABLE)
The application includes conceptual discussion does not provide findings demonstrating compliance with the applicable general development regulations.

The applicant shall submit:
Specific responses tied to each applicable code section, including calculations, dimensions, and other quantitative standards where applicable. Section 4.155 was updated in August 2025, and can be found here.

Response: Sections 4.154 through 4.199.60 have been added to the narrative as needed with additional detailed information. The updated sections include sheet references

SITE DESIGN REVIEW
WDC 4.400 – 4.450
The application does not include findings addressing the Site Design Review approval criteria listed in Section 4.421.

The applicant shall submit:
A criterion-based response to the applicable Site Design Review standards, including WDC Section 4.421, explaining how the proposal meets each criterion.

Response: Sections 4.400 through 4.450 have been added to the narrative. Section 4.421.01 is addressed in the narrative with responses for each item. Sections 4.421.02 through 4.421.06 are procedural provisions and are acknowledged by the applicant.

TREE PRESERVATION AND PROTECTION
WDC 4.600 – 4.640 (As Applicable)
The application does not include findings addressing the Tree Preservation and Protection standards in WC Section 4.610.10.

The applicant shall submit:
A criterion-based response to the applicable Tree Preservation and Protection standards (WDC 4.600 – 4.640) explaining how the proposal meets each criterion.

Response: The Narrative has been updated. Sections 4.600.01, 4.600.02, 4.600.03, 4.600.20, 4.600.30, 4.600.40, 4.610.00, 4.610.40, 4.620.00, 4.620.10 were deemed applicable and a response

is provided for each section. Section 4.610.10 was responded to by subsection for more detailed information.

3. Sufficient detail in submitted plans and drawings. While some information is provided, the following is specific information still missing:

   - Architectural drawings or sketches, drawn to scale, in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures and other improvements as they will appear on completion of construction, as required by WC Section 4.440.

Response: Architectural sheets are included and are labeled as Ax.x, located at the end of the set.

   - A Color Board displaying specifications as to type, color, and texture of exterior surfaces of proposed structures, as required by WC Section 4.440.

Response: A color board is included as Attachment S.

   - A Sign Plan, drawn to scale, showing the location, size, design, material, color and methods of illumination of all exterior signs, as required by WC Sections 4.156.02 and 4.440.

Response: See sheets 20, A2.1, A2.4, A2.5, and A2.6 of the Land Use Plans; also see the Architectural Color Board

   - A site lighting plan that clearly indicates intended lighting by type and location as required by WC Section 4.199.50. For adjustable luminaires, the aiming angles or coordinates shall be shown. For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields shall be provided.

Response: A preliminary site lighting plans are provided, and the prescriptive approach will be utilized. See sheets 21-23 for the lighting plans, including photometrics and calculations along with the narrative responses to section 4.199.50. Luminary cutsheets are provided in Appendix R.

   - Information on design of public streets meeting TSP and Public Works Standards as required by WC Section 4.177 – Street Improvements.
     i. SW Parkway Avenue and Parkway Center Drive are classified as a minor arterial and freight route in the City's TSP. The required right-of-way dedication and constructed improvements for the half-street improvement include converting the existing northbound travel lane to a center turn lane, adding a new northbound travel lane, adding a new 8 foot wide bike lane (includes a 2' wide buffer), a new 6.5 foot wide planter strip and five foot wide sidewalk from Weideman Road north to the existing Sysco property frontage along SW Parkway Center Drive. Freight routes are required to be paved with concrete. The difference in cost between asphalt and concrete is

eligible for SDC credits. The TIA identifies the need for a southbound left turn lane at each access point.

Response: Sheet 08 has public improvement plan, dedications, and sections provided. The existing northbound travel lane is converted to a center turn lane, adding a new northbound travel lane, a new 8 foot wide bike lane (includes a 2' wide buffer), a new 6.5 foot wide planter strip and five foot wide sidewalk from Weideman Road north to the existing Sysco property frontage along SW Parkway Center Drive. The travel lanes are proposed to be paved with concrete

ii. WC 4.177(.05) The City's TSP identifies that the Wiedemann Road right-of- way being developed with a east-west trail. The applicant is responsible for constructing the east-west trail in the Weidemann right-of-way adjacent to this site in lieu of half-street improvements.

Response: The proposed development will construct the 10' east-west multi-use trail within the Weidemann Road right-of-way consistent with the City of Wilsonville TSP requirements. The trail alignment and improvements are shown on Sheet 06 of the Civil Plans

iii. WC 4.177(.06)B. bus stop improvements required. Per the TIA more than 49 pm peak hour trips are generated by this development. Per SMART, bus stop improvements are desired on the west side of the vehicle entrance proposed along SW Parkway Center Drive.

Response: A new shelter, and bus pullout is proposed as coordinated with SMART and shown on Sheet 8.

- Landscape plans depicting a planter strip and street trees as required with the right- of-way improvements and WC Section 4.176 (.06)D.

Response: Refer to sheets 08 and 17-19 for the landscape plans and street trees.

- Information on undergrounding of existing overhead franchise utilities as required by WC Sections 4.300 through 4.320. The plans shall clearly show that the existing overhead utilities will be placed underground with the right-of-way improvements. BPA and PGE high voltage lines are exempt from this requirement.

Response: Undergrounding of existing overhead franchise utilities can be found on Sheet 02-Existing Conditions.

- The plans shall clearly show right-of-way and all easement dedications. A 10-foot wide public utility easement along Parkway/Parkway Center is required. The grade within the 10-foot wide PUE shall be 5:1 max. Additionally, the main and fire hydrants shall be located within a 15-foot wide public water line easement.

> **Response:** 15-foot wide public water line is shown on Utility plans Sheets 12-14 and 10' PUE is shown on sheets 03 and 08.

4. Legal description and exhibit drawing of area to be rezoned.

> **Response:** Sheet 02C describes the area to be rezoned and lists the tax lot and parcel number.

5. Sufficient information on fire hydrant locations and servicing water lines. Fire hydrants shall be publicly owned. A new water main is required to connect to the proposed hydrant. The main shall be located within a 15' exclusive water line easement to hydrant.

> **Response:** A looped public water line is routed through the southern portion of the campus and covered with 15' PUE. Refer to utility plans.

6. Sufficient information on storm drainage and system design including demonstration that LID is used to the maximum extent feasible. A downstream analysis is required; revise the stormwater report to include downstream analysis to confirm facilities are appropriately sized.

> **Response:** Storm Report per COW requirement including preliminary downstream analysis is provided. The Downstream calculations are an appendix M and are based on SBUH 25 year storm modeling.

7. New service provider permits consistent with the submitted site plan are required. The Republic Services and TVF&R Service Provider Permits are not for the submitted site plan, which differs substantially from what was submitted with the current application.

> **Response:** New service provider permits have been obtained and are included.

8. Information demonstrating project is or will be adequately served by Storm Sewer. The site has three separate drainage basins. Out of basin transfers not allowed. About 2/3 of the site drain to the south, Wiedemann ditch. The remaining portions drain to the north and west. Basins shall be clearly delineated in the Stormwater Report. Stormwater source control standards apply for loading docks and trash enclosures. Both must be hydraulically isolated and covered. Please refer to Chapter 3 of the Public Works Standards.

> **Response:** The drainage has been revised to keep the same amount of water draining to each of the 3 predeveloped basins.

9. Information on storm drainage and system design including demonstration that LID is used to the maximum extent feasible. All new or replacement impervious area shall be properly managed with stormwater management facilities. The right-of-way improvements are included in this requirement. Shallow groundwater will require use of shallow stormwater facilities. Infiltration testing shall occur at the location of each facility.

> **Response:** All proposed storm treatment and detention facilities are LID and are designed per the WES BMP Sizing tool.

10. Sufficient information on fire hydrant locations and servicing water lines. All fire hydrants shall be publicly owned. All fire sprinkler systems shall be connected to the City system separately from the public fire hydrant system.

> **Response:** A new public main loops through the southern site and feeds public fire hydrants. New fire sprinklers and water meters laterals are independent off the main and will become private after the meter or backflow devise. See utility plans sheets 12-14.

Sincerely,
Standridge, Inc.

William Brannan, PE Digitally signed by William Brannan, PE
DN: C=US, E=bill@standridgeinc.com, O=Standridge Inc., CN="William Brannan, PE"
Date: 2026.03.11 15:56:38-07'00'

William Brannan, PE
Senior Project Manager

STANDRIDGE INC

Planning Division
Development Permit Application

WILSONVILLE OREGON

29799 SW Town Center Loop E, Wilsonville, OR 97070
Phone: 503.682.4960 Fax: 503.682.7025
Web: www.ci.wilsonville.or.us

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

Pre-Application Meeting Date: May 26, 2022

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

Applicant:

Name: Bill Brannan, PE, applicant representative
Company: Standridge, Inc.
Mailing Address: 703 Broadway Street, Suite 610
City, State, Zip: Vancouver, WA 98660
Phone: 360.907.4529 Fax:
E-mail: bill@standridgeinc.com

Authorized Representative:

Name: Peter Richter, Vice President of Enterprise Asset Management
Company: Sysco Corporation
Mailing Address: 1390 Enclave Parkway
City, State, Zip: Houston, TX 77077
Phone: 281.584.5999 Fax:
E-mail: peter.richter@sysco.com | brandon.levy@sysco.com

Property Owner:

Name: Peter Richter, Vice President of Enterprise Asset Management
Company: Sysco Portland, Inc.
Mailing Address: 26250 SW Parkway Center Drive
City, State, Zip: Wilsonville, OR 97070-77088
Phone: 281.584.5999 Fax:
E-mail: peter.richter@sysco.com | brandon.levy@sysco.com

Property Owner's Signature:

Peter Richter
Peter Richter (Apr 16, 20[illegible] CDT)

Printed Name: Peter Richter Date: 4/18/24

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

Printed Name: Sita Walker Date: 12/8/25

Site Location and Description:

Project Address if Available: 26120 SW Parkway Avenue, Wilsonville, OR 97070-7788 Suite/Unit
Project Location: 26120 SW Parkway Avenue, Wilsonville, OR 97070-7788
Tax Map #: 31W12 Tax Lot #: 01100, 00401, 00402 County: ☐ Washington ■ **Clackamas**

Request:

Sysco Portland, Inc. ("Applicant") plans to re-zone the site to the Planned Development Industrial Zone — Regionally Significant Industrial Area (PDI-RSIA) zoning district in the City of Wilsonville and to expand the existing Sysco Warehouse facility, Sysco Portland - Food Distributor & Restaurant Supplies.

Project Type: Class I ☐ Class II ☐ Class III ■

☐ Residential ■ Commercial ☐ Industrial ☐ Other:

Application Type(s):

☐ Annexation	☐ Appeal	☐ Comp Plan Map Amend	☐ Parks Plan Review
☐ Final Plat	☐ Major Partition	☐ Minor Partition	☐ Request to Modify Conditions
☐ Plan Amendment	■ **Planned Development**	☐ Preliminary Plat	■ **Site Design Review**
☐ Request for Special Meeting	☐ Request for Time Extension	■ **Signs** (Class III)	■ **Stage II Final Plan**
■ SROZ/**SRIR Review**	☐ Staff Interpretation	■ **Stage I Master Plan**	☐ Variance
■ **Type C Tree Removal Plan**	☐ Tree Permit (B or C)	☐ Temporary Use	☐ Other (describe)
☐ Villebois SAP	☐ Villebois PDP	☐ Villebois FDP	
■ **Zone Map Amendment**	☐ Waiver(s)	☐ Conditional Use	

WILSONVILLE
OREGON

PROPERTY OWNER ACKNOWLEDGEMENT FORM

By signing below, I certify that I am the property owner for the application in question and that the applicant, Standridge Inc., has my permission to submit this application for the property located at:

Site Address: 26120 SW Parkway Avenue, Wilsonville, OR 97070-7788

Tax Map #: 31W12 Tax Lot: 01100 Section: 12

I understand the application will not be deemed complete without this documentation.
I understand that submittal of this application does not entitle the applicant to engage in the work applied for until such an application is approved, the plan approval is issued, and the specified appeal period has passed. I also understand that all work must be performed in compliance with all applicable state, federal, and local laws, ordinances and regulations.

Property Owner's Signature:

Peter Richter

Peter Richter (Apr 18, 2024 11:33 CDT)

Printed Name: Peter Richter on behalf of Sysco Portland, Inc. Date: 4/18/24

Property Owner Contact Information:

Company (if applicable): Sysco Portland, Inc.

Mailing Address: 26250 SW Parkway Center Drive

City, State, Zip: Wilsonville, OR 97070-77088

Phone: 291.584.5999 E-mail: brandon.levy@sysco.com peter.richter@sysco.com | jon.smith@sysco.com

Development-Permit-Application

Final Audit Report 2024-04-18

Created:	2024-04-09
By:	Jon Smith (Jon.Smith1@sysco.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAA6PWzpoFr5-9vePvVmGKWvgx3_Ey-sq0I

"Development-Permit-Application" History

Document created by Jon Smith (Jon.Smith1@sysco.com)
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Signer peter.richter@sysco.com entered name at signing as Peter Richter
2024-04-18 - 4:33:07 PM GMT

Document e-signed by Peter Richter (peter.richter@sysco.com)
Signature Date: 2024-04-18 - 4:33:09 PM GMT - Time Source: server

Agreement completed.
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SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN

CITY OF WILSONVILLE

March 11, 2026

APPLICANT & PROPERTY OWNER:
Sysco Portland, Inc.
2650 SW Parkway Center Drive
Wilsonville, OR 97070-7788
Contact: Jon Smiht, Real Estate Transaction Coordinator
Email: Jon.Smith1@sysco.com

CONTACT:
Standridge Inc.
703 Broadway, Suite 610
Vancouver, WA 98660
Contact: Laura Standridge
Phone: 360.907.4529
Email: Laura@StandridgeInc.com

SDI Project #: SYS001

STANDRIDGE INC
PLANNING | ENGINEERING | SURVEYING

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D. Tree Protection Plan
E. Significant Resource Impact Report
F. Geotechnical Engineering Report
G. Soils Map
H. Preliminary (Subdivision) Title Report
I. Preliminary Hydrology Report
J. Existing Drainage Basin Map
K. Proposed Drainage Basin Map
L. WES BMP Sizing Tool Report
M. Preliminary Downstream Analysis
N. Stormwater O&M
O. BPA Right-of-Way Agreement
P. TVF&R Service Provider Letter (SPL)
Q. Republic Service SPL
R. Luminary Cutsheets

I. PROPOSED DEVELOPMENT AND EXISTING CONDITIONS

Sysco Portland, Inc. ("Applicant") plans to re-zone the site to the Planned Development Industrial Zone — Regionally Significant Industrial Area (PDI-RSIA) zoning district in the City of Wilsonville and to expand the existing Sysco Warehouse facility, Sysco Portland - Food Distributor & Restaurant Supplies. The site is located within the northeast intersection of SW Parkway Avenue and SW Parkway Center Drive at 26120 SW Parkway Avenue, Wilsonville, OR 97070-7788. The site location is further identified as Property Account Number 00805043, within the Northwest Quarter of Section 12, Township 3 South, Range 1 West of the Willamette Meridian, Tax Lot 01100 (site).

Construction is anticipated to commence in 2027 upon the receipt of the necessary development permits and approvals.

The existing site is developed with a detached single-family residential house pad. The site has gradual slopes and is sparsely vegetated with groundcover and a treed area near the northeast portion of the site.

Surrounding area zoning is primarily Planned Development Industrial Zone (PDI) which allows food processing uses. Immediately adjacent to the east is the existing permitted Sysco Portland, Inc. food processing plant. Zoning to the north, across SW Parkway Drive is designated Planned Development Commercial (PDC). Existing uses included within the PDC-zoned property include the existing commercial (Target and Costco Wholesale) and a fuel station (Costco Gas Station). West of the property is transportation infrastructure including SW Parkway Avenue and the Interstate-5 corridor.

The existing site is surrounded by established industrial and commercial developments within the I-5 corridor. The site has not been used for agricultural purposes since 2008. This proposal includes a use that will bring the 2017 City Zoning Map, which designates the site as Future Development Agricultural-Holding (FDA-H), into conformance with the 2019 Comprehensive Plan which designates the site for industrial use. Industrial use is most compatible with existing uses in the surrounding area.

II. CONFORMANCE WITH APPROVAL REVIEW CRITERIA

This proposal has been designed in conformance with the requirements contained within the City of Wilsonville's Comprehensive Plan, Policy 4.1.3 - Industrial Development in addition to the City's Development Code (herein after interchangeably referred to as WC or Zoning Code). The subsequent narrative addresses this proposal's compliance with all *applicable* conditions for approval for the proposed development based on the requirements of the City's Comprehensive Plan and Development Code.

III. CONFORMANCE WITH THE CITY OF WILSONVILLE COMPREHENSIVE PLAN

Under the provisions of the State of Oregon Goal 2: Land Use Planning, local government needs to have and follow a comprehensive land use plan and implement regulations which forwards state planning goals. The subject proposed development is located within an area identified by the City of Wilsonville's Comprehensive Plan as Industrial. It was added by Ordinance 834 dated April 15, 2019 as part of an Area of Special Concern (Area A) in order to meet an identified industrial land need within the city. This proposal implements the intended use of the site for industrial purposes while also forwarding the conservation of natural areas, provision of adequate opportunities for employment, economic development and energy conservation.

Policy 4.1.3 City of Wilsonville shall encourage light industry compatible with the residential and urban nature of the City.

Response: This proposal specifically will help forward the following implementation measures:

Implementation Measure 4.1.3.a. Develop an attractive and economically sound community.

Response: Landscaping features included with this proposal will enhance the attractiveness of the site as observable from the I-5 corridor and the nearby commercial shopping center located across from SW Parkway Center Drive.

Implementation Measure 4.1.3.b. Maintain high-quality industrial development that enhances the livability of the area and promotes diversified economic growth and a broad tax base.

Response: This proposal will result in employment increases and broaden the tax base with an anticipated initial hiring of seventy-two (72) new positions and contribution of over one-hundred and twenty million dollars ($120,000,000) in sales growth. This new construction will provide for economic long-term growth.

Implementation Measure 4.1.3.e. Site industries where they can take advantage of existing transportation corridors such as the freeway, river, and railroad.

Response: The site is located adjacent to the I-5 corridor and has been designed to utilize the near proximity of the existing transportation corridor.

Implementation Measure 4.1.3.j. All industrial areas will be developed in a manner consistent with industrial planned developments in Wilsonville. Non-industrial uses may be allowed within a Planned Development Industrial Zone, provided that those non-industrial uses do not limit the industrial development potential of the area.

Response: This proposal has been designed to be consistent with industrial planned developments in the City of Wilsonville. Non-industrial uses are not included in this proposal.

IV. CONFORMANCE WITH CITY OF WILSONVILLE – CODE OF ORDINANCES

CHAPTER 4 – PLANNING AND LAND DEVELOPMENT

ZONING

Section 4.117. - Standards Applying to Industrial Developments in any Zone.

(.01) All industrial developments, uses, or activities are subject to performance standards. If not otherwise specified in the Planning and Development Code, industrial developments, uses, and activities shall be subject to the performance standards specified in Section 4.135 (.05) (PDI Zone).

Response: The underlying zoning for the subject property is proposed to be re-zoned from Future Development Agricultural Holding (FDA-H) to Planned Development Industrial-Regionally Significant Industrial Area (PDI-RSIA) with this application. As such, this proposal is subject to the performance standards included in Section 4.135.5.

Section 4.135.5. - Planned Development Industrial—Regionally Significant Industrial Area.

(.01) Purpose. The purpose of the PDI-RSIA Zone is to provide opportunities for regionally significant industrial operations along with a limited and appropriate range of related and compatible uses; to provide the flexibility to accommodate the changing nature of industrial employment centers, to

protect industrially zoned lands for industrial uses, primarily in those areas near significant transportation facilities for the movement of freight and to facilitate the redevelopment of under-utilized industrial sites.

Response: This proposal includes a request to re-zone the site to PDI-RSIA to bring the site into conformance with the Comprehensive Plan designation and allow for the proposed site use.

(.02) The PDI-RSIA Zone shall be governed by Section 4.140, Planned Development Regulations, and as otherwise set forth in this Code.

Response: This proposal has been designed in compliance with Section 4.140. For more information, see the narrative included in response to Planned Development regulations in Section 4.140.

(.03) Uses that are typically permitted:

A. Wholesale houses, storage units, and warehouses.

B. Laboratories, storage buildings, warehouses, and cold storage plants

D. The light manufacturing, simple compounding or processing packaging, assembling and/or treatment of products, cosmetics, drugs, and food products, unless such use is inconsistent with air pollution, excess noise, or water pollution standards.

I. Any use allowed in a PDC Zone or any other light industrial uses provided that any such use is compatible with industrial use and is planned and developed in a manner consistent with the purposes and objectives of Sections 4.130 to 4.140 and is subject to the following criteria:

2. Office Use (as defined in Section 4.001) shall not exceed 20 percent of total floor area within a project site.

Response: This proposal includes uses of subsection A, B, and D. In addition, associated office space which will be included with this proposal will not exceed 20% of the floor area.

J. Residential uses shall not exceed ten percent of total floor area.

Response: Not applicable. This proposal does not include residential uses.

K. Accessory uses, buildings and structures customarily incidental to any of the aforesaid principal permitted uses.

Response: Not applicable. This proposal does not include accessory uses.

L. Temporary buildings or structures for uses incidental to construction work, which buildings or structures shall be removed upon completion or abandonment of the construction work.

Response: This proposal may include temporary structures during construction work. These will be removed at completion of the proposed development.

M. Expansion of a building, structure or use approved prior to October 25, 2004 of up to 20 percent additional floor area and/or ten percent additional land area.

Response: This proposal is an expansion of an existing permitted facility greater than 20 percent on an adjacent parcel.

N. Other similar uses which in the judgment of the Planning Director are consistent with the purpose of the PDI-RSIA Zone.

Response: This proposal includes an outright permitted use within the PDI-RSIA Zone.

(.04) Prohibited uses:

A. Retail operations exceeding 3,000 square feet of area for sales, service area or storage area for retail inventory in a single building, or 20,000 square feet of sales, service or storage area for multiple buildings, except training facilities whose primary purpose is to provide training to meet industrial needs.

B. Any use or activity that violates the performance standards specified in Subsection 4.135.5(.06), below.

Response: Not applicable.

(.05) Block and Access Standards. The PDI-RSIA Zone shall be subject to:

A. The same block and access standards as the PDC Zone [Section 4.131(.02) and (.03)] for properties located outside of the Coffee Creek Industrial Design Overlay District; or

B. The access and block size standards in Section 4.134 for those properties located within the Coffee Creek Industrial Design Overlay District.

Response: The site is located outside the Coffee Creek Industrial Design Overlay. Section 4.131.03A of the PDC Zone establishes a maximum spacing of 530 feet for *local access streets*. The proposed development does not include new local streets; instead, two new private driveways are proposed along approximately 2,300 feet of arterial frontage to serve the industrial use. Because the standard applies to local access streets rather than private driveways, it is not applicable. The proposed driveway configuration provides necessary access for industrial operations while limiting the number of access points, thereby reducing turning conflicts and supporting safe and efficient traffic operations.

Section 4.131.03B establishes a maximum block length of 330 feet for pedestrian and bicycle access. This standard is met by providing sidewalk connections from the public right-of-way into the site at intervals not exceeding 330 feet, as shown on the site plans. Traffic operations and access are evaluated in the Traffic Impact Assessment included as Appendix C.

(.06) Performance Standards. The following performance standards apply to all industrial properties and sites within the PDI-RSIA 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 or site.

A. All uses and operations except storage, off-street parking, loading and unloading shall be confined, contained and conducted wholly within completely enclosed buildings, unless outdoor activities have been approved as part of Stage II, Site Design or Administrative Review.

Response: This proposal includes uses that will be exclusively contained in enclosed buildings, apart from off-street parking and loading/unloading.

B. Vibration: Every use shall be so operated that the ground vibration inherently and recurrently generated from equipment other than vehicles is not perceptible without instruments at any boundary line of the property or site on which the use is located.

Response: This proposal includes uses which will be imperceptible without instruments at the boundary line of the property.

C. Emission of odorous gases or other odorous matter in quantities detectable at any time and at any point on any boundary line of the property or site on which the use is located are prohibited.

Response: This proposal does not include uses which would result in the emission of odorous gases or other odorous matter in quantities detectable at any time and at any point on any boundary line of the property or site on which the use is located are prohibited.

D. Any open storage shall comply with the provisions of Section 4.176 and this Section.

Response: This proposal does not include any open storage areas.

E. No building customarily used for night operation, such as a bakery, bottling and distribution plant or other similar use, shall have any opening, other than stationary windows or required fire exits, within 100 feet of any residential district and any space used for loading or unloading commercial vehicles in connection with such an operation shall not be within 100 feet of any residential district.

Response: Not applicable. This site is not located within 100 feet of any residential district.

F. Heat and Glare:

1. *Operations producing heat or glare shall be conducted entirely within an enclosed building.*
2. *Exterior lighting on private property shall be screened, baffled, or otherwise directed away from adjacent residential properties. This is not intended to apply to street lighting.*

Response: Not applicable. The site is not adjacent to a residential property. Lighting will be screened, and any operations producing heat or glare will be located within the proposed building.

G. Dangerous Substances: Any use which involves the presence, storage or handling of any explosive, nuclear waste product or any other substance in a manner which would cause a health or safety hazard on any adjacent land use or site shall be prohibited.

Response: Not applicable. This proposal does not include use of dangerous substances.

H. Liquid and Solid Wastes:

1. *Any storage of wastes which would attract rodents or insects or otherwise create a health hazard shall be prohibited.*
2. *Waste products which are stored outside shall be concealed from view from any property line by a sight-obscuring fence or planting as required by Section 4.176.*
3. *No connection with any public sewer shall be made or maintained in violation of applicable City or State standards.*
4. *No wastes conveyed shall be allowed to or permitted, caused to enter, or allowed to flow into any public sewer in violation of applicable City or State standards.*
5. *All drainage permitted to discharge into a street gutter, caused to enter or allowed to flow into any pond, lake, stream or other natural water course shall be limited to surface waters or waters having similar characteristics as determined by the City, County, and State Department of Environmental Quality.*

6. *All operations shall be conducted in conformance with the City's standards and ordinances applying to sanitary and storm sewer discharges.*

Response: This proposal does not include storage of wastes which would attract rodents or insects or otherwise create a health hazard. All sanitary and storm sewer discharges will be provided for in utility plans designed to City standards and approved as part of the development proposal.

I. *Noise: Noise generated by the use, with the exception of traffic uses from automobiles, trucks and trains, shall not violate any applicable standards adopted by the Oregon Department of Environmental Quality and W.C. 6.204 governing noise control in the same or similar locations.*

Response: This proposal does not involve uses which would generate noise which would violate the Oregon Department of Environmental Quality and W.C. 6.204 governing noise control.

J. *Electrical Disturbances. Except for electrical facilities wherein the City is pre-empted by other governmental entities, electrical disturbances generated by uses within the PDI-RSIA Zone which interfere with the normal operation of equipment or instruments within the PDI-RSIA Zone are prohibited. Electrical disturbances which routinely cause interference with normal activity in abutting residential uses are also prohibited.*

Response: This proposal does not include uses which would interfere with the normal operation of equipment or instruments within the PDI-RSIA Zone are prohibited.

K. *Discharge Standards. There shall be no emission of smoke, fallout, fly ash, dust, vapors, gases or other forms of air pollution that may cause a nuisance or injury to human, plant or animal life or to property. Plans for construction and operation shall be subject to the recommendations and regulations of the State Department of Environmental Quality. All measurements of air pollution shall be by the procedures and with equipment approved by the State Department of Environmental Quality or equivalent and acceptable methods of measurement approved by the City. Persons responsible for a suspected source of air pollution upon request of the City shall provide quantitative and qualitative information regarding the discharge that will adequately and accurately describe operation conditions.*

Response: No discharge of nuisance emissions will result from this proposal.

L. *Open burning is prohibited.*

Response: Open burning is not included in the proposed use.

M. *Storage.*

1. *Outdoor storage must be maintained in an orderly manner at all times.*
2. *Outdoor storage areas shall be gravel surfaced or better and shall be sufficient for the materials being handled and stored. If a gravel surface is not sufficient to meet the performance standards for the use, the area shall be suitably paved.*
3. *Any open storage that would otherwise be visible at the property line shall be concealed from view at the abutting property line by a sight obscuring fence or planting not less than six feet in height.*

Response: Not applicable. This proposal does not include outdoor storage.

N. Landscaping.

1. *Unused property, or property designated for expansion or other future use shall be landscaped and maintained as approved by the Development Review Board. Landscaping for unused property disturbed during construction shall include such materials as plantings of ornamental shrubs, lawns, native plants, and mowed, seeded fieldgrass.*

   Response: All portions of the site will be developed or landscaped during construction per approved plans.

2. *Contiguous unused areas of undisturbed fieldgrass may be maintained in their existing state. Large stands of invasive weeds such as Himalayan blackberry, English ivy, cherry laurel, reed canary grass or other identified invasive species shall be removed and/or mowed at least annually to reduce fire hazard. These unused areas, located with a phased development project or a future expansion cannot be included in the area calculated to meet the landscape requirements for the initial phase(s) of the development.*

   Response: No unused or future expansion areas are proposed as part of the final phase of development. During earlier phases, any contiguous unused fieldgrass areas will be maintained and invasive species will be removed or mowed at least annually to reduce fire hazard.

3. *Unused property shall not be left with disturbed soils that are subject to siltation and erosion. Any disturbed soil shall be seeded for complete erosion cover germination and shall be subject to applicable erosion control standards.*

   Response: No unused areas will be left with exposed or disturbed soils. Any disturbed areas will be stabilized and seeded to achieve erosion control cover in accordance with applicable erosion and sediment control standards.

(.07) Other Standards:

A. Lot Size:

1. *Parcels less than 50 acres in size at the time of adoption of this amended Section: Land divisions may occur in conformance with an approved Master Plan consistent with the requirements of this section. No lot size limit, save and except as shall be consistent with the other provisions of this Code.*
   Response: The site is less than fifty (50) acres and as such is required to be Master Planned.

2. *Parcels 50 acres or greater in size existing on October 25, 2004 may be divided into any number of parcels or lots pursuant to an approved Master Plan provided that at least one lot or parcel of at least 50 acres in size remains. Provided further however, at least 40 percent of the lot or parcel so created has been developed or planned for industrial uses and associated accessory uses and no portion has been developed or planned for the uses listed in Section 4.135.5(03)(I.)(1.) through (3).*

   Response: Not applicable. The site is less than 50 acres.

3. *Uses not subject to the foregoing lot size provisions:*

a. *Public facilities and services*
b. *Separation of a lot or parcel in order to protect a natural resource, to provide a public amenity, or to implement a remediation plan for a site identified by DEQ pursuant to ORS 465.225.*
c. *Separation of a lot or parcel containing a nonconforming use from the remainder of the site in order to improve the utility of the remainder site for the intended industrial uses*
d. *Separation for the purposes of financing when the new lot or parcel is consistent with the approved Master Plan.*
e. *Division of lots or parcels consistent with a Master Plan approved by the City prior to July 1, 2004.*

Response: Not applicable. This proposal does not involve uses that are not subject to the lot size provisions of this section.

B. *Maximum Lot Coverage. No limit save and except as shall be consistent with the other provisions of this Code.*

Response: Approximately 64% of the site will be developed with impervious surfaces. No maximum lot coverage applies to this proposal.

C. *Front Yard Setback. Thirty feet. Except as otherwise provided for properties within the Coffee Creek Industrial Design Overlay District, structures on corner or through lots shall observe the minimum front yard setback on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*

Response: The proposed buildings will be setback greater than 30 feet from the adjacent rights-of-way.

D. *Rear and Side Yard Setback. Thirty feet. Except as otherwise provided for properties within the Coffee Creek Industrial Design Overlay District, structures on corner or through lots shall observe the minimum rear and side yard setback on both streets. Setbacks shall also be maintained from the planned rights-of-way shown on any adopted City street plan.*

Response: This proposal is an expansion of the existing Sysco development. One proposed building extends over an existing property line that runs north-south. A lot line adjustment is planned to resolve this issue. Side and rear setbacks in excess of 30 feet will be provided to exterior boundary property lines.

E. *No setback is required when rear or side yards abut a railroad siding.*

Response: Not applicable. There are no railroads abutting the site.

F. *Corner Vision. Corner lots shall have no lot obstruction to exceed the vision clearance standards of Section 4.177.*

Response: This proposal has been designed in conformance with the vision clearance standards of Section 4.177 which defers to Public Works Standards for intersections.

G. *Off-street Parking and Loading. As required in Section 4.155.*

Response: This proposal has been designed to include off-street parking in conformance with Section 4.155 which requires vehicular parking with a maximum of .5 spaces per 1,000 square feet in addition to one (1) bicycle parking space per 20,000 square feet. As such, a minimum of 130 and a maximum of 216 off-street vehicular parking spaces is required for the approximately 432,000 square feet of building area included in this proposal. In addition, 22 bicycle parking spaces are required. 189 vehicular parking spaces are proposed. Bicycle parking will be wall-mounted inside the buildings. Loading berths are required for industrial facilities at a rate of 3 berths for 100,000 square feet or more. This distribution facility requires more loading spaces than required, so semi-truck parking is not included in these calculations.

H. Signs. As required in Sections 4.156.01 through 4.156.11.

Response: Internal directional signage and monument signs are proposed. Refer to Appendix B – Signage Plan and sections 4.156.01 and 4.156.11.

Section 4.139.00. - Significant Resource Overlay Zone (SROZ) Ordinance.
Section 4.139.03. - Administration.

(.02) Impact Area. The "Impact Area" is the area adjacent to the outer boundary of a Significant Resource within which development or other alteration activities may be permitted through the review of an SRIR (Significant Resource Impact Report). Where it can be clearly determined by the Planning Director that development is only in the Impact Area and there is no impact to the Significant Resource, development may be permitted without SRIR review. The impact area is 25 feet wide unless otherwise specified in this ordinance or by the decision making body. Designation of an Impact Area is required by Statewide Planning Goal 5. The primary purpose of the Impact Area is to ensure that development does not encroach into the SROZ.

Response: As depicted on the Proposed Site Development Plan (Figure 5 of the Significant Impact Report prepared by Pacific Habitat), the proposed project will impact 96,455 sf / 2.21 ac within the SROZ and 33,546 sf / 0.77 ac of the City of Wilsonville SR Impact Area associated with Wetland A; however, as previously stated, Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways), eliminates the SROZ protections for Wetland A. Mitigation, however, must be performed for the 19 native trees that will be eliminated in order to facilitate construction. The project will also permanently impact 5,618 sf / 0.13 ac of the SR buffer associated with Ditch 1, which will not require mitigation. See the Significant Impact Report, included in the application submittal as *Appendix E* for additional information.

(.03) Significant Resource Impact Report (SRIR). For proposed non-exempt development within the SROZ, the applicant shall submit a Significant Resource Impact Report (SRIR) as part of any application for a development permit.

Response: The Significant Impact Report prepared by Pacific Habitat, Inc. is included in the application submittal as *Appendix E*.

(.04) Prohibited Activities. New structures, development and construction activities shall not be permitted within the SROZ if they will negatively impact significant natural resources. Gardens, lawns, application of chemicals, uncontained areas of hazardous materials as defined by DEQ, domestic

animal waste, dumping of materials of any kind, or other activities shall not be permitted within the SROZ if they will negatively impact water quality.
Unauthorized land clearing or grading of a site to alter site conditions is not allowed, and may result in the maximum requirement of mitigation/enhancement regardless of pre-existing conditions.

Response: Development included in this proposal has been designed to include compensatory mitigation which will prevent negative impacts to water quality. The existing drainage ditch on the site, which is designated by the City as a SROZ, was man-made and has been subject to sedimentation and flooding. This proposal includes the a mitigation conveyance channel and mitigation pond with appropriate side slopes which will improve wetland function.

(.05) Habitat-Friendly Development Practices. To the extent practicable, development and construction activities that encroach within the Significant Resource Overlay Zone and/or Impact Area shall be designed, located and constructed to:

1. *Minimize grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;*

   Response: In order to replace the failing drainage detention and conveyance system with the existing drainage ditch, the existing habitat within the on-site drainage ditch will need to be relocated / restored onsite which will result in a higher habitat functional value.

Table NR-2: Habitat-Friendly Development Practices
Part (A) Design and Construction Practices to Minimize Hydrologic Impacts
1. Amend disturbed soils to original or higher level of porosity to regain infiltration and stormwater storage capacity.
2. Use pervious paving materials for residential driveways, parking lots and walkways.
3. Incorporate stormwater management in road right-of ways.
4. Landscape with rain gardens to provide on-lot detention, filtering of rainwater and groundwater re-charge.
5. Use green roofs for runoff reduction, energy savings, improved air quality, and enhanced aesthetics.
6. Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.
7. Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.
8. Use multi-functional open drainage systems in lieu of more conventional curb and gutter systems.
9. Use bioretention cells as rain gardens in landscaped parking lot islands to reduce runoff volume and filter pollutants.
10. Apply a treatment train approach to provide multiple opportunities for storm water treatment and reduce the possibility of system failure.
11. Reduce sidewalk width and grade them such that they drain to the front yard of a residential lot or retention area.

12. Reduce impervious impacts of residential driveways by narrowing widths and moving access to the rear of the site.
13. Use shared driveways.
14. Reduce width of residential streets, depending on traffic and parking needs.
15. Reduce street length, primarily in residential areas, by encouraging clustering and using curvilinear designs.
16. Reduce cul-de-sac radii and use pervious vegetated islands in center to minimize impervious effects, and allow them to be utilized for truck maneuvering/loading to reduce need for wide loading areas on site.
17. Minimize car spaces and stall dimensions, reduce parking ratios, and use shared parking facilities and structured parking.
18. Minimize the number of steam crossings and place crossing perpendicular to stream channel, if possible.

2. *Minimize adverse hydrological impacts on water resources, such as using the practices described in Part (a) of Table NR-2, 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;*

   Response: The proposed project will utilize: Part (A): (3) Incorporate stormwater management in road right-of ways; (4) Landscape with rain gardens to provide on-lot detention, filtering of rainwater and groundwater re-charge; (9) Use bioretention cells as rain gardens in landscaped parking lot islands to reduce runoff volume and filter pollutants. ; (13) Use shared driveways.

Table NR-2: Habitat-Friendly Development Practices
Part (B) Design and Construction Practices to Minimize Impacts on Wildlife Corridors and Fish Passage
1. Carefully integrate fencing into the landscape to guide animals toward animal crossings under, over, or around transportation corridors.
2. Use bridge crossings rather than culverts, wherever possible.
3. If culverts are utilized, install slab, arch or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat.
4. Design stream crossings for fish passage with shelves and other design features to facilitate terrestrial wildlife passage.
5. Extend vegetative cover through the wildlife crossing in the migratory route, along with sheltering areas.

3. *Minimize impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2; and*

Response: The site will utilize: Part (B) (3) If culverts are utilized, install slab, arch or box type culverts, preferably using bottomless designs that more closely mimic stream bottom habitat.

4. *Consider using the practices described in Part (C) of Table NR-2.*

   Response: The site will utilize: Part (C) (1) Use native vegetation throughout the development. ;

   (4) Preserve and maintain existing trees and canopy coverage, and plant trees, where appropriate, to maximize future tree canopy coverage.

Table NR-2: Habitat-Friendly Development Practices
Part (C) Miscellaneous Other Habitat Friendly Design and Construction Practices
1. Use native vegetation throughout the development.
2. Locate landscaping adjacent to SROZ.
3. Reduce light spill-off into SROZ areas from development.
4. Preserve and maintain existing trees and tree canopy coverage, and plant trees, where appropriate, to maximize future tree canopy coverage.

Section 4.139.04. - Uses and Activities Exempt from These Regulations.

A request for exemption shall be consistent with the submittal requirements listed under Section 4.139.06*(.01)(B—I), as applicable to the exempt use and activity.*

(.01) Emergency procedures or emergency activities undertaken which are necessary for the protection of public health, safety, and welfare. Measures to remove or abate hazards and nuisances. Areas within the SROZ that are disturbed because of emergency procedures or activities should be repaired and mitigated.

Response: Not applicable. This proposal does not include emergency procedures or emergency activities.

(.02) Maintenance and repair of buildings, structures, yards, gardens or other activities or uses that were in existence prior to the effective date of these regulations.

Response: Not applicable. This proposal does not involve the maintenance and repair of buildings, structures, yards, gardens or other activities or uses that were in existence prior to the effective date of these regulations.

(.03) Alterations of buildings or accessory structures which do not increase building coverage.

Response: Not applicable. This proposal does not involve alterations of buildings or accessory structures which do not increase building coverage. Instead, this proposal involves the expansion of an existing building in addition to an increase in building coverage at the site.

(.04) The following agricultural activities lawfully in existence as of the effective date of this ordinance:

A. Mowing of hay, grass or grain crops.

B. Tilling, disking, planting, seeding, harvesting and related activities for pasture, tree crops, commercial woodlots, food crops or business crops, provided that no additional lands within the SROZ are converted to these uses after the effective date of this ordinance.

Response: Not applicable. This proposal involves an expansion of an industrial use and as such does not involve agricultural uses.

(.05) Operation, maintenance, and repair of irrigation and drainage ditches, constructed ponds, wastewater facilities, stormwater detention or retention facilities, and water facilities consistent with the Stormwater Master Plan or the Comprehensive Plan.

Response: The southern wetland off site will be maintained per section (.10) below with removal of invasive vegetation. The onsite drainage ditch will be removed.

(.06) Maintenance and repair of streets and utility services within rights-of way, easements, access drives or other previously improved areas.

Response: Not applicable. This proposal does not involve the maintenance or repair of streets and utility services within rights-of-way, easements, access drives or other previously improved areas.

(.07) Normal and routine maintenance and repair of any public improvement or public recreational area regardless of its location.

Response: Not applicable. This proposal does not involve the normal and routine maintenance and repair of any public improvement or public recreational area.

(.08) The construction of new roads, pedestrian or bike paths into the SROZ in order to provide access to the sensitive area or across the sensitive area, provided the location of the crossing is consistent with the intent of the Wilsonville Comprehensive Plan. Roads and paths shall be constructed so as to minimize and repair disturbance to existing vegetation and slope stability.

Response: Not applicable. This proposal does not involve the construction of new roads, pedestrian or bike paths in order to provide access to or across the sensitive area.

(.09) Maintenance and repair of existing railroad tracks and related improvements.

Response: Not applicable. This proposal does not involve the maintenance or repair of existing railroad tracks and related improvements.

(.10) The removal of invasive vegetation such as Himalayan Blackberry, English Ivy, Poison Oak, Scots (Scotch) Broom or as defined as invasive in the Metro Native Plant List.

Response: This proposal includes the removal of invasive species described in this section in areas associated with the ditch relocation / restoration. While this is an exempt activity, it does not exempt the entire proposal from these regulations.

(.11) The planting or propagation of any plant identified as native on the Metro Native Plant List. See Wilsonville Planning Division to obtain a copy of this list.

Response: Not applicable. This proposal does not involve the planting or propagation of any plant identified as native on the Metro Native Plant List within the on-site drainage ditch.

(.12) Grading for the purpose of enhancing the Significant Resource as approved by the City.

Response: Not applicable. This proposal involves the filling and removal of all habitat area associated with the on-site drainage ditch.

(.13) Enhancement of the riparian corridor or wetlands for water quality or quantity benefits, fish, or wildlife habitat as approved by the City and other appropriate regulatory authorities.

Response: Mitigation included in this proposal will facilitate the enhancement of existing wetland habitat area within the Beckman Creek watershed area which has a higher functional habitat function than the existing on-site ditch area. While this proposal will enhance water quality, it is not exempt from the entire proposal from these regulations.

(.14) Flood control activities pursuant to the Stormwater Master Plan, save and except those stormwater facilities subject to Class II Administrative Review, as determined by the Planning Director, to ensure such facilities meet applicable standards under federal, state and local laws, rules and regulations.

Response: This proposal involves the provision of a flood control activity by filling the existing on-site ditch in its entirety. The off-site enhancement of the riparian corridor or wetlands associated with the Beckman Creek watershed area for water quality or quantity benefits, fish, or wildlife habitat as approved by the City and other appropriate regulatory authorities.

(.15) Developments that propose a minor encroachment into the Significant Resource Overlay Zone. The purpose of this adjustment would be to allow for minor encroachments of impervious surfaces such as accessory buildings, eave overhangs, building appurtenances, building access and exiting requirements or other similar feature. The total adjustment shall not exceed 120 square feet in cumulative area.

Response: Not applicable. This proposal involves encroachment into the Significant Resource Overlay Zone with the complete fill of the on-site drainage ditch.

(.16) The expansion of an existing single family dwelling or duplex not exceeding 600 square feet in area. The expansion of an existing single family dwelling or duplex or structures that are accessory to a single family dwelling or duplex inside the SROZ, provided that the following criteria have been satisfied. An SRIR is not required to evaluate and reach a decision on the issuance of a permit to expand a single-family residence under this paragraph.

A. The expansion of a single family or duplex structure or improvement (including decks and patios) shall not be located any closer to the stream or wetland area than the existing structure or improvement; and
B. The coverage of all structures within the SROZ on the subject parcel shall not be increased by more than 600 square feet, based on the coverage in existence prior to the effective date of this ordinance; and,
C. The applicant must obtain the approval of an erosion and sediment control plan from the City's Building and Environmental Services Divisions; and,
D. No part of the expansion is located within the Metro UGMFP Title 3 Water Quality Area.

Response: Not applicable. This proposal involves an industrial use and as such does not involve residential use.

(.17) New Single-Family Dwelling or Duplex. The construction of a new single family dwelling or duplex, including a duplex created through conversion of an existing detached single-family dwelling, is exempt unless the building encroaches into the Impact Area and/or the SROZ.

A. If the proposed building encroaches only into the Impact Area then an abbreviated SRIR may be required as specified in Section 4.139.05, unless it can be clearly determined by the Planning Director that the development proposal will have no impact on the Significant Resource. The primary purpose of the Impact Area is to insure that development does not encroach into the SROZ. Development otherwise in compliance with the Planning and Land Development Ordinance may be authorized within the Impact Area.

B. If the proposed building encroaches into the SROZ, then a complete or abbreviated SRIR report is required.

Response: Not applicable. This proposal does not include residential uses.

(.18) Private or public service connection laterals and service utility extensions.

Response: This section is applicable to the proposed development.

(.19) A Stage II development permit or other development permits issued by the City and approved prior to the effective date of this ordinance.

Response: This section is applicable to the proposed development.

(.20) The installation of public streets and utilities specifically mapped within a municipal utility master plan, the Transportation Systems Plan or a capital improvement plan.

Response: Not applicable. This proposal does not include the installation of public streets and utilities specifically mapped within a municipal utility master plan, the Transportation Systems Plan or a capital improvement plan.

(.21) Structures which are non-conforming to the standards of this Section may be re-built in the event of damage due to fire or other natural hazard subject to Sections 4.189—4.192 of the Planning and Land Development Ordinance, provided that the structure is placed within the same foundation lines (See Figure NR-6.). An SRIR is not required to evaluate and reach a decision on the issuance of a permit to replace a structure subject to this paragraph.

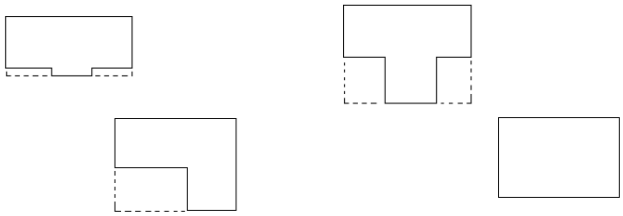

Figure NR-6. Building Line Examples

Response: Not applicable. This proposal does not involve the reconstruction of non-conforming structures.

(.22) Any impacts to resource functions from the above excepted activities, such as gravel construction pads, erosion/sediment control materials or damaged vegetation, shall be mitigated using appropriate repair or restoration/enhancement techniques.

Response: The anticipated resource impacts resulting from the removal of invasive vegetation and flood control activities shall be mitigated within the City designated Beckman Creek watershed area.

Section 4.139.05. - Significant Resource Overlay Zone Map Verification.
The map verification requirements described in this Section shall be met at the time an applicant requests a building permit, grading permit, tree removal permit, land division approval, or other land use decision. Map verification shall not be used to dispute whether the mapped Significant Resource Overlay Zone boundary is a significant natural resource. Map refinements are subject to the requirements of Section 4.139.10(.01)(D).

(.01) In order to confirm the location of the Significant Resource Overlay Zone, map verification shall be required or allowed as follows:

A. Development that is proposed to be either in the Significant Resource Overlay Zone or less than 100 feet outside of the boundary of the Significant Resource Overlay Zone, as shown on the Significant Resource Overlay Zone Map.

Response: The site has a Significant Resource Overlay Zone (SROZ), therefore a map verification pursuant to the requirements of this Section apply.

B. A lot or parcel that:

1. Either contains the Significant Resource Overlay Zone, or any part of which is less than 100 feet outside the boundary of the Significant Resource Overlay Zone, as shown on the Significant Resource Overlay Zone Map; and

2. Is the subject of a land use application for a partition, subdivision, or any land use application that the approval of which would authorize new development on the subject lot or parcel.

Response: The site contains a SROZ and is the subject of a land use application that the approval of which would authorize new development on the subject lot.

(.02) An application for Significant Resource Overlay Zone Map Verification may be submitted even if one is not required pursuant to Section 4.139.05(.01).

Response: An application for a Significant Resource Overlay Zone Map Verification is required as part of the land use application since there is no previously approved Significant Resource Overlay Zone Map Verification for the subject property.

(.03) If a lot or parcel or parcel is subject to Section 4.139.05(.01), an application for Significant Resource Overlay Zone Map Verification shall be filed concurrently with the other land use applications referenced in Section 4.139.05(.01)(B)(2) unless a previously approved Significant Resource Overlay Zone Map Verification for the subject property remains valid.

Response: This submittal package includes a Significant Resource Overlay Zone Map Verification application for concurrent review.

(.04) An applicant for Significant Resource Overlay Zone Map Verification shall use one or more of the following methods to verify the Significant Resource Overlay Zone boundary:

A. The applicant may concur with the accuracy of the Significant Resource Overlay Zone Map of the subject property;
B. The applicant may demonstrate a mapping error was made in the creation of the Significant Resource Overlay Zone Map; and
C. The applicant may demonstrate that the subject property was developed lawfully prior to June 7, 2001.

Response: The Significant Resource Overlay Zone Map Verification application included in this submittal concurs with the accuracy of the Significant Resource Overlay Zone Map of the subject property.

(.05) The Planning Director shall determine the location of any Significant Resource Overlay Zone on the subject property by considering information submitted by the applicant, information collected during any site visit that may be made to the subject property, information generated by Significant Resource Overlay Zone Map Verification that has occurred on adjacent properties, and any other relevant information that has been provided.

Response: The Applicant acknowledges that the Planning Director shall determine the location of any Significant Resource Overlay Zone on the subject property.

(.06) For applications filed pursuant to Section 4.139.05(.04)(A) and (C), a Significant Resource Overlay Zone Map Verification shall be consistent with the submittal requirements listed under Section 4.139.06(.01)(B-H).

Response: This application is filed pursuant to Section 4.139.05(.04)(A) and as such includes all submittal requirements contained within Section 4.139.06(.01)(B-H)

(.07) For applications filed pursuant to Section 4.139.05(.04)(B), a Significant Resource Overlay Zone Map Verification shall be consistent with the submittal requirements listed under Section 4.139.06(.02)(D)(1).(Ord. No. 674, 11-16-2009)

Response: This proposal is subject to a Standard Significant Resource Impact Report (SRIR) filed pursuant to Section 4.139(.04)(B), therefore, the submittal components contain the items listed under Section 4.139.06(.02)(D)(1).

Section 4.139.06. - Significant Resource Impact Report (SRIR) and Review Criteria.

A Significant Resource Impact Report (SRIR) is a report that delineates specific resource boundaries and analyzes the impacts of development within mapped significant resource areas based upon the requirements of this Section. An SRIR is only required for non-exempt development that is located within the Significant Resource Overlay Zone and/or its associated 25 foot Impact Area.

The Significant Resource Overlay Zone Map identifies areas that have been classified as significant natural resources. The preparation of the Significant Resource Overlay Zone Map did not include specific field observations of every individual property. These maps are designed to be specific enough to determine whether further environmental review of a development proposal is necessary. If any portion of the development or alteration of the land (except those exempted by this Section) is located within the Significant Resource Overlay Zone boundary or the identified Impact Area, then an SRIR is required before

any development permit can be issued. Where it can be clearly determined by the Planning Director that development is only in the Impact Area and there is no impact to the Significant Resource, development may be permitted without SRIR review.

The Planning Director may consult with a professional with appropriate expertise to evaluate an applicant's SRIR prepared under this Section or may rely on appropriate staff expertise, in order to properly evaluate the report's conclusions.

(.01) Abbreviated SRIR Requirements. It is the intent of this subsection to provide a user-friendly process for the applicant. Only the materials necessary for the application review are required. At the discretion of the Planning Director, an abbreviated SRIR may be submitted for certain small-scale developments such as single family dwellings, additions to single family dwellings, minor additions and accessory structures. The following requirements shall be prepared and submitted as part of the abbreviated SRIR evaluation:
[…]

Response: Not applicable. This proposal requires a Standard SRIR.

(.02) Application Requirements for a Standard SRIR. The following requirements must be prepared and submitted as part of the SRIR evaluation for any development not included in paragraph A above:

- *A. A Site Development Permit Application must be submitted in compliance with the Planning and Land Development Ordinance.*
- *B. The SRIR shall be conducted and prepared by a natural resource professional knowledgeable and qualified to complete such a report.*
- *C. The qualifications of the person or persons preparing each element of the analysis shall be included with the SRIR.*
- *D. The SRIR shall include the following:*
  - *1. Physical Analysis. The analysis shall include, at a minimum:*
    - *a. Soil types;*
    - *b. Geology;*
    - *c. Hydrology of the site;*
    - *d. Outline of any existing features including, but not limited to, structures, decks, areas previously disturbed, and existing utility locations;*
    - *e. Location of any wetlands or water bodies on the site and the location of the stream centerline and top-of-bank;*
    - *f. Within the area proposed to be disturbed, the location, size and species of all trees that are more than six inches DBH. Trees outside the area proposed to be disturbed may be individually shown or shown as drip line with an indication of species type or types;*
    - *g. A property survey together with topography shown by contour lines prepared at two-foot vertical intervals. Five-foot vertical intervals may be allowed for steep sloped areas. The survey shall be prepared by an Oregon Registered Land Surveyor or Civil Engineer;*
    - *h. The location of the SROZ and Impact Area boundaries;*
    - *i. A minimum of three slope cross-section measurements transecting the site, equally spaced at no more than 100-foot increments. The measurements should be made perpendicular to the stream;*
    - *j. A map that delineates the Metro UGMFP Title 3 Water Quality Resource Area boundary (using Metro Title 3 field observed standards);*

k. A map that delineates the Goal 5 safe harbor boundary (using the standards found within the Oregon Administrative Rule OAR 660-23(1996));
l. The existing site significant resource conditions shall be determined and identified by a natural resource professional; and
m. Current photos of site conditions shall be provided to supplement the above information.

Response: Current photos of site conditions are included in the Standard SRIR as Appendix E. In addition, a physical analysis including soil types, geology, hydrology of the site, location of the on-site drainage ditch (wetland).

2. *The analysis shall include development recommendations including grading procedures, soil erosion control measures, slope stabilization measures, and methods of mitigating hydrologic impacts. For projects that affect possible wetlands, a copy of the Local Wetland Inventory (LWI) map pertaining to the site shall be provided. Notice of the proposal shall be given to the Oregon Division of State Lands and the Army Corp of Engineers.*

   Response: Appendix E includes grading procedures, erosion and sediment control measures, slope considerations, and hydrologic mitigation methods (SRIR, Appendix E, pp. 8–10), including temporary construction controls and permanent stormwater facilities to manage post-development runoff.

3. *Ecological Analysis. The Ecological Analysis shall include a map, using the Physical Analysis map as a base, showing the delineated boundaries and coverage of wetlands, riparian corridors, and wildlife habitat resources identified on the site.*

   Response: Appendix E includes an Ecological Analysis with mapping that delineates wetlands, drainage features, SROZ boundaries, and impact areas based on field investigation by a qualified natural resource professional (Appendix E, pp. 7–9).

   a. Wetland boundaries shall be delineated using the method currently accepted by the Oregon Division of State Lands and the US Army Corps of Engineers. Riparian boundaries shall be delineated using the riparian corridor descriptions in this ordinance. Boundaries of mapped Goal 5 wildlife habitat shall be verified by field observation.
   Response: Wetland boundaries were delineated using methods accepted by the Oregon Division of State Lands and the U.S. Army Corps of Engineers, and riparian and wildlife habitat boundaries were verified through field observation and mapping, as documented in Appendix E (pp. 8–9).

   b. The analysis shall include an inventory that lists and describes the native and ornamental dominant and sub-dominant groundcover, shrub and tree species occurring on the site and wildlife observed during at least one site visit (specify date). The report shall also include recommended measures for minimizing the adverse impacts of the proposed development on unique and/or significant features of the ecosystem. The analysis shall include a report that discusses the ecological functions and values of the SROZ area, discussing each parameter listed below. The discussion shall be based on actual field observations and data obtained by a natural resource professional.

Response: Appendix E includes an inventory of dominant and sub-dominant vegetation communities and wildlife observed during site visits and identifies existing disturbance and recommended impact minimization measures (Appendix E, pp. 18–19).

c. *Wetlands (based on evaluation criteria in the Oregon Freshwater Wetlands Assessment Methodology (OFWAM), Oregon Division of State Lands):*
   i. *Wildlife habitat diversity*
   ii. *Fish habitat*
   iii. *Water quality protection*
   iv. *Hydrologic control*

   Response: Wetland functions including wildlife habitat, water quality protection, and hydrologic control were evaluated using OFWAM criteria, with functions generally rated low to moderate due to artificial origin and limited native vegetation (Appendix E, pp. 7–9).

d. *Wildlife Habitat (includes riparian corridors and upland forested area):*
   i. *Wildlife habitat diversity*
   ii. *Water quality protection*
   iii. *Ecological integrity*
   iv. *Connectivity*
   v. *Uniqueness*

   Response: Appendix E evaluates wildlife habitat functions including diversity, water quality protection, ecological integrity, connectivity, and uniqueness. The analysis concludes that these functions are low due to fragmentation, proximity to I-5, industrial development, and limited native habitat features.

e. *Riparian Corridors 1. Stream-riparian ecosystems:*
   i. *Presence and abundance of Large Woody Debris (LWD) in and adjacent to stream.*
   ii. *Tree/shrub canopy stream shade production (water temperature and aquatic plant growth control).*
   iii. *Erosion and sediment control by riparian vegetation.*
   iv. *Water quality protection by riparian vegetation.*
   v. *River-floodplain ecosystem (Willamette River).*
   vi. *Presence of functional floodplain (inundated annually).*
   vii. *Type and condition of functional floodplain vegetation.*
   viii. *Use of river-floodplain by ESA-listed species.*
   ix. *Role as wildlife corridor connecting significant wildlife habitat areas.*

   Response: Appendix E documents limited riparian corridor function, with minimal canopy cover, limited large woody debris, and no functional floodplain, based on field observations (Appendix E, pp. 19–20).

4. *Mitigation and Enhancement Proposal. The applicant must propose a Significant Resource mitigation and enhancement plan as part of the SRIR. The mitigation and enhancement shall increase the natural values and quality of the remaining Significant Resource lands located*

on the site or other location as approved by the City. The mitigation and enhancement proposal shall conform to the mitigation standards identified in this Section.

Response: Appendix E includes a mitigation and enhancement plan providing wetland creation and enhancement at approximately a 1.5:1 area ratio, with native planting and buffer enhancement to improve long-term ecological function (Appendix E, pp. 8 and 19–21).

5. *Waiver of Documentation: The Planning Director may waive the requirement that an SRIR be prepared where the required information has already been made available to the City, or may waive certain provisions where the Director determines that the information is not necessary to review the application. Such waivers may be appropriate for small-scale developments and shall be processed under Administrative Review. Where such waivers are granted by the Planning Director, the Director shall clearly indicate the reasons for doing so in the record, citing the relevant information relied upon in reaching the decision.*

   Response: The Applicant has prepared and submitted a complete Significant Resource Impact Report and does not anticipate requesting a waiver of SRIR documentation.

(.03) SRIR Review Criteria. In addition to the normal Site Development Permit Application requirements as stated in the Planning and Land Development Ordinance, the following standards shall apply to the issuance of permits requiring an SRIR. The SRIR must demonstrate how these standards are met in a manner that meets the purposes of this Section.

A. *Except as specifically authorized by this Code, development shall be permitted only within the Area of Limited Conflicting Use (see definition) found within the SROZ;*

Response: Appendix E identifies the SROZ and Area of Limited Conflicting Use and demonstrates that development is located consistent with code allowances (Appendix E, pp. 7–9).

B. *No more than five percent of the Area of Limited Conflicting Use (see definition) located on a property may be impacted by a development proposal. On properties that are large enough to include Areas of Limited Conflicting Use on both sides of a waterway, no more than five percent of the Area of Limited Conflicting Use on each side of the riparian corridor may be impacted by a development proposal. This condition is cumulative to any successive development proposals on the subject property such that the total impact on the property shall not exceed five percent;*

   Response: Appendix E quantifies impacts to the Area of Limited Conflicting Use and demonstrates compliance with the maximum five percent cumulative impact standard (Appendix E, pp. 8–9).

C. *Mitigation of the area to be impacted shall be consistent with Section 4.139.06 of this Code and shall occur in accordance with the provisions of this Section;*

   Response: Mitigation measures are consistent with Section 4.139.06 and include wetland creation, enhancement, and buffer planting as described in Appendix E (pp. 19–21).

D. *The impact on the Significant Resource is minimized by limiting the degree or magnitude of the action, by using appropriate technology or by taking affirmative steps to avoid, reduce or mitigate impacts;*

Response: Impacts are minimized through site layout, avoidance of higher-value areas, and use of existing disturbed corridors, as documented in Appendix E (pp. 7–9).

E. *The impacts to the Significant Resources will be rectified by restoring, rehabilitating, or creating enhanced resource values within the "replacement area" (see definitions) on the site or, where mitigation is not practical on-site, mitigation may occur in another location approved by the City;*

Response: Appendix E identifies on-site restoration and enhancement areas that replace or improve resource functions through wetland creation and native planting (Appendix E, pp. 19–21)

F. *Non-structural fill used within the SROZ area shall primarily consist of natural materials similar to the soil types found on the site;*

Response: Appendix E confirms that any non-structural fill within the SROZ will consist of local, site-compatible soils similar to existing soil conditions (Appendix E, p. 22).

G. *The amount of fill used shall be the minimum required to practically achieve the project purpose;*
Response: Project objectives require a complete removal of Wetland A/ drainageway and its SROZ. As discussed in the Significant Impact Report, the replacement wetland and buffer functions and values will be substantially higher than those of the existing wetland.

H. *Other than measures taken to minimize turbidity during construction, stream turbidity shall not be significantly increased by any proposed development or alteration of the site; and*

Response: Turbidity downstream will be minimized by the implementation of construction stormwater best management practices (BMPs) pursuant in compliance with federal, state and local regulations.

I. *Appropriate federal and state permits shall be obtained prior to the initiation of any activities regulated by the U.S. Army Corps of Engineers and the Oregon Division of State Lands in any jurisdictional wetlands or water of the United States or State of Oregon, respectively.*

Response: All appropriate federal and state permits will be obtained.

Section 4.139.07. - Mitigation Standards.
The following mitigation standards apply to significant wildlife habitat resource areas for encroachments within the Area of Limited Conflicting Uses, and shall be followed by those proposing such encroachments. Wetland mitigation shall be conducted as per permit conditions from the US Army Corps of Engineers and Oregon Division of State Lands. While impacts are generally not allowed in the riparian corridor resource area, permitted impacts shall be mitigated by: using these mitigation standards if the impacts are to wildlife

habitat values; and using state and federal processes if the impacts are to wetland resources in the riparian corridor. Mitigation is not required for trees lost to a natural event such as wind or floods.

(.01) The applicant shall review the appropriate Goal 5 Inventory Summary Sheets for wildlife habitat (i.e. upland) contained in the City of Wilsonville Natural Resource Inventory and Goal 5/Title 3/ESA Compliance and Protection Plan ("Compliance and Protection Plan" - May 2000) to determine the resource function ratings at the time the inventory was conducted.(.02)The applicant shall prepare a Mitigation Plan document containing the following elements:

A. The Mitigation Plan shall contain an assessment of the existing natural resource function ratings at the time of the proposed encroachment for the site compared to the function ratings recorded in the Compliance and Protection Plan.

Response: Appendix E evaluates existing natural resource function ratings at the time of the proposed encroachment and compares those conditions to the Goal 5 Inventory Summary Sheets contained in the City's Compliance and Protection Plan (Appendix E, pp. 7–9).

B. The Mitigation Plan shall contain an assessment of the anticipated adverse impacts to significant wildlife habitat resources. The impact assessment shall discuss impacts by resource functions (as listed in the Compliance and Protection Plan, May 2000) for each resource type, and shall map the area of impact (square feet or acres) for each function.

Response: Appendix E includes an assessment of anticipated impacts to significant wildlife habitat resources, including discussion by resource function and mapping of impact areas in square feet and acres (Appendix E, pp. 8–9).

C. The Mitigation Plan shall present a proposed mitigation action designed to replace the lost or impacted resource functions described in Subsection B, above. The mitigation plan shall be designed to replace lost or impacted functions by enhancement of existing resources on, or off the impact site, or creation of new resource areas.

Response: Appendix E presents a mitigation plan designed to replace or improve impacted resource functions through wetland creation, buffer enhancement, and native planting within the replacement area (Appendix E, pp. 19–21).

D. For mitigation projects based on resource function enhancement, the area ratios presented in Table NR-2 shall be applied. These ratios are based on the resource function ratings at the time of the proposed action, as described in Subsection A, above. The mitigation action shall be conducted on the appropriate size area as determined by the ratios in Table NR-2.

Response: Appendix E applies mitigation area ratios consistent with Table NR-2 based on the existing resource function ratings at the time of impact, resulting in mitigation provided at approximately a 1.5:1 area ratio (Appendix E, p. 8).

E. The Mitigation Plan shall include a planting plan containing the following elements:

1. Required Plants and Plant Densities. All trees, shrubs and ground cover shall be native vegetation. An applicant shall comply with Section 4.139.06(.02)(E)(1)(a) or (b), whichever results in more tree plantings, except where the disturbance area is one acre or more, the applicant shall comply with Section 4.139.06(.02)(E)(1)(b).

a. *The mitigation requirement shall be calculated based on the number and size of trees that are removed from the site. Trees that are removed from the site shall be replaced as shown in Table NR-3. Conifers shall be replaced with conifers. Bare ground shall be planted or seeded with native grasses or herbs.*

Table NR-3: Tree Replacement Requirements	
Size of Tree to be Removed (inches in diameter at breast height)	*Number of Trees and Shrubs to be Planted*
6 to 12	*2 trees and 3 shrubs*
over 12 to 18	*3 trees and 6 shrubs*
over 18 to 24	*5 trees and 12 shrubs*
over 24 to 30	*7 trees and 18 shrubs*
Over 30	*10 trees and 30 shrubs*

Response: Appendix E documents tree removal impacts and replacement planting quantities consistent with Table NR-3, including replacement of removed trees with native trees and shrubs and revegetation of disturbed areas with native groundcover (Appendix E, pp. 19–21).

b. *The mitigation requirement shall be calculated based on the size of the disturbance within the Significant Resource Overlay Zone. Native trees and shrubs shall be planted at a rate of five trees and 25 shrubs per every 500 square feet of disturbance area (calculated by dividing the number of square feet of disturbance area by 500, and then multiplying that result times five trees and 25 shrubs, and rounding all fractions to the nearest whole number of trees and shrubs; for example, if there will be 330 square feet of disturbance area, then 330 divided by 500 equals 0.66, and 0.66 times five equals 3.3, so three trees shall be planted, and 0.66 times 25 equals 16.5, so 17 shrubs shall be planted). Bare ground shall be planted or seeded with native grasses or herbs.*

Response: Appendix E includes mitigation planting densities calculated based on disturbance area within the SROZ, meeting or exceeding the required rate of five trees and 25 shrubs per 500 square feet of disturbance (Appendix E, pp. 19–21).

2. *Plant Size. Replacement trees and shrubs shall be at least one-gallon in size and shall be at least 12 inches in height.*

Response: Appendix E specifies that replacement trees and shrubs will be a minimum one-gallon size and at least 12 inches in height (Appendix E, p. 20).

3. *Plant Spacing. Trees shall be planted between eight and 12 feet on center, and shrubs shall be planted between four and five feet on center, or clustered in single species groups of no more than four plants, with each cluster planted between eight and ten feet on center. When planting near existing trees, the drip line of the existing tree shall be the starting point for plant spacing measurements.*

Response: Appendix E includes planting plans showing tree and shrub spacing consistent with code standards, including spacing relative to existing tree drip lines (Appendix E, p. 20).

4. *Plant Diversity. Shrubs shall consist of at least two different species. If five trees or more are planted, then no more than 50 percent of the trees may be of the same genus.*

   Response: Appendix E specifies use of multiple native shrub species and limits dominance of any single tree genus in accordance with code requirements (Appendix E, p. 20).

5. *Invasive Vegetation. Invasive non-native or noxious vegetation shall be removed within the mitigation area prior to planting, and shall be removed or controlled for five years following the date that the mitigation planting is completed.*

   Response: Appendix E identifies removal of invasive vegetation within mitigation areas prior to planting and ongoing control for a minimum five-year monitoring period (Appendix E, p. 21).

6. *Mulching and Browse Protection. Mulch shall be applied around new plantings at a minimum of three inches in depth and 18 inches in diameter. Browse protection shall be installed on trees and shrubs. Mulching and browse protection shall be maintained during the two-year plant establishment period.*

   Response: Appendix E specifies mulching depths and browse protection measures to be installed and maintained during the plant establishment period (Appendix E, p. 21).

7. *Tree and Shrub Survival. Trees and shrubs that die shall be replaced in kind to the extent necessary to ensure that a minimum of 80 percent of the trees and shrubs initially required shall remain alive on the fifth anniversary of the date that the mitigation planting is completed.*

   Response: The applicant acknowledges the requirement to replace failed plantings to achieve a minimum 80 percent survival rate at year five, as outlined in Appendix E (p. 21).

(.03) Proposals for mitigation action where new natural resource functions and values are created (i.e. creating wetland or wildlife habitat where it does not presently exist) will be reviewed and may be approved by the Development Review Board or Planning Director if it is determined that the proposed action will create natural resource functions and values that are equal to or greater than those lost by the proposed impact activity.

Response: Appendix E demonstrates that proposed mitigation actions will create natural resource functions and values equal to or greater than those impacted, subject to review and approval by the City (Appendix E, pp. 19–21).

(.04) Mitigation actions shall be implemented prior to or at the same time as the impact activity is conducted.

Response: The applicant acknowledges mitigation will be implemented prior to or concurrent with the impact activity, consistent with Appendix E (p. 19).

(.05) Mitigation plans shall have clearly stated goals and measurable performance standards.

Response: Appendix E includes clearly stated mitigation goals and measurable performance standards for plant survival, vegetation establishment, and functional improvement (Appendix E, pp. 20–21).

(.06) All mitigation plans shall contain a monitoring and maintenance plan to be conducted for a period of five years following mitigation implementation. The applicant shall be responsible for ongoing maintenance and management activities, and shall submit an annual report to the Planning Director documenting such activities, and reporting progress towards the mitigation goals. The report shall contain, at a minimum, photographs from established photo points, quantitative measure of success criteria, including plant survival and vigor if these are appropriate data. The Year 1 annual report shall be submitted one year following mitigation action implementation. The final annual report (Year 5 report) shall document successful satisfaction of mitigation goals, as per the stated performance standards. If the ownership of the mitigation site property changes, the new owners will have the continued responsibilities established by this section.

Response: Appendix E includes a five-year monitoring and maintenance plan with annual reporting, photo documentation, and quantitative success criteria (Appendix E, p. 21).

(.07) The Mitigation Plan document shall be prepared by a natural resource professional.

Response: Appendix E was prepared by a qualified natural resource professional, as documented in the report credentials (Appendix E, title page).

(.08) Prior to any site clearing, grading or construction, the SROZ area shall be staked, and fenced per approved plan. During construction, the SROZ area shall remain fenced and undisturbed except as allowed by an approved development permit.

Response: The applicant acknowledges that SROZ areas that will be undisturbed will be staked and fenced prior to site disturbance and remain protected during construction, as reflected in the construction notes (Appendix E, p. 9).

(.09) For any development which creates multiple parcels intended for separate ownership, the City shall require that the SROZ areas on the site be encumbered with a conservation easement or tract.

Response: The applicant acknowledges this requirement if multiple parcels are created.

(.10) The City may require a conservation easement over the SROZ that would prevent the owner from activities and uses inconsistent with the purpose of this Section and any easements therein. The purpose of the conservation easement is to conserve and protect resources as well as to prohibit certain activities that are inconsistent with the purposes of this section. Such conservation easements do not exclude the installation of utilities.

Response: The applicant acknowledges the City's authority to require a conservation easement over SROZ areas.

(.11) At the Planning Directors discretion, mitigation requirements may be modified based on minimization of impacts at the impact activity site. Where such modifications are granted by the Planning Director, the Director shall clearly indicate the reasons for doing so in the record, citing the relevant information relied upon in reaching the decision.

Response: The applicant acknowledges the Planning Director's discretion to modify mitigation requirements where impacts have been minimized.

(.12) The Director may study the possibility of a payment-in-lieu-of system for natural resource impact mitigation. This process would involve the public acquisition and management of natural resource properties partially funded by these payments.

Response: Payment-in-lieu of mitigation is not proposed.

Section 4.139.09. - Activities Requiring a Class II Administrative Review Process.

(.01) The review of any action requiring an SRIR except:

A. Activities and uses exempt under this Section;
B. Adjustments permitted as a Class I Administrative Review.
C. Adjustments permitted as part of a Development Review Board public hearing process.

Response: This application does not qualify for an exception.

(.02) Single family dwelling or duplex or the expansion of a single family dwelling on lots with limited buildable land. Single family dwelling or duplex or the expansion of a single family dwelling which meet all of the following requirements:

A. The lot was legally created and has less than 5,000 square feet of buildable land located outside the SROZ; and
B. No more than one single family house or duplex is permitted on the property and no more than 3,000 square feet of land is to be developed by impervious improvements within the SROZ; and
C. The single-family or duplex structure shall be sited in a location, which reduces the impacts to the Significant Resources.
D. An Abbreviated SRIR is required to be submitted.

Response: Not applicable. This application does not include residential use.

(.03) The expansion of an existing single family dwelling or duplex or structures that are accessory to a single-family dwelling or duplex located inside Metro's UGMFP Title 3 Water Quality Resource Areas.

A. The expansion of a single family structure or improvement is located no closer to the stream or wetland area than the existing structures, roadways, driveways or accessory uses and development; and
B. The coverage of all structures shall not be increased by more than 600 square feet, based on the coverage in existence as of the effective date of this ordinance; and
C. The applicant must obtain the approval of an erosion and sediment control plan from the City's Building and Environmental Services Divisions.
D. In determining appropriate conditions of approval, the applicant shall:
    1. Demonstrate that no reasonably feasible alternative design or method of development exists that would have a lesser impact on the Water Quality Resource Area than the one proposed; and
    2. If no such reasonably feasible alternative design or method of development exists, the project shall be conditioned to limit its disturbance and impact on the Water Quality Resource to the minimum extent necessary to achieve the proposed addition, alteration, restoration, replacement or rehabilitation; and
    3. Provide mitigation consistent with Section 4.139.06 to ensure that impacts to the functions and values of the Water Quality Resource Area will be mitigated or restored to the extent practicable.

Response: Not applicable. This application does not include residential use.

Section 4.139.10. - Development Review Board (DRB) Process.

The following actions require review through a Development Review Board quasi-judicial process. Nothing contained herein shall be deemed to require a hearing body to approve a request for a permit under this Section.

(.01) Exceptions. The following exceptions may be authorized through a Development Review Board quasi-judicial review procedure.

A. Unbuildable Lot. For existing non-developed lots that are demonstrated to be unbuildable by the provisions of this Section, the SROZ shall be reduced or removed to assure the lot will be buildable by allowing up to 3,000 square feet of land to be developed by impervious improvements for residential use, or 5,000 square feet of impervious improvements for non-residential uses, while still providing for the maximum protection of the significant resources, if not in conflict with any other requirements of the Planning and Land Development Ordinance. This section shall not apply to lots created after the effective date of this ordinance.

Response: Not applicable. The site consists of a buildable lot.

B. Large Lot Exception. An exception under this paragraph is authorized and may allow impact into wetlands, riparian corridors and wildlife habitat areas, and shall not be limited to locations solely within the Area of Limited Conflicting Use. Mitigation is required, and for wetland impacts, state and federal permit requirements shall be followed. An exception to the standards of this Section may be authorized where the following conditions apply:

1. *The lot is greater than one acre in size; and*
2. *At least 85 percent of the lot is located within the SROZ based on surveyed resource and property line boundaries; and*
3. *No more than ten percent of the area located within the SROZ on the property may be excepted and used for development purposes; and*
4. *Through the review of an SRIR, it is determined that a reduction of the SROZ does not reduce the values listed on the City of Wilsonville Natural Resource Function Rating Matrix for the resource site; and*
5. *The proposal is sited in a location that avoids or minimizes impacts to the significant resource to the greatest extent possible.*
6. *For purposes of this subsection, "lot" refers to an existing legally created lot of record as of the date of the adoption of the SROZ.*
7. *Where a lot is proposed to be divided for middle housing, the area of the lot prior to the land division shall be that used for the purpose of this subsection.*

Response: Large lot exception is not proposed.

C. Public. If the application of this Section would prohibit a development proposal by a public agency or public utility, the agency or utility may apply for an exception pursuant to this Section. The hearing body shall use the SRIR review criteria identified within this section.

Response: Not applicable. This proposal does not involve development proposed by a public agency or public utility.

D. Map Refinement process. The applicant may propose to amend the SROZ boundary through a Development Review Board quasi-judicial zone change where more detailed information is provided, such as a state approved wetland delineation. The criteria for amending the SROZ are as follows:

1. Any map refinement must be evaluated by considering the riparian corridor types contained in this ordinance.
2. Other supporting documents to be considered in evaluating a proposal to refine a map include, but are not limited to:
a. Natural Resources Inventories (LWI/RCI);
b. The Economic, Social, Environmental and Energy (ESEE) Analysis;
c. Metro Functional Plans;
d. Wilsonville Comprehensive Plan;
e. State approved wetland delineations; and
f. Detailed slope analysis.
3. An SRIR must be prepared by the applicant in conformance with the provisions of this Section.
4. The Hearing Body (including City Council) may amend the Significant Resource Overlay Zone (in or out) upon making a determination that the land area in question is or is not a significant resource. The criteria for determining that land is significant shall be based on finding that the site area has at least one rating of "high" using the function criteria listed in the Natural Resource Function Rating Matrices.

Response: The Applicant is not requesting a Map Refinement of the Significant Resource Overlay Zone. The SROZ boundary shown on the City's adopted maps is used for project evaluation, and impacts are analyzed and mitigated under the standard SROZ provisions as documented in the SRIR (Appendix E)

(.02) Adding Wetlands. Except for water quality or storm water detention facilities, the City shall initiate amendments to the Significant Resource Overlay Zone maps to add wetlands when the City receives significant evidence that a wetland meets any one of the following criteria:

A. The wetland is fed by surface flows, sheet flows or precipitation, and has evidence of flooding during the growing season, and has 60 percent or greater vegetated cover, and is over one-half acre in size; or the wetland qualifies as having intact water quality function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
B. The wetland is in the Metro Title 3 Flood Management Area as corrected by the most current FEMA Flood Insurance Rate Maps, and has evidence of flooding during the growing season, and is five acres or more in size, and has a restricted outlet or no outlet; or the wetland qualifies as having intact hydrologic control function under the 1996 Oregon Freshwater Wetland Assessment Methodology; or
C. The wetland or a portion of the wetland is within a horizontal distance of less than one-fourth mile from a water body which meets the Department of Environmental Quality definition of water quality limited water body in OAR Chapter 340, Division 41 (1996).
D. Created or restored wetlands that meet the requirements of Section 4.139.10(.02) shall be added to the Significant Resource Overlay Zone.

Response: Appendix E identifies and evaluates wetlands present on the site and does not identify any additional wetlands meeting the criteria for inclusion in the Significant Resource Overlay Zone beyond those already mapped. No request to add wetlands to the SROZ is proposed.

(.03) Development of structures, additions and improvements that relate to uses other than single family residential.

Response: The proposal includes non-single-family residential development and is subject to these standards.

(.04) Variances. A variance may be taken to any of the provisions of this Section per the standards of Section 4.196 of the Planning and Land Development Ordinance.

Response: A variance is not requested.

Section 4.139.11. - Special Provisions.

(.01) Reduced front, rear and side yard setback. Applications on properties containing the SROZ may reduce the front, rear and side yard setback for developments or additions to protect the significant resource, as approved by the Development Review Board.

Response: This proposal involves the filling of the on-site drainage ditch and as such does not qualify for reductions in front, rear, and side yard setbacks.

(.02) Density Transfer. For residential development proposals on lands zoned Planned Development Residential (PDR) which contain land within the SROZ, a transfer of density shall be permitted within the Stage I Master Plan area. Density can only be transferred to land outside the SROZ and within the Stage I Master Plan area. The formula in A. through B. below shall be used to calculate the density that may be transferred.

A. Step 1. Calculate Expected Maximum Density. The Expected Maximum Density (EMD) is calculated by multiplying the gross acreage of the Stage I Master Plan area within the SROZ but outside any BPA easements by the maximum density for the Zoning Designation as shown in Table 1 of Section 4.124.

B. Step 2. Reduce the EMD obtained in Step 1 by 50 percent and then round down to the nearest whole number. This is the density (number of units) able to be transferred from the SROZ area to elsewhere in the Stage I Master Plan area provided applicable standards for the zone are still met including, but not limited to, allowed uses, setbacks, standards for outdoor living area, landscaping, building height and parking.

Response: Not applicable. This proposal does not involve residential development.

(.03) Alteration of constructed drainageways. Alteration of constructed drainageways may be allowed provided that such alterations do not adversely impact stream flows, flood storage capacity and in stream water quality and provide more efficient use of the land as well as provide improved habitat value through mitigation, enhancement and/or restoration. Such alterations must be evaluated through an SRIR and approved by the City Engineer and Development Review Board.
(Ord. No. 841, 6-4-2020)

Response: The on-site drainage ditch is a constructed drainageway, designed to capture site and area stormwater runoff and convey to the drainage ditch located within the Wiedemann Road right-of-way ditch to the south, however, it is included in the City's SROZ mapped area.

Section 4.140. - Planned Development Regulations.

[…]

(.02) Lot Qualification:

A. Planned Development may be established on lots which are suitable for and of a size to be planned and developed in a manner consistent with the purposes and objectives of Section 4.140.

Response: This proposal involves the rezoning of the subject property to PDI-RSIA. Pursuant to subsection 4.135.(2) all property zoned Planned Development Industrial Zone – Regionally Significant Industrial Area (PDI-RSIA) is subject to the requirements of Section 4.140.

B. Any site designated for development in the Comprehensive Plan may be developed as a Planned Development, provided that it is zoned "PD" or specifically defined as a PD zone by this Code. All sites which are greater than two acres in size, and designated in the Comprehensive Plan for commercial, residential, or industrial use shall be developed as Planned Developments, unless approved for other uses permitted by the Development Code. Smaller sites may also be developed through the City's PD procedures, provided that the location, size, lot configuration, topography, open space and natural vegetation of the site warrant such development.

Response: This proposal involves the master development of a rezoned property that is larger than two (2) acres in size and is designated by the Comprehensive Plan as industrial use.

(.03) Ownership:

A. 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. The holder of a written option to purchase, with written authorization by the owner to make applications, shall be deemed the owner of such land for the purposes of Section 4.140.

Response: The site is under a single ownership. For more information, see the fully executed Property Owner Acknowledgement Form included with this application.

B. Unless otherwise provided as a condition for approval of a Planned Development permit, the permittee may divide and transfer units or parcels of any development. The transferee shall use and maintain each such unit or parcel in strict conformance with the approval permit and development plan.

Response: Not applicable. This proposal does not include the division or transferring of units or parcels for the purposes of development.

(.04) Professional Design:

A. 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.

B. Appropriate professionals shall include, but not be limited to the following to provide the elements of the planning process set out in Section 4.139:

1. An architect licensed by the State of Oregon;
2. A landscape architect registered by the State of Oregon;
3. An urban planner holding full membership in the American Institute of Certified Planners, or a professional planner with prior experience representing clients before the Development Review Board, Planning Commission, or City Council; or

4. *A registered engineer or a land surveyor licensed by the State of Oregon.*

Response: This proposal has been designed with the inclusion of appropriate professionals in the planning process for the proposed development.

C. *One of the professional consultants chosen by the applicant from either 1, 2, or 3, above, shall be designated to be responsible for conferring with the planning staff with respect to the concept and details of the plan.*

Response: This proposal has involved a registered engineer licensed by the State of Oregon who has conferred with the planning staff at the City of Wilsonville.

D. *The selection of the professional coordinator of the design team will not limit the owner or the developer in consulting with the planning staff.*

Response: It is acknowledged that the selection of the professional coordinator of the design team will not limit the owner or the developer in consulting with planning staff.

(.05) Planned Development Permit Process:

A. *All parcels of land exceeding two acres in size that are to be used for residential, commercial or industrial development, shall, prior to the issuance of any building permit:*
   1. *Be zoned for planned development;*
   2. *Obtain a planned development permit; and*
   3. *Obtain Planning Director, Development Review Board, or, on appeal, City Council approval.*

Response: The site exceeds two (2) acres in size and this proposal includes a request to rezone the property from Residential Agricultural Holding (RA-H) to Planned Development Industrial Zone — Regionally Significant Industrial Area (PDI-RSIA).

B. *Zone change and amendment to the zoning map are governed by the applicable provisions of the Zoning Sections, inclusive of Section 4.197.*

Response: This proposal includes a request to change the zoning and zoning map for the underlying property at the site. For more information about how this proposal will bring the site into conformance with the City's Comprehensive Plan, see the discussion included in response to Section 4.197 below within this *Project Narrative*.

C. *Development Review Board and Planning Director approval is governed by Sections 4.400 to 4.450.*

Response: It is acknowledged that the Development Review Board and Planning Director approval is governed by Sections 4.400 to 4.450.

D. *All planned developments require a planned development permit. The planned development permit review and approval process consists of the following multiple stages, the last two or three of which can be combined at the request of the applicant:*
   1. *Pre-application conference with Planning Department;*
   2. *Preliminary (Stage I) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District. When a zone change is necessary, application for such change shall be made simultaneously with an application for preliminary approval; and*

3. *Final (Stage II) review by the Development Review Board or the Planning Director for properties within the Coffee Creek Industrial Design Overlay District.*
4. *In the case of a zone change and zone boundary amendment, City Council approval is required to authorize a Stage I preliminary plan except for properties within the Coffee Creek Industrial Design Overlay District, which may receive separate zone map amendment approvals.*

Response: This proposal includes notes from the pre-application conference that was held on August 31, 2022 and includes the request for a Preliminary (Stage I) review and an application for a Zone Map Amendment is provided simultaneously with land use applications (i.e., SRIR Review, Type C Tree Removal Plan, Planned Development, Signs and Stage I Master Plan).

(.06) Staff Report:

A. *The planning staff shall prepare a report of its findings and conclusions as to whether the use contemplated is consistent with the land use designated on the Comprehensive Plan. If there is a disagreement as to whether the use contemplated is consistent, the applicant, by request, or the staff, may take the preliminary information provided to the Development Review Board for a use interpretation.*
B. *The applicant may proceed to apply for Stage I—Preliminary Approval - upon determination by either staff or the Development Review Board that the use contemplated is consistent with the Comprehensive Plan.*

Response: It is acknowledged that a staff report will be issued by the City which contains an assessment of the proposal's consistency with the land use designated on the Comprehensive Plan.

(.07) Preliminary Approval (Stage One):

A. *Applications for preliminary approval for planned developments shall:*
   1. *Be made by the owner of all affected property or the owner's authorized agent; and*
   2. *Be filed on a form prescribed by the City Planning Department and filed with said Department.*
   3. *Set forth the professional coordinator and professional design team as provided in subsection (.04), above.*
   4. *State whether the development will include mixed land uses, and if so, what uses and in what proportions and locations.*

Response: This proposal includes a City Planning Department Development Permit Application Form signed by the property owner (same as Applicant) and is provided by a professional civil engineering licensed in the State of Oregon. This proposal does not include mixed uses and instead includes warehouse use.

B. *The application shall include conceptual and quantitatively accurate representations of the entire development sufficient to judge the scope, size, and impact of the development on the community; and, in addition to the requirements set forth in Section 4.035, shall be accompanied by the following information:*
   1. *A boundary survey or a certified boundary description by a registered engineer or licensed surveyor.*

Response: This is included in the existing conditions plan which is included in the plans set in *Appendix B* of this application submittal package.

2. *Topographic information as set forth in Section 4.035.*

   Response: Topographic information is included in the existing conditions plans. For more information, see *Appendix B* of this application submittal package.

3. *A tabulation of the land area to be devoted to various uses, and a calculation of the average residential density per net acre. Developments within the RN zone shall show how the proposed number of units complies with the applicable maximum and minimum provisions of the RN zone.*

   Response: Land area devoted to warehouse use, parking, loading and drainage are included on the preliminary site plan. For more information, see *Appendix B* of this application submittal package.

4. *A stage development schedule demonstrating that the developer intends [to] receive Stage II approval within two years of receiving Stage I approval, and to commence construction within two years after the approval of the final development plan, and will proceed diligently to completion; unless a phased development schedule has been approved; in which case adherence to that schedule shall be considered to constitute diligent pursuit of project completion.*

   Response: The developer intends to receive Stage II approval within two (2) years of obtaining Stage I approval and this is demonstrable with the stage development schedule. The first planning/design phase is anticipated to be completed in 2026 with pre-construction, procurement and construction to occur in 2027.

5. *A commitment by the applicant to provide in the Final Approval (Stage II) a performance bond or other acceptable security for the capital improvements required by the project.*

   Response: The Applicant will provide a performance bond for the capital improvements required by the project as part of Final Approval (Stage II) of the proposed project.

6. *If it is proposed that the final development plan will be executed in stages, a schedule thereof shall be provided.*

   Response: It is currently anticipated that final development will be undertaken with two phases.

7. *Statement of anticipated waivers from any of the applicable site development standards.*

   Response: Not applicable. This proposal does not include a request to waive any of the applicable development standards.

C. *An application for a Stage I approval shall be considered by the Development Review Board as follows:*
   1. *A public hearing as provided in Section 4.013.*

2. *After such hearing, the Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and may approve or disapprove the application and the accompanying preliminary development plan or require such changes therein or impose such conditions of approval as are in its judgment, necessary to ensure conformity to said criteria and regulations. In so doing, the Board may, in its discretion, authorize submission of the final development plan in stages, corresponding to different units or elements of the development. It shall do so only upon evidence assuring completion of the entire development in accordance with the preliminary development plan and stage development schedule.*
3. *A final decision on a complete application and preliminary plan shall be rendered within 120 days after the application is deemed complete unless a continuance is agreed upon by the applicant and the appropriate City decision-making body.*
4. *The determination of the Development Review Board shall become final at the end of the appeal period for the decision, unless appealed to the City Council in accordance with Section 4.022 of this Code.*

   Response: The Applicant acknowledges that the prescribed decision-making process is described above.

D. *As provided in Section 4.134, an application for a Stage I approval within the Coffee Creek Industrial Design Overlay District may be considered by the Planning Director as follows:*
   1. *A Class II—Administrative Review as provided in Section 4.035(.03).*
   2. *After considering available information, the Planning Director shall determine whether the proposal conforms to the permit criteria set forth in this Code and may approve or disapprove the application and the accompanying preliminary development plan or require such changes therein or impose such conditions of approval as are in his or her judgment, necessary to ensure conformity to said criteria and regulations. In so doing, the Planning Director may, in his or her discretion, authorize submission of the final development plan in stages, corresponding to different units or elements of the development. The Planning Director shall do so only upon receiving evidence assuring completion of the entire development in accordance with the preliminary development plan and stage development schedule.*
   3. *A final decision on a complete application and preliminary plan shall be rendered within 12 days after the application is deemed complete unless a continuance is agreed upon by the applicant and the Planning Director.*
   4. *The determination of the Planning Director shall become final at the end of the appeal period for the decision, unless appealed to the Development Review Board in accordance with Section 4.022 of this Code.*

      Response: Not applicable. The site is not located within the Coffee Creek Industrial Design Overlay District.

(.09) Final Approval (Stage Two):
[Note: Outline Number is incorrect.]

A. *Unless an extension has been granted by the Development Review Board or Planning Director, as applicable, within two 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, a public hearing shall be held on each such*

application as provided in Section 4.013. As provided in Section 4.134, an application for a Stage II approval within the Coffee Creek Industrial Design Overlay District may be considered by the Planning Director without a public hearing as a Class II Administrative Review as provided in Section 4.035(.03).

Response: It is currently anticipated that a final plan for the entire development will be filed within two (2) years after the approval of a preliminary development. It is not currently anticipated that an extension will be needed.

B. *The Development Review Board or Planning Director, as applicable, shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.*

Response: It is acknowledged that the Development Review Board or Planning Director, as applicable, shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.

C. *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:*
   1. *The location of water, sewerage and drainage facilities;*
   2. *Preliminary building and landscaping plans and elevations, sufficient to indicate the general character of the development;*
   3. *The general type and location of signs;*
   4. *Topographic information as set forth in Section 4.035;*
   5. *A map indicating the types and locations of all proposed uses; and*
   6. *A grading plan.*

      Response: It is acknowledged that the final plan shall conform in all major respects with the approved preliminary development plan and shall include all required items listed above within this subsection.

D. *The final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development. However, Site Design Review is a separate and more detailed review of proposed design features, subject to the standards of Section 4.400.*

Response: It is acknowledged that the final plan shall be sufficiently detailed to indicate fully the ultimate operation and appearance of the development or phase of development. A Site Design Review application is to be required for this proposal, therefore the standards of Section 4.400 do apply.

E. *Copies of legal documents required by the Development Review Board or Planning Director, as applicable, for dedication or reservation of public facilities, or for the creation of a non-profit homeowner's association, shall also be submitted.*

Response: This proposal does not require dedication for public facilities nor a homeowners associations. It does provide for a right-of-way dedication and City water line easement which can be provided with the lot line adjustment or permit plans upon engineering review.

F. Within 30 days after the filing of the final development plan, the Planning staff shall forward such development plan and the original application to the Tualatin Valley Fire and Rescue District, if applicable, and other agencies involved for review of public improvements, including streets, sewers and drainage. The Development Review Board or Planning Director, as applicable, shall not act on a final development plan until it has first received a report from the agencies or until more than 30 days have elapsed since the plan and application were sent to the agencies, whichever is the shorter period.

Response: The Applicant acknowledges the decision-making procedure as described above within this subsection and that all applicable agencies involved in the review of public improvements must issue their assessment prior to the approval of the final development plan.

G. Upon receipt of the final development plan, the Development Review Board or Planning Director, as applicable shall examine such plan and determine:

1. *Whether it conforms to all applicable criteria and standards; and*
2. *Whether it conforms in all substantial respects to the preliminary approval; or*
3. *Require such changes in the proposed development or impose such conditions of approval as are in its judgment necessary to insure conformity to the applicable criteria and standards.*

Response: The Applicant acknowledges that the Development Review Board or Planning Director, as applicable, shall examine such plan and determine, the proposal's conformance with all applicable criteria and standards, and is substantially similar to the preliminarily approved development plan. In addition, the Applicant acknowledges that the Development Review Board or Planning Director, as applicable, may require changes to the proposed development or impose conditions of approval.

H. If the Development Review Board or Planning Director, as applicable, permits the applicant to revise the plan, it shall be resubmitted as a final development plan within 60 days. If the Board or Planning Director approves, disapproves or grants such permission to resubmit, the decision of the Board shall become final at the end of the appeal period for the decision, unless appealed to the City Council, in accordance with Sections 4.022 of this Code.

Response: The Applicant acknowledges that should the Development Review Board or Planning Director, as applicable, require revision(s) to the final development plan, those revisions shall be resubmitted within sixty (60) days.

I. All Stage II Site Development plan approvals shall expire two years after their approval date, if substantial development has not occurred on the property prior to that time. Provided, however, that the Development Review Board or Planning Director, as applicable, may extend these expiration times for up to three additional periods of not more than one year each. Applicants seeking time extensions shall make their requests in writing at least 30 days in advance of the expiration date. Requests for time extensions shall only be granted upon (1) a showing that the applicant has in good faith attempted to develop or market the property in the preceding year or that development can be expected to occur within the next year, and (2) payment of any and all Supplemental Street SDCs applicable to the development. Upon such payment, the development shall have vested traffic generation rights under [section] 4.140(.10), provided however, that if the Stage II approval should expire, the vested right to use trips is terminated upon City repayment, without interest, of Supplemental Street SDCs. For purposes of this Ordinance,

"substantial development" is deemed to have occurred if the required building permits or public works permits have been issued for the development, and the development has been diligently pursued, including the completion of all conditions of approval established for the permit.

Response: The Applicant acknowledges that approvals shall expire two (2) years after their approval date, if substantial development has not occurred on the property prior to that time.

J. A planned development permit may be granted by the Development Review Board or Planning Director, as applicable, only if it is found that the development conforms to all the following criteria, as well as to the Planned Development Regulations in Section 4.140:

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

Response: This proposal has been designed in conformance with the Comprehensive Plan in addition to the Planned Development Regulations contained within Section 4.140. For more information, see the discussion included in response to the Planned Development Regulations contained within Section 4.140.

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

Response: A Traffic Impact Analysis (TIA) has been prepared and is provided in Appendix D. The analysis demonstrates that traffic generated by the proposed development can be accommodated safely and without congestion exceeding Level of Service D on the adjacent minor arterial and collector street network. The proposed industrial use provides direct access to the higher-order roadway system and avoids routing traffic through local streets.

a. In determining levels of Service D, the City shall hire a traffic engineer at the applicant's expense who shall prepare a written report containing the following minimum information for consideration by the Development Review Board:

i. An estimate of the amount of traffic generated by the proposed development, the likely routes of travel of the estimated generated traffic, and the source(s) of information of the estimate of the traffic generated and the likely routes of travel;

ii. What impact the estimate generated traffic will have on existing level of service including traffic generated by (1) the development itself, (2) all existing developments, (3) Stage II developments approved but not yet built, and (4) all developments that have vested traffic generation rights under section 4.140(.10), through the most probable used intersection(s), including state and county intersections, at the time of peak level of traffic. This analysis shall be conducted for each direction of travel if backup from other intersections will interfere with intersection operations.

Response: Appendix D includes a traffic engineering analysis prepared by a qualified traffic engineer that evaluates the estimated traffic generation associated with the proposed development, anticipated routes of travel, and the source data used for those estimates. The analysis also evaluates impacts on existing and future intersection operations, including traffic from existing development, approved but unbuilt Stage II developments, and developments with vested traffic generation rights, analyzed during peak traffic conditions and by direction of travel where applicable.

b. The following are exempt from meeting the Level of Service D criteria standard:
i. A planned development or expansion thereof which generates three new p.m. peak hour traffic trips or less;
ii. A planned development or expansion thereof which provides an essential governmental service.

Response: The proposed development does not qualify for an exemption under Section 4.140(.09)(b); accordingly, a Traffic Impact Analysis was prepared and is included as Appendix D.

c. Traffic generated by development exempted under this subsection on or after Ordinance No. 463 was enacted shall not be counted in determining levels of service for any future applicant.

Response: Subsection (c) does not apply, as the proposed development is not exempt and its traffic is fully included in the Traffic Impact Analysis (Appendix D)

d. Exemptions under 'b' of this subsection shall not exempt the development or expansion from payment of system development charges or other applicable regulations.

Response: No exemption under subsection (b) is requested; all applicable system development charges and transportation requirements apply.

e. In no case will development be permitted that creates an aggregate level of traffic at LOS "F".

Response: Not applicable. This proposal will not result in the creation of an aggregate level of traffic at LOS “F.”

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

Response: This proposal has been designed to accommodate industrial warehouse use and has been adequately sized to be served by existing facilities and services.

K. Mapping: Whenever a Planned Development permit has been granted, and so long as the permit is in effect, the boundary of the Planned Development shall be indicated on the Zoning Map of the City of Wilsonville as the appropriate "PD" Zone.

Response: It is acknowledged that all permitted Planned Development areas will be depicted as a "PD" Zone on the Zoning Map of the City of Wilsonville.

(.10) Adherence to Approved Plans, Modification.

A. Adherence to Approved Plan and Modification Thereof: 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: The Applicant acknowledges that it must provide a written agreement to bound the Applicant, their successors in interest, by the conditions prescribed for approval of a development.

B. In the event of a failure to comply with the approved plan or any prescribed condition of approval, including failure to comply with the stage development schedule, the Development Review Board may, after notice and hearing, revoke a Planned Development permit. General economic conditions that affect all in a similar manner may be considered as a basis for an extension of a development schedule. The determination of the Board shall become final 30 days after the date of decision unless appealed to the City Council.

Response: It is acknowledged that the Development Review Board has the authority to revoke a Planned Development permit.

C. Approved plans and non-conforming status with updated zoning and development standards.

1. Approved plans are the basis of legal conforming status of development except where one of the following occurs, at which point, the approved planned development becomes legally non-conforming:

a. the zoning of land within the plan area has been changed since adoption of the plan; or

b. the zoning standards for the zone under which it was approved have been substantially modified (50 percent or more of the regulatory standards have been modified as determined by the Planning Director); or

c. the City Council declared all planned developments in a certain zone or zones to be legal non-conforming as part of an ordinance to update or replace zoning standards; or

d. the City Council declared, by a stand-alone ordinance, planned developments in a certain zone not complying with current standards to be legal non-conforming. The City Council may, in an ordinance establishing non-conforming status of a planned development, declare the entire planned development to be non-conforming or declare certain standards established in the planned development to be non-conforming (i.e., lot coverage, setbacks, stormwater standards).

Response: The proposed Zone Map Amendment and associated Stage I Master Plan and Stage II Final Plan Revision establish the applicable zoning and development standards

for the site. Approval of this application will result in a Planned Development that is consistent with the adopted zoning and development standards; therefore the non-conforming conditions described in Section 4.140.10(C) do not apply.

2. *If one of the conditions of subsection 1. is met, development that is consistent with the approved plan, but not complying with current zoning standards, shall be considered legal non-conforming and subject to the standards of Sections 4.189 thru 4.192.*

   Response: This proposal includes a Zone Map Amendment in addition to proposed development which will conform with the proposed underlying zoning of Planned Development Industrial Zone — Regionally Significant Industrial Area (PDI-RSIA).

3. *In no case shall a planned development approved within the previous 24 months, or under a time-extension under WC Section 4.023, be considered non-conforming; but automatically will become non-conforming after 24-months, and the end of any extensions, if it otherwise would qualify as legally non-conforming or is so declared pursuant to this subsection.*

   Response: This proposal is not anticipated to be determined non-conforming nor will a period of twenty-four (24) months lapse following planned development approval.

D. *The following are exempt from established residential density requirements beyond one unit per lot.*
   1. *Accessory Dwelling Units.*
   2. *Duplexes.*
   3. *Triplexes.*
   4. *Quadplexes.*
   5. *Cluster housing.*

   Response: Not applicable. This proposal does not include residential use; therefore, these standards do not apply.

E. *For new townhouses in existing residential planned developments in residential zones, the allowed density shall be the lesser of: (1) Four times the maximum net density for the lot(s) or parcel(s) established in the approved plan, or (2) 25 units per acre.*

   Response: Not applicable. This proposal does not include residential use; therefore, these standards do not apply.

F. *Notwithstanding Subsection C. above, single-family residential development built consistent with an approved master plan in the Planned Development Commercial or Planned Development Industrial zones prior to November 18, 2021 shall continue to be legal conforming uses. However, all lots within these master plans that allow for detached single-family must also allow all middle housing types with density exemptions and allowances consistent with D. and E. above. In addition, any lot coverage maximums established in the master plans less than those listed in Table 2 of Subsection 4.124(.07) are superseded by lot coverage standards in that table.*

   Response: Not applicable. This proposal does not include residential use; therefore, these standards do not apply.

(.11) Early Vesting of Traffic Generation. Applicants with Stage I or Master Plan approvals occurring after June 2, 2003 may apply to vest the right to use available transportation capacity at the intersections of Wilsonville Road with Boone's Ferry Road and with Town Center Loop West, and/or the I-5 interchange. Vesting for properties with such approvals shall occur upon execution of a vesting agreement satisfactory to the City, which agreement shall include a proposed development schedule or phasing plan and either provide for the payment of any and all Supplemental Street SDCs or provide other means of financing public improvements. Vesting for properties pending such approvals shall occur upon such agreement and the date the approvals are final.

The number of trips vested is subject to modification based upon updated traffic analysis associated with subsequent development approvals for the property. A reduction in vested trips shall attend repayment of vesting fees by the City. An increase in available vested trips shall occur upon payment of necessary vesting fees.

Vesting shall remain valid and run with the property, unless an approval that is necessary for vesting to occur is terminated or a vesting agreement is terminated. If the vested right to use certain trips is lost or terminated, as determined by the Community Development Director with the concurrence of City Council, such trips shall be made available to other development upon City repayment, without interest, of associated vesting fees.

Response: The Applicant requests to vest the right to use available transportation capacity at the I-5 interchange.

GENERAL DEVELOPMENT REGULATIONS

Section 4.154. - On-site Pedestrian Access and Circulation.

(.01) On-site Pedestrian Access and Circulation:

A. The purpose of this section is to implement the pedestrian access and connectivity policies of the Transportation System Plan. It is intended to provide for safe, reasonably direct, and convenient pedestrian access and circulation.

B. Standards. Development shall conform to all of the following standards:

1. Continuous Pathway System. A pedestrian pathway system shall extend throughout the development site and connect to adjacent sidewalks, and to all future phases of the development, as applicable.

Response: A continuous pedestrian pathway system is provided throughout the site, connecting building entrances, parking areas, and adjacent public sidewalks, with provisions for future phase connections where applicable (see Site Plans).

2. Safe, Direct, and Convenient. Pathways within developments shall provide safe, reasonably direct, and convenient connections between primary building entrances and all adjacent parking areas, recreational areas/playgrounds, and public rights-of-way and crosswalks based on all of the following criteria:

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

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

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

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

Response: ADA-compliant concrete sidewalks are provided to connect building entrances and accessible parking areas. No passenger vehicle parking areas exceed three acres; therefore, the internal pedestrian pathway standard does not apply.

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

Response: This proposal has been designed to include public standard sidewalks along SW Parkway Avenue and SW Parkway Center Drive with landscape separation. Onsite sidewalks are raised 6-inches with standard curb where adjacent to driving surfaces.

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

Response: Cross-walks are included within the site and will be light-color concrete or pavers inlayed between asphalt.

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

Response: Pedestrian paths meet or exceed the 5-foot minimum width and will be constructed of concrete or asphalt.

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

Response: Pedestrian pathways are identified with standard signage as appropriate for wayfinding and safety.

Section 4.155. – General Regulation – Parking, Loading and Bicycle Parking.

(.01) Purpose:

A. The design of parking areas is intended to enhance the use of the parking area as it relates to the site development as a whole, while providing efficient parking, vehicle circulation and attractive, safe pedestrian access.

Response: Parking areas are designed to support efficient vehicle circulation and provide safe pedestrian access consistent with the site layout shown on the Preliminary Site Plans (Appendix B).

B. As much as possible, site design of impervious surface parking and loading areas shall address the environmental impacts of air and water pollution, as well as climate change from heat islands.

Response: Impervious parking and loading areas incorporate landscape buffering, tree canopy, and integrated stormwater facilities to reduce runoff and mitigate heat island effects (see Site Plans and Landscape Plans, Sheets 17–19; Stormwater Report)

C. The view from the public right-of-way and adjoining properties is critical to meet the aesthetic concerns of the community and to ensure that private property rights are met. Where developments are located in key locations such as near or adjacent to the I-5 interchanges, or involve large expanses of asphalt, they deserve community concern and attention.

Response: The site is visible from SW Parkway Drive, SW Parkway Avenue, and the I-5 corridor. Views of parking and loading areas from the public right-of-way and adjacent properties are softened through building placement, landscaped buffers, and mitigation tree planting along the right-of-way (see Site Plans and Landscape Plans, Sheets 17–19).

(.02) General Provisions:

A. When off-street is provided, the provision and maintenance of the off-street parking spaces is a continuing obligation of the property owner. The standards set forth herein shall be considered by the Development Review Board as minimum criteria.

Response: Off-street parking spaces are provided on site and will be maintained by the property owner in accordance with WDC 4.155.

B. No area shall be considered a parking space unless it can be shown that the area is accessible and usable for that purpose, and has maneuvering area for the vehicles, as determined by the Planning Director.

Response: The passenger vehicle parking lots for staff and visitors shown on the plans are designed with compliant dimensions and adequate maneuvering areas. Truck maneuvering and loading areas are separately designed to accommodate industrial truck operations.

C. When calculating vehicle parking maximums or bicycle parking requirements in Table 5 for a development with multiple uses, the requirement shall be the sum of the requirements of the several uses computed separately.

Response: The proposal includes a single primary industrial use and therefore does not require multiple use parking calculations.

D. To minimize land dedicated to parking, owners of two or more uses, structures, or lots may and are encouraged to utilize jointly the same parking area.

Response: Not applicable. The proposed development consists of a single industrial use on the site.

E. 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: Parking areas are intended solely for vehicle parking and circulation and will not be used for other business activities.

F. Redevelopment of existing parking areas to other uses is allowed. Redevelopment is encouraged. When reviewing redevelopment of existing parking areas, the Planning Director or Development Review Board shall not deny an application based on the subject area's previous designation to meet minimum vehicle parking requirements, or that a use previously approved subject to minimum parking requirements would fall below those previously applied minimum parking requirements with the redevelopment.

Response: Not applicable. This proposal does not involve redevelopment of an existing parking area.

G. Where the boundary of a parking lot adjoins or is within a residential district, such parking lot shall be screened by a sight-obscuring fence or planting. The screening shall be continuous along that boundary and shall be at least six feet in height.

Response: Not applicable. The site does not adjoin a residential district and is surrounded primarily by industrial uses and roadways.

H. Parking spaces along the boundaries of a parking lot over 650 square feet in area, excluding access areas, shall be provided with a sturdy bumper guard or curb at least six inches high and located far enough within the boundary to prevent any portion of a car within the lot from extending over the property line or interfering with required screening or sidewalks.

Response: The parking areas exceed 650 square feet and include curbing around the perimeter of the parking lot.

I. All areas used for parking and maneuvering of cars shall be surfaced with asphalt, concrete, or other surface, such as pervious materials (i. e. pavers, concrete, asphalt) that is found by the City's authorized representative to be suitable for the purpose. In all cases, suitable drainage, meeting standards set by the City's authorized representative shall be provided.

Response: Parking and maneuvering areas will be paved with asphalt and include drainage designed in accordance with applicable City standards.

J. Artificial lighting which may be provided shall be so limited or deflected as not to shine into adjoining structures or into the eyes of passers-by.

Response: Site lighting will be downcast and designed to minimize glare onto adjacent properties and rights-of-way.

K. Up to 40 percent of the off-street spaces may be compact car spaces as identified in Section 4.001 - "Definitions," and shall be appropriately identified.

Response: Compact parking spaces are permitted; however, the current site plan does not designate compact spaces.

L. Where off-street parking areas are designed for motor vehicles to overhang beyond curbs, planting areas adjacent to said curbs shall be increased to a minimum of seven feet in depth. This standard shall apply to a double row of parking, the net effect of which shall be to create a planted area that is a minimum of seven feet in depth.

Response: Parking spaces are not designed to overhang landscaped areas; therefore this standard does not apply.

M. Parklets are permitted within the TC Zone on up to two parking spaces per block and shall be placed in front of the business. Placement of parklet requires a temporary right-of-way use permit and approval by the City Engineer.

Response: Not applicable. The site is not located in the TC Zone.

N. Residential garages shall not count towards minimum parking requirements unless all of the following criteria are met:

1. *The garage contains an area, clear of any obstructions, equal to a standard size parking space (nine feet by 18 feet) for each counted parking space within the garage;*
2. *Nine square feet is provided either in the garage or in a screened area of the lot per container provided by the franchise hauler (solid waste, recycling, yard debris, etc.) to ensure they are not placed in the parking spaces;*

Response: Not applicable. This proposal does not include residential uses.

N. Public sidewalks, public sidewalk easements or other public non-vehicle pedestrian easement areas shall not be counted towards the area of parking spaces or used for parking.

Response: This proposal has been designed to include the off-street parking spaces which do not include public sidewalks, easements or other public non-vehicle pedestrian easement areas.

O. Shared visitor parking in certain residential areas

1. *In order to provide visitor parking in non-multi-family residential areas with limited parking, lot size and/or required open space may be reduced equal to the area of standard-sized parking spaces as described in 2. below if all the following criteria are met:*
   a. *Ten percent or more of lots in the development do not have at least one adjacent on-street parking space that is at least 22 feet long.*
   b. *Shared parking spaces are within 250 feet of a lot without an on-street parking space.*
   c. *Shared parking spaces will be owned by an HOA and have enforceable covenants in place to ensure spaces are managed for visitor parking and not storage of extra vehicles or overflow parking of residents. This may include time limits on parking, limits on overnight parking, or other similar limits.*

   Response: Not applicable. This proposal does not include residential uses.

2. *When shared visitor parking is provided that meets the standards of 1. above, lot size or open space area for the development may be reduced as provided below. The same visitor parking spaces cannot be used to reduce both lot size and open space area. To achieve both*

reductions, adequate visitor parking space must be provided to offset both lot size and open space area reductions.

a. Individual lot size may be reduced by up to 2.5 percent of the minimum lot size for the zone to allow an equal area to be developed as shared parking, as long as the shared parking space is within 250 feet of the reduced lot.

b. Open space required under Subsection 4.113 (.01) may be reduced by up to 2.5 percent of gross development area (from 25 percent down to as low as 22.5 percent) to allow an area equal to the reduced open space as shared parking. No more than 50 percent of the reduced open space area may be from the required usable open space. In the RN zone, the ten percent Open Space requirement for Small-Lot Subdistrict may be reduced to eight percent.

c. In order to reduce stormwater runoff and the need for stormwater facilities, shared visitor parking areas are encouraged to be constructed of pervious surfaces.

Response: Not applicable. This proposal does not include residential uses.

(.03) Off-Street Parking Requirements:

A. Parking and loading or delivery areas shall be designed with access and maneuvering area adequate to serve the functional needs of the site and shall:

1. Separate loading and delivery areas and circulation from customer and/or employee parking and pedestrian areas. Circulation patterns shall be clearly marked.

2. To the greatest extent possible, separate vehicle and pedestrian traffic.

Response: This proposal has been designed to include loading and delivery areas and circulation from employee and pedestrian areas separated to the maximum extent practicable.

B. Parking areas over 650 square feet, excluding access areas, and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows:

1. General Landscaping Requirements:

• At least 10% of each parking area shall be landscaped to ensure it is screened from view from the public right-of-way and adjacent properties.

• This landscaping shall count towards the 15 percent total landscaping required in Section 4.176.03 for the site development.

Response: Parking areas include landscaped buffers and planting islands that screen views from the public right-of-way and adjacent properties. See Landscape Plans (Sheets 17–19). The north lot has 103 stalls with 18 trees being required and provided. Three of the trees on the eastern perimeter are included in this per 2.e below. The west lot has 83 stalls with 14 trees required and 16 trees provided. All of the trees in the west lot are internal to the parking lot.

2. Tree Planting Requirements:

a. Ratios:

• For parking areas with fewer than 40 spaces, one tree shall be planted for every eight parking spaces.

• For parking areas with 40 or more spaces, one tree shall be planted for every six

parking spaces, except as reduced under the Solar Panel Installation Option described in d. below.

Response: Both parking areas contain more than 40 spaces and provide parking lot trees consistent with the required ratios. See Landscape Plans (Sheets 17–19).

b. *Calculation:*
• When calculating the required number of trees based on the ratios in a., any non-whole number shall be rounded up to the nearest whole number.

Response: Required tree quantities are calculated and rounded up to the nearest whole number as shown on the Landscape Plans.

c. *Landscape Tree Planting Areas:*
   i. *Each landscape tree planting area shall have a minimum dimension of eight feet in both width and length, or provide an equivalent soil volume within the top 36 inches.*
      1. *Root barriers must be installed for any hard surfaces located within eight feet of the center of the tree trunk.*

ii. Planting areas shall be evenly spaced throughout the planting area (e.g., every 6 or 8 parking spaces depending on the ratio in a.). Planting areas are considered spaced evenly when:
• 90 percent of parking spaces are within five parking spaces of a tree; and
• the parking area has one 64 square-foot or greater planting area for every 6 or 8 parking spaces, depending on the ratio in a.
Response: Parking lot trees are located within planting islands meeting the required minimum planting dimensions and are distributed throughout the parking areas. See Landscape Plans.

d. *Solar Panel Installation Option:*
• For parking areas with 40 spaces or more, a developer may choose to exempt up to 25 percent of the parking spaces from the calculation of the ratio in a. by installing a prescribed amount of on-site solar panels as follows:
i. For each 0.5 kilowatt of generation capacity of on-site solar panels, one parking space may be exempted from the calculation of the ratio in a.
Response: Solar panel reductions are not proposed for this development.

e. *Tree Planting Location and Shading Requirements:*
i. Required trees may be planted within the parking area or the perimeter, provided that a minimum percentage of the canopy dripline of mature perimeter trees can be expected to shade or overlap the parking area, as follows:
• For parking areas with less than 40 spaces, 30 percent.
• For parking areas with 40 spaces or more not utilizing the Solar Panel Installation Option in d. above, 40 percent.
• For parking areas with 40 spaces utilizing the Solar Panel Installation Option in d. above, 40 percent minus 0.4 percent for each percent of parking spaces exempted from the tree-to-parking-space ratio due to solar panel installation.

Response: The north lot has 103 stalls with 18 trees being required and provided. Three of the trees on the eastern perimeter are used in the count per this requirement. The trees in the west lot are all internal to the parking lot.

f. Clearance for Parking Trees:
• Except for trees planted for screening, all deciduous interior parking area trees must be suitably sized, located, and maintained to provide a branching minimum of seven feet clearance at maturity.
Response: Tree species and placement will maintain the required minimum branching clearance at maturity.

g. *Stormwater Integration:*
• While integration of stormwater facilities into the parking area landscaping is encouraged, required parking lot trees shall not be placed in stormwater facilities designed for future soil media replacement.
Response: Stormwater facilities are coordinated with site landscaping and required parking lot trees are not located in facilities intended for future soil media replacement.

3. *Coordination of Landscaping with Sign Plans:*
• Where view of signs is pertinent to landscape design, any approved or planned sign plan shall accompany the application for landscape design approval.
Response: Sign locations and landscaping are coordinated on the Preliminary Site Plans (Appendix B).

4. *Additional Design Standards for Large Parking Areas:*
• Due to their large amount of impervious surface, new development with parking areas of more than 200 spaces that are located in any zone, and that may be viewed from the public right-of-way, shall meet the following additional standards:
   a. *Internal Pedestrian Walkways:*
   • Parking lots shall provide an internal pedestrian walkway for every six parking aisles.
   • Minimum walkway clearance shall be at least five feet in width.
   • Walkways shall be designed to provide pedestrian access to parking areas in order to minimize pedestrian travel among vehicles.
   • Walkways shall be designed to channel pedestrians to the main entrance of the building.
   Response: Not applicable. No individual parking area contains more than 200 spaces.

   b. *Street-like Features Along Drive Aisles:*
   • Parking lots more than three acres in size shall provide street-like features along principal drive aisles, including curbs, sidewalks, street trees or planting strips, and bicycle routes.
   Response: Not applicable. No parking lot exceeds three acres in size.

   c. *Increased Landscape Buffer:*
   • All parking lots viewed from the public right-of-way shall have a minimum 12 foot

landscaped buffer extending from the edge of the property line at the right-of-way to the edge of the parking area.
• Buffer landscaping shall meet the low screen standard of 4.176(.02)D except that trees, groundcovers and shrubs shall be grouped to provide visual interest and to create view openings no more than ten feet in length and provided every 40 feet.
• Notwithstanding this requirement, view of parking area that is unscreened from the right-of-way due to slope or topography shall require an increased landscaping standard under 4.176(.02) in order to buffer and soften the view of vehicles as much as possible.
• For purposes of this section, "view from the public right-of-way" is intended to mean the view from the sidewalk directly across the street from the site, or if no sidewalk, from the opposite side of the adjacent street or road.

Response: Landscape buffers 25-ft from ROW to back of curb for the north lot and 96-ft from the ROW to back of curb for the west lot. Landscaping in the north lot is buffer landscape in addition to a stormwater facility. For the west lot, a significant mitigation planting in addition to standard landscape buffer is proposed.

d. Reserved.

Response: No response required.

e. Tree Planting Location:
• At least 25 percent of the required trees shall be planted in the interior of the parking area.

Response: Greater that 25 percent of the required trees for parking requirement are in the interior of the parking area.

C. Off-Street Parking shall be designed for safe and convenient access that meets ADA and ODOT standards. All parking areas which contain ten (10) or more parking spaces, shall for every 50 standard spaces, provide one ADA-accessible parking space that is constructed to building code standards, Wilsonville Code 9.000.

Response: ADA-accessible parking spaces are provided in compliance with applicable accessibility standards. See Site Plans (Appendix B). The north lot has 103 parking stalls with 5 total ADA stalls. One of those stalls is dedicated to a wheelchair user. The west lot has 83 stalls and has 4 total ADA stalls with 1 dedicated van stall per table 1106.2 of the Oregon Structural Specialty Code.

D. Where possible, parking areas shall be designed to connect with parking areas on adjacent sites so as to eliminate the necessity for any mode of travel of utilizing the public street for multiple accesses or cross movements. In addition, on-site parking shall be designed for efficient on-site circulation and parking.

Response: On-site circulation is designed to support efficient vehicle movement and includes connections with the adjacent Sysco facility.

E. In all multi-family dwelling developments, bicycle parking is required as indicated in section 4.155(.04). Additionally, areas to provide for parking and storage of mopeds or motorcycles are

encouraged. Such areas shall be clearly defined and reserved for the exclusive use of these vehicles.

Response: Not applicable. The proposal does not include residential uses.

F. Table 5 shall be used to determine the parking requirements and allowances for various land uses. The number of parking spaces related to the requirements and allowances shown on Table 5 shall be determined by rounding to the nearest whole parking space. Structured parking and on-street parking are exempted from the parking maximums in Table 5.

Response: Parking is provided consistent with Table 5 standards for industrial uses.

G. Electrical Vehicle (EV) Charging Infrastructure Requirements:

1. Applicability:

• The requirements apply equally whether Charging Stations are installed with the initial development of the parking area or at a later date.

• The requirements apply to all new off-street parking areas for the multi-family and non-residential land uses indicated in this section.

2. Residential and Mixed-Use Development:

• For any residential or mixed-use development with five or more dwelling units on a single lot, at least 40 percent of all off-street vehicle parking spaces must be EV Ready.

3. Other Uses:

• Private commercial and industrial parking areas must comply with minimum EV infrastructure standards set by the Building Code.

4. EV Ready Requirements:

• Charging locations, electrical capacity, equipment space, and conduit must be provided to support future Level 2 EV charging infrastructure.

5. Modification of existing parking spaces to accommodate EV Charging Stations is allowed outright.

Response: EV charging infrastructure will be provided consistent with applicable Building Code requirements. The west lot has 17 EV Ready spots and the north lot has 21 EV ready spots corresponding to 20% of the total spots rounded up to the next whole number per the OSSC.

H. Reserved.

Response: No response required.

I. I. Motorcycle parking:

1. Motorcycle parking spaces must be at least four feet wide and eight feet deep. Existing parking may be converted to take advantage of this provision.

Response: Motorcycle parking is not proposed for this development.

(.04) Bicycle Parking:

A. Required Bicycle Parking—General Provisions:

1. The required minimum number of bicycle parking spaces for each use category is shown in Table 5, Parking Standards.

2. *Bicycle parking spaces are not required for accessory buildings. If a primary use is listed in Table 5, bicycle parking is not required for the accessory use.*
3. *When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.*
4. *Bicycle parking space requirements may be waived by the Development Review Board per Section 4.118(.03)A.9. and 10.*

Response: This proposal has been designed to include twenty (20) bicycle spaces which meets the one (1) bicycle space per every 20,000 square feet.

EXCERPTED PORTIONS OF TABLE 5: PARKING STANDARDS	
USE	*BICYCLE MINIMUMS*
f. Industrial	
2. Storage warehouse, wholesale establishment, rail or trucking freight terminal	*1 per 20,000 sq. ft.* *Min. of 2*

B. *Standards for Required Bicycle Parking:*
1. *Each space must be at least two feet by six feet in area and be accessible without moving another bicycle.*
2. *An aisle at least five feet wide shall be maintained behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.*
3. *When bicycle parking is provided in racks, there must be enough space between the rack and any obstructions to use the space properly.*
4. *Bicycle lockers or racks, when provided, shall be securely anchored.*
5. *Bicycle parking shall be located within 30 feet of the main entrance to the building or inside a building, in a location that is easily accessible for bicycles. For multi-tenant developments, with multiple business entrances, bicycle parking may be distributed on-site among more than one main entrance.*
6. *Bicycle parking areas shall include parking spaces to accommodate large bicycles, including family and cargo bicycles*
7. *With Planning Director approval, on street vehicle parking can also be used for bicycle parking.*

Response: This proposal has been designed to meet the standards included in this subsection. Two separate bike parking racks are located just outside the building access at the parking for the new expansion and the new building each containing ten (10) bike parking spots. This results in twenty exterior short term (20) bike parking spaces and ten (10) long-term bicycle spaces located inside the building.

C. *Long-term Bicycle Parking:*
1. *Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for several hours a weather-protected place to park bicycles.*

Response: This proposal has been designed to include ten (10) long-term bicycle spaces located inside the building.

2. *For a proposed multi-family residential, retail, office, or institutional development, or for a park and ride or transit center, where six or more bicycle parking spaces are required…*

Response: Not applicable. This proposal is not for one of the listed uses.

(.05) Minimum Off-Street Loading Requirements:

A. Every building that is erected or structurally altered to increase the floor area, and which will require the receipt or distribution of materials or merchandise by truck or similar vehicle, shall provide off-street loading berths on the basis of minimum requirements as follows:

1. Commercial, industrial, and public utility uses which have a gross floor area of 5,000 square feet or more, shall provide truck loading or unloading berths in accordance with the following tables:

Square feet of Floor Area	*Number of Berths Required*
Less than 5,000	*0*
5,000—30,000	*1*
30,000—100,000	*2*
100,000 and over	*3*

Response: The distribution facility is over 100,000 square feet and has more than 3 berths.

2. Restaurants, office buildings, hotels, motels, hospitals and institutions, schools and colleges, public buildings, recreation or entertainment facilities, and any similar use which has a gross floor area of 30,000 square feet or more, shall provide off-street truck loading or unloading berths in accordance with the following table:

[…]

Response: Not applicable. This proposal does not involve restaurants, office buildings, hotels, motels, hospitals and institutions, schools and colleges, public buildings, recreation or entertainment facilities or any similar use.

3. A loading berth shall contain space 12 feet wide, 35 feet long, and have a height clearance of 14 feet. Where the vehicles generally used for loading and unloading exceed these dimensions, the required length of these berths shall be increased to accommodate the larger vehicles.

Response: This distribution facility's loading berths meet the required dimensions.

4. If loading space has been provided in connection with an existing use or is added to an existing use, the loading space shall not be eliminated if elimination would result in less space than is required to adequately handle the needs of the particular use.

Response: Not applicable. The loading births included in this proposal are associated with a new site use.

B. Exceptions and Adjustments:

1. The Planning Director or Development Review Board may approve a loading area adjacent to or within a street right-of-way where it finds that loading and unloading operations

a. Are short in duration (i.e., less than one hour);

b. Are infrequent (less than three operations daily);

c. Do not obstruct traffic during peak traffic hours;

d. Do not interfere with emergency response services or bicycle and pedestrian facilities; and

e. Are acceptable to the applicable roadway authority.

Response: Not applicable. This proposal does not include exceptions or adjustments to the off-street parking standards contained within this section.

(.06) Carpool and Vanpool Parking Requirements:

A. Carpool and vanpool parking spaces shall be identified for the following uses:

1. New commercial and industrial developments with 75 or more parking spaces,

2. New institutional or public assembly uses, and

3. Transit park-and-ride facilities with 50 or more parking spaces.

Response: This proposal involves a new industrial development with more than seventy-five (75) parking spaces. As such, this proposal is subject to the carpool and van requirements of this section.

B. Of the total spaces available for employee, student, and commuter parking, at least five percent, but not fewer than two, shall be designated for exclusive carpool and vanpool parking.

Response: This proposal has been designed to include five percent (5%) of employee parking which is dedicated.

C. Carpool and vanpool parking spaces shall be located closer to the main employee, student or commuter entrance than all other parking spaces with the exception of ADA parking spaces.

Response: The carpool and vanpool parking spaces included with this proposal are located near the main building entrance for the site.

D. Required carpool/vanpool spaces shall be clearly marked "Reserved - Carpool/Vanpool Only."

Response: The required carpool/vanpool spaces included in this proposal will be clearly marked "Reserved - Carpool/Vanpool Only."

Section 4.156.01. – Sign Regulations Purpose and Objectives.

(.01) Purpose. The general purpose of the sign regulations are to provide one of the principal means of implementing the Wilsonville Comprehensive Plan by fostering an aesthetically pleasing, functional, and economically vital community, as well as promoting public health, safety, and well-being. The sign regulations strive to accomplish the above general purpose by meeting the needs of sign owners while maintaining consistency with the development and design standards elsewhere in Chapter 4. This Code regulates the design, variety, number, size, location, and type of signs, as well as the processes required to permit various types of signs. Sign regulations have one or more of the following specific objectives:

A. Well-designed and aesthetically pleasing signs sufficiently visible and comprehensible from streets and rights-of-way that abut a site as to aid in wayfinding, identification and provide other needed information.

B. Sign design and placement that is compatible with and complementary to the overall design and architecture of a site, along with adjoining properties, surrounding areas, and the zoning district.

C. A consistent and streamlined sign review process that maintains the quality of sign development and ensures due process.

D. Consistent and equitable application and enforcement of sign regulations.

E. All signs are designed, constructed, installed, and maintained so that public safety, particularly traffic safety, are not compromised.

F. Sign regulations are content neutral.

Response: Preliminary site signage is shown on Sheet 20, illustrating generic monument signage with tenant(s) to be determined. Proposed building signage is illustrated on the building elevations plans with the building set. Final sign design, sizing, and placement will be reviewed and permitted in accordance with this section through a separate sign permit application. Any future signs will also meet the measurements required in Section 4.156.03

Section 4.156.02. - Sign Review Process and General Requirements.

(.01) Permit Required. Unless exempt under Section 4.156.05, no sign, permanent or temporary, shall be displayed or installed in the City without first obtaining a sign permit.

(.02) Sign Permits and Master Sign Plans. Many properties in the City have signs pre-approved through a Master Sign Plan. For the majority of applications where a Master Sign Plan has been approved the applicant need not consult the sign requirements for the zone, but rather the Master Sign Plan, copies of which are available from the Planning Division. Signs conforming to a Master Sign Plan require only a Class I Sign Permit.

(.03) Classes of Sign Permits, Master Sign Plans, and Review Process. The City has three classes of sign permits for permanent signs: Class I, Class II, and Class III. In addition, non-residential developments with three or more tenants require a Master Sign Plan. Class I sign permits are reviewed through the Class I Administrative Review Process as outlined in Subsection 4.030(.01)A. Class II sign permits are reviewed through the Class II Administrative Review Process as outlined in Subsection 4.030 (.01)B. Class III Sign Permits and Master Sign Plans are reviewed by the Development Review Board (DRB) as outlined in Section 4.031.

(.04) Class I Sign Permit. Sign permit requests shall be processed as a Class I Sign Permit when the requested sign or signs conform to a Master Sign Plan or other previous sign approval. In addition, a Minor Adjustment to a Master Sign Plan or other previous sign approval may be approved in connection with a Class I Sign Permit.

2. Class I Sign Permit Submission Requirements. Application for a Class I Sign Permit shall include two copies of the following along with all required application fees:

1. Completed application form prescribed by the City and signed by the property owner or the property owner's representative,

2. Sign drawings showing all materials, the sign area and dimensions used to calculate sign areas, and other details sufficient to judge the full scale of the associated sign or signs and related improvements,

3. Information showing how the proposed sign or signs conform with all applicable Code requirements, Master Sign Plans, or other previous sign approvals for the property, and

4. *Information supporting any minor adjustment requests.*

B. *Class I Sign Permit Review Criteria. The sign or signs conform with the applicable master sign plan or other previous sign approvals, and applicable Code requirements.*

C. *Minor Adjustments. Notwithstanding approved Master Sign Plans or other previous sign approvals, as part of a Class I Sign Permit Minor Adjustments may be approved as described in 1. and 2. below. Minor Adjustments are valid only for the Sign Permit with which they are associated and do not carry over to future sign permits or copy changes.*

1. *Adjustment to Sign Height or Length. Adjustment of not more than ten percent from the sign height (not height from ground) and/or length may be approved for the reasons listed in a. through d. below, unless otherwise specifically prohibited in the Master Sign Plan. Minor adjustments to sign height and length shall not cause the sign to cross the edge of any fascia, architectural element or area of a building facade identified as a sign band. The area of the sign exceeding the height or length as part of a minor adjustment shall not count against the sign area indicated in a Master Sign Plan or other previous sign approval.*
   a. *To accommodate the descender on the lower case letters "q, y, p g, or j", not otherwise accommodated by the measurement method used, where the letter matches the font of other letters in the sign, the descender is no more than ½ the cap height of the font, and the descender is no wider than the main body of the letter;*
   b. *To accommodate stylized fonts where bowls, shoulders, or serifs of the stylized letters extend beyond the cap height;*
   c. *To accommodate an arching or other non-straight baseline; or*
   d. *To accommodate a federally registered trademark logo where compliance with the defined maximum sign height would result in the cap height of the text in the logo being 90 percent or less of the cap height for letters otherwise allowed. (i.e. if a Master Sign Plan allowed 24" letters and 24" total sign height, and a 24" logo would result in the cap height of the text within the logo being less than 21.6", the total height of the logo could be increased to 26.4")*
2. *Lateral Adjustment of Building Sign Location. Lateral adjustment of a building sign location identified in drawings or plans for a Master Sign Plan or other sign approval when all of the following are met:*
   a. *The lateral distance being moved does not exceed 50 percent of the sign length or ten feet, whichever is greater;*
   b. *The exact location is not specifically supported or required by written findings or a condition of approval;*
   c. *The sign remains within the same architectural feature and sign band, except if the location is on a pillar, column, or similar narrow architectural support feature, the sign may be moved to a sign band on the architecture feature which it supports if no other sign is already placed in that sign band for the tenant space; and*
   d. *The placement maintains any spacing from the edge of an architectural feature, building, or tenant space specifically identified in the Master Sign plan or other sign approval or if no spacing is identified, maintains a definable space between the sign and the edge of architectural features, the tenant space, and building.*

(.05) Class II Sign Permit. Sign permit requests for meeting one or more of the descriptions listed in A. through C. below shall be processed as a Class II Sign Permit when the request does not conform with a Master Sign Plan or other previous sign approval but meets the requirements of the applicable sign regulations, unless the request would modify a condition of approval specifically imposed by the DRB or City Council:

A. Existing residential development;

3. Existing non-residential development with less than three tenants unless the request involves a freestanding or ground mounted sign greater than eight feet in height in a new location;

4. New development or redevelopment in the Coffee Creek Industrial Design Overlay District subject to a Class II administrative review process;

5. Major Adjustments to a Master Sign Plan when all of the following criteria are met:

1. The request is compatible with the pattern of signage established in the sign plan in terms of locations, placement on buildings, proportionality to fascia and building facade, architectural design, and materials used;

2. The request is due to special conditions or circumstances that make it difficult to comply with the established Master Sign Plan;

3. The request involves signs for a single tenant, a single multi-tenant freestanding or ground mounted sign, or a series of similar related multi-tenant freestanding or ground mounted signs in the same development; and

4. The request does not involve a freestanding or ground mounted sign greater than eight feet in height at a new location.

6. Class II Sign Permit Submission Requirements: Application for a Class II Sign Permit shall include two paper copies and one electronic copy of the following in addition to all required fees:

1. Completed application form prescribed by the City and signed by the property owner or their authorized representative;

2. Sign drawings or descriptions of all materials, sign area and dimensions used to calculate areas, lighting methods, and other details sufficient to judge the full scale of the signs and related improvements;

3. Documentation of the lengths of building or tenant space facades used in calculating maximum allowed sign area;

4. Drawings of all building facades on which signs are proposed indicating the areas of the facades on which signs will be allowed; and

5. Narrative describing the scope of the project, including written findings addressing all applicable review criteria, along with any other information showing how the proposed signage conforms with requirements for the applicable zone.

7. Class II Sign Permit Review Criteria. Class II Sign Permits shall satisfy the sign regulations for the applicable zoning district and the Site Design Review Criteria in Sections 4.400 through 4.421, as well as the following criteria:

1. The proposed signage is compatible with developments or uses permitted in the zone in terms of design, materials used, color schemes, proportionality, and location, so that it does not interfere with or detract from the visual appearance of surrounding development;

2. *The proposed signage will not create a nuisance or result in a significant reduction in the value or usefulness of surrounding development; and*
3. *Special attention is paid to the interface between signs and other site elements including building architecture and landscaping, including trees.*

(.06) Class III Sign Permit. Sign permit requests shall be processed as a Class III Sign Permit when associated with new development, except as noted in Subsection 4.156.02(.05)C., or redevelopment requiring DRB review, and not requiring a Master Sign Plan; when a sign permit request is associated with a waiver or non-administrative variance; or when the sign permit request involves one or more freestanding or ground mounted signs greater than eight feet in height in a new location.

A. *Class III Sign Permit Submission Requirements. Ten paper and electronic copies of the submission requirements for Class II Sign Permits plus information on any requested waivers or variances in addition to all required fees.*
B. *Class III Sign Permit Review Criteria: The review criteria for Class II Sign Permits plus waiver or variance criteria when applicable.*

(.07) Master Sign Plans. A Master Sign Plan is required for non-residential developments with three or more tenants. In creating a Master Sign Plan thought should be given to needs of initial tenants as well as the potential needs of future tenants.

A. *Master Sign Plan Submission Requirements. Applications for Master Sign Plans shall include ten paper and electronic copies of all the submission requirements for Class II and III Sign Permits and the following in addition to all required fees:*
   1. *A written explanation of the flexibility of the Master Sign Plan for different potential tenant space configurations over time;*
   2. *A written explanation of the extent to which different sign designs, including those incorporating logos, stylized letters, multiple lines of text, non-straight baselines, or different materials and illumination will be allowed and if allowed how the flexibility of the master sign plan will allow these different sign designs over time;*
   3. *A written explanation of how the sign plan provides for a consistent and compatible sign design throughout the subject development.*
B. *Master Sign Plan Review Criteria. In addition to the review criteria for Class II and Class III Sign Permits, Master Sign Plans shall meet the following criteria:*
   1. *The Master Sign Plan provides for consistent and compatible design of signs throughout the development; and*
   2. *The Master Sign Plan considers future needs, including potential different configurations of tenant spaces and different sign designs, if allowed.*
C. *Modifications of a Master Sign Plan. Modifications of a Master Sign Plan, other than Minor and Major Adjustments, shall be reviewed the same as a new Master Sign Plan.*

(.08) Waivers and Variances. Waivers and variances are similar in that they allow deviation from requirements such as area, and height from ground. They differ in that waivers are granted by the DRB as part of a comprehensive review of the design and function of an entire site to bring about an

improved design and variances are granted by either the Planning Director or DRB to relieve a specific hardship caused by the regulations.

3. *Waivers. The DRB may grant waivers for sign area, sign height from ground (no waiver shall be granted to allow signs to exceed 35 feet in height), number of signs, or use of electronic changeable copy signs in order to better implement the purpose and objectives of the sign regulations as determined by making findings that all of the following criteria are met:*
8. *The waiver will result in improved sign design, in regards to both aesthetics and functionality.*
9. *The waiver will result in a sign or signs more compatible with and complementary to the overall design and architecture of a site, along with adjoining properties, surrounding areas, and the zoning district than signs allowed without the waiver.*
10. *The waiver will result in a sign or signs that improve, or at least do not negatively impact, public safety, especially traffic safety.*
11. *Sign content is not being considered when determining whether or not to grant a waiver.*

4. *Variances:*
1. *Administrative Variance. In reviewing a Sign Permit the Planning Director may grant or deny a variance to relieve a hardship through the Class II Administrative Review process. Such a variance shall only be approved where the variance does not exceed 20 percent of area, height, or setback requirements. The Planning Director shall approve such a variance only upon finding that the application complies with all of the required variance criteria listed in Section 4.196.*
2. *Other Variances. In addition to the authority of the Planning Director to issue administrative variances as noted above, the Development Review Board may authorize variances from sign requirements of the Code, subject to the standards and criteria listed in Section 4.196.*

(.09) Temporary Sign Permits. Temporary sign permits shall be reviewed as follows:

A. *30 days and less—Class I Administrative Review.*
B. *31 days up to 120 days—Class II Administrative Review.*
C. *Submission Requirements. Applications for a temporary sign permit shall include the following in addition to the required application fee:*
1. *Completed application form prescribed by the City and signed by the property owner or their authorized representative,*
2. *Two copies of sign drawings or descriptions showing all materials, sign area and dimensions used to calculate areas, number of signs, location and placement of signs, and other details sufficient to judge the full scale of the sign or signs,*
3. *Information showing the proposed sign or signs conform with all applicable Code requirements.*
5. *Review Criteria. Temporary Sign Regulations in Section 4.156.09.*
6. *When a temporary sign permit request is submitted as part of the broader temporary use permit request of the same duration, the sign request shall not require an additional fee.*

(.10) Waiver of Documentation. The Planning Director may, in his or her discretion, waive an application document for Class I, Class II, and temporary sign permits where the required information has already been made available to the City, or where the Planning Director determines the information contained in an otherwise required document is not necessary to review the application.

Responses for (.01) through (0.10): Preliminary signage is shown on Sheet 20, and page 10 of the Architectural plans illustrating Sysco monument signage with possible tenant(s) to be determined. Final sign design, sizing, and placement will be reviewed and permitted in accordance with this section through a separate sign permit application. Any future signs will also meet the measurements required in Section 4.156.03.

Section 4.156.03. – Sign Measurement.

(…)

Response: The applicant acknowledges the sign measurement standards of Section 4.156.03 and understands that all proposed signs will be measured and evaluated in accordance with these requirements at the time of sign permitting

Section 4.171. - General Regulations—Protection of Natural Features and Other Resources.

(.01) Purpose. It is the purpose of this Section to prescribe standards and procedures for the use and development of land to assure the protection of valued natural features and cultural resources. The requirements of this Section are intended to be used in conjunction with those of the Comprehensive Plan and other zoning standards. It is further the purpose of this Section:

A. To protect the natural environmental and scenic features of the City of Wilsonville.

B. To encourage site planning and development practices which protect and enhance natural features such as riparian corridors, streams, wetlands, swales, ridges, rock outcroppings, views, large trees and wooded areas.

C. To provide ample open space and to create a constructed environment capable and harmonious with the natural environment.

Response: This proposal has been designed in conformance with this code Section.

(.02) General Terrain Preparation:

A. All developments shall be planned, designed, constructed and maintained with maximum regard to natural terrain features and topography, especially hillside areas, floodplains, and other significant landforms.

Response: This proposal has been designed to minimize the alteration to the existing terrain and topography with the exception of the on-site drainage ditch which must be filled in order to improve area stormwater quality and quantity and achieve the required site expansion.

B. All grading, filling and excavating done in connection with any development shall be in accordance with the Uniform Building Code.

Response: This proposal has been designed to include grading, filling and excavating in compliance with the City's Uniform Building Code.

C. In addition to any permits required under the Uniform Building Code, all developments shall be planned, designed, constructed and maintained so as to:

1. *Limit the extent of disturbance of soils and site by grading, excavation and other land alterations.*

   Response: This proposal has been designed to limit the extent of disturbance and avoids most of the tree grove located within the northwest corner of the site.

2. *Avoid substantial probabilities of: (l) accelerated erosion; (2) pollution, contamination, or siltation of lakes, rivers, streams and wetlands; (3) damage to vegetation; (4) injury to wildlife and fish habitats.*

   Response: This proposal has been designed to minimize erosion by removing the artificially made on-site drainage ditch. The existing on-site drainage ditch continues to contribute sediment to the downstream watershed system. Compensatory mitigation is included.

3. *Minimize the removal of trees and other native vegetation that stabilize hillsides, retain moisture, reduce erosion, siltation and nutrient runoff, and preserve the natural scenic character.*

   Response: This proposal has been designed to largely avoid the group of trees located within the northwestern portion of the site which contain Oregon white oak and coniferous trees.

(.03) Hillsides. All developments proposed on slopes greater than 25 percent shall be limited to the extent that:

Response: Not applicable. The site does not contain slopes greater than twenty-five percent (25%).

(.04) Trees and Wooded Areas:

A. All developments shall be planned, designed, constructed and maintained so that:

1. *Existing vegetation is not disturbed, injured, or removed prior to site development and prior to an approved plan for circulation, parking and structure location.*
2. *Existing wooded areas, significant clumps/groves of trees and vegetation, and all trees with a diameter at breast height of six inches or greater shall be incorporated into the development plan and protected wherever feasible.*
3. *Existing trees are preserved within any right-of-way when such trees are suitably located, healthy, and when approved grading allows.*

Response: This proposal has been designed to avoid most of the existing trees located within the northwest corner of the site and include Oregon white oak and conifers, most of which will be retained on site. Existing site trees are not located within right-of-way.

B. Trees and woodland areas to be retained shall be protected during site preparation and construction according to City Public Works design specifications, by:

1. *Avoiding disturbance of the roots by grading and/or compacting activity.*
2. *Providing for drainage and water and air filtration to the roots of trees which will be covered with impermeable surfaces.*
3. *Requiring, if necessary, the advisory expertise of a registered arborist/horticulturist both during and after site preparation.*

4. *Requiring, if necessary, a special maintenance, Management program to insure survival of specific woodland areas of specimen trees or individual heritage status trees.*

Response: This proposal includes the retention of the tree area located within the northwest corner of the site. Disturbance of these trees will be averted by use of best management practices (BMPs) as recommended by the arborist in their Tree Protection Plan for Sysco Wilsonville. These BMPs include the establishment of a tree protection zone measured at a distance of twelve (12) inches per diameter of the tree, measured from the face of the trunk along with the on-site monitoring of a professionally licensed arborist during the ground disturbance activity phase of construction.

(.05) High Voltage Powerline Easements and Right-of-Way and Petroleum Pipeline Easements:

A. *Due to the restrictions placed on these lands, no residential structures shall be allowed within high voltage powerline easements and rights-of-way and petroleum pipeline easements, and any development, particularly residential, adjacent to high voltage powerline easements and rights-of-way and petroleum pipeline easements shall be carefully reviewed.*
B. *Any proposed non-residential development within high voltage powerline easements and rights-of-way and petroleum pipeline easements shall be coordinated with and approved by the Bonneville Power Administration, Portland General Electric Company or other appropriate utility, depending on the easement or right-of-way ownership.*

Response: This proposal involves non-residential development for which a portion of the southern part of the site is located within a Bonneville Power Administration (BPA) easement. The necessary approvals from BPA to conduct construction activities within their easement have been obtained.

(.06) Hazards to Safety: Purpose.

A. *To protect lives and property from natural or human-induced geologic or hydrologic hazards and disasters.*
B. *To protect lives and property from damage due to soil hazards.*
C. *To protect lives and property from forest and brush fires.*
D. *To avoid financial loss resulting from development in hazard areas.*

Response: This proposal has been designed in conformance with all applicable rules and regulations pertaining to local development code as well as local, state, federal and international building codes, which serve to minimize the potential for hazards to human and environmental safety.

(.07) Standards for Earth Movement Hazard Areas:

A. *No development or grading shall be allowed in areas of land movement, slump or earth flow, and mud or debris flow, except under one of the following conditions:*
    1. *Stabilization of the identified hazardous condition based on established and proven engineering techniques which ensure protection of public and private property. Appropriate conditions of approval may be attached by the City.*
    2. *An engineering geologic study approved by the City establishing that the site is stable for the proposed use and development. The study shall include the following:*
        a. *Index map.*

b. Project description, to include: location; topography, drainage, vegetation; discussion of previous work; and discussion of field exploration methods.
c. Site geology, to include: site geologic map; description of bedrock and superficial materials including artificial fill; location of any faults, folds, etc.; and structural data including bedding, jointing, and shear zones.
d. Discussion and analysis of any slope stability problems.
e. Discussion of any off-site geologic conditions that may pose a potential hazard to the site or that may be affected by on-site development.
f. Suitability of site for proposed development from geologic standpoint.
g. Specific recommendations for cut slope stability, seepage and drainage control, or other design criteria to mitigate geologic hazards.
h. Supportive data, to include: cross sections showing subsurface structure; graphic logs of subsurface explorations; results of laboratory tests; and references.
i. Signature and certification number of engineering geologist registered in the State of Oregon.
j. Additional information or analyses as necessary to evaluate the site.

Response: Not applicable. This proposal is not sited at a location known to be subject to land movement, slump or earth flow, and mud or debris flow.

B. Vegetative cover shall be maintained or established for stability and erosion control purposes.

Response: This proposal has been designed to include temporary construction BMPs which provide for vegetative cover in order to ensure stability and erosion control.

C. Diversion of storm water into these areas shall be prohibited.

Response: This proposal does not include the diversion of stormwater onto the construction site. Instead, this proposal includes temporary construction BMP measures to inhibit the collection or ponding of stormwater which is comingled with sediment or other pollutants prior to discharge.

D. The principal source of information for determining earth movement hazards is the State Department of Geology and Mineral Industries (DOGAMI) Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site specific engineering geologic studies shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the earth movement hazards database.

Response: This proposal is not located within a site known to be subject to instability; therefore, site-specific studies are not required to further evaluate the site.

(.08) Standards for Soil Hazard Areas:
A. Appropriate siting and design safeguards shall insure structural stability and proper drainage of foundation and crawl space areas for development on land with any of the following soil conditions: wet or high water table; high shrink-swell capability; compressible or organic; and shallow depth-to-bedrock.
B. The principal source of information for determining soil hazards is the State DOGAMI Bulletin 99 and any subsequent bulletins and accompanying maps. Approved site-specific soil studies

shall be used to identify the extent and severity of the hazardous conditions on the site, and to update the soil hazards database accordingly.

Response: Not applicable. The site does not contain soil hazard areas, therefore no further evaluation of the site is required or included in this application submittal package.

(.09) Historic Protection: Purpose.

A. To preserve structures, sites, objects, and areas within the City of Wilsonville having historic, cultural, or archaeological significance.

B. Standards:

1. All developments shall be planned, designed, constructed, and maintained to assure protection of any designated historic or cultural resource on or near the site. Restrictions on development may include:

a. Clustering of buildings and incorporation of historic and/or cultural resources into site design in a manner compatible with the character of such resource.

b. Limitations on site preparation and grading to avoid disturbance of areas within any historic or archaeological sites, monuments or objects of antiquity.

c. Provision of adequate setbacks and buffers between the proposed development and the designated resources.

Response: The site does not contain any known structures, sites and areas within the City of Wilsonville having historic, cultural or archaeological significance.

2. The City may attach additional conditions with respect to the following design factors in protecting the unique character of historic/cultural resources:

a. Architectural compatibility;

b. Proposed intensity of development;

c. Relationship to designated open space;

d. Vehicular and pedestrian access; and

e. Proposed building or structural mass in relation to the designated resource.

Response: The Applicant acknowledges that the City may attach additional conditions regarding the above-listed design factors.

C. Review Process:

1. The Development Review Board shall be the review body for:

a. All development which proposes to alter a designated historic, or cultural resource or resource site; and

b. All development which proposes to use property adjacent to a designated cultural resource; and

c. All applications requesting designation of a cultural or historic resource.

Response: It is acknowledged that the Development Review Board is the review body for the above-listed proposal types. The site does not contain historic or cultural sites; therefore, this does not apply.

[…]

Section 4.175. - Public Safety and Crime Prevention.

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

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

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

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

Response: This proposal has been designed to include crime deterrent features including fencing and lighting. Directional signage has been included in the design of this proposal in order to facilitate easy identification for emergency response personnel. The site is not known to be vulnerable to crime.

Section 4.176. - Landscaping, Screening, and Buffering.

Note: The reader is encouraged to see Section 4.179, applying to screening and buffering of storage areas for solid waste and recyclables.

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

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

Response: This proposal has been designed to include landscaping, screening and buffering pursuant to the City's applicable requirements for the site and nature of the proposed development.

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

Response: Native, drought-tolerant plant communities are established as part of the mitigation and landscape planting plans, reducing long-term irrigation demand while restoring native vegetation consistent with the SRIR (Appendix E).

C. Mitigate for loss of native vegetation;

Response: Impacts to native vegetation are mitigated through on-site restoration and enhancement areas and native replacement planting as documented in the mitigation plan included in the SRIR (Appendix E).

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

Response: The site design incorporates perimeter and internal landscaping to enhance visual character and address safety considerations along SW Parkway Avenue and SW Parkway Center Drive, consistent with the approved site and landscape plans.

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

Response: This proposal involves bringing the site into conformance with the City's Comprehensive Plan industrial designation. This proposal has been designed in conformance

with all applicable provisions of the code to ensure that potential effects to visual, noise and lighting are minimized.

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

Response: This proposal has been designed with landscaping features which serve to differentiate public right-of-way from on-site private spaces. This differentiation is accomplished through the inclusion of street trees within the planter strip abutting the detached sidewalk and on-site landscaping.

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

Response: The proposed development retains and incorporates existing soils and vegetation where practicable. Disturbed areas will be restored with appropriate planting and landscaping to support stormwater retention and promote infiltration, including the use of LID stormwater management systems with amended soils.

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

Response: This proposal has been designed to retain a large majority of existing trees on site. According to the Tree Protection Plan provided by Teragan and Associates, Inc., approximately eighteen percent (18%) of existing on-site trees will be removed in order to facilitate the development of the site. Trees will be planted as shown on the landscape plan.

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

Response: Not applicable. This proposal does not involve the outdoor storage of materials that would otherwise be considered unsightly.

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

Response: This proposal has been designed with the inclusion of safety lighting providing illumination of the site for purposes of detracting criminal activity. Site distance clearance triangles are shown on the landscape plans.

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

Response: The trees, shrubs and ground cover landscaping selected for this proposal based on criteria such as low-maintenance and drought resistance characteristics.

(.02) Landscaping and Screening Standards:

A. Subsections "C" through "I," below, state the different landscaping and screening standards to be applied throughout the City. The locations where the landscaping and screening are required and the depth of the landscaping and screening is stated in various places in the Code.

B. 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 (e.g., a landscaped area of between 800 and 1,600 square feet shall have two trees if the standard calls for one tree per 800 square feet.

Response: This proposal has been designed to meet the City's minimum requirements as applicable to the total site area.

C. *General Landscaping Standard:*

1. *Intent. The General Landscaping Standard is a landscape treatment for areas that are generally open. It is intended to be applied in situations where distance is used as the principal means of separating uses or developments and landscaping is required to enhance the intervening space. Landscaping may include a mixture of ground cover, evergreen and deciduous shrubs, and coniferous and deciduous trees.*

   Response: Surrounding properties are developed with similar industrial uses; however, general landscaping is provided in open areas along the site frontage and internal open spaces to enhance visual quality and define site edges, consistent with the Landscape Plans (Sheets 17–19).

2. *Required materials. Shrubs and trees, other than street trees, may be grouped. Ground cover plants must fully cover the remainder of the landscaped area (see Figure 21: General Landscaping). The General Landscaping Standard has two different requirements for trees and shrubs:*
   a. *Where the landscaped area is less than 30 feet deep, one tree is required for every 30 linear feet.*
   b. *Where the landscaped area is 30 feet deep or greater, one tree is required for every 800 square feet and two high shrubs or three low shrubs are required for every 400 square feet.*

   Response: The Landscape Plans demonstrate compliance with the General Landscaping Standard by providing grouped trees and shrubs, with ground cover fully covering the remaining landscaped areas. Tree and shrub quantities and spacing meet the applicable standards based on landscaped area depth, consistent with Figure 21 of the Code.

D. *Low Screen Landscaping Standard:*

1. *Intent. The Low Screen Landscaping Standard is a landscape treatment that uses a combination of distance and low screening to separate uses or developments. It is intended to be applied in situations where low screening is adequate to soften the impact of one use or development on another, or where visibility between areas is more important than a total visual screen. The Low Screen Landscaping Standard is usually applied along street lot lines or in the area separating parking lots from street rights-of-way.*
2. *Required materials. The Low Screen Landscaping Standard requires sufficient low shrubs to form a continuous screen three feet high and 95 percent opaque, year-round. In addition, one tree is required for every 30 linear feet of landscaped area, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the*

remainder of the landscaped area. A three foot high masonry wall or a berm may be substituted for the shrubs, but the trees and ground cover plants are still required. When applied along street lot lines, the screen or wall is to be placed along the interior side of the landscaped area. (See Figure 22: Low Screen Landscaping).

Response: Low screen landscaping is provided along street frontages and parking areas as shown on the Landscape Plans to soften visual impacts while maintaining visibility and safety, consistent with the intent of the Low Screen Landscaping Standard.

E. Low Berm Landscaping Standard:

1. *Intent. The Low Berm Standard is intended to be applied in situations where moderate screening to reduce both visual and noise impacts is needed to protect abutting uses or developments from one-another, and where it is desirable and practical to provide separation by both distance and sight-obscuring materials. This screening is most important where either, or both, of the abutting uses or developments can be expected to be particularly sensitive to noise or visual impacts.*
2. *Required materials. The Low Berm Standard requires a berm at least two feet six inches high along the interior side of the landscaped area (see Figure 23: Low Berm Landscaping). If the berm is less than three feet high, low shrubs meeting the Low Screen Landscaping Standard, above, are to be planted along the top of the berm, assuring that the screen is at least three feet in height. In addition, one tree is required for every 30 linear feet of berm, or as otherwise required to provide a tree canopy over the landscaped area. Ground cover plants must fully cover the remainder of the landscaped area.*

   Response: Low berm landscaping is provided where moderate visual and noise buffering is appropriate, consistent with the intent of the Low Berm Landscaping Standard, as shown on the Landscape Plans.

(.03) Landscape Area. Not less than 15 percent) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent parking area landscaping required by section 4.155.03(B)(1) is included in the 15 percent 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. (For recommendations refer to the Native Plant List maintained by the City of Wilsonville).

Response: The proposal provides landscaping exceeding 15 percent and is currently shown to be about 34% of the total lot area, inclusive of required parking area landscaping. Landscaping is distributed across multiple distinct areas of the site, including frontage, parking, and mitigation areas, and is designed to soften and define buildings and parking areas using a mix of plant forms, textures, and heights, as shown on the Landscape Plans.

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

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

Response: The site is surrounded by similar industrial uses; therefore, no buffering between differing land use intensities is required. Required perimeter and streetscape landscaping are provided as shown on the Landscape Plans.

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.*

Response: No adjacent residential uses are present. Landscaping along public rights-of-way is provided as shown on the Landscape Plans.

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.*

Response: All exterior mechanical and utility equipment will be screened from ground-level off-site views in compliance with code requirements.

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.*

Response: No outdoor storage is proposed as part of this development.

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*

Response: Landscape is designed to screen loading areas and docks, and truck parking.

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

Response: Not applicable. Fences are not proposed over six feet high.

(.05) *Sight-Obscuring Fence or Planting. The use for which a sight-obscuring fence or planting is required shall not begin operation until the fence or planting is erected or in place and approved by the City. A temporary occupancy permit may be issued upon a posting of a bond or other security equal to 110 percent of the cost of such fence or planting and its installation. (See Sections 4.400 to 4.470 for additional requirements.)*

Response: Sight-obscuring fence/plantings will not begin operation until the fence or planting is erected or in place and approved by the City.

(.06) *Plant Materials:*

A. *Shrubs and Ground Cover. All required ground cover plants and shrubs must be of sufficient size and number to meet these standards within three years of planting. Non-horticultural plastic sheeting or other impermeable surface shall not be placed under mulch. Native topsoil shall be preserved and reused to the extent feasible. Surface mulch or bark dust are to be fully raked into*

soil of appropriate depth, sufficient to control erosion, and are confined to areas around plantings. Areas exhibiting only surface mulch, compost or barkdust are not to be used as substitutes for plant areas.

1. *Shrubs. All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and ten inches to 12 inches spread.*
2. *Ground cover. Shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at four feet on center minimum, four inch pot spaced two feet on center minimum, two one-fourth inch 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 percent of the bare soil in required landscape areas within three years of planting. Where wildflower seeds are designated for use as a ground cover, the City may require annual re-seeding as necessary.*
3. *Turf or lawn in non-residential developments. Shall not be used to cover more than ten percent of the landscaped area, unless specifically approved based on a finding that, due to site conditions and availability of water, a larger percentage of turf or lawn area is appropriate. Use of lawn fertilizer shall be discouraged. Irrigation drainage runoff from lawns shall be retained within lawn areas.*
4. *Plant materials under trees or large shrubs. Appropriate plant materials shall be installed beneath the canopies of trees and large shrubs to avoid the appearance of bare ground in those locations.*
5. *Integrate compost-amended topsoil in all areas to be landscaped, including lawns, to help detain runoff, reduce irrigation and fertilizer needs, and create a sustainable, low-maintenance landscape.*

Response: The Landscape Plans specify shrubs, ground cover, and trees that meet or exceed minimum size, spacing, and coverage requirements. Planting design incorporates erosion control, soil preparation, mulch application, and compost-amended soils consistent with code standards

B. *Trees. All trees shall be well-branched and typical of their type as described in current American Association of Nurserymen (AAN) Standards and shall be balled and burlapped. The trees shall be grouped as follows:*
   1. *Primary trees which define, outline or enclose major spaces, such as Oak, Maple, Linden, and Seedless Ash, shall be a minimum of two inch caliper.*
   2. *Secondary trees which define, outline or enclose interior areas, such as Columnar Red Maple, Flowering Pear, Flame Ash, and Honeylocust, shall be a minimum of 1¾ inch to 2 inch caliper.*
   3. *Accent trees which, are used to add color, variation and accent to architectural features, such as Flowering Pear and Kousa Dogwood, shall be 1¾ inch minimum caliper.*
   4. *Large conifer trees such as Douglas Fir or Deodar Cedar shall be installed at a minimum height of eight feet.*
   5. *Medium-sized conifers such as Shore Pine, Western Red Cedar or Mountain Hemlock shall be installed at a minimum height of five to six feet.*

Response: The Landscape Plans demonstrate that all proposed trees meet or exceed the minimum caliper and height requirements of the American Association of Nurserymen (AAN) Standards, including primary, secondary, accent, and conifer tree categories as specified.

C. Where a proposed development includes buildings larger than 24 feet in height or greater than 50,000 square feet in footprint area, the Planning Director or the Development Review Board, as applicable, may require larger or more mature plant materials.

1. At maturity, proposed trees shall be at least one-half the height of the building to which they are closest, and building walls longer than 50 feet shall require tree groups located no more than 50 feet on center, to break up the length and height of the façade.

2. Either fully branched deciduous or evergreen trees may be specified depending upon the desired results. Where solar access is to be preserved, only solar-friendly deciduous trees are to be used. Where year-round sight obscuring is the highest priority, evergreen trees are to be used.

3. The following standards are to be applied:

a. Deciduous trees:

i. Minimum height of ten feet; and

ii. Minimum trunk diameter (caliper) of two inches (measured at four and one-half feet above grade).

b. Evergreen trees: Minimum height of 12 feet.

Response: The Landscape Plans demonstrate that tree size, spacing, and species selection have been coordinated with building height and massing to provide appropriate visual scale, façade modulation, and screening consistent with these standards.

D. Street Trees. In order to provide a diversity of species, the Development Review Board may require a mix of street trees throughout a development. Unless the Board waives the requirement for reasons supported by a finding in the record, different types of street trees shall be required for adjoining blocks in a development.

1. All trees shall be standard base grafted, well branched and typical of their type as described in current AAN Standards and shall be balled and burlapped (b&b). Street trees shall be planted at sizes in accordance with the following standards:

a. Arterial streets—Three inches minimum caliper

b. Collector streets—Two inches minimum caliper.

c. Local streets or residential private access drives—1¾ inches minimum caliper.

d. Accent or median tree—1¾ inches minimum caliper.

Response: Street trees are provided in accordance with the applicable street classification and minimum caliper requirements, and species diversity is incorporated as shown on the Landscape Plans.

2. The following trees and varieties thereof are considered satisfactory street trees in most circumstances; however, other varieties and species are encouraged and will be considered:

a. Trees over 50 feet mature height: Quercus garryana (Native Oregon White Oak), Quercus rubra borealis (Red Oak), Acer Macrophylum (Native Big Leaf Maple), Acer

nigrum (Green Column Black Maple), Fraxinus americanus (White Ash), Fraxinus pennsylvannica 'Marshall' (Marshall Seedless Green Ash), Quercus coccinea (Scarlet Oak), Quercus pulustris (PinOak), Tilia americana (American Linden).

Response: Street tree species exceeding 50 feet at maturity are selected from the City's approved list and are identified on the Landscape Plans where appropriate.

b. *Trees under 50 feet mature height: Acer rubrum (Red Sunset Maple), Cornus nuttallii (NativePacific Dogwood), Gleditsia triacanthos (Honey Locust), Pyrus calleryana 'Bradford' (Bradford Pear), Tilia cordata (Little Leaf Linden), Fraxinus oxycarpa (Flame Ash).*

Response: Street tree species under 50 feet at maturity are selected from the City's approved list and are identified on the Landscape Plans.

c. *Other street tree species. Other species may be specified for use in certain situations. For instance, evergreen species may be specified where year-round color is desirable and no adverse effect on solar access is anticipated. Water-loving species may be specified in low locations where wet soil conditions are anticipated.*

Response: Where site conditions warrant, alternative street tree species, including evergreen or moisture-tolerant varieties, are incorporated as shown on the Landscape Plans.

E. *Types of Plant Species:*

1. *Existing landscaping or native vegetation may be used to meet these standards, if protected and maintained during the construction phase of the development and if the plant species do not include any that have been listed by the City as prohibited. The existing native and non-native vegetation to be incorporated into the landscaping shall be identified.*

Response: Existing vegetation proposed to be retained and incorporated into the site landscaping is identified on the Landscape Plans and will be protected and maintained during construction. No prohibited plant species are proposed.

2. *Selection of plant materials. Landscape materials shall be selected and sited to produce hardy and drought-tolerant landscaping. Selection shall be based on soil characteristics, maintenance requirements, exposure to sun and wind, slope and contours of the site, and compatibility with other vegetation that will remain on the site. Suggested species lists for street trees, shrubs and groundcovers shall be provided by the City of Wilsonville.*

Response: Plant materials have been selected and sited to provide hardy, drought-tolerant landscaping based on site soils, exposure, maintenance considerations, and compatibility with retained vegetation, as shown on the Landscape Plans.

3. *Prohibited plant materials. The City may establish a list of plants that are prohibited in landscaped areas. Plants may be prohibited because they are potentially damaging to sidewalks, roads, underground utilities, drainage improvements, or foundations, or because they are known to be invasive to native vegetation.*

Response: The applicant acknowledges this requirement.

F. Tree Credit. *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 (measured at four and one-half feet above grade and rounded to the nearest inch):*

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*

1. *It shall be the responsibility of the owner to use reasonable care to maintain preserved trees. Trees preserved under this section may only be removed if an application for removal permit under Section 4.610.10(01)(H) has been approved. Required mitigation for removal shall be replacement with the number of trees credited to the preserved and removed tree.*
   Response: Existing trees proposed for preservation and eligible for tree credit are identified and evaluated in the Arborist Report included in Appendix D.

2. *Within five years of occupancy and upon notice from the City, the property owner shall replace any preserved tree that cannot be maintained due to disease or damage, or hazard or nuisance as defined in Chapter 6 of this Code. The notice shall be based on complete information provided by an arborist Replacement with the number of trees credited shall occur within one growing season of notice.*

   Response: The applicant acknowledges this requirement.

G. Exceeding Standards. Landscape materials that exceed the minimum standards of this Section are encouraged, provided that height and vision clearance requirements are met.
***Response**: Exceeding standards are not proposed.*

H. Compliance with Standards. The burden of proof is on the applicant to show that proposed landscaping materials will comply with the purposes and standards of this Section.
***Response:** The Applicant acknowledges that the burden of proof falls on the applicant.*

(.08) Landscaping on Corner Lots. All landscaping on corner lots shall meet the vision clearance standards of Section 4.177. If high screening would ordinarily be required by this Code, low screening shall be substituted within vision clearance areas. Taller screening may be required outside of the vision clearance area to mitigate for the reduced height within it.

Response: Landscaping has been designed to comply with the vision clearance standards of Section 4.177 at driveway intersections. Within required sight-distance areas, landscaping is limited to low plant materials, and street trees are excluded from these areas. See Landscape Plan, Sheets 17-19.

Section 4.177. - Street Improvement Standards.
This section contains the City's requirements and standards for pedestrian, bicycle, and transit facility improvements to public streets, or within public easements. The purpose of this section is to ensure that

development, including redevelopment, provides transportation facilities that are safe, convenient, and adequate in rough proportion to their impacts.

(.01) Development and related public facility improvements shall comply with the standards in this section, the Wilsonville Public Works Standards, and the Transportation System Plan, in rough proportion to the potential impacts of the development. Such improvements shall be constructed at the time of development or as provided by Section 4.140, except as modified or waived by the City Engineer for reasons of safety or traffic operations.

Response: This proposal has been designed in conformance with the street improvements standards contained in this section.

(.02) Street Design Standards:

A. All street improvements and intersections shall provide for the continuation of streets through specific developments to adjoining properties or subdivisions.

1. Development shall be required to provide existing or future connections to adjacent sites through the use of access easements where applicable. Such easements shall be required in addition to required public street dedications as required in Section 4.236(.04).

Response: This proposal has been designed to include street improvements limited to frontage improvements in conformance with the applicable code requirements. Street connections are not included or required for this proposal.

B. The City Engineer shall make the final determination regarding right-of-way and street element widths using the ranges provided in Chapter 3 of the Transportation System Plan and the additional street design standards in the Public Works Standards.

Response: The Applicant acknowledges that the City Engineer is the decision-making authority for the final determination regarding right-of-way and street elements widths.

C. Rights-of-way:

1. Prior to issuance of a Certificate of Occupancy Building permits or as a part of the recordation of a final plat, the City shall require dedication of rights-of-way in accordance with the Transportation System Plan. All dedications shall be recorded with the County Assessor's Office.

Response: The Applicant acknowledges that the City shall require recordation of rights-of-way with the County Assessor's Office prior to the issuance of a Certificate of Occupancy building permits.

2. The City shall also require a waiver of remonstrance against formation of a local improvement district, and all non-remonstrances shall be recorded in the County Recorder's Office as well as the City's Lien Docket, prior to issuance of a Certificate of Occupancy Building Permit or as a part of the recordation of a final plat.

Response: Understood.

3. In order to allow for potential future widening, a special setback requirement shall be maintained adjacent to all arterial streets. The minimum setback shall be 55 feet from the

centerline or 25 feet from the right-of-way designated on the Master Plan, whichever is greater.

Response: This proposal has been designed to include half-widths which meet the City Public Works Standards for Minor Arterials. It is not anticipated at this time that the functional classification of either roadway abutting the site will be changed in the future which would necessitate widening.

D. Dead-end Streets. New dead-end streets or culc-de-sac shall not exceed 200 feet in length, unless the adjoining land contains barriers such as existing buildings, railroads or freeways, or environmental constraints such as steep slopes, or major streams or rivers, that prevent future street extension and connection. A central landscaped island with rainwater management and infiltration are encouraged in cul-de-sac design. No more than 25 dwelling units shall take access to a new dead-end or cul-de-sac street unless it is determined that the traffic impacts on adjacent streets will not exceed those from a development of 25 or fewer units. All other dimensional standards of dead-end streets shall be governed by the Public Works Standards. Notification that the street is planned for future extension shall be posted on the dead-end street.

Response: Not applicable. This proposal does not include or require the inclusion of dead-end streets.

E. Corner or clear vision area:

1. A clear vision area which meets the Public Works Standards shall be maintained on each corner of property at the intersection of any two streets, a street and a railroad or a street and a driveway. However, the following items shall be exempt from meeting this requirement:

a. Light and utility poles with a diameter less than 12 inches.

b. Trees less than six inch d.b.h., approved as a part of the Stage II Site Design, or administrative review.

c. Except as allowed by b., above, an existing tree, trimmed to the trunk, ten feet above the curb.

d. Official warning or street sign.

e. Natural contours where the natural elevations are such that there can be no cross-visibility at the intersection and necessary excavation would result in an unreasonable hardship on the property owner or deteriorate the quality of the site.

Response: Clear vision areas meeting Public Works Standards are provided at all driveway intersections. Within required sight-distance areas, landscaping is limited to low plant materials and other permitted elements consistent with Section 4.177(E), as shown on the Landscape Plans.

F. Vertical clearance. A minimum clearance of 12 feet above the pavement surface shall be maintained over all streets and access drives.

Response: A minimum vertical clearance of twelve (12) feet is provided over all access drives, consistent with Section 4.177(F).

G. Interim improvement standard. It is anticipated that all existing streets, except those in new subdivisions, will require complete reconstruction to support urban level traffic volumes. However, in most cases, existing and short-term projected traffic volumes do not warrant improvements to full Master Plan standards. Therefore, unless otherwise specified by the Development Review Board, the following interim standards shall apply.

1. Arterials 24 foot paved, with standard sub-base. Asphalt overlays are generally considered unacceptable, but may be considered as an interim improvement based on the recommendations of the City Engineer, regarding adequate structural quality to support an overlay.

Response: This proposal has been designed to include twenty-four (24) feet of pavement with standard sub-base. Asphalt overlays are not included with this proposal.

2. Half-streets are generally considered unacceptable. However, where the Development Review Board finds it essential to allow for reasonable development, a half-street may be approved. Whenever a half-street improvement is approved, it shall conform to the requirements in the Public Works Standards:

Response: Not applicable. This proposal does not require or involve the inclusion of new streets.

3. When considered appropriate in conjunction with other anticipated or scheduled street improvements, the City Engineer may approve street improvements with a single asphalt lift. However, adequate provision must be made for interim storm drainage, pavement transitions at seams and the scheduling of the second lift through the Capital Improvements Plan.

Response: Not applicable. This proposal does not include street improvements with a single asphalt lift.

(.03) Sidewalks. Sidewalks shall be provided on the public street frontage of all development. Sidewalks shall generally be constructed within the dedicated public right-of-way, but may be located outside of the right-of-way within a public easement with the approval of the City Engineer.

A. Sidewalk widths shall include a minimum through zone of at least five feet. The through zone may be reduced pursuant to variance procedures in Section 4.196, a waiver pursuant to Section 4.118, or by authority of the City Engineer for reasons of traffic operations, efficiency, or safety.

Response: This proposal includes the provision.

B. Within a Planned Development, the Development Review Board may approve a sidewalk on only one side. If the sidewalk is permitted on just one side of the street, the owners will be required to sign an agreement to an assessment in the future to construct the other sidewalk if the City Council decides it is necessary.

Response: Not applicable. The site is providing half-street improvements.

(.04) Bicycle Facilities. Bicycle facilities shall be provided to implement the Transportation System Plan, and may include on-street and off-street bike lanes, shared lanes, bike boulevards, and cycle tracks.

The design of on-street bicycle facilities will vary according to the functional classification and the average daily traffic of the facility.

Response: Bicycle facilities are provided as required.

(.05) Multiuse Pathways. Pathways may be in addition to, or in lieu of, a public street. Paths that are in addition to a public street shall generally run parallel to that street, and shall be designed in accordance with the Public Works Standards or as specified by the City Engineer. Paths that are in lieu of a public street shall be considered in areas only where no other public street connection options are feasible, and are subject to the following standards.

A. Paths shall be located to provide a reasonably direct connection between likely pedestrian and bicyclist destinations. Additional standards relating to entry points, maximum length, visibility, and path lighting are provided in the Public Works Standards.

Response: Multi-use pathways are not proposed.

B. To ensure ongoing access to and maintenance of pedestrian/bicycle paths, the City Engineer will require dedication of the path to the public and acceptance of the path by the City as public right-of-way; or creation of a public access easement over the path.

Response: Not applicable. There are no multiuse pedestrian/bicycle paths on site.

(.06) Transit Improvements. Development on sites that are adjacent to or incorporate major transit streets shall provide improvements as described in this section to any bus stop located along the site's frontage, unless waived by the City Engineer for reasons of safety or traffic operations. Transit facilities include bus stops, shelters, and related facilities. Required transit facility improvements may include the dedication of land or the provision of a public easement.

A. Development shall at a minimum provide:

1. Reasonably direct pedestrian connections, as defined by Section 4.154, between building entrances and the transit facility and between buildings on the site and streets adjoining transit stops.

Response: Reasonably direct connections are provided.

2. Improvements at major transit stops. Improvements may include intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.

Response: Not applicable. There are no major transit stops that need improvement.

B. Developments generating an average of 49 or more pm peak hour trips shall provide bus stop improvements per the Public Works Standards. Required improvements may include provision of benches, shelters, pedestrian lighting; or provision of an easement or dedication of land for transit facilities.

Response: The proposed development generates greater than 49 average pm peak hour trips and SMART is requiring the upgrade of the bus stop at the west side of the north driveway including a bus pullout, shelter, and real time information sign. These elements will be included schematically and are shown in the site plan.

C. *In addition to the requirements of 4.177(.06)(A.)(2.), development generating more than 199 pm peak hour trips on major transit streets shall provide a bus pullout, curb extension, and intersection or mid-block traffic management improvements to allow for pedestrian crossings at major transit stops.*

Response: A bus pullout is proposed for the site.

D. *In addition to the requirements of 4.177(.06)(A.) and (B.), development generating more than 500 pm peak-hour trips on major transit streets shall provide on-site circulation to accommodate transit service.*

Response: Not applicable. The development does not generate more than 500 pm peak hour trips.

(.08) Access Drive and Driveway Approach Development Standards:

A. *An access drive to any proposed development shall be designed to provide a clear travel lane free from any obstructions.*

Response: Access drives are designed to provide clear, unobstructed travel lanes consistent with code requirements, as shown on the site plans.

B. *Access drive travel lanes shall be constructed with a hard surface capable of carrying a 23-ton load.*

Response: Access drive travel lanes are designed with hard surface sections capable of supporting required loading, as shown on the site plans.

C. *Where emergency vehicle access is required, approaches and driveways shall be designed and constructed to accommodate emergency vehicle apparatus and shall conform to applicable fire protection requirements. The City may restrict parking, require signage, or require other public safety improvements pursuant to the recommendations of an emergency service provider.*

Response: Driveways and access approaches are designed to accommodate emergency vehicle access and meet applicable fire protection requirements, as shown on the site plans and subject to Fire District approval.

D. *Secondary or emergency access lanes may be improved to a minimum 12 feet with an all-weather surface as approved by the Fire District. All fire lanes shall be dedicated easements.*

Response: Fire related access lanes are provided and approved by the Fire District. This includes the widening of the sidewalk between the new building and the expansion and fire lane along the south new building. Refer to the fire service provider letter and fire exhibit plan.

E. *Minimum access requirements shall be adjusted commensurate with the intended function of the site based on vehicle types and traffic generation.*

Response: The applicant acknowledges this.

F. The number of approaches on higher classification streets (e.g., collector and arterial streets) shall be minimized; where practicable, access shall be taken first from a lower classification street.

Response: The applicant proposes one approach on each of the fronting streets.

G. The City may limit the number or location of connections to a street, or impose access restrictions where the roadway authority requires mitigation to alleviate safety or traffic operations concerns.

Response: The applicant proposes one approach on each of the fronting streets.

H. The City may require a driveway to extend to one or more edges of a lot and be designed to allow for future extension and inter-lot circulation as adjacent properties develop. The City may also require the owner(s) of the subject site to record an access easement for future joint use of the approach and driveway as the adjacent property(ies) develop(s).

Response: No future development is anticipated in the vicinity.

I. Driveways shall accommodate all projected vehicular traffic on-site without vehicles stacking or backing up onto a street.

Response: The circulation on-site has been designed to accommodate all traffic.

J. Driveways shall be designed so that vehicle areas, including but not limited to drive-up and drive-through facilities and vehicle storage and service areas, do not obstruct any public right-of-way.

Response: The circulation on-site has been designed to accommodate all traffic.

K. Approaches and driveways shall not be wider than necessary to safely accommodate projected peak hour trips and turning movements, and shall be designed to minimize crossing distances for pedestrians.

Response: The approaches on-site have been designed to meet safety needs.

L. As it deems necessary for pedestrian safety, the City, in consultation with the roadway authority, may require traffic-calming features, such as speed tables, textured driveway surfaces, curb extensions, signage or traffic control devices, or other features, be installed on or in the vicinity of a site.

Response: Pedestrian safety has been accommodated in the plans.

M. Approaches and driveways shall be located and designed to allow for safe maneuvering in and around loading areas, while avoiding conflicts with pedestrians, parking, landscaping, and buildings.

Response: The proposed site plan has been designed to meet City standards.

N. Where a proposed driveway crosses a culvert or drainage ditch, the City may require the developer to install a culvert extending under and beyond the edges of the driveway on both sides of it, pursuant applicable Public Works standards.

Response: The proposed site plan has been designed to meet City standards.

O. Except as otherwise required by the applicable roadway authority or waived by the City Engineer, temporary driveways providing access to a construction site or staging area shall be paved or graveled to prevent tracking of mud onto adjacent paved streets.

Response: The applicant acknowledges this requirement.

(.09) Minimum street intersection spacing standards:

A. New streets shall intersect at existing street intersections so that centerlines are not offset. Where existing streets adjacent to a proposed development do not align properly, conditions shall be imposed on the development to provide for proper alignment.

Response: No new public streets are proposed. Site access is provided via private driveways aligned with existing roadway geometry; therefore, this standard does not apply.

B. Minimum intersection spacing standards are provided in Transportation System Plan Table 3-2.

Response: No new street intersections are proposed. Private driveway spacing has been reviewed for consistency with the Transportation System Plan and is addressed in the approved Traffic Impact Analysis.

(.10) Exceptions and Adjustments. The City may approve adjustments to the spacing standards of subsections (.08) and (.09) above through a Class II process, or as a waiver per Section 4.118(.03)(A.), where an existing connection to a City street does not meet the standards of the roadway authority, the proposed development moves in the direction of Code compliance, and mitigation measures alleviate all traffic operations and safety concerns. Mitigation measures may include consolidated access (removal of one access), joint use driveways (more than one property uses same access), directional limitations (e.g., one-way), turning restrictions (e.g., right in/out only), or other mitigation.

Response: No adjustments are requested.

Section 4.179. - Mixed Solid Waste and Recyclables Storage in New Multi-Family Residential and Non-Residential Buildings.

(.01) All site plans for multi-family residential and non-residential buildings submitted to the Wilsonville Development Review Board for approval shall include adequate storage space for mixed solid waste and source separated recyclables.

Response: Solid waste facilities have been provided as shown on the site plan located in Appendix B. and approved by the waste service provider in Appendix Q.

(.02) The floor area of an interior or exterior storage area shall be excluded from the calculation of building floor area for purposes of determining minimum storage requirements.

Response: The majority of the floor area is warehouse / storage for distribution.

(.03) The storage area requirement shall be based on the predominant use(s) of the building. If a building has more than one of the uses listed herein and that use occupies 20 percent or less of the floor area of the building, the floor area occupied by that use shall be counted toward the floor area of the predominant use(s). If a building has more than one of the uses listed herein and that use occupies more than 20 percent of the floor area of the building, then the storage area requirement for the whole building shall be the sum of the requirement for the area of each use.

Response: The predominant use is warehouse / distribution.

(.04) Storage areas for multiple uses on a single site may be combined and shared.

Response: Not applicable. There are no proposed storage areas.

(.05) The specific requirements are based on an assumed storage height of four feet for solid waste/recyclables. Vertical storage higher than four feet but no higher than seven feet may be used to accommodate the same volume of storage in a reduced floor space. Where vertical or stacked storage is proposed, the site plan shall include drawings to illustrate the layout of the storage area and dimensions for the containers.

Response: The layout and dimensions of the solid waste and recycling enclosure areas, including container configuration, are shown on the Site Plans, Sheets 05 and 06.

(.06) The specific requirements for storage area are as follows:

A. multi-family residential buildings containing five-ten units shall provide a minimum storage area of 50 square feet. Buildings containing more than ten residential units shall provide an additional five square feet per unit for each unit above ten.

Response: Not applicable. This proposal does not involve a multi-family residential use.

B. Non-residential buildings shall provide a minimum storage area of ten square feet, plus:

1. Office: Four square feet per 1,000 square feet gross floor area (GFA);
2. Retail: Ten square feet per 1,000 square feet GFA;
3. Wholesale/Warehouse/Manufacturing: Six square feet per 1,000 square feet GFA; and
4. Other: Four square feet per 1,000 square feet GFA.

Response: This proposal includes storage area of more than 2,000 square feet.

(.07) The applicant shall work with the City's franchised garbage hauler to ensure that site plans provide adequate access for the hauler's equipment and that storage area is adequate for the anticipated volumes, level of service and any other special circumstances which may result in the storage area exceeding its capacity. The hauler shall notify the City by letter of their review of site plans and make recommendations for changes in those plans pursuant to the other provisions of this section.

Response: A service provide letter has been obtained.

(.08) Existing multi-family residential and non-residential developments wishing to retrofit their structures to include storage areas for mixed solid waste and recycling may have their site plans reviewed and approved through the Class I Administrative Review process, according to the provisions of Section 4.035. Site plans for retrofitting existing developments must conform to all requirements of this Section, "Mixed Solid Waste and Recyclables Storage In New Multi-Family Residential and Non-

Residential Buildings," and 4.430, "Location, Design and Access Standards for Mixed Solid Waste and Recycling Areas," of the Wilsonville City Code.

Response: Not applicable. The site is not retrofitting their structures to include storage areas for mixed solid waste and recycling.

Section 4.197. Zone Changes and Amendments to This Code—Procedures

(.01) The following procedure shall be followed in applying for an amendment to the text of this Chapter:

A. The Planning Commission shall conduct a public hearing on the proposed amendment at its earliest practicable meeting after it is proposed and shall, within 40 days after concluding the hearing, provide a report and recommendation to the City Council regarding the proposed amendment. The findings and recommendations of the Commission shall be adopted by resolution and shall be signed by the Chair of the Commission.

Response: Not applicable no amendments are proposed.

B. In recommending approval of a proposed text amendment, the Planning Commission shall, at a minimum, adopt findings relative to the following:

1. *That the application was submitted in compliance with the procedures set forth in Section 4.008; and*
2. *The amendment substantially complies with all applicable goals, policies and objectives set forth in the Comprehensive Plan; and*
3. *The amendment does not materially conflict with, nor endanger, other provisions of the text of the Code; and*
4. *If applicable, the amendment is in compliance with Statewide Land Use Planning Goals and related administrative rules; and*
5. *If applicable, the amendment is necessary to ensure that the City's Land Use and Development Ordinance complies with mandated requirements of State or Federal laws and/or statutes.*

Response: Not applicable no amendments are proposed.

(.02) The following procedures shall be followed for zone map amendments.

A. When a requested quasi-judicial zone map amendment within the Coffee Creek Industrial Design Overlay District is consistent with the adopted or concurrently proposed Comprehensive Plan Map designation and only one option exists for a zone map amendment consistent with the Comprehensive Plan Map the amendment shall be reviewed by the City Council without prior review or recommendation by the Development Review Board or Planning Commission.

1. *The Zoning Order adopting such zone map amendments shall state the zone map amendment expires 120 days from Council adoption unless a Stage II Final Plan receives final local approval for the area subject to the zone map amendment. In the event of a LUBA appeal of the final local approval, the 120-day expiration period will be tolled pending completion of the appeal process.*
2. *Notwithstanding the process described above an applicant may elect to have the zone map amendment reviewed by the Development Review Board for a recommendation to City Council concurrently with other land use applications for the subject property.*

3. *If the Planning Director anticipates that individuals other than the applicant can be expected to question the requested zone map amendment's compliance with the Comprehensive Plan the Planning Director may require the zone map amendment be first reviewed by the Development Review Board to make a recommendation to City Council.*

Response: Not applicable, project is not within Coffee Creek Industrial Design Overlay District.

7. *All other quasi-judicial zone map amendments shall be reviewed by the Development Review Board to make a recommendation to City Council and all legislative zone map amendments shall be reviewed by the Planning Commission to make a recommendation to City Council.*

Response*:* The proposed Zone Map Amendment is a quasi-judicial zone map amendment and is subject to review by the Development Review Board with a recommendation to City Council in accordance with Section 4.197(.02)(B).

8. *In recommending approval or denial of a proposed zone map amendment, the Planning Commission or Development Review Board shall at a minimum, adopt findings addressing the following criteria:*

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

   Response: The application has been submitted in accordance with the procedures set forth in Section 4.008 and Section 4.140 for Planned Development review.

2. *That the proposed amendment is consistent with the Comprehensive Plan map designation and substantially complies with the applicable goals, policies and objectives, set forth in the Comprehensive Plan text; and*

   Response: The proposed Zone Map Amendment is consistent with the Comprehensive Plan Map designation and substantially complies with the applicable goals.

3. *In the event that the subject property, or any portion thereof, is designated as "Residential" on the City's Comprehensive Plan Map; specific findings shall be made addressing substantial compliance with Implementation Measures 4.1.4.b, d, e, q, and x of Wilsonville's Comprehensive Plan text; and*

   Response: Not applicable, no portion of the subject property is designated as residential.

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

   Response: Roads and utilities such as water, sewer and storm are available. The proposed project will be providing frontage improvements to provide sidewalk. A downstream analysis for storm was performed as a part of the Storm Drainage Report and shows the downstream systems have capacity.

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

   Response: The proposed development avoids and minimizes impacts to the Significant Resource Overlay Zone. Limited impacts related to relocation of an existing man-made ditch are mitigated as described in the Significant Resource Impact Report and shown on the plans.

6. *That the applicant is committed to a development schedule demonstrating that development of the property is reasonably expected to commence within two years of the initial approval of the zone change; and*

   Response: The applicant is aware of the schedule requirements. The applicant intends to proceed with development following approval of the requested land use actions and anticipates commencement of development within two years of approval.

7. *That the proposed development and use(s) can be developed in compliance with the applicable development standards or appropriate conditions are attached that insure that the project development substantially conforms to the applicable development standards; and*

   Response: The proposed development has been designed to comply with the applicable development standards of the Wilsonville Code, as demonstrated in the accompanying plans and supporting technical reports.

8. *Adequate public facilities, services, and transportation networks are in place, or are planned to be provided concurrently with the development of the property. The applicant shall demonstrate compliance with the Transportation Planning Rule, specifically by addressing whether the proposed amendment has a significant effect on the transportation system pursuant to OAR 660-012-0060. A Traffic Impact Analysis (TIA) shall be prepared pursuant to the requirements in Section 4.133.05.(01).*
9. **Response:** A Traffic Impact Analysis has been prepared to evaluate the proposed amendment's effect on the transportation system and demonstrates compliance with the Transportation Planning Rule (OAR 660-012-0060). The analysis is included in Appendix C.

(.03) If affirmative findings cannot be made for all applicable criteria listed above the proposed text or map amendment, as the case may be, shall be denied.

Response: The applicant understands that if affirmative findings cannot be made for all applicable criteria, the proposed amendment shall be denied.

(.04) City Council action approving a change in zoning shall be in the form of a Zoning Order.

Response: The applicant understands that if affirmative findings cannot be made for all applicable criteria, the proposed amendment shall be denied.

(.05) In cases where a property owner or other applicant has requested a change in zoning and the City Council has approved the change subject to conditions, the owner or applicant shall sign a statement accepting, and agreeing to complete the conditions of approval before the zoning shall be changed.

Response: The applicant understands the condition of approval requirement.

Section 4.199.00 - Outdoor Lighting.

Section 4.199.40. - Lighting Systems Standards for Approval.

(.01) Non-Residential Uses and Common Residential Areas.

A. All outdoor lighting shall comply with either the Prescriptive Option or the Performance Option below.

B. Prescriptive Option. If the lighting is to comply with this Prescriptive Option, the installed lighting shall meet all of the following requirements according to the designated Lighting Zone.

1. The maximum luminaire lamp wattage and shielding shall comply with Table 7.

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

3. The maximum pole or mounting height shall be consistent with Table 8.

4. Each luminaire shall be set back from all property lines at least three times the mounting height of the luminaire:

Response: A lighting plan is included in Appendix B that meets the prescriptive requirements for Zone 2. Maximum luminaire and shielding meet Table 7 for Zone 2. Luminaire cutsheets are provided in Appendix R.

Section 4.199.50. - Submittal Requirements.

(.01) Applicants shall submit the following information as part of DRB review or administrative review of new commercial, industrial, multi-family or public facility projects:

A. A statement regarding which of the lighting methods will be utilized, prescriptive or performance, and a map depicting the lighting zone(s) for the property.

***Response:** A prescriptive approach will be utilized. Lighting plans 21-23 call out the entire site as Lighting Zone 2.*

9. A site lighting plan that clearly indicates intended lighting by type and location. For adjustable luminaires, the aiming angles or coordinates shall be shown.

***Response:** A prescriptive approach will be utilized. Lighting plans 21-23 call out the entire site as Lighting Zone 2.*

10. For each luminaire type, drawings, cut sheets or other documents containing specifications for the intended lighting including but not limited to, luminaire description, mounting, mounting height, lamp type and manufacturer, lamp watts, ballast, optical system/distribution, and accessories such as shields.

***Response:** Luminary cutsheets are provided as an attachment and*

11. *Calculations demonstrating compliance with Oregon Energy Efficiency Specialty Code, Exterior Lighting, as modified by Section 4.199.40(.01)(B.)(2.)*

Response: Preliminary calculations are tabulated on Sheet 21.

12. *Lighting plans shall be coordinated with landscaping plans so that pole lights and trees are not placed in conflict with one another. The location of lights shall be shown on the landscape plan. Generally, pole lights should not be placed within one pole length of landscape and parking lot trees.*

Response: Trees and Lighting shall be coordinated through the permitting design process.

13. *Applicants shall identify the hours of lighting curfew.*

Response: Exterior lighting will comply with OEESC exterior lighting control requirements. Site lighting will be controlled by photocell and time-based controls to reduce lighting power during curfew hour at 10:00pm while maintaining lighting required for safety and operations.

Response: Please see the lighting plans on Sheets 21-23 in Appendix B for conformance with these requirements.

(.02) In addition to the above submittal requirements, Applicants using the Prescriptive Method shall submit the following information as part of the permit set plan review:

A. A site lighting plan (items 1.A—F, above) which indicates for each luminaire the three mounting height line to demonstrate compliance with the setback requirements. For luminaires mounted within three mounting heights of the property line the compliance exception or special shielding requirements shall be clearly indicated.

Response: Please see the lighting plans on Sheets 21-23 in Appendix B for conformance with these requirements.

LAND DIVISIONS

Section 4.233. - Lot Line Adjustments.

(.01) Property owners wishing to alter the location of a property line that separates adjoining properties, without creating a new lot or parcel in the process, may apply for approval of a lot line adjustment. Applications for lot line adjustment shall be processed through either of the following:

A. Administrative Review, through the procedures outlined in Section 4.035; or

B. As part of a partition or subdivision process, where new lots or parcels are being created at the same time as the existing lot lines are being reconfigured.

Response: This proposal involves lot line adjustment for lots 1100, 401, 402, and 403 and is included as part of the site development permit application. This lot adjustment does not include the creation of new lots or parcels.

(.02) The lots or parcels resulting from a lot line adjustment shall conform to all requirements of the zone. Except, however, if either of the subject properties is a legal non-conforming lot at the time of the

application, the requirements of Section 4.192 (Non-Conforming Lots) shall be followed.

Response: The resulting lot will be conforming.

(.03) The dedication of property to a unit of government, where the property being dedicated is added to property that is already in public ownership, may be completed by deed without requiring compliance with this Section.

Response: Not applicable.

UNDERGROUND UTILITIES

Section 4.300. - General.

(01.) The City Council deems it reasonable and necessary in order to accomplish the orderly and desirable development of land within the corporate limits of the City, to require the underground installation of utilities in all new developments.

Response: Underground utilities will be provided.

(02.) After the effective date of this Code, the approval of any development of land within the City will be upon the express condition that all new utility lines, including but not limited to those required for power, communication, street lighting, gas, cable television services and related facilities, shall be placed underground.

Response: Underground utilities will be provided.

(03.) The construction of underground utilities shall be subject to the City's Public Works Standards and shall meet applicable requirements for erosion control and other environmental protection.

Response: Underground utilities will be provided and meet all applicable requirements.

Section 4.320. - Requirements.

(01.) The developer or subdivider shall be responsible for and make all necessary arrangements with the serving utility to provide the underground services (including cost of rearranging any existing overhead facilities). All such underground facilities as described shall be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus.

Response: The applicant acknowledges this requirement.

(02.) The location of the buried facilities shall conform to standards supplied to the subdivider by the City. The City also reserves the right to approve location of all surface-mounted transformers.

Response: The applicant acknowledges this requirement.

(03.) Interior easements (back lot lines) will only be used for storm or sanitary sewers, and front easements will be used for other utilities unless different locations are approved by the City Engineer. Easements satisfactory to the serving utilities shall be provided by the developer and shall be set forth on the plat.

Response: The applicant acknowledges this requirement.

SITE DESIGN REVIEW

Section 4.421. - Criteria and Application of Design Standards.

(.01) The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)

A. *Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.*

Response: The site layout preserves existing landscape features to the greatest extent practicable by minimizing disturbance to perimeter tree groves and natural areas. One proposed building is appended to the existing Sysco facility to avoid encroachment into the preserved tree grove, while the second building is located internally within previously disturbed portions of the site (see Overall Site Plan, Appendix B). Areas of disturbance associated with the existing drainage ditch are mitigated through a relocated, meandering wetland positioned between the public right-of-way and internal site improvements (see SRIR Figures 5 and 6, Appendix E). The site does not contain steep slopes, and grade changes are accommodated internally to maintain compatibility with surrounding development.

B. Relation of Proposed Buildings to Environment. Proposed structures shall be located and designed to assure harmony with the natural environment, including protection of steep slopes, vegetation and other naturally sensitive areas for wildlife habitat and shall provide proper buffering from less intensive uses in accordance with Sections 4.171 and 4.139 and 4.139.5. The achievement of such relationship may include the enclosure of space in conjunction with other existing buildings or other proposed buildings and the creation of focal points with respect to avenues of approach, street access or relationships to natural features such as vegetation or topography.

Response: Proposed buildings are located to respond to existing site conditions, protect vegetation, and avoid impacts to sensitive areas. One building is appended to the existing Sysco facility, allowing expansion while maintaining continuity with existing development and minimizing disturbance to perimeter landscape areas (see Overall Site Plan, Appendix B). The second building is located internally and set back from public streets, with buffering provided by preserved vegetation and mitigation areas to maintain separation from less intensive uses (see Site Plan and Tree Protection Plan, Appendix B and Appendix E). Building placement and site features provide enclosure of space with existing development and maintain appropriate relationships to street access, internal circulation, and natural features, consistent with Sections 4.171 and 4.139 (see SRIR, Appendix E)

C. Drives, Parking and Circulation. With respect to vehicular and pedestrian circulation, including walkways, interior drives and parking, special attention shall be given to location and number of

access points, general interior circulation, separation of pedestrian and vehicular traffic, and arrangement of parking areas that are safe and convenient and, insofar as practicable, do not detract from the design of proposed buildings and structures and the neighboring properties.

Response: Vehicular and pedestrian circulation is designed to provide safe, efficient movement with clear separation between truck traffic, employee vehicles, and pedestrian routes. Access from the public right-of-way is limited and provided from SW Parkway Center Drive (arterial) and SW Parkway Avenue (collector), consistent with roadway function and capacity (see Site Access and Circulation Plans, Appendix B). Internal drives provide direct connections to loading, parking, and service areas, and parking areas are arranged to support building access without detracting from adjacent properties (see Site Plans, Appendix B; Traffic Impact Analysis, Appendix C).

D. *Surface Water Drainage. Special attention shall be given to proper site surface drainage so that removal of surface waters will not adversely affect neighboring properties of the public storm drainage system.*

Response: Surface runoff is collected and conveyed through on-site stormwater facilities integrated with the site layout (see Preliminary Development Plan, Sheet 03). Water quality treatment and flow control are provided by WES BMP stormwater ponds; the rerouted stormwater ditch and shallow mitigation pond function as conveyance and mitigation features and are coordinated with site grading (see Preliminary Hydrology Report; Development Plan, Sheet 03; Overall Preliminary Utility Plan, Sheet 12). Drainage improvements are designed to avoid adverse impacts to adjacent properties and the public storm drainage system.

E. *Utility Service. Any utility installations above ground shall be located so as to have a harmonious relation to neighboring properties and site. The proposed method of sanitary and storm sewage disposal from all buildings shall be indicated.*

Response: Site utilities, including water, sanitary sewer, and storm sewer, are served to the buildings underground (see Overall Preliminary Utility Plan, Sheet 12). Non-high-voltage north to south electrical lines along the site frontage are undergrounded (see Preliminary Development Plan, Sheet 03).

F. *Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.*

Response: Signage will comply with the City’s sign regulations and is limited in size and location to serve site identification only (see Sign Plans, Appendix B).

G. *Special Features. Exposed storage areas, exposed machinery installations, surface areas, truck loading areas, utility buildings and structures and similar accessory areas and structures shall be subject to such setbacks, screen plantings or other screening methods as shall be required to prevent their being incongruous with the existing or contemplated environment and its surrounding properties. Standards for screening and buffering are contained in Section 4.176.*

Response: Truck loading, truck parking, charging stations, and service areas are located internally and screened through building placement and landscaping as shown on the site plans (see Preliminary Development Plan, Sheet 03).

Section 4.430. - Location, Design and Access Standards for Mixed Solid Waste and Recycling Areas.

(.02) Location Standards:

A. To encourage its use, the storage area for source separated recyclables shall be co-located with the storage area for residual mixed solid waste.

Response: Source-separated recycling and residual mixed solid waste are co-located at three exterior on-site storage locations as shown on the site plans, each serving adjacent building and site areas (see Site Plans, Sheets 05 and 06; Waste Hauler Service Provider Letter, Appendix R)

B. Indoor and outdoor storage areas shall comply with Uniform Building and Fire Code requirements.

Response: All solid waste and recycling storage areas are designed to comply with applicable Uniform Building Code and Fire Code requirements.

C. Storage area space requirements can be satisfied with a single location or multiple locations and can combine with both interior and exterior locations.

Response: Source-separated recycling and residual mixed solid waste are co-located at three exterior on-site storage locations as shown on the site plans, each serving adjacent building and site areas (see Site Plans, Sheets 05 and 06; Waste Hauler Service Provider Letter, Appendix R).

D. Exterior storage areas can be located within interior side yard or rear yard areas. Minimum setback shall be three feet. Exterior storage areas shall not be located within a required front yard setback, including double frontage lots.

Response: All exterior solid waste and recycling storage areas are located within interior portions of the site and outside required front yard setbacks, meeting minimum setback requirements (see Site Plans, Sheets 05 and 06).

E. Exterior storage areas shall be located in central and visible locations on a site to enhance security for users.

Response: The exterior solid waste and recycling storage areas are centrally located within their respective service areas and visible from adjacent buildings and internal circulation areas, while being located behind secured fencing and not accessible to the general public (see Site Plans, Sheets 05 and 06).

F. Exterior storage areas can be located in a parking area if the proposed use provides at least the minimum number of parking spaces required for the use after deducting the area used for storage. Storage areas shall be appropriately screened according to the provisions of Section 4.430(.03), below.

Response: The exterior solid waste and recycling storage areas are located adjacent to parking areas and do not reduce the minimum required parking supply. The southern waste storage

area is screened from public view by the building, and the two northern storage areas are screened by the building to the north and landscape screening to the west, consistent with the intent of Section 4.430(.03) (see Site Plans, Sheets 05 and 06; Landscape Plan, Sheet 16).

G. *The storage area shall be accessible for collection vehicles and located so that the storage area will not obstruct pedestrian or vehicle traffic movement on the site or on public streets adjacent to the site.*

Response: All solid waste and recycling storage areas are accessible to collection vehicles via internal drive aisles and are located to avoid conflicts with on-site pedestrian circulation, vehicle circulation, and adjacent public streets, refer to the Waste Hauler Service Provider Letter included in the application materials (Appendix R).

(.03) Design Standards:

A. *The dimensions of the storage area shall accommodate containers consistent with current methods of local collection.*

Response: Solid waste and recycling storage areas are sized to accommodate enclosed compactors and containers consistent with current local collection methods, as confirmed by the Waste Hauler Service Provider Letter (Appendix R).

B. *Storage containers shall meet Uniform Fire Code standards and be made of or covered with waterproof materials or situated in a covered area.*

Response: Enclosed solid waste and recycling compactors and associated containers will meet applicable Uniform Fire Code requirements and provide weather protection through enclosure construction, consistent with waste hauler requirements.

C. *Exterior storage areas shall be enclosed by a sight obscuring fence, wall or hedge at least six feet in height. Gate openings for haulers shall be a minimum of ten feet wide and shall be capable of being secured in a closed or open position. In no case shall exterior storage areas be located in conflict with the vision clearance requirements of Section 4.177.*

Response: Exterior solid waste and recycling compactor areas will be enclosed by sight-obscuring walls (the buildings) and hedge at least six feet in height, with gate openings meeting minimum width and security requirements, and are located outside required vision clearance areas (see Landscape Plan, Sheet 16; Waste Hauler Service Provider Letter, Appendix R).

D. *Storage area(s) and containers shall be clearly labeled to indicate the type of materials accepted.*

Response: Solid waste and recycling storage areas and containers will be clearly labeled to identify accepted materials.

(.04) Access Standards:

A. *Access to storage areas can be limited for security reasons. However, the storage area shall be accessible to users at convenient times of the day and to collect service personnel on the day and approximate time they are scheduled to provide collection service.*

Response: Access to solid waste and recycling storage areas is controlled for security purposes while remaining accessible to site users and collection service personnel during scheduled collection times, as confirmed by the Waste Hauler Service Provider Letter (Appendix R).

B. *Storage areas shall be designed to be easily accessible to collection trucks and equipment, considering paving, grade and vehicle access. A minimum of ten feet horizontal clearance and eight feet of vertical clearance is required if the storage area is covered.*

Response: Solid waste and recycling storage areas are designed to be accessible to collection trucks and equipment, with paving, grades, and clearances coordinated to accommodate collection operations, consistent with waste hauler requirements.

C. *Storage areas shall be accessible to collection vehicles without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius shall be provided to allow collection vehicles to safely exit the site in a forward motion.*

Response: Solid waste and recycling storage areas are accessed via internal drive aisles and are arranged to allow collection vehicles to enter and exit the site in a forward motion without backing onto public streets, consistent with the Waste Hauler Service Provider Letter (Appendix R).

Section 4.440. - Procedure.

(.01) *Submission of Documents.* A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:

1. *A site plan, drawn to scale, showing the proposed layout of all structures and other improvements including, where appropriate, driveways, pedestrian walks, landscaped areas, fences, walls, off-street parking and loading areas, and railroad tracks. The site plan shall indicate the location of entrances and exits and direction of traffic flow into and out of off-street parking and loading areas, the location of each parking space and each loading berth and areas of turning and maneuvering vehicles. The site plan shall indicate how utility service and drainage are to be provided.*

   Response: A site plan drawn to scale has been submitted showing the layout of proposed buildings, circulation, parking, loading, landscaping, fencing, access points, traffic flow, utilities, and drainage (see Site Plans).

2. *A Landscape Plan, drawn to scale, showing the location and design of landscaped areas, the variety and sizes of trees and plant materials to be planted on the site, the location and design of landscaped areas, the varieties, by scientific and common name, and sizes of trees and plant materials to be retained or planted on the site, other pertinent landscape features, and irrigation systems required to maintain trees and plant materials. An inventory, drawn at the same scale as the Site Plan, of existing trees of four inch caliper or more is required. However, when large*

areas of trees are proposed to be retained undisturbed, only a survey identifying the location and size of all perimeter trees in the mass in necessary.

Response: A landscape plan drawn to scale has been submitted showing landscaped areas, plant materials to be retained and planted, irrigation, and other landscape features, including an inventory of existing trees meeting code thresholds (see Landscape Plan, Sheets 17-19; Arborist Report).

3. *Architectural drawings or sketches, drawn to scale, including floor plans, in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures and other improvements as they will appear on completion of construction. Floor plans shall also be provided in sufficient detail to permit computation of yard requirements based on the relationship of indoor versus outdoor living area, and to evaluate the floor plan's effect on the exterior design of the building through the placement and configuration of windows and doors.*

   Response: Architectural drawings drawn to scale, including floor plans and building elevations, have been submitted in sufficient detail to evaluate yard requirements and exterior building design (see Architectural Plans).

4. *A Color Board displaying specifications as to type, color, and texture of exterior surfaces of proposed structures. Also, a phased development schedule if the development is constructed in stages.*

   Response: A color board identifying exterior materials, colors, and textures has been submitted. A phased development where phase 1 will start in 2027 and phase 2 will start in 2028.

5. *A sign Plan, drawn to scale, showing the location, size, design, material, color and methods of illumination of all exterior signs.*

   Response: A sign plan drawn to scale showing the location, size, design, materials, color, and illumination of proposed signage has been submitted (see Signage Plan).

6. *The required application fee.*

   Response: The required application fee has been submitted.

(.02) *As soon as possible after the preparation of a staff report, a public hearing shall be scheduled before the Development Review Board. In accordance with the procedures set forth in Section 4.010(2) and 4.012, the Development Review Board shall review and approve, approve with conditions, or deny the proposed architectural, site development, landscaping or sign plans of the applicant. If the Board finds that additional information or time are necessary to render a decision, the matter may be continued to a date certain. The applicant shall be immediately notified in writing of any such continuation or delay together with the scheduled date of review.*

Response: The applicant acknowledges that the Development Review Board will review the application following preparation of the staff report and may approve, approve with conditions, deny, or continue the application consistent with Sections 4.010 and 4.012.

Section 4.441. - Effective Date of Decisions.

A decision of the Board shall become effective 14 calendar days after the date of the decision, unless the decision is appealed to, or called up by, the Council. If the decision of the Board is appealed to, or called up by, the City Council, the decision of the Council shall become effective immediately.

Response: The applicant acknowledges that the Development Review Board decision becomes effective 14 calendar days after the date of decision unless appealed or called up by the City Council, in which case the Council's decision is effective immediately.

Section 4.442. - Time Limit on Approval.

Site design review approval shall be void after two 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 acknowledges that site design review approval will expire after two years unless a building permit is issued and substantial development has occurred, or an extension is granted by the Board.

Section 4.450. - Installation of Landscaping.

(.01) All landscaping required by this section and approved by the Board shall be installed prior to issuance of occupancy permits, unless security equal to 110 percent of the cost of the landscaping as determined by the Planning Director is filed with the City assuring such installation within six 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: All required landscaping will be installed prior to issuance of occupancy permits, or financial security equal to 110 percent of the landscaping cost will be provided in accordance with this section.

(.02) Action by the City approving a proposed landscape plan shall be binding upon the applicant. Substitution of plant materials, irrigation systems, or other aspects of an approved landscape plan shall not be made without official action of the Planning Director or Development Review Board, as specified in this Code.

Response: The applicant acknowledges that approval of the landscape plan is binding and that substitutions or modifications will require approval by the Planning Director or Development Review Board, as applicable.

(.03) All landscaping shall be continually maintained, including necessary watering, weeding, pruning, and replacing, in a substantially similar manner as originally approved by the Board, unless altered with Board approval.

Response: All approved landscaping will be maintained in a substantially similar manner to that approved by the Board unless modified through an approved land use action.

(.04) If a property owner wishes to add landscaping for an existing development, in an effort to beautify the property, the Landscape Standards set forth in Section 4.176 shall not apply and no Plan approval or permit shall be required. If the owner wishes to modify or remove landscaping that has been accepted or approved through the City's development review process, that removal or modification must first be approved through the procedures of Section 4.010.

Response: The applicant acknowledges that modification or removal of landscaping approved through the City's development review process will require approval in accordance with Section 4.010.

TREE PRESERVATION

Section 4.600. - Purpose and Declaration.

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

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

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

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

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

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

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

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

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

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

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

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

F. To encourage replanting where trees are removed.

Response: The proposed development has been designed to recognize and support the intent of Section 4.600 by minimizing disturbance to existing trees and natural resources to the extent practicable while allowing reasonable development of the site. Significant Resource Overlay Zone areas are preserved except where limited impacts are permitted, and those impacts are minimized and mitigated in accordance with City standards. Tree removal is limited to areas necessary for site improvements, with protection measures implemented for retained vegetation. Mitigation and replanting are provided to replace lost functions, support erosion control, protect water quality, and maintain long-term ecological and aesthetic value, consistent with the City's objectives for health, safety, and general welfare. See Appendix D for Tree preservation report.

Section 4.600.20. - Applicability of Subchapter.

(.01) The provisions of this subchapter apply to the United States and the State of Oregon, and to their agencies and subdivisions, including the City of Wilsonville, and to the employees and agents thereof.

(.02) By this subchapter, the City of Wilsonville regulates forest practices on all lands located within its urban growth boundary, as provided by ORS 527.722.

(.03) The provisions of this subchapter apply to all land within the City limits, including property designated as a Significant Resource Overlay Zone or other areas or trees designated as protected by the Comprehensive Plan, City zoning map, or any other law or ordinance; except that any tree activities in the Willamette River Greenway that are regulated by the provisions of WC 4.500 - 4.514 and requiring a conditional use permit shall be reviewed by the DRB under the application and review procedures set forth for Tree Removal Permits.

Response: This section establishes applicability of the Tree Preservation and Protection subchapter and does not require a project-specific response.

Section 4.600.30. - Tree Removal Permit Required.

(.01) Requirement Established. No person shall remove any tree without first obtaining a Tree Removal Permit (TRP) as required by this subchapter.

(.02) Tree Removal Permits will be reviewed according to the standards provided for in this subchapter, in addition to all other applicable requirements of Chapter 4.

(.03) Although tree activities in the Willamette River Greenway are governed by WC 4.500—4.514, the application materials required to apply for a conditional use shall be the same as those required for a Type B or C permit under this subchapter, along with any additional materials that may be required by the Planning Department. An application for a Tree Removal Permit under this section shall be reviewed by the Development Review Board.

Response: Tree removal associated with the proposed development is subject to a Type C Tree Removal Permit and is being reviewed concurrently with the site development application. Required tree surveys, arborist analysis, and tree protection measures are provided in the Arborist Report and SRIR (Appendix D and E). The project is located outside the Willamette River Greenway.

Section 4.600.40. - Exceptions.

(.01) Exception from requirement. Notwithstanding the requirement of WC 4.600.30(1), the following activities are allowed without a Tree Removal Permit, unless otherwise prohibited:

A. Agriculture, Commercial Tree Farm or Orchard. Tree removal or transplanting occurring during use of land for commercial purposes for agriculture, orchard(s), or tree farm(s), such as Christmas tree production.

B. Emergencies. Actions made necessary by an emergency, such as tornado, windstorm, flood, freeze, utility damage or other like disasters, in order to prevent imminent injury or damage to persons or property or restore order and it is impractical due to circumstances to apply for a permit.

1. When an emergency has occurred, a Tree Removal Permit must be applied for within 30 days following the emergency tree removal under the application procedures established in this subchapter.

2. In addition to complying with the permit application requirements of this subchapter, an applicant shall provide a photograph of any tree removed and a brief description of the conditions that necessitated emergency removal. Such photograph shall be supplied within seven days of application for a permit. Based on good cause shown arising out of the emergency, the Planning Director may waive any or all requirements of this section.

3. Where a Type A Permit is granted for emergency tree removal, the permitee is encouraged to apply to the City Tree Fund for replanting assistance.

C. City utility or road work in utility or road easements, in utility or road rights-of-way, or in public lands. However, any trees removed in the course of utility work shall be mitigated in accordance with the standards of this subchapter.

D. Nuisance abatement. The City is not required to apply for a Tree Removal Permit to undertake nuisance abatement as provided in WC 6.200 et seq. However, the owner of the property subject to nuisance abatement is subject to all the provisions of this subchapter in addition to the requirements of WC 6.200 et seq

E. The removal of filbert trees is exempt from the requirements of this subchapter.

F. The Charbonneau District, including its golf course, is exempt from the requirements of WC 4.600.30(1) on the basis that by and through the current CC&R's of the Charbonneau Country Club, the homeowners' association complies with all requirements of WC 4.610.30(1)(C)(1). This exception has been based upon the Tree Maintenance and Protection Plan that has been submitted by the Charbonneau Country Club and approved by the Planning Director. Tree removal activities remain subject to all applicable standards of this subchapter. Unless authorized by the City, this exception does not include tree removal upon any public easements or public property within the district. In the event that the CC&R's are changed relative to the effect of the Tree Maintenance and Protection Plan, then the Planning Director shall review whether such effect is material, whether it can be mitigated, and if not, may disallow the exemption.

Response: The proposed tree removal associated with this development does not rely on the general exceptions listed in this section. Tree removal is being reviewed under a Type C Tree Removal Permit in conjunction with the site development application. Limited removal of trees identified as diseased or hazardous may qualify as nuisance abatement, as documented in the Arborist Report (Appendix D), and will be addressed in accordance with applicable City procedures.

Section 4.610.00. - Application Review Procedure.

(.01) The permit applicant shall provide complete information as required by this subchapter in order for the City to review the application.

(.02) Departmental Review. All applications for Tree Removal Permits must be deemed complete by the City Planning Department before being accepted for review. When all required information has been supplied, the Planning Department will verify whether the application is complete. Upon request of either the applicant or the City, the City may conduct a field inspection or review meeting. City departments involved in the review shall submit their report and recommendations to the Planning Director who shall forward them to the appropriate reviewing authority.

(.03) Reviewing Authority.

A. Type A or B. Where site plan review or plat approval by the Development Review Board is not required by City ordinance, the grant or denial of the Tree Removal Permit application shall be the responsibility of the Planning Director. The Planning Director has the authority to refer a Type B permit application to the DRB under the Class II administrative review procedures of this

Chapter. The decision to grant or deny a permit shall be governed by the applicable review standards enumerated in WC 4.610.10.

B. *Type C. Where the site is proposed for development necessitating site plan review or plat approval by the Development Review Board, the Development Review Board shall be responsible for granting or denying the application for a Tree Removal Permit, and that decision may be subject to affirmance, reversal or modification by the City Council, if subsequently reviewed by the Council. For site development applications subject to a Class II administrative review process in the Coffee Creek Industrial Design Overlay District, the Planning Director shall be responsible for the granting or denial of the Tree Removal Permit application.*

C. *Type D. Type D permit applications shall be subject to the standards and procedures of Class I administrative review and shall be reviewed for compliance with the Oregon Forest Practice Rules and Statutes. The Planning Director shall make the decision to grant or deny an application for a Type D permit.*

D. *Review period for complete applications. Type A permit applications shall be reviewed within ten working days. Type B permit applications shall be reviewed by the Planning Director within 30 calendar days, except that the DRB shall review any referred application within 60 calendar days. Type C permit applications shall be reviewed within the time frame established by this Chapter. Type D permit applications shall be reviewed within 15 calendar days.*

(.04) Notice. Before the granting of a Type C Tree Removal Permit, notice of the application shall be sent by regular mail to all owners within 250 feet of the property where the trees are located as provided for in WC 4.010. The notice shall indicate where the application may be inspected and when a public hearing on the application will be held.

(.05) Denial of Tree Removal Permit. Whenever an application for a Tree Removal Permit is denied, the permit applicant shall be notified, in writing, of the reasons for denial.

(.06) Grant of a Tree Removal Permit. Whenever an application for a Type B, C or D Tree Removal Permit is granted, the reviewing authority shall:

A. *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;*

B. *Completion of Operations. Fix a reasonable time to complete tree removal operations; and*

C. *Security. 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: The application has been submitted with the required information and is subject to review in accordance with Section 4.610.00.

Section 4.610.10. - Standards for Tree Removal, Relocation or Replacement.

(.01) Except where an application is exempt, or where otherwise noted, the following standards shall govern the review of an application for a Type A, B, C or D Tree Removal Permit:

A. *Standard for the Significant Resource Overlay Zone. The standard for tree removal in the Significant Resource Overlay Zone shall be that removal or transplanting of any tree is not inconsistent with the purposes of this Chapter.*
Response: Tree removal within the Significant Resource Overlay Zone is limited and not inconsistent with the purposes of this Chapter. Impacts are confined to areas necessary for development and are addressed through avoidance, minimization, and mitigation measures documented in the SRIR and Arborist Report (Appendix D and E).

B. *Preservation and Conservation. No development application shall be denied solely because trees grow on the site. Nevertheless, tree preservation and conservation as a design principle shall be equal in concern and importance to other design principles.*
Response: Tree preservation and conservation were incorporated as design constraints alongside access, grading, utilities, and operational requirements. Significant tree stands were retained where feasible, and removal is limited to areas required to support the proposed development.

C. *Developmental Alternatives. Preservation and conservation of wooded areas and trees shall be given careful consideration when there are feasible and reasonable location alternatives and design options on-site for proposed buildings, structures or other site improvements.*
Response: Alternative site layouts and building configurations were evaluated to reduce impacts to wooded areas. Tree removal reflects locations where feasible and reasonable on-site alternatives were not available.

D. *Land Clearing. Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.*
Response: Land clearing is limited to designated improvement areas necessary for buildings, access drives, utilities, and associated site improvements. No clearing is proposed outside of these areas.

E. *Residential Development. Where the proposed activity involves residential development, residential units shall, to the extent reasonably feasible, be designed and constructed to blend into the natural setting of the landscape.*
Response: Not applicable. The proposed development does not include residential uses.

F. *Compliance With Statutes and Ordinances. The proposed activity shall comply with all applicable statutes and ordinances.*
Response: The proposed activity complies with applicable statutes and ordinances, including the tree removal, mitigation, and protection standards of Chapter 4.

G. *Relocation or Replacement. The proposed activity shall include necessary provisions for tree relocation or replacement, in accordance with WC 4.620.00, and the protection of those trees that are not to be removed, in accordance with WC 4.620.10.*
Response: Tree relocation, replacement, and mitigation are provided in accordance with WC 4.620.00, and tree protection measures during construction are provided in accordance with WC 4.620.10, as documented in the Arborist Report and SRIR (Appendix D and E).

H. *Limitation. Tree removal or transplanting shall be limited to instances where the applicant has provided completed information as required by this Chapter and the reviewing authority determines that removal or transplanting is necessary based on the criteria of this subsection.*

1. *Necessary For Construction. Where the applicant has shown to the satisfaction of the reviewing authority that removal or transplanting is necessary for the construction of a building, structure or other site improvement, and that there is no feasible and reasonable location alternative or design option on-site for a proposed building, structure or other site improvement; or a tree is located too close to existing or proposed buildings or structures, or creates unsafe vision clearance.*
Response: Tree relocation, replacement, and mitigation are provided in accordance with WC 4.620.00, and tree protection measures during construction are provided in accordance with WC 4.620.10, as documented in the Arborist Report and SRIR (Appendix E).

2. *Disease, Damage, or Nuisance, or Hazard. Where the tree is diseased, damaged, or in danger of falling, or presents a hazard as defined in WC 6.208, or is a nuisance as defined in WC 6.200 et seq., or creates unsafe vision clearance as defined in this Code.*
Response: Select trees proposed for removal have been identified by the project arborist as diseased, damaged, or presenting a hazard, as documented in the Arborist Report (Appendix D).

    a. *As a condition of approval of Stage II development, filbert trees must be removed if they are no longer commercially grown or maintained.*
    Response: Not applicable. The site does not include filbert trees that are commercially grown or maintained.

3. *Interference. Where the tree interferes with the healthy growth of other trees, existing utility service or drainage, or utility work in a previously dedicated right-of-way, and it is not feasible to preserve the tree on site.*
Response: Tree removal is proposed where trees conflict with required utility service, drainage infrastructure, or site improvements and cannot be reasonably preserved in place.

4. *Other. Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.*
   Response: Tree removal is not proposed under this subsection independently. Trees proposed for removal fall within the criteria described in subsections (1) through (3), as documented in the Arborist Report (Appendix D).

I. *Additional Standards for Type C Permits.*

1. *Tree survey. For all site development applications reviewed under the provisions of Chapter 4 Planning and Zoning, the developer shall provide a Tree Survey before site development as required by WC 4.610.40, and provide a Tree Maintenance and Protection plan, unless specifically exempted by the Planning Director or DRB, prior to initiating site development.*
   Response: A Tree Survey and tree protection measures have been documented as part of the Arborist Report submitted with the site development application (Appendix E). Additional tree protection requirements will be implemented in accordance with WC 4.610.40 as part of site development approval.

2. *Platted Subdivisions. The recording of a final subdivision plat whose preliminary plat has been reviewed and approved after the effective date of Ordinance 464 by the City and that conforms with this subchapter shall include a Tree Survey and Maintenance and Protection Plan, as required by this subchapter, along with all other conditions of approval.*
   Response: Not applicable. The proposal does not include the recording of a subdivision plat.

3. *Utilities. The City Engineer shall cause utilities to be located and placed wherever reasonably possible to avoid adverse environmental consequences given the circumstances of existing locations, costs of placement and extensions, the public welfare, terrain, and preservation of natural resources. Mitigation and/or replacement of any removed trees shall be in accordance with the standards of this subchapter.*
   Response: Tree removal is not proposed under this subsection independently. Trees proposed for removal fall within the criteria described in subsections (1) through (3), as documented in the Arborist Report (Appendix D).

J. *Exemption. Type D permit applications shall be exempt from review under standards D, E, H and I of this subsection.*
   Response: Tree removal is not proposed under this subsection independently. Trees proposed for removal fall within the criteria described in subsections (1) through (3), as documented in the Arborist Report (Appendix D).

Section 4.610.40. - Type C Permit.

(.01) Approval to remove any trees on property as part of a site development application may be granted in a Type C permit. A Type C permit application shall be reviewed by the standards of 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. The DRB shall review all Type C permits, with the exception of Class II development review applications located within the Coffee Creek Industrial Design Overlay District, where the Planning Director shall have review authority. Any plan changes made that affect trees after Stage II review of a development application shall be subject to review by the original approval authority. 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.

(.02) The applicant must provide ten copies of a Tree Maintenance and Protection Plan completed by an arborist that contains the following information:

A. A plan, including a topographical survey bearing the stamp and signature of a qualified, registered professional containing all the following information:

1. Property Dimensions. The shape and dimensions of the property, and the location of any existing and proposed structure or improvement.

2. Tree survey. The survey must include:

a. An accurate drawing of the site based on accurate survey techniques at a minimum scale of one inch equals 100 feet and which provides a) the location of all trees having six inches or greater d.b.h. likely to be impacted, b) the spread of canopy of those trees, (c) the common and botanical name of those trees, and d) the approximate location and name of any other trees on the property.

b. A description of the health and condition of all trees likely to be impacted on the site property. In addition, for trees in a present or proposed public street or road right-of-way that are described as unhealthy, the description shall include recommended actions to restore such trees to full health. Trees proposed to remain, to be transplanted or to be removed shall be so designated. All trees to remain on the site are to be designated with metal tags that are to remain in place throughout the development. Those tags shall be numbered, with the numbers keyed to the tree survey map that is provided with the application.

c. Where a stand of 20 or more contiguous trees exist on a site and the applicant does not propose to remove any of those trees, the required tree survey may be simplified to accurately show only the perimeter area of that stand of trees, including its drip line. Only those trees on the perimeter of the stand shall be tagged, as provided in "b," above.

d. All Oregon white oaks, native yews, and any species listed by either the state or federal government as rare or endangered shall be shown in the tree survey.

3. Tree Protection. A statement describing how trees intended to remain will be protected during development, and where protective barriers are necessary, that they will be erected before work starts. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute "barriers."

4. Easements and Setbacks. Location and dimension of existing and proposed easements, as well as all setbacks required by existing zoning requirements.

5. *Grade Changes. Designation of grade changes proposed for the property that may impact trees.*

6. *Cost of Replacement. A cost estimate for the proposed tree replacement program with a detailed explanation including the number, size and species.*

7. *Tree Identification. A statement that all trees being retained will be identified by numbered metal tags, as specified in subsection "A," above in addition to clear identification on construction documents.*
(Ord. No. 812, 2-22-2018)

Response: Tree removal associated with the proposed development is reviewed under a Type C Tree Removal Permit in conjunction with the Stage II site development application. Tree impacts, preservation areas, and mitigation measures are documented in the Arborist Report and SRIR submitted with the application (Appendix E). Tree removal will not commence until approval of the Stage II application and expiration of the applicable appeal period.

Tree survey information, tree condition assessments, and proposed removal limits are provided as part of the Arborist Report. Tree protection measures for trees to remain will be implemented consistent with WC 4.610.40 and WC 4.620.10 and will be finalized prior to construction as required by site development approval. Where mitigation is required, replacement and enhancement measures are addressed through the approved landscaping and mitigation plans.

Section 4.620.00. - Tree Relocation, Mitigation, or Replacement.

(.01) Requirement Established. A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six inches or greater d.b.h. within one year of removal.

(.02) Basis For Determining Replacement. The permit grantee shall replace removed trees on a basis of one tree replanted for each tree removed. All replacement trees must measure two inches or more in diameter. Alternatively, the Planning Director or Development Review Board may require the permit grantee to replace removed trees on a per caliper inch basis, based on a finding that the large size of the trees being removed justifies an increase in the replacement trees required. Except, however, that the Planning Director or Development Review Board may allow the use of replacement Oregon white oaks and other uniquely valuable trees with a smaller diameter.

(.03) Replacement Tree Requirements. A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.

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

B. Replacement trees must be staked, fertilized and mulched, and shall be guaranteed by the permit grantee or the grantee's successors-in-interest for two 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.

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

(.05) Replacement Tree Location.

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

B. Relocation or Replacement Off-Site. When it is not feasible or desirable to relocate or replace trees on-site, relocation or replacement may be made at another location approved by the City.

(.06) City Tree Fund. Where it is not feasible to relocate or replace trees on site or at another approved location in the City, the Tree Removal Permit grantee shall pay into the City Tree Fund, which fund is hereby created, an amount of money approximately the value as defined by this subchapter, of the replacement trees that would otherwise be required by this subchapter. The City shall use the City Tree Fund for the purpose of producing, maintaining and preserving wooded areas and heritage trees, and for planting trees within the City.

A. The City Tree Fund shall be used to offer trees at low cost on a first-come, first-serve basis to any Type A Permit grantee who requests a tree and registers with the City Tree Fund.

B. In addition, and as funds allow, the City Tree Fund shall provide educational materials to assist with tree planting, mitigation, and relocation.

(.07) Exception. Tree replacement may not be required for applicants in circumstances where the Director determines that there is good cause to not so require. Good cause shall be based on a consideration of preservation of natural resources, including preservation of mature trees and diversity of ages of trees. Other criteria shall include consideration of terrain, difficulty of replacement and impact on adjacent property.

Response: Tree mitigation and replacement associated with the proposed development are addressed through the Arborist Report and SRIR submitted with the application (Appendix D and E). Replacement plantings, mitigation locations, and performance standards are identified to offset tree removal consistent with the requirements of WC 4.620.00. Where tree relocation is not feasible, replacement or mitigation measures are provided in accordance with City standards.

Section 4.620.10. - Tree Protection During Construction.

(.01) Where tree protection is required by a condition of development under Chapter 4 or by a Tree Maintenance and Protection Plan approved under this subchapter, the following standards apply:

A. All trees required to be protected must be clearly labeled as such.

B. Placing Construction Materials Near Tree. No person may conduct any construction activity likely to be injurious to a tree designated to remain, including, but not limited to, placing solvents, building material, construction equipment, or depositing soil, or placing irrigated landscaping, within the drip line, unless a plan for such construction activity has been approved by the Planning Director or Development Review Board based upon the recommendations of an arborist.

C. Attachments to Trees During Construction. Notwithstanding the requirement of WC 4.620.10(1)(A), no person shall attach any device or wire to any protected tree unless needed for tree protection.

D. Protective Barrier. Before development, land clearing, filling or any land alteration for which a Tree Removal Permit is required, the developer shall erect and maintain suitable barriers as identified by an arborist to protect remaining trees. Protective barriers shall remain in place until the City authorizes their removal or issues a final certificate of occupancy, whichever occurs first. Barriers shall be sufficiently substantial to withstand nearby construction activities. Plastic tape or similar forms of markers do not constitute "barriers." The most appropriate and protective barrier shall be utilized. Barriers are required for all trees designated to remain, except in the following cases:

1. Rights-of-Way and Easements. Street right-of-way and utility easements may be cordoned by placing stakes a minimum of 50 feet apart and tying ribbon, plastic tape, rope, etc., from stake to stake along the outside perimeters of areas to be cleared.

2. Any property area separate from the construction or land clearing area onto which no equipment will venture may also be cordoned off as described in paragraph (D) of this subsection, or by other reasonable means as approved by the reviewing authority.

Response: Tree protection measures will be implemented for all trees designated to remain on site in accordance with WC 4.620.10. Protected trees will be clearly identified prior to construction, and construction activities within tree protection areas will be prohibited unless specifically approved by the City based on arborist recommendations. No materials, equipment, soil, or landscaping will be placed within tree drip lines except where expressly authorized.
Protective barriers will be installed and maintained around all trees to remain prior to any land clearing, grading, or construction activity and will remain in place until final occupancy or City authorization for removal. Barriers will be of sufficient type and durability to withstand construction activities and will not consist solely of tape or ribbon, except where allowed within rights-of-way or easements consistent with the Code. Tree protection requirements will be implemented consistent with the Arborist Report and final Tree Maintenance and Protection measures approved as part of the site development process.

CONCLUSION

This written narrative and all other required items listed within the approval and submittal requirements have demonstrated that this proposal meets all relevant approval criteria and applicable development standards. The applicant requests approval.

Ingrid Friedberg

From: Luxhoj, Cindy <luxhoj@ci.wilsonville.or.us>
Sent: Thursday, June 2, 2022 4:41 PM
To: Ingrid Friedberg; Tomye Fries; peter.richter@sysco.com
Cc: Pepper, Amy; Rybold, Kim
Subject: Pre-Application Meeting Follow-up - 26120 SW Parkway Avenue - Sysco Facility Expansion Project
Attachments: Reports and Other Documents.docx; Plan Set.docx; Engineering Pre-App Notes_Sysco Expansion.pdf

Thank you for taking the time to discuss your project with us last week. I am writing to follow up with additional information as we discussed during the pre-application meeting. Please forward this information to other members of your project team as appropriate.

A recording of the meeting can be found here:
https://app.box.com/s/og91pmm3s5e0te0t17kdfqttl7hlk01q.

Engineering Division notes are attached.

As you look at what you need to submit for land use review the following list will aid you in what to submit and what code criteria to respond to in your project narrative. If you have further questions of what a project narrative should look like or what to submit please don't hesitate to contact a planner and ask. You can access the City's Development Code at this link.

Please keep in mind the burden to show compliance with applicable City standards falls on the applicant (see Wilsonville Code 4.014). For planned development proposals Wilsonville Code requires a professional design team including, but not limited to, a registered architect, a registered landscape architect, a certified planner or planner with extensive experience talking projects through public review processes, and a professional engineer. We have found it typically difficult for applicants to prepare a complete and satisfactory application without this full team of professionals.

As a reminder the land use review process is separate from and occurs prior to building and other construction permitting. We do allow for some concurrent review of building permits, but do not submit building permits prior to your land use application being complete and a public hearing being scheduled. Building permits cannot be issued until the land use decision is final after the conclusion of the local appeal period. For more information on other steps in the development process subsequent to the land use review visit our Development Process Guidelines page.

This email includes 5 sections:

1. Land Use Review Steps
2. Anticipated/Potential Land Use Applications for Project
3. Submittal Requirements
4. Applicable Development Code Sections
5. Other Specific Concerns/Discussion Items for Project

1. Land Use Review Steps

Land use review has a number of steps as follows:

Step 1. Submittal (see Section 3 and attached checklist for more details on submittal requirements): Applicant submits application including:

- Signed application form

- All land use application fees
- 3 paper copies, and 1 electronic copy in flattened pdf format on CD, DVD, flash drive, or via file storage site or email of the following:
    - Project narrative (please include in MS Word document format in addition to pdf)
    - Full size, and reduced (11X17 or smaller) set of plans related to land use review
    - Reports such as arborist report, stormwater drainage report, traffic report

Step 2. Initial City Review "Completeness Review": The assigned Wilsonville planner reviews the application to determine if all materials required to review the application are submitted. We call this step "completeness review." In concludes with a determination of whether the submitted application package is "complete" or "incomplete." The applicant will be notified by letter about the determination. If the determination is "incomplete" the letter includes the specific items needed to make the application "complete." If application is "complete" the next step is Step 6.

Step 3. Indication of Intention for Incomplete Applications: If the application is "incomplete" the applicant either indicates whether they intend to submit the items identified in the "incompleteness letter." This is done by signing and returning a page enclosed with the "incompleteness letter." If the applicant refuses to submit additional materials the application with proceed to step 6, noting that failure to provide sufficient information can be grounds for denying an application.

Step 4. Applicant Prepares Additional Request Materials and Resubmits Application: If the application is "incomplete" and the applicant intends to address the items identified in the "incompleteness letter" the applicant prepares the identified items. Once the applicant prepares all the items they resubmit the application as identified in Step 1. Occasionally if the additional materials are minor the previous submittal package can be supplemented or pages switched out. In most cases complete new copies of the entire submittal package will be submitted.

Step 5. City Reviews Resubmitted Package "2nd Completeness Review." The assigned Wilsonville planner reviews the revised application to determine if all materials required to review the application are submitted. A determination of "complete" or "incomplete" will again occur with the corresponding letter being sent to the applicant.

Step 6. Hearing Scheduled, City Staff Prepares Report, Public Notice and Comment Period. Once the application is "complete" the project is scheduled for a hearing before one of two Development Review Board panels. The hearing is typically scheduled 30-45 days from when the application is deemed "complete." Twenty days prior to the hearing the Assigned Planner sends out a Public Hearing Notice soliciting comments from the public. The Assigned Planner also solicits comments and conditions of approval from various City Departments and Divisions as well as partner agencies and service providers such as TVF&R, NW Natural, and Republic Services (franchise waste collector). One week prior to the hearing a Staff Report is published for public review.

Step 7. Public Hearing. Development Review Board (DRB) public hearings are typically 6:30 p.m. on the 2nd and 4th Monday of the month at Wilsonville City Hall. The public hearing typically follows the following format:

- The Assigned Planner presents their report to the DRB often with support from Engineering and Natural Resource staff and answers the Board's questions. The staff presentation typically identifies the subject applications, verifies compliance with applicable code criteria, and summarizes criteria that apply to discretionary reviews, such as waivers, if any, included in the application.
- The applicant is given the opportunity to present. The applicant's presentation should include a description of the project design, and explanation of the motivation behind and goals of the project, explanation of reasoning for discretionary requests, if any, and how the applicable criteria are met. The DRB can ask questions of the applicant.
- Others in attendance can testify, the DRB can ask questions of them.
- The applicant gets an opportunity to rebut any testimony
- After all testimony and questioning the DRB chair closes the Public Hearing.
- A DRB member makes a motion
- DRB discussion and deliberation
- DRB decision

Step 8. Notice of Decision and Appeal Period. Typically the next day a Notice of Decision is sent by the City. In most cases this includes a form accepting the conditions of approval the applicant must sign and return. The Notice of Decision includes notification of the 14-day appeal period from the date the decision is mailed.

Step 9. City Council Adoption. Once the DRB issues a decision, the Zone Map Amendment is scheduled for public hearing before the City Council. City Council public hearings are typically held at 7:00 p.m. on the 1st and 3rd Monday of the month at Wilsonville City Hall. The format of this meeting is the same as the DRB meeting, although presentations to the City Council are generally shorter in length. To adopt ordinances related to this application type, two readings of the ordinance are required. The first reading occurs on the night of the public hearing, and the second reading takes place at the next City Council meeting after the public hearing. The Zone Map Amendment will be in effect 30 days after the ordinances are adopted.
Step 10. After the ordinances are in effect, if the appeal period lapses with no appeal and the form accepting conditions of approval is signed and returned, construction permits consistent the DRB approval can then be processed and issued.

2. Anticipated/Potential Land Use Applications for Project

   - Zone Map Amendment
   - Stage I Master Plan
   - Stage II Final Plan Revision
   - Site Design Review
   - Class III Sign Plan
   - Type C Tree Removal and Protection Plan (if any tree removal is proposed)
   - Significant Resource Impact Report (SRIR)

3. Submittal Requirements (can use as a checklist)
   We have tried to make this as complete as possible, and may not include everything required.

   The submittal package needs to include:

   1. An application form signed by the property owner
   2. All applicable planning application fees
   3. A project narrative including the following sections (paper copy, pdf, and ms word):
      a. Summary of Proposal (1-2 pages typically) including key numbers (i.e. acreage, square feet of buildings, number of units, etc.)
      b. Background Information (1-2 pages typically)
      c. Discussion of key issues or discussion items (1-2 pages), include discussion of any neighborhood outreach
      d. Response Findings to Code Criteria (numerous pages), in the following basic format:

         - Code Criteria Reference and Language

         - Response (from applicant): The written response needs to be specific and clear. It needs to go beyond saying a criteria is met to clearly and specifically explaining how it is met. As an example, if the criteria is "Parking standards shown in Table A shall be met," the response should state, "the proposal provides 52 parking spaces, 2 more than the 50 parking spaces required. See parking layout on the site plan, Exhibit B2" not something unspecific like "the proposal provides sufficient parking".

   4. Plan set including the information in the attached "Plan Set Submittal Checklist": (you can use the sheet reference field to write in a reference to where the information is).

   5. Other reports and documents (traffic report, arborist report, etc.). Include in notebook or packet with narrative. A checklist of requirement documents is attached as "Reports and Other Documents Checklist".

4. Applicable Development Code Sections
   These are the applicable code sections to consider in preparing your narrative and designing your site. For the most part it does not include code sections related to procedures. The code can be accessed online by following this link.

Industrial Development Standards and Industrial Zoning

- Planned Development Industrial-Regionally Significant Industrial Area (PDI-RSIA) Zone and Industrial Standards: Sections 4.117, 4.135 through 4.135.5 (The project would be zoned PDI-RSIA)

Planned Development Standards and Regulations for all Planned Development (PD) Zones

- Standards applying to all Planned Development (PD) Zones: Section 4.118
- Planned Development Regulations: Section 4.140

Overlay Zones

- Significant Resource Overlay Zone (SROZ) Ordinance: Section 4.139 through 4.139.11

General Development Regulations and Standards

- On-Site Pedestrian Access and Circulation: Section 4.154
- Parking, Loading, and Bicycle Parking: Section 4.155
- Protection of Natural and Other Features: Section 4.171
- Public Safety and Crime Prevention: 4.175
- Landscaping, Screening, and Buffering: Section 4.176
- Street Improvement Standards: Section 4.177
- Mixed Solid Waste and Recycling: Section 4.179
- Outdoor Lighting: Sections 4.199 through 4.199.60
- Underground Utilities: Sections 4.300 through 4.320

Site Design Review (Detailed Review of Architecture, Landscaping, Signs and other Design Elements)

- Site Design Review: Sections 4.400 through 4.450

Signs

- Signs: Sections 4.156.01 through 4.156.11

Tree Removal

- Tree Preservation and Protection: Sections 4.600 through 4.640.20

Zone Changes

- Zone Changes: Section 4.197

Definitions of Terms

- Definitions of Terms: Section 4.001

5. Other Specific Concerns/Discussion Items for Project

Concurrent Review of Applications: As was noted during the pre-application meeting, applications are typically submitted as one package and go through the steps of land use review concurrently. If an applicant chooses to separate the applications (for example, an initial submittal for the Zone Map Amendment and Stage I Master Plan with other applications submitted at a later date), this land use review process will be repeated with an additional public hearing required.

Wilsonville Self Service Portal: Once you are ready to submit, please apply for your project using our new Online Permitting & Licensing Portal. Select "Apply" then select "Plans", then scroll down and select "Development Review Board (Master Plan)". As best you can, please note which land use requests are included on the application and once submitted, City Staff will follow up with an invoice that can be paid through the online portal.

6. Staff/Agency Contact Information

We encourage you to reach out with any questions you may have as you continue to develop the plans for your project.

Cindy Luxhoj, Planning Division – luxhoj@ci.wilsonville.or.us
Mariah Lemen, Building Division – mlemen@ci.wilsonville.or.us
Becky White, Building Division (SDCs) – white@ci.wilsonville.or.us
Amy Pepper, Engineering Division – apepper@ci.wilsonville.or.us
Zach Weigel, City Engineer – weigel@ci.wilsonville.or.us
Kerry Rappold, Natural Resources Division – rappold@ci.wilsonville.or.us
Sarah Sand, Stormwater Management - sand@ci.wilsonville.or.us
Ian Eglitis, Public Works – eglitis@ci.wilsonville.or.us

John Olivares, Republic Services - jolivares@republicservices.com

Jason Arn – jason.arn@tvfr.com, and Alex McGladrey - alex.mcgladrey@tvfr.com, TVF&R - A service provider permit is required as part of the land use submission to the City. Please visit the TVF&R's online portal to obtain this permit: https://www.tvfr.com/399/Service-Provider-Permit

Please contact me or any of the City's planners if you have questions or need additional information.

Thank you,

Cindy Luxhoj AICP
Associate Planner
City of Wilsonville

503.570.1572
luxhoj@ci.wilsonville.or.us
www.ci.wilsonville.or.us
Facebook.com/CityofWilsonville

WILSONVILLE
OREGON

29799 SW Town Center Loop East, Wilsonville, OR 97070

The Community Development Department has implemented a new online application and payment system. You can now apply and pay for most applications online. You can register for and access the new system for application and payment at https://www.ci.wilsonville.or.us/Online-Portal. If there are additional questions, please reach out to City staff.

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

SYSCO WILSONVILLE RE-ZONE AND MASTER PLAN FACILITY EXPANSION

TRAFFIC IMPACT ANALYSIS (TIA)
TRANSPORTATION PLANNING RULE (TPR)

JULY 2023

DKS

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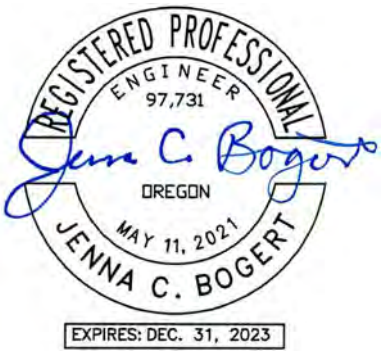
Amy Pepper, PE

PREPARED BY DKS ASSOCIATES

Jenna Bogert, PE

Travis Larson, PE

Scott Mansur, PE, PTOE, RSP[1]



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INTRODUCTION

This study evaluates the transportation impacts associated with the proposed expansion of the Sysco Portland, Inc site currently located at 26250 SW Parkway Center Drive in Wilsonville, Oregon 97070-7788 to the adjacent property located at 26120 SW Parkway Avenue, Wilsonville, Oregon 97070-7788. The proposed expansion will include the provision of three new buildings for storage of restaurant food supplies, parking spaces, truck loading spaces, electric vehicle truck and car charging stations, open space, landscaping, and utilities. The total gross floor area of all three buildings is f square feet (Phase I: 94,000 square feet and Phase II: 286,000 square feet). Three new site accesses are proposed, two staff/visitor driveways and one truck driveway. The proposed expansion will require a zone change from Residential Agricultural Holding (RA-H) zoning to Planned Development Industrial - Regionally Significant Industrial Area (PDI -RSIA) zoning. The proposed zoning (PDI-RSIA) is consistent with the City's Comprehensive Plan Map industrial designation.

The purpose of this transportation study is to conduct a traffic impact analysis (TIA), which will identify any potential mitigation measures that might be needed to offset transportation impacts that the proposed development may have on the nearby transportation network in the near-term.

This transportation study will also include Transportation Planning Rule (TPR) findings for the proposed rezone of the property. The proposed zone change must be in accordance with Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR). The intent of the TPR (OAR 660-12-0060) is to ensure that future land use and traffic growth is consistent with transportation system planning and does not create a significant effect on the surrounding transportation system beyond currently allowed uses.

TRAFFIC IMPACT ANALYSIS (TIA)

The traffic impact analysis is focused on seven existing intersections and the three proposed site accesses, which were selected for evaluation in coordination with City staff. The intersections are listed on the following page and shown in Figure 1. Important characteristics of the study area and proposed project are listed in Table 1.

1. Interstate-5 Southbound Ramps/SW Elligsen Road
2. Interstate-5 Northbound Ramps/SW Elligsen Road
3. SW Elligsen Road/SW Parkway Avenue
4. SW Elligsen Road/SW Parkway Center Drive
5. SW Elligsen Road/SW Canyon Creek Road
6. SW Parkway Center Drive/SW Burns Way
7. SW Canyon Creek Road/SW Burns Way
8. SW Parkway Center Drive/Costco Driveway/Staff Lot Driveway
9. SW Parkway Avenue/Staff Lot Driveway
10. SW Parkway Avenue/Truck Driveway

TABLE 1: STUDY AREA & DEVELOPMENT CHARACTERISTICS

STUDY AREA	
NUMBER OF STUDY INTERSECTIONS	Seven existing intersections Three new site driveways
ANALYSIS PERIODS	Weekday PM peak hour (one hour between 4pm – 6pm)
PROPOSED DEVELOPMENT	
EXISTING LAND USE	Vacant
PROPOSED LAND USE	Expansion of Sysco Portland, Inc (wholesale restaurant food supply distributor)
PROJECT TRIPS	93 PM peak hour trips (55 in, 38 out)
VEHICULAR ACCESS POINTS	Three new accesses (two staff/visitor driveways and one truck driveway)

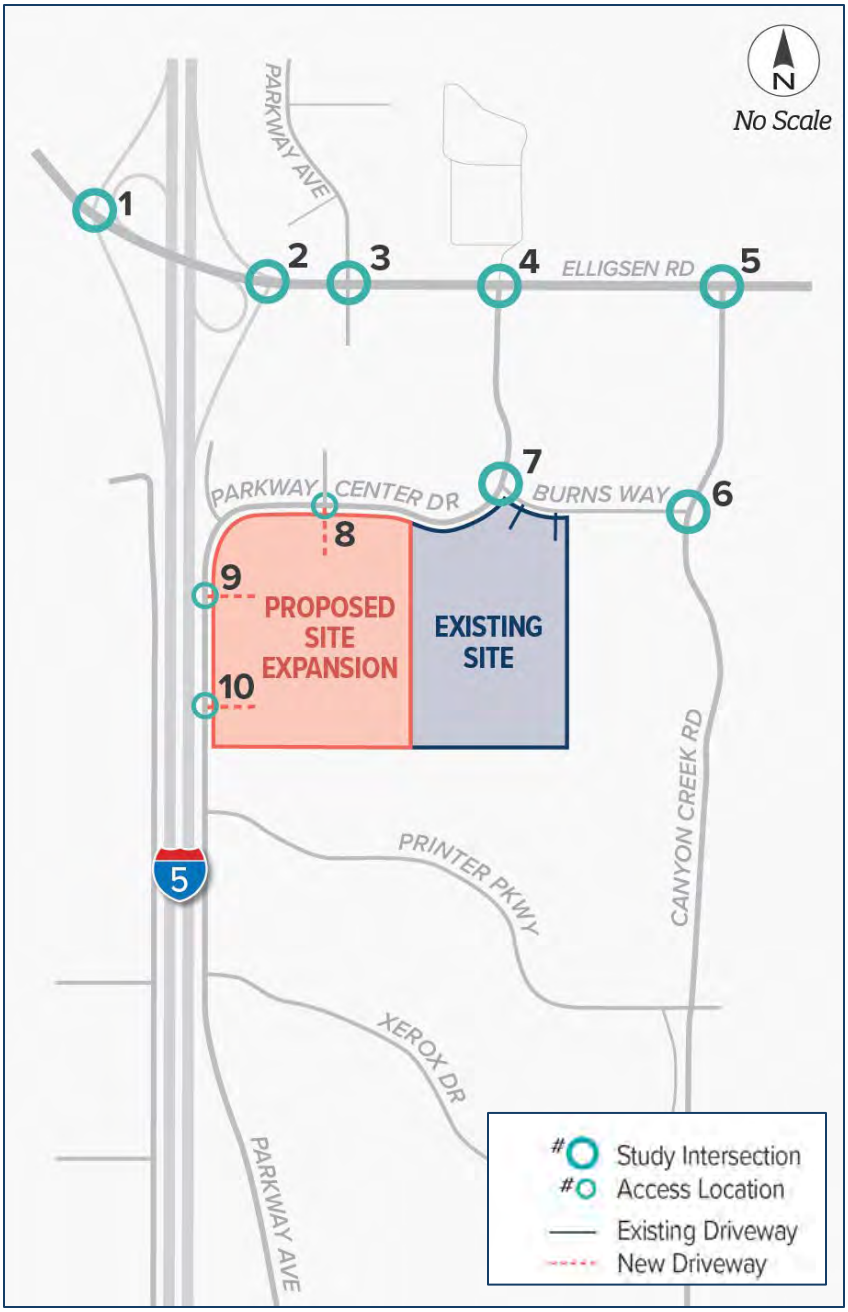


FIGURE 1: STUDY AREA

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.

STUDY AREA ROADWAY NETWORK

Key roadways and their existing characteristics in the study area are summarized in Table 2. The functional classifications for City of Wilsonville streets are provided in the City of Wilsonville Transportation System Plan (TSP).[1]

TABLE 2: STUDY AREA ROADWAY CHARACTERISTICS

ROADWAY	FUNCTIONAL CLASS	OWNER	LANES	POSTED SPEED	SIDE-WALKS	BICYCLE FACILITIES	ON-STREET PARKING
ELLIGSEN ROAD	Major Arterial/ Minor Arterial [a]	City of Wilsonville [b]	4 [c]	35 mph	Partial [d]	Partial [d]	No
INTERSTATE 5	Urban Interstate	ODOT	6/8 [e]	65 mph	No	No	No
PARKWAY CENTER DRIVE	Major Arterial/ Minor Arterial [f]	City of Wilsonville	2/4 [g]	35 mph	Yes [h]	Yes	No
PARKWAY AVENUE	Collector	City of Wilsonville	2	25 mph	Yes [i]	No	Partial [j]
CANYON CREEK ROAD	Minor Arterial	City of Wilsonville	3	35 mph	Yes	Yes	No
BURNS WAY	Collector	City of Wilsonville	2	None Posted	Yes	Yes	No

[a] Elligsen Road is a Major Arterial west of Parkway Center Drive and a Minor Arterial east of Parkway Center Drive.

[b] Elligsen Road is under ODOT jurisdiction near the I-5 interchange.

[c] Elligsen Road is primarily 4 travel lanes, with some additional lanes present near the Parkway Avenue intersection and only two travel lanes east of Parkway Center Drive.

[d] On Elligsen Road, sidewalks and bicycle lanes are generally present west of Parkway Center Drive and generally absent east of Parkway Center Drive.

[e] Interstate 5 has 6 travel lanes south of the Elligsen Road interchange and 8 travel lanes north of the Elligsen Road interchange.

[f] Parkway Center Drive is a Major Arterial north of Burns Way and a Minor Arterial south of Burns Way.

[g] Parkway Center Drive has 4 travel lanes north of Burns Way and 2 travel lanes south of Burns Way.

[h] Parkway Center Drive has sidewalks everywhere except for along the undeveloped frontage of the subject property.

[i] Parkway Avenue has sidewalks everywhere except for one small section.

[j] Unmarked on-street parking is allowed on Parkway Avenue for most of the roadway.

[1] Chapter 3: The Standards, Wilsonville Transportation System Plan, City of Wilsonville, Amended November 2020.

Bicycle and Pedestrian Facilities

Near the project site, there are on-street bicycle lanes along SW Parkway Center Drive (between the 90 degree curve to the intersection with SW Elligsen Road. On-street bicycle lanes are also present along SW Burns Way. In 2020 or 2021, the eastbound approach on SW Burns Way to SW Parkway Center Drive was restriped and the bicycle lane was painted green to increase visibility.

Sidewalks are present along both sides of SW Parkway Center Drive and SW Burns Way, except for the south side of SW Parkway Center Drive along the expansion property.

Public Transit Service

South Metro Area Regional Transit (SMART) provides public transportation services within Wilsonville and outlying areas, including Canby, Salem, and south Portland. There are two bus stops located at the intersection of SW Parkway Center Drive/SW Burns Way. These bus stops are served by two SMART routes: Route 2X (Tualatin Park & Ride) provides service between the Wilsonville Transit Center and Tualatin Park & Ride with approximately 30-minute headways, and Route 6 (Canyon Creek) provides service between the Wilsonville Transit Center and Argyle Square with approximately 60-minute headways.

PLANNED PROJECTS

The City of Wilsonville Transportation System Plan (TSP) has a list of Higher Priority projects which includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority solutions to meet the City's most important needs. The list includes the following projects that impact the key roadways near the proposed project site.

- UU-05 (Parkway Avenue Urban Upgrade) – Upgrade to meet applicable cross-section standards (i.e., 3 lanes with bike lanes, sidewalks, and transit stop improvements).
- BW-12 (Parkway Center Trail Connector) – Construct shared-use path as development occurs; with connection to proposed regional trail (Wiedemann Road Trail) on the south.
- RT-05 (Wiedemann Road Trail) – Construct east-west trail in north Wilsonville near the Xerox campus with City responsible for portion through developed land and future developer responsible for portion on future development site.
- SI-07 (Dual Southbound Right Turn Lanes) – Add a second southbound right turn lane to the I-5 Exit Ramp at the Boones Ferry Road intersection. Also, a Washington County RTP project (#11489).

EXISTING TRAFFIC VOLUMES

New intersection turning movement count data was collected during the weekday PM peak period (4:00pm – 6:00pm) on Tuesday, April 4th, 2023, at the study intersections. Because two of the study intersections are under ODOT authority, a seasonal adjustment factor was calculated and applied to those two intersections so that the 30th Highest Hour volumes were used in the analysis. Yearly volume data from Automatic Traffic Recorders (ATRs) 34-008 (on I-5 at MP 290.14) and ATR 03-011 (on I-5 at MP 281.20) were averaged together since both are within similar proximity to the project area. The resulting seasonal adjustment factor that was applied was 1.05.

Figure 2 shows the adjusted Existing PM peak hour traffic volumes for the study intersections, along with the lane configurations and traffic control.

INTERSECTION PERFORMANCE MEASURES

Agency mobility standards often require intersections to meet level of service (LOS) or volume-to-capacity (v/c) intersection operation thresholds.

- The intersection LOS is similar to a "report card" rating based upon average vehicle delay. Level of service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of service D and E are progressively worse operating conditions. Level of service F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- The volume-to-capacity (v/c) ratio represents the level of saturation of the intersection or individual movement. It is determined by dividing the peak hour traffic volume by the maximum hourly capacity of an intersection or turn movement. When the V/C ratio approaches 0.95, operations become unstable and small disruptions can cause the traffic flow to break down, resulting in the formation of excessive queues.

The City of Wilsonville requires study intersections on public streets to meet its minimum acceptable level of service (LOS) standard of LOS D for the PM peak period. An exception is placed on Elligsen Road, which allows a minimum LOS standard of LOS E.[2]

The two intersections of the Interstate-5/Elligsen Road interchange are required to meet ODOT mobility targets, which are identified in the METRO Regional Transportation Plan (2018) and the Oregon Highway Plan (1999). For the I-5 corridor between the Marquam Bridge and Wilsonville, the PM peak hour target for the first and second hour is a v/c ratio equal to or less than 0.99.[3]

[2] Chapter 2: The Vision, Policy 5, Wilsonville Transportation System Plan, City of Wilsonville, Amended November 2020.

[3] Table 2.4, Regional Transportation Plan, Metro, December 2018.

Table 7, Oregon Highway Plan, Oregon Department of Transportation, 1999.

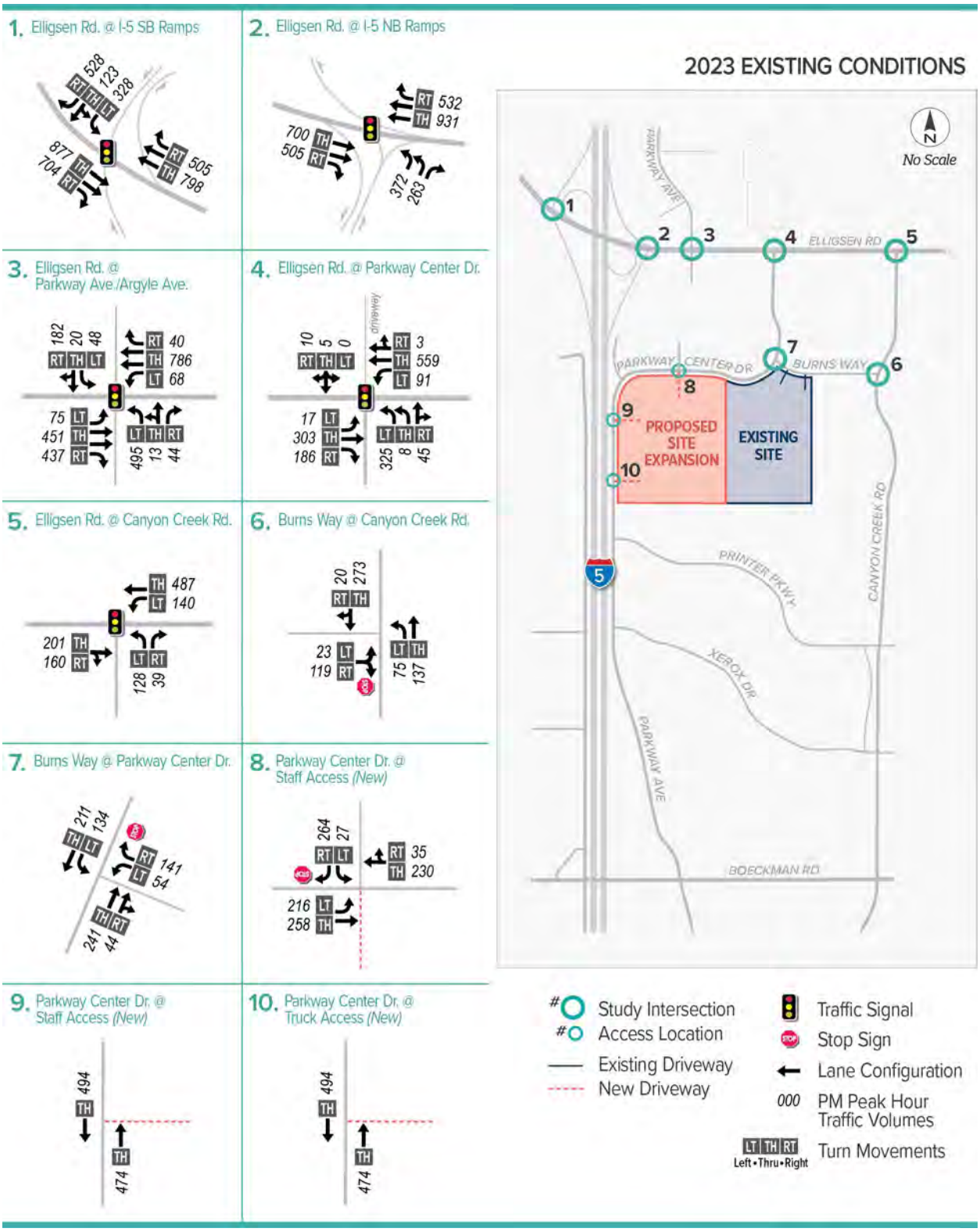


FIGURE 2: EXISTING PM PEAK HOUR TRAFFIC VOLUMES

EXISTING INTERSECTION OPERATIONS

Intersection operations were analyzed for the PM peak hour at all study intersections for the existing conditions using Highway Capacity Manual (HCM) 6th Edition methodology.[4] The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 3.

As shown, all study intersections meet the applicable operating standards under all future analysis scenarios.

TABLE 3: EXISTING (2023) INTERSECTION OPERATIONS (PM PEAK)

INTERSECTION	OPERATING STANDARD	EXISTING PM PEAK HOUR		
		V/C	DELAY	LOS
SIGNALIZED				
I-5 SB RAMPS/ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.47	13.2	B
I-5 NB RAMPS/ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.41	8.8	A
PARKWAY AVE/ELLIGSEN RD	LOS E (City)	0.48	21.1	C
PARKWAY CENTER DR/ELLIGSEN RD	LOS E (City)	0.43	14.2	B
CANYON CREEK RD/ELLIGSEN RD	LOS E (City)	0.43	6.0	A
TWO-WAY STOP-CONTROLLED				
CANYON CREEK RD/BURNS WY	LOS D (City)	0.08/0.28	8.3/13.2	A/B
PARKWAY CENTER DR/BURNS WY	LOS D (City)	0.14/0.25	8.6/23.4	A/C
COSTCO DRIVEWAY/PARKWAY CENTER DR	LOS D (City)	0.19/0.38	8.5/13.8	A/B
STAFF-VISITOR DRIVEWAY/SW PARKWAY AVE	LOS D (City)	-	-	-
TRUCK DRIVEWAY/SW PARKWAY AVE	LOS D (City)	-	-	-

SIGNALIZED INTERSECTION:
Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

TWO-WAY STOP-CONTROLLED INTERSECTION:
Delay = Critical Movement Delay (secs)
v/c = Critical Movement Volume-to-Capacity Ratio
LOS = Critical Levels of Service (Major/Minor Road)

[4] Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

Field Measured Delay

Delay measurements were collected in the field at the intersection of Parkway Center Drive & the Costco Driveway to verify the delay on the southbound approach that was calculated by Synchro. Based on the field measurements, the delay per vehicle was determined on the southbound Costco exit driveway on a weekday evening during the peak hour. The measured delay was the time from when a vehicle arrived at the back of the queue (or if no queue was present, arrived at the stop bar) to when the vehicle departed the stop bar to make the desired turning maneuver. The delay for 129 vehicles was measured resulted in an average delay per vehicle of 7 seconds and the max delay was 37 seconds. The actual field measured average delay was slightly less than the Synchro calculated delay of 13.8 seconds as shown in Table 3.

PROJECT IMPACTS

This chapter reviews the impacts that the proposed development may have on the transportation system within the study area. This analysis includes trip generation, trip distribution, future traffic volume development, and operations analysis for the study intersections.

PROPOSED DEVELOPMENT

The proposed development is an expansion of the existing Sysco Portland, Inc site located at 26250 SW Parkway Center Drive in Wilsonville, Oregon 97070-7788 to the adjacent property located at 26120 SW Parkway Avenue, Wilsonville, Oregon 97070-7788. The proposed expansion will include the provision of three new buildings for storage of restaurant food supplies, parking spaces, truck loading spaces, electric vehicle truck and car charging stations, open space, landscaping and utilities. The total gross floor area of all three buildings is 380,000 square feet (Phase I: 94,000 square feet and Phase II: 286,000 square feet). Three new site accesses are proposed, two staff/visitor lot driveways and one truck driveway. The proposed expansion will require a zone change from Residential Agricultural Holding (RA-H) zoning to Planned Development Industrial - Regionally Significant Industrial Area (PDI -RSIA) zoning. The proposed zone change (PDI-RSIA) is consistent with the City's Comprehensive Plan Map.

FUTURE ANALYSIS SCENARIOS

Operating conditions were analyzed at the study intersections for the following traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Project
- Existing + Stage II
- Existing + Project + Stage II

All future analysis scenarios assume the same traffic control as existing conditions. Stage II represents traffic from other developments that have Stage II approval or are under construction in

Wilsonville, which are based on the list of currently approved Stage II developments provided by City staff.[5]

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 (e.g., PM peak hour). The Institute of Transportation Engineers (ITE) publishes trip generation rates for the various land uses that can be applied to determine estimated traffic volumes.[6]

Because this project is an expansion of existing operations at Sysco Portland, Inc, traffic counts were collected at the current Sysco site driveways during the PM period (4pm – 6pm). The resulting trip generation rate is calculated by dividing the number of driveway volumes by the gross floor area of all buildings on site in 1,000 square feet (KSF). The calculated trip generation rate is 0.24 trips per KSF, which is shown in Table 4.

Also shown in Table 4 is the ITE trip generation rate for Warehousing (150). Warehousing is described by ITE as building space devoted to the storage of materials, but it may also include office and maintenance areas. Of the land uses in the industrial category in the *ITE Trip Generation Manual*, Warehousing (150) had the trip generation rate that most closely resembled the rate calculated from the site driveway counts. This rate is shown in Table 4 for comparison purposes.

TABLE 4: VEHICLE TRIP GENERATION RATES

DATA SOURCE	SIZE [a]	PM PEAK HOUR TRIP GENERATION RATE	PM PEAK HOUR VEHICLE TRIPS			
			VEHICLE TYPE	IN	OUT	TOTAL
DRIVEWAY COUNTS AT EXISTING SYSCO FOODS SITE	384.5 KSF	0.21 trips per KSF	Passenger Car	42	37	79
		0.04 trips per KSF	Truck	14	1	15
		0.24 trips per KSF	**TOTAL TRIPS**	**56**	**38**	**94**
WAREHOUSING (150) LAND USE FROM ITE	384.5 KSF	0.15 trips per KSF	Passenger Car	13	44	57
		0.03 trips per KSF	Truck	6	6	12
		0.18 trips per KSF	**TOTAL TRIPS**	**19**	**50**	**69**

[a] KSF = 1,000 square feet

As shown in Table 4, the driveway counts at the existing Sysco Portland, Inc site resulted in a higher total trip generation rate than the Warehousing (150) rate from ITE. Because the expansion of Sysco Portland, Inc is expected to be an extension of the existing operations, then the trip

[5] Provided via email from Daniel Pauly, City of Wilsonville, March 6, 2023.

[6] Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021.

generation rate used to estimate the new traffic generated by the proposed expansion was based on the driveway counts.

Table 5 shows the proposed expansion of Sysco is expected to include three new buildings with a total gross floor area of 380,000 square feet (Phase I: 94,000 square feet and Phase II: 286,000 square feet). This results in a total of 93 new PM peak hour trips (55 in, 38 out).

TABLE 5: VEHICLE TRIP GENERATION

DATA SOURCE	SIZE [a]	PM PEAK HOUR TRIP GENERATION RATE	PM PEAK HOUR VEHICLE TRIPS			
			VEHICLE TYPE	IN	OUT	TOTAL
DRIVEWAY COUNTS AT EXISTING SYSCO PORTLAND, INC SITE	380 KSF	0.21 trips per KSF	Passenger Car	41	37	78
		0.04 trips per KSF	Truck	14	1	15
		0.24 trips per KSF	**TOTAL TRIPS**	**55**	**38**	**93**

[a] KSF = 1,000 square feet

VEHICLE TRIP DISTRIBUTION

Vehicle trip distribution provides an estimation of where vehicles would be coming from and going to. It is given as a percentage at key gateways to the study area and is used to route project trips through the study intersections. Figure 3 shows the trip distribution for the proposed site.

Separate trip distributions were provided for each vehicle type (passenger car and truck). The passenger car trips generated by the site expansion were distributed as follows:

- 30% north of the project site via I-5
- 10% south of the project site via I-5
- 15% west of the project site via SW Boones Ferry Road
- 15% east of the project site via Canyon Creek Road, Burns Way, and SW Elligsen Road
- 5% just north of the project site into/from Argyle Square Shopping Center
- 25% south of the project site via SW Parkway Avenue and SW Boeckman Road

The truck trips generated by the site expansion were distributed as follows:

- 70% north of the project site via I-5
- 30% south of the project site via I-5

The trip distribution for the passenger car trips was based on the Wilsonville Travel Demand Model.[7] All truck trip distribution was assumed to travel to/from I-5. The ratio of northbound vs southbound trips was calculated based on the passenger car trip ratio of northbound vs southbound I-5 trip distribution.

[7] 2040 Wilsonville Travel Demand Model, Select Zone Analysis, Zone 4037.

Project Trips Through City of Wilsonville I-5 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 as discussed prior. Approximately 70% of the passenger car project trips (55 PM peak hour trips) and 100% of truck trips (15 PM peak hour trips) are expected to travel through the I-5/SW Elligsen Road interchange area and approximately 0% (0 new PM peak hour trips) of project trips are expected to travel through the I-5/Wilsonville Road interchange area.

FUTURE TRAFFIC VOLUMES

Traffic volumes were estimated at the study intersections for the three future analysis scenarios previously listed using the various combinations of the three traffic types: Existing, Project, and Stage II. Figure 4 shows the Existing + Stage II PM peak hour traffic volumes. Figure 5 shows the Existing + Project PM peak hour traffic volumes. Figure 6 shows the Existing + Project + Stage II PM peak hour traffic volumes.

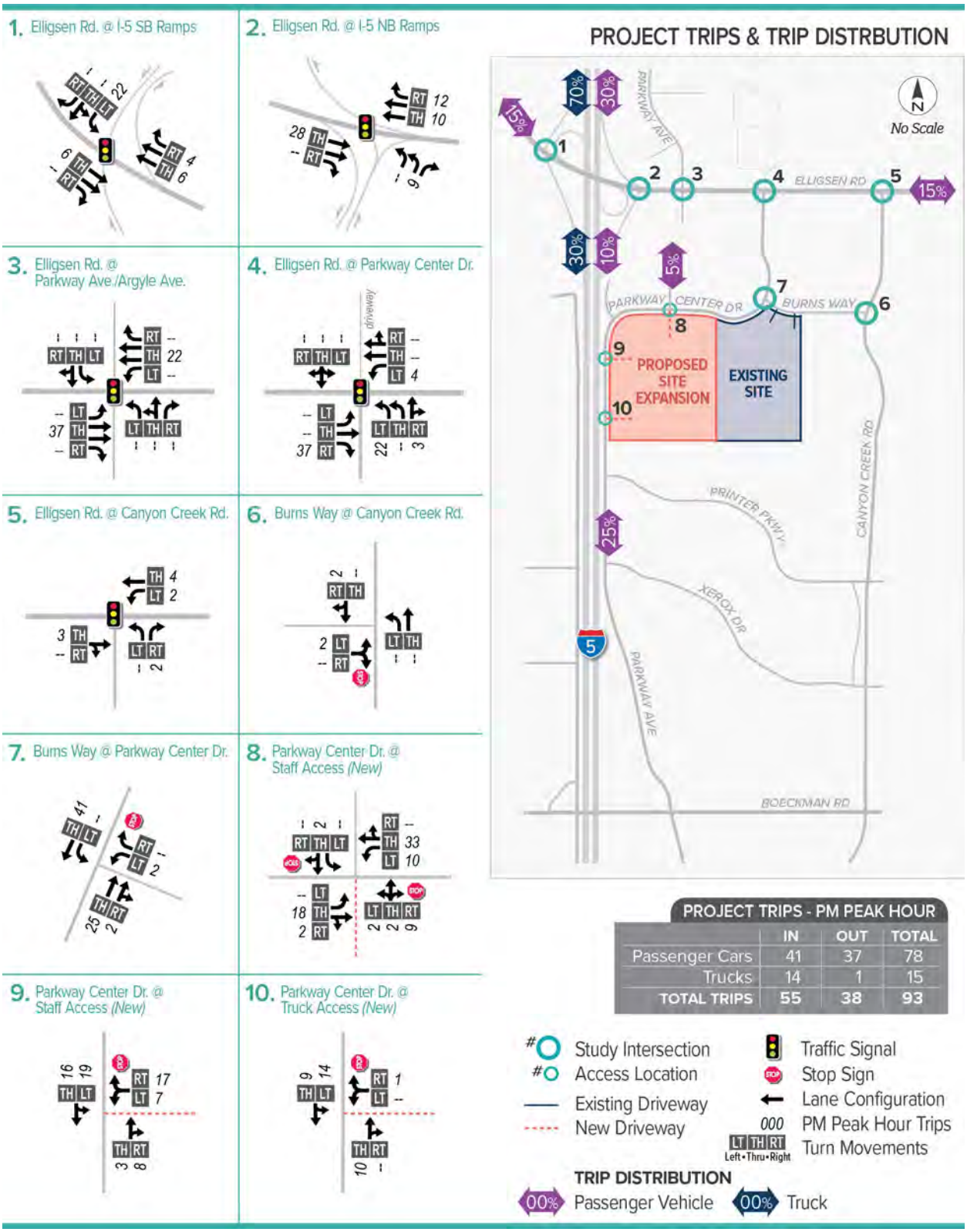


FIGURE 3: PROJECT TRIPS & TRIP DISTRIBUTION

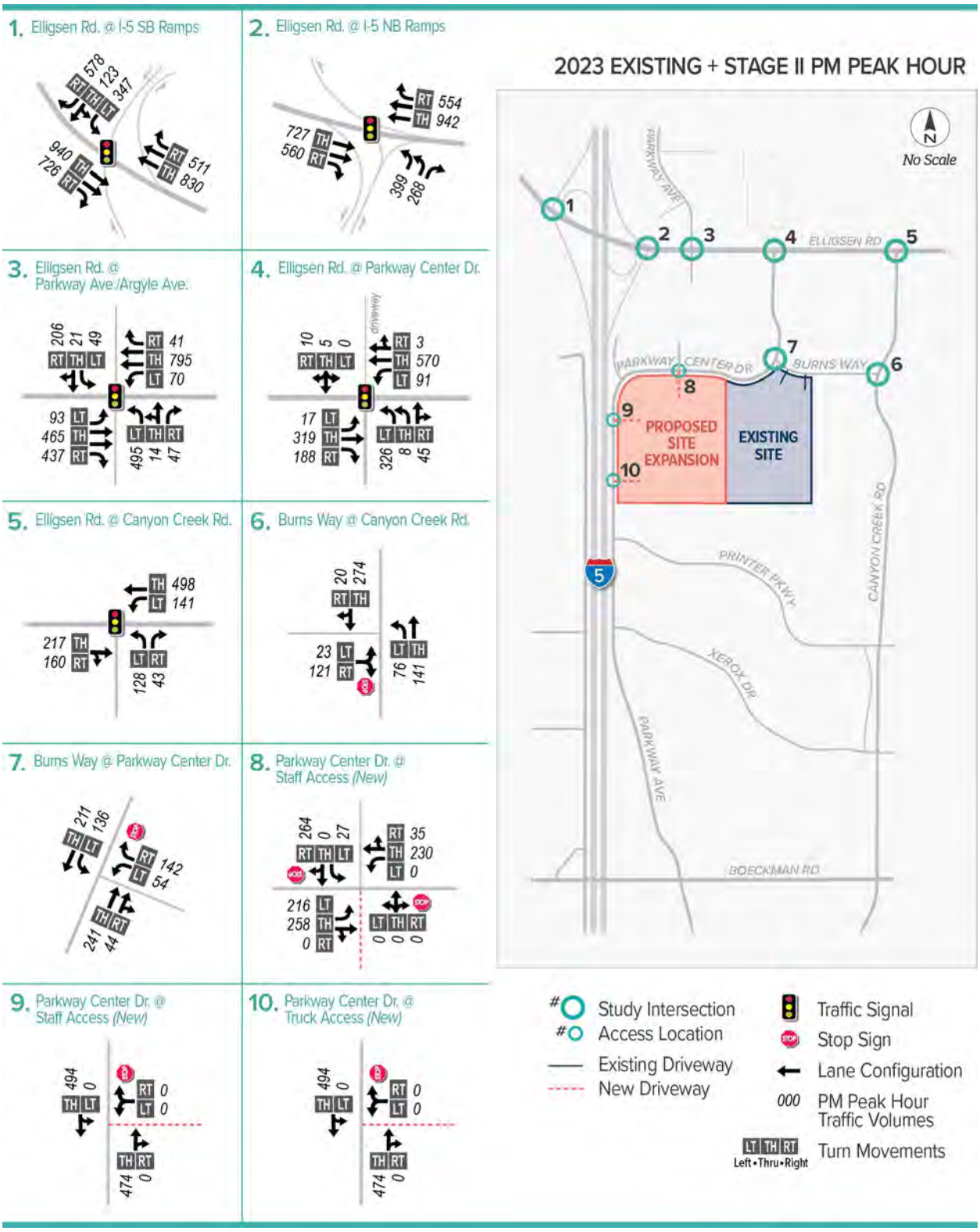


FIGURE 4: EXISTING + STAGE II TRAFFIC VOLUMES

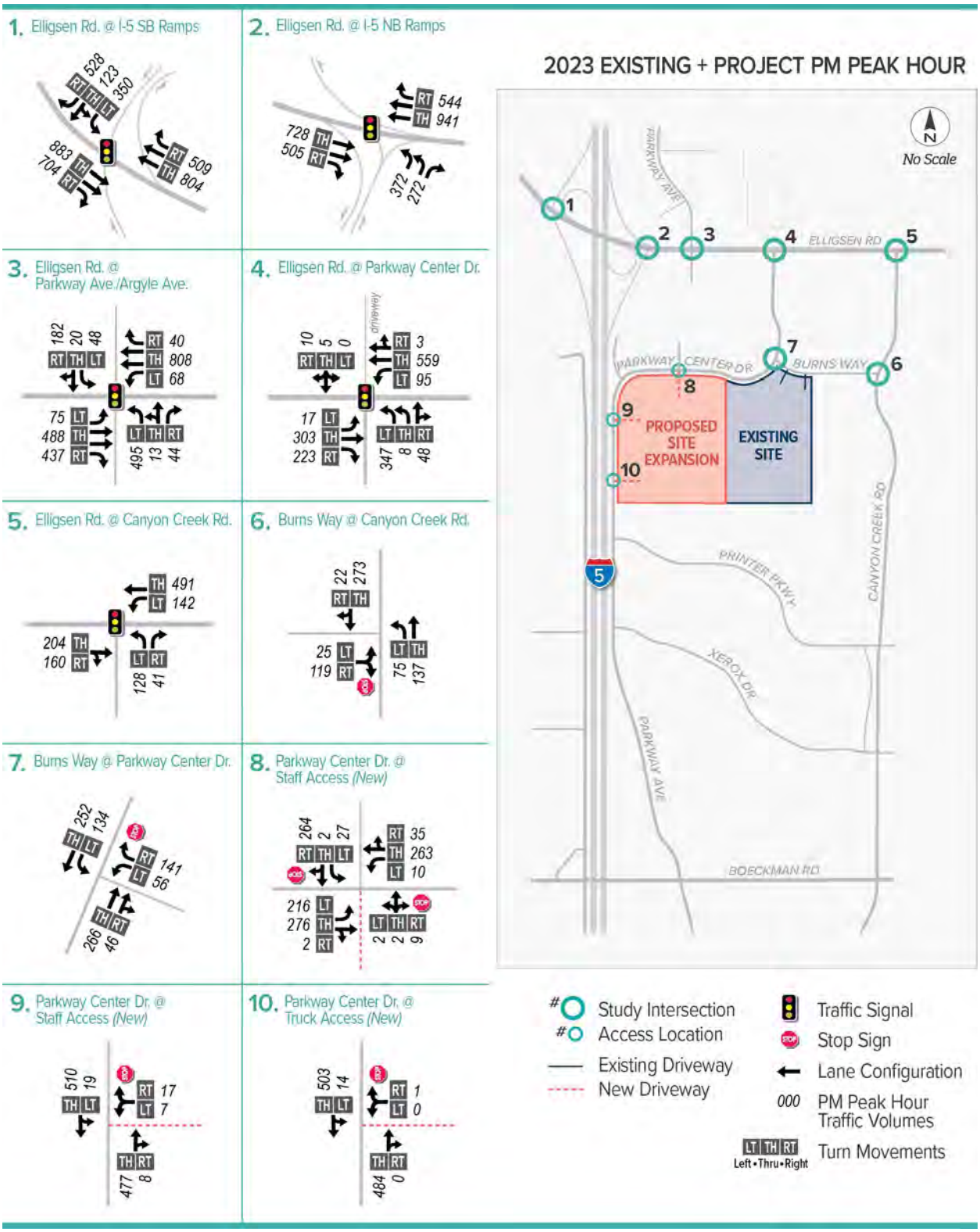


FIGURE 5: EXISTING + PROJECT TRAFFIC VOLUMES

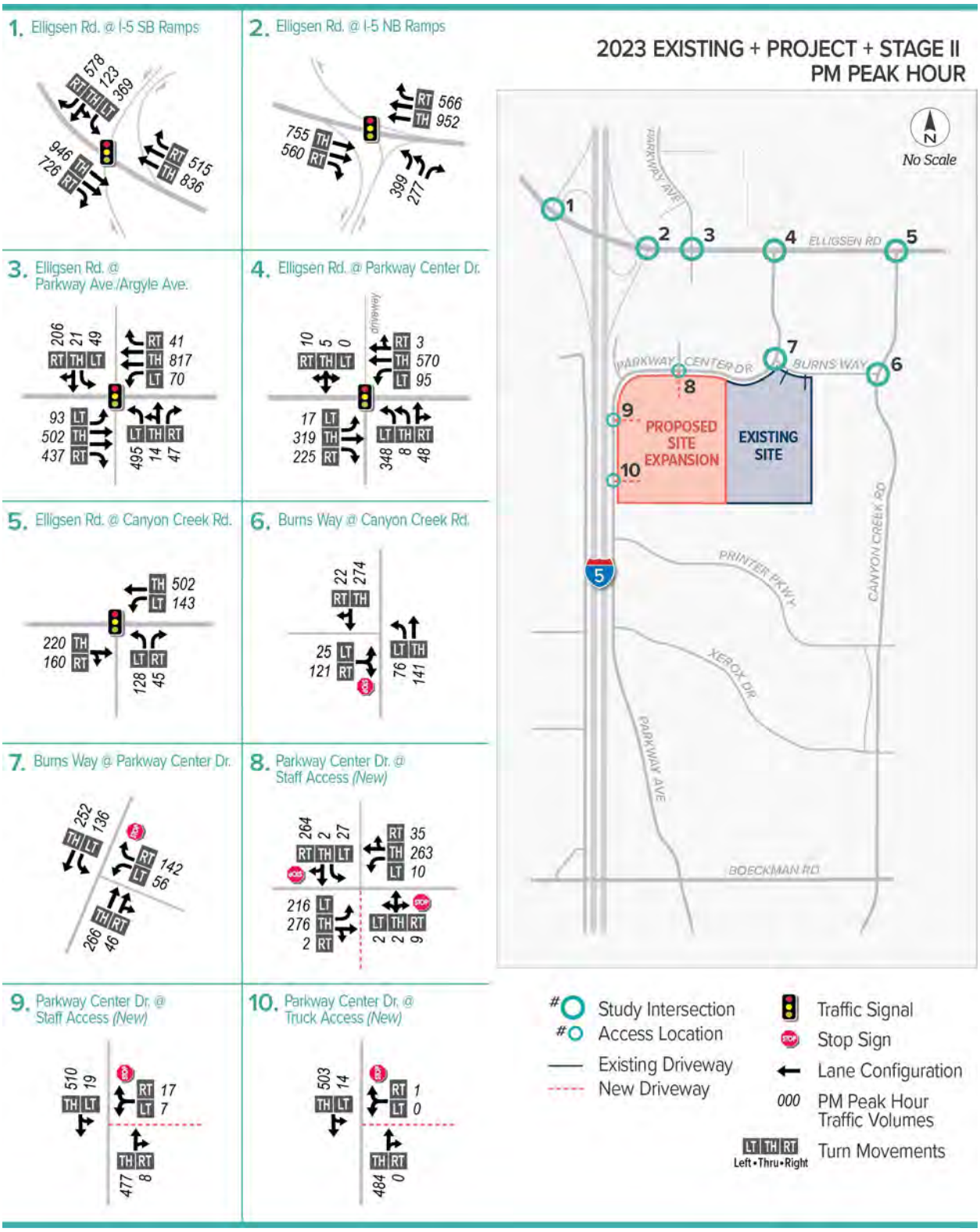


FIGURE 6: EXISTING + PROJECT + STAGE II TRAFFIC VOLUMES

FUTURE INTERSECTION OPERATIONS

Intersection operations were analyzed for the PM peak hour at all study intersections for the future scenarios using Highway Capacity Manual (HCM) 6th Edition methodology.[8] The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 6.

As shown, all study intersections meet the applicable operating standards under all future analysis scenarios.

[8] Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

TABLE 6: FUTURE INTERSECTION OPERATIONS (PM PEAK)

INTERSECTION	OPERATING STANDARD	EXISTING + STAGE II			EXISTING + PROJECT			EXISTING + STAGE II + PROJECT		
		V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
SIGNALIZED										
I-5 SB RAMPS/ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.64	18.4	B	0.57	15.9	B	0.65	21.2	C
I-5 NB RAMPS/ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.44	8.9	A	0.43	8.5	A	0.44	8.8	A
PARKWAY AVE/ELLIGSEN RD	LOS E (City)	0.49	21.8	C	0.48	21.2	C	0.50	21.8	C
PARKWAY CENTER DR/ELLIGSEN RD	LOS E (City)	0.47	14.3	B	0.47	14.6	B	0.49	14.7	B
CANYON CREEK RD/ELLIGSEN RD	LOS E (City)	0.50	6.6	A	0.49	6.6	A	0.50	6.6	A
TWO-WAY STOP-CONTROLLED										
CANYON CREEK RD/BURNS WY	LOS D (City)	0.06/0.23	8.1/12.0	A/B	0.06/0.23	8.1/12.1	A/B	0.06/0.23	8.1/12.1	A/B
PARKWAY CENTER DR/BURNS WY	LOS D (City)	0.11/0.17	8.3/18.3	A/C	0.12/0.20	8.4/20.3	A/C	0.12/0.20	8.4/20.4	A/C
COSTCO DRIVEWAY/PARKWAY CENTER DR	LOS D (City)	0.19/0.38	8.5/13.8	A/B	0.20/0.42	8.7/20.6	A/C	0.22/0.48	8.9/24.6	A/C
STAFF-VISITOR DRIVEWAY/SW PARKWAY AVE	LOS D (City)	-	-	-	0.02/0.07	8.5/15.4	A/C	0.02/0.07	8.5/15.4	A/C
TRUCK DRIVEWAY/SW PARKWAY AVE	LOS D (City)	-	-	-	0.03/0.01	8.6/11.6	A/B	0.03/0.01	8.6/11.6	A/B

SIGNALIZED INTERSECTION:
Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

TWO-WAY STOP-CONTROLLED INTERSECTION:
Delay = Critical Movement Delay (secs)
v/c = Critical Movement Volume-to-Capacity Ratio
LOS = Critical Levels of Service (Major/Minor Road)

QUEUING ANALYSIS

Intersection queuing analysis was conducted for all turns lanes to determine the project impacts to queue lengths are signalized intersections along the Elligsen Road corridor. The **Existing + Stage II (Baseline)** lengths were compared to the **Existing + Stage II + Project (Build)** lengths to note the estimated difference. These were also compared to the available storage lengths. The queuing analysis was conducted using SimTraffic™ software, a Synchro product, to estimate the 95th percentile queue, which is the queue length for a given intersection movement that has only a five percent chance of being exceeded during the peak traffic hour.

Table 7 shows estimated the 95th percentile queue lengths for each scenario along with the available storage. The queue lengths were rounded to the next highest multiple of 25 feet, while the available storage was rounded to the nearest multiple of 25 feet. Due to rounding and modeling, differences of 25 or 50 feet can equate to nominal changes in queuing, even between Baseline and Build scenarios. Lane movements marked with an asterisk denote the available storage is the distance to the next upstream intersection.

Some of the simulated queuing results were calibrated based on recent field observations at the interchange.

TABLE 7: 95TH PERCENTILE QUEUE LENGTHS

INTERSECTION	MOVEMENT	BASELINE QUEUE LENGTH (FEET)	BUILD QUEUE LENGTH (FEET)	AVAILABLE STORAGE (FEET)
INTERSTATE-5 SB RAMPS/ ELLIGSEN ROAD	EBT (Inside)	325	350	475*
	EBT (Outside)	325	350	475*
	EBR	Free	Free	N/A
	WBT (Inside)	500	475	>750*
	WBT (Outside)	550	525	>750*
	WBR	Free	Free	N/A
	SBL	400	425	450
	SBLT	975	900	>1250*
	SBR	450	475	700
INTERSTATE-5 NB RAMPS/ ELLIGSEN ROAD	EBT (Inside)	125	225	>500*
	EBT (Outside)	200	300	>500*
	EBR	Free	Free	N/A
	WBT (Inside)	250	250	400*
	WBT (Outside)	275	275	400*
	WBR	Free	Free	N/A
	NBL (Inside)	275	275	>500
	NBL (Outside)	300	325	>500*
	NBR	125	125	400

INTERSECTION	MOVEMENT	BASELINE QUEUE LENGTH (FEET)	BUILD QUEUE LENGTH (FEET)	AVAILABLE STORAGE (FEET)
PARKWAY AVENUE/ ELLIGSEN ROAD	EBL	200	200	250
	EBT (Inside)	275	275	425*
	EBT (Outside)	275	275	425*
	EBR	200	200	210
	WBL	150	175	200
	WBT (Inside)	275	250	>500*
	WBT (Outside)	300	275	>500*
	WBTR	325	325	>500*
PARKWAY CENTER DRIVE/ ELLIGSEN ROAD	EBL	100	75	150
	EBT	300	250	>500*
	EBR	75	100	>500*
	WBL	100	100	100
	WBT	250	250	1,350
	WBTR	150	150	200
	NBL (Inside)	200	200	400
	NBL (Outside)	225	225	>500*
	NBTR	50	75	>500*
	SBLTR	75	75	>100
CANYON CREEK ROAD/ ELLIGSEN ROAD	EBTR	200	175	>500*
	WBL	125	125	125
	WBT	200	200	>500*
	NBL	125	125	150
	NBR	100	75	>500*

Yellow = 95th Percentile Queue greater than available storage

XXX = Vehicle queues adjusted based on field observations

* = available storage is the distance to the next upstream intersection

Based on field observations and the simulated queuing analysis provided in the table above, the available storage for all lane movements at each intersection is expected to contain the estimated queue lengths. No mainline queuing impacts are expected from the I-5 northbound or southbound exit ramps. No safety concerns regarding queue lengths are expected on ODOT or City streets based on the above results. It should be noted that vehicles destined for I-5 southbound spillback onto City streets due to the I-5 mainline on-ramp meters on the southbound ramps. However, vehicles not destined for I-5 southbound were observed to move efficiently and freely through the interchange area and not be impeded by the I-5 southbound on-ramp queues, including vehicles destined for I-5 northbound.

LEFT TURN LANE EVALUATION

The need for southbound left-turn lanes at the two proposed driveways on SW Parkway Avenue and for eastbound/westbound left turn lanes at the Costco access/Sysco access on SW Parkway Center Drive were evaluated as part of this impact analysis. The prerequisites for these left-turn lanes on major road approaches at unsignalized intersections is based on guidance provided in the ODOT Analysis Procedures Manual (APM)[9] and the ODOT Highway Design Manual (HDM).[10] The guidance provides three criteria to consider for the installation of dedicated left-turn lanes: Volume, Crash, and Special Case. If one or more of these criteria are met, a left-turn lane should be considered for installation.

As shown in Table 8 below, all three intersections meet the volume criteria for left-turn lanes based on the estimated Existing + Stage II + Project PM Peak Hour volumes. Only one of the criteria need to be met in order to consider the addition of a left turn lane. Therefore, left turn lanes are recommended at all three locations to safely accommodate left turning traffic into the project site.

TABLE 8: LEFT-TURN LANE CRITERIA (EXISTING + STAGE II + PROJECT PM PEAK VOLUMES)

CRITERIA	EXPLANATION	CRITERION MET?		
		STAFF-VISITOR LOT/ SW PARKWAY AVENUE	TRUCK ONLY LOT/ SW PARKWAY AVENUE	COSTCO ACCSS & SYSCO STAFF-VISITOR ACCESS/ SW PARKWAY CENTER DR
VOLUME	Sliding scale based speed and volume of approaching and opposing vehicles; minimum of 10 left turns	**YES**	**YES**	**YES**
CRASH	History of crashes susceptible to correction by a left-turn lane or right-turn lane	No	No	No
SPECIAL CASE	Unique traffic cases like the presence of railroad crossings, geometric constraints, or non-traversable medians	No	No	No

On SW Parkway Avenue, southbound left turn lanes are needed at both of the project site access intersections to address safety concerns of high speed (45 MPH) southbound traffic on SW Parkway Avenue conflicting with left turning vehicles into the project site at both the staff/visitor parking lot access and the truck only access.

Although there is an existing eastbound left turn lane already present at the Costco access & Sysco staff-visitor access on SW Parkway Avenue, the need for eastbound and westbound left turn lanes were evaluated together. It was found that the eastbound left turn lane into the Costco site met the volume criteria, but the westbound left turn lane into the Sysco site did not meet the volume criteria. However, it would not make sense to only install an eastbound left turn lane and not install

[9] Left Turn Lane Criteria, Chapter 12, Analysis Procedures Manual, Oregon Department of Transportation, June 2022.
[10] Left Turn Lanes, Part 506, Highway Design Manual, Oregon Department of Transportation, January 2023.

a westbound left turn lane at the intersection. Therefore, because the eastbound left turn lane into Costco meets turn lane warrants and SW Parkway Center Drive is already three travel lanes wide, a westbound left turn lane should be provided by the development by restriping the center turn lane to a left turn lane pocket.

SITE PLAN REVIEW

This section reviews the project site plan for consistency with the Wilsonville Transportation System Plan and other applicable transportation standards, including the Wilsonville Development Code and Wilsonville Public Works Standards. The purpose of this review is to help identify any major site plan design concerns that could impact the greater project goals and could necessitate overall site plan changes. The site plan is provided in the appendix.[11]

VEHICULAR SITE ACCESS

Three new site accesses (driveways) are proposed for the project. Two of the site accesses provide access to staff/visitor parking lots only, while the third site access is for trucks/freight only. Based on the site plan, it appears that the staff/visitor access on Parkway Center Drive will be located within the vicinity of an existing driveway serving Argyle Square on the opposite side of the road. It is recommended for traffic safety that the two driveways be aligned to reduce the number of potential vehicle conflict points and site distance concerns. The second staff/visitor access and the truck entrance are both shown on the west edge of the site along Parkway Avenue.

The first staff/visitor access will theoretically align with an existing intersection/access, creating no new significant access point, while the other two accesses will create new access points. The second staff/visitor access is approximately 1000 feet southwest of the Argyle Square intersection, but only about 500 feet southwest of the abandoned Parkway Avenue intersection. The truck access is located approximately 650 feet to the south of the second staff/visitor access and 550 feet to the north of Printer Parkway. All distances were measured centerline to centerline.

The proposed accesses on Parkway Center Drive and Parkway Avenue are required to meet the City's Access Spacing Standards for Minor Arterials.[12] The access spacing standard for a Minor Arterial is to be a minimum 600 feet measured from centerline to centerline, but the desired spacing is 1,000 feet. The current spacing is bordering on the minimum required spacing (but under the desired spacing), and therefore the applicant should confirm through engineering drawings that the proposed access will meet the City's access spacing standards or the applicant will need to submit a variance request if the actual distance does fail to meet City standards.

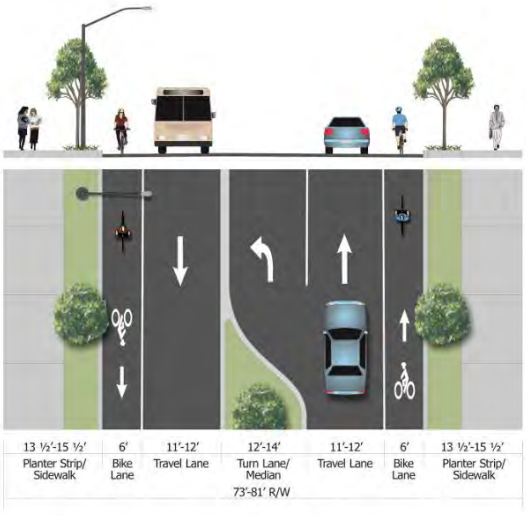
DRIVEWAY AISLE LENGTH

The City has minimum driveway aisle length standards.[13] For driveways with more than 100 average daily traffic (ADT), the drive aisle must be clear of parking stalls and intersecting drive aisles within 100 feet from the back of sidewalk. The site driveways to the staff/visitor parking lots

[11] Preliminary Site Plan, Standridge, Provided 3/28/2023.
[12] Table 3-2, Transportation System Plan, City of Wilsonville, Amended November 2020.
[13] Section 201.2.23 (Driveways), Public Works Standards, City of Wilsonville, Revised September 2017.

have driveway aisle lengths of an estimated 50 feet (Parkway Center Drive parking lot) and 75 feet (Parkway Avenue parking lot) per the site plan. The truck entrance has a driveway aisle length greater than 400 feet.

In order to meet the City's public works standards, the driveway aisle would need to extend a minimum of 100 feet. Therefore, it is recommended that the two driveway aisles for the staff/visitor parking lots be extended to a minimum of 100 feet to provide sufficient vehicle queue space for vehicles exiting the site without blocking parking stalls or drive aisles.



MINOR ARTERIAL CROSS SECTION STANDARD

SIGHT DISTANCE

Adequate sight distance should be provided at all intersections and driveways. Objects (e.g., buildings, fences, walls, or vegetation) located near the intersections may inhibit sight distance for drivers attempting to turn out of a minor street onto the major street. Parkway Center Drive, having one staff/visitor entrance, generally has a speed limit of 35 miles per hour (mph) and Parkway Avenue, having one staff/visitor entrance and one truck entrance, generally has a speed limit of 45 mph. Intersection site distance was calculated using the Left Turn from Stop use (Case B1).[14] For 35 mph and passenger cars, the design site distance is 390 feet. For 45 mph and passenger cars, the design site distance is 500 feet. For 45 mph and combination trucks, the design site distance is 765 feet. Based on a preliminary sight distance evaluation, there is the minimum sight distance available at all three proposed accesses.

Prior to occupancy, sight distance at any existing or proposed driveways will need to be verified, documented, and stamped by a registered professional Civil Engineer licensed in the State of Oregon to assure that buildings, signs, or landscaping does not restrict sight distance.

FRONTAGE IMPROVEMENTS

The project site shall provide street frontage improvements on Parkway Center Drive and Parkway Avenue consistent with the City of Wilsonville's minor arterial cross section standard, for which the roadways are classified as such.[15] Today, Parkway Center Drive fronting the project site has three travel lanes, bike lanes on both sides, and sidewalk on the opposite side of the road; Parkway Avenue fronting the project site has two travel lanes, no bike lanes, and no sidewalks.

Based on the standards, the developer should provide half street improvements on Parkway Center Drive and Parkway Avenue that consist of a center turn lane, bike lanes, planter strips, and sidewalks along the project frontages.

[14] Chapter 9, Tables 9-7 & 9-9, A Policy on Geometric Design of Highways and Streets, AASHTO, 7th Edition, 2018.
[15] Figure 3-7, Transportation System Plan, City of Wilsonville, Amended November 2020.

ON-SITE CIRCULATION

The City requires that all modes of transportation have safe and convenient on-site circulation to the highest degree that the site practically allows.[16] The site is generally broken up into the staff/visitor parking lots and the truck/freight parking and loading area. Each area should maintain adequate circulation and safety for both vehicles and pedestrians. No pedestrian or bicycle information or infrastructure is noted on the current site plan, but comments are reserved for the below Pedestrian and Bicycle Facilities section.

For the staff/visitor parking areas, the site plan appears to show sufficient aisle widths and turning radii to accommodate safe vehicle backing and parking maneuvers. The parking areas generally have good circulation. It is assumed that the truck/freight entrance will be gated and accessible only by Sysco trucks. The truck/freight parking and loading area appears to have adequate circulation.

PEDESTRIAN AND BICYCLE FACILITIES

The City provides standards for pedestrian facilities within developments to provide safe and convenient accessibility for all pedestrians.[17] Overall, the site plan shows no pedestrian facilities or clear routes between the buildings and the parking lots. It is recommended that pedestrians facilities be provided on future site plans. The purpose of the City standards is to verify that continuous pathways are created for pedestrians to adequately access and utilize the necessary points of interest on a site.

There are two high-priority trail projects identified in the City's TSP along or within the project site.

- **Parkway Center Trail Connector (BW-12):** Construct shared-use path as development occurs; with connection to proposed regional trail (Wiedemann Road Trail) on the south.
- **Wiedemann Road Trail (RT-05)**: Construct east-west trail in north Wilsonville near the Xerox campus with City responsible for portion through developed land and future developer responsible for portion on future development site.

These two trail projects should be coordinated with the City of Wilsonville and constructed along the property where applicable as identified in the TSP.

TRANSIT IMPROVEMENTS

Per the City of Wilsonville Code,[18] transit bus stop improvements are required for developments that are adjacent to or incorporate major transit streets. While SW Parkway Center Drive and SW Parkway Avenue adjacent to the project site are not designated as Major Transit Street in the SMART Transit Master Plan[19] nor do they have any bus stops located along the project frontage, SW Burns Way is a Major Transit Street and does have two stop locations adjacent to the existing property frontage. Therefore, transit improvements, such as benches, shelters, or pedestrian lighting, may be required at these locations, pending discussions with City staff and SMART.

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[16] Section 4.421, Wilsonville Development Code, Updated March 2023.
[17] Section 4.154, Wilsonville Development Code, Updated March 2023.
[18] Section 4.177(0.6), Wilsonville Development Code, Updated March 2023.
[19] Page 9, Transit Master Plan, City of Wilsonville, June 2017.

TRANSPORTATION PLANNING RULE (TPR) EVALUATION

The proposed Sysco expansion project will require a zone change from Residential Agricultural Holding (RA-H) zoning to Planned Development Industrial - Regionally Significant Industrial Area (PDI -RSIA) zoning. However, no comprehensive plan amendment is needed since the proposed zoning (PDI-RSIA) is consistent with the City's Comprehensive Plan Map industrial designation.

The proposed zone change must be in accordance with Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR). The intent of the TPR is to ensure that future land use and traffic growth is consistent with transportation system planning and does not create a significant effect on the surrounding transportation system beyond currently allowed uses.

Per OAR 660-012-0060, Section (9), a zoning map amendment would not significantly affect an existing or planned transportation facility if all of the following requirements are met:

> (a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;
> ***This requirement is met since PDI-RSIA zoning is consistent with the Comprehensive Plan Map designation of Industrial.***
>
> (b) The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and
> ***This requirement is met since the City of Wilsonville has an acknowledged TSP and the land use assumptions in the City's travel demand model for this area are consistent with a fully developed industrial zone.***
>
> (c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.
> ***This requirement is met as the area was not exempted from OAR 660-024-0020(1)(d) at the time of an urban growth boundary amendment. The area is within the UGB and the proposed zoning is consistent with land use assumptions in the City's current adopted TSP.***

Per the TPR requirements, it is determined that the proposed zone change will not create a significant effect on the surrounding transportation system beyond currently allowed use(s).

SUMMARY

The key findings of the transportation impact analysis (TIA) and the OAR Transportation Planning Rule (TPR) evaluation are discussed below.

- The proposed project is an expansion of the Sysco Portland, Inc site and will include three new buildings for storage of restaurant food supplies. The total gross floor area of all three buildings is 380,000 square feet (Phase I: 94,000 square feet and Phase II: 286,000 square feet).
- The proposed expansion will require a zone change from Residential Agricultural Holding (RA-H) zoning to Planned Development Industrial - Regionally Significant Industrial Area (PDI -RSIA) zoning. The proposed zoning (PDI-RSIA) is consistent with the City's Comprehensive Plan Map industrial designation and the proposed zoning is consistent with land use assumptions in the City's current adopted TSP.
- The proposed development is expected to generate 78 PM peak hour passenger car trips and 15 PM peak hour truck trips, for a total of 93 project trips during the PM peak hour.
- Of those project trips, 70 trips are expected to travel through the I-5/Elligsen Road interchange area and 0 trips are expected to travel through the I-5/Wilsonville Road interchange area.
- The traffic operations at the five study intersections are expected to operate within the City's LOS standard and ODOT's mobility targets under all future volume conditions.
- Based on field observations and the simulated queuing analysis, vehicles destined for I-5 southbound spillback onto City streets due to the I-5 mainline on-ramp meters on the southbound I-5 entrance ramp. However, vehicles not destined for I-5 southbound are expected to move efficiently and freely through the interchange area and not be impeded by the I-5 southbound on-ramp queues. No safety impacts to the I-5 facility are anticipated with the proposed project.
- Prior to occupancy, sight distance at the proposed project access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.
- It is recommended that the two driveway aisles for the staff/visitor parking lots be extended to a minimum of 100 feet to provide sufficient vehicle queue space for vehicles exiting the site without blocking parking stalls or drive aisles.
- It is recommended that southbound left turn lanes be installed on SW Parkway Avenue at the two proposed site access points for safety. The left turn lanes are consistent with the planned SW Parkway Avenue cross section proposed in the City's Transportation System Plan.
- It is recommended that the proposed driveway on Parkway Center Drive be aligned with the existing Costco driveway to the north to maximize safety and minimize the number of vehicle conflict points for vehicles at that intersection and that a westbound left turn lane be striped at this intersection as well.

- The developer shall provide half-street improvements frontage improvements on SW Parkway Avenue and Parkway Center Drive that are consistent with the TSP street standards.
- The developer shall coordinate with the City on the construction of the two trail projects, Parkway Center Trail Connector and Wiedemann Trail, where applicable as identified in the TSP.

APPENDIX

APPENDIX A: SITE PLAN

APPENDIX B: TRAFFIC COUNT DATA

APPENDIX C: STAGE II LIST

APPENDIX D: HCM REPORT - EXISTING

APPENDIX E: HCM REPORT – EXISTING + PROJECT

APPENDIX F: HCM REPORT – EXISTING + STAGE II

APPENDIX G: HCM REPORT – EXISTING + PROJECT + STAGE II

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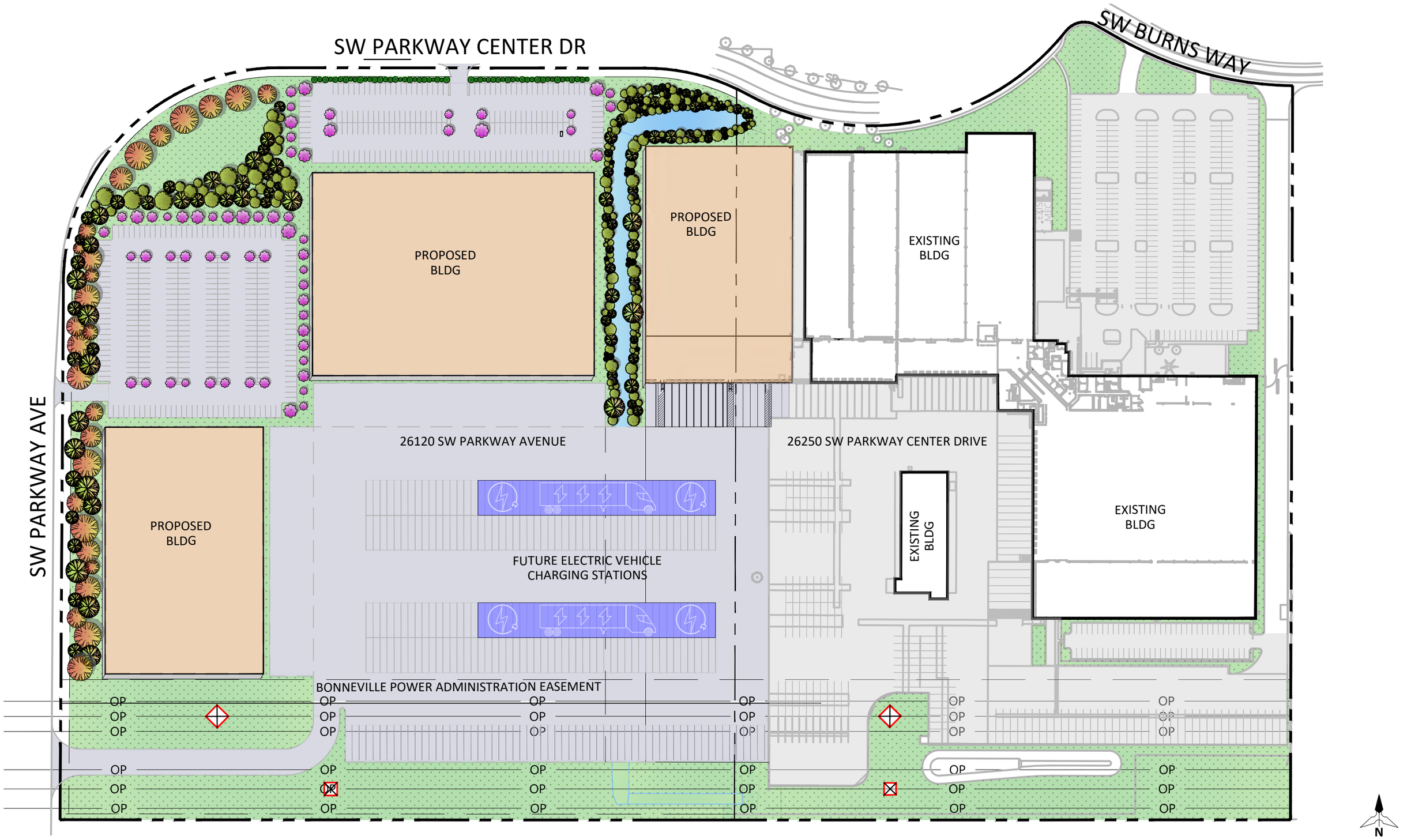
APPENDIX G: HCM REPORT – EXISTING + PROJECT + STAGE II

APPENDIX A: SITE PLAN



STANDRIDGE
PLANNING | ENGINEERING | SURVEYING

PRELIMINARY SITE PLAN
26120 SW PARKWAY AVENUE
WILSONVILLE, OR 97070-7788

SCALE: 1" = 150'
SHEET SIZE: 11x17
0 150 300

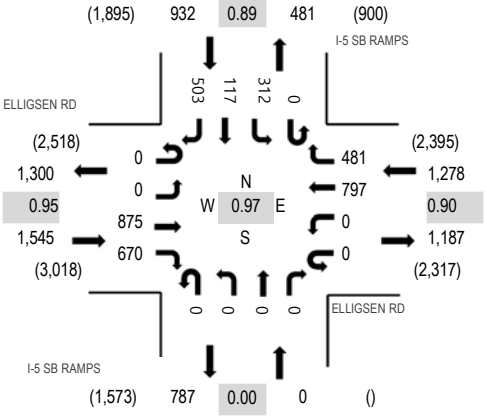
APPENDIX B: TRAFFIC COUNT DATA

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

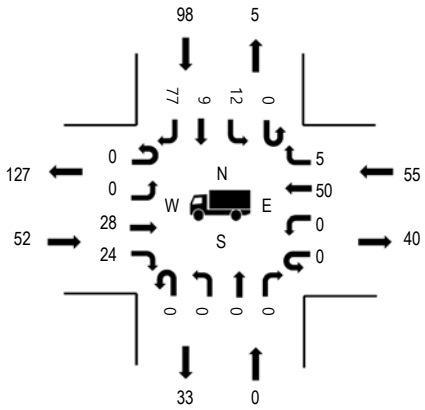
Location: 1 I-5 SB RAMPS & ELLIGSEN RD PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:05 PM - 05:05 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour

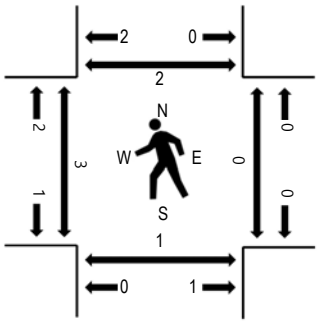
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.4%	0.95
WB	4.3%	0.90
NB	0.0%	0.00
SB	10.5%	0.89
All	5.5%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	ELLIGSEN RD Eastbound				ELLIGSEN RD Westbound				I-5 SB RAMPS Northbound				I-5 SB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	80	61	0	0	94	29	0	0	0	0	0	32	1	37	334	3,751
4:05 PM	0	0	72	54	0	0	68	23	0	0	0	0	0	17	9	49	292	3,755
4:10 PM	0	0	74	56	0	0	81	36	0	0	0	0	0	30	1	41	319	3,755
4:15 PM	0	0	67	65	0	0	66	24	0	0	0	0	0	46	3	47	318	3,740
4:20 PM	0	0	71	59	0	0	73	25	0	0	0	0	0	30	4	46	308	3,753
4:25 PM	0	0	80	54	0	0	69	36	0	0	0	0	0	41	13	53	346	3,740
4:30 PM	0	0	86	56	0	0	63	33	0	0	0	0	0	23	10	44	315	3,675
4:35 PM	0	0	68	51	0	0	59	52	0	0	0	0	0	15	15	34	294	3,645
4:40 PM	0	0	53	52	0	0	68	44	0	0	0	0	0	21	12	41	291	3,638
4:45 PM	0	0	96	55	0	0	85	57	0	0	0	0	0	16	15	34	358	3,630
4:50 PM	0	0	53	55	0	0	56	45	0	0	0	0	0	36	9	34	288	3,550
4:55 PM	0	0	80	52	0	0	46	43	0	0	0	0	0	16	9	42	288	3,563
5:00 PM	0	0	75	61	0	0	63	63	0	0	0	0	0	21	17	38	338	3,557
5:05 PM	0	0	70	53	0	0	63	48	0	0	0	0	0	20	8	30	292	
5:10 PM	0	0	65	55	0	0	63	51	0	0	0	0	0	17	11	42	304	
5:15 PM	0	0	85	60	0	0	51	55	0	0	0	0	0	27	8	45	331	
5:20 PM	0	0	48	57	0	0	59	32	0	0	0	0	0	31	15	53	295	
5:25 PM	0	0	76	48	0	1	51	29	0	0	0	0	0	29	9	38	281	
5:30 PM	0	0	54	55	0	0	58	36	0	0	0	0	0	27	10	45	285	
5:35 PM	0	0	57	51	0	0	71	29	0	0	0	0	0	23	11	45	287	
5:40 PM	0	0	67	55	0	0	61	24	0	0	0	0	0	21	11	44	283	
5:45 PM	0	0	58	59	0	0	50	22	0	0	0	0	0	31	11	47	278	
5:50 PM	0	0	66	57	0	0	42	33	0	0	0	0	0	39	8	56	301	
5:55 PM	0	0	71	65	0	0	34	31	0	0	0	0	0	36	6	39	282	
Count Total	0	0	1,672	1,346	0	1	1,494	900	0	0	0	0	0	645	226	1,024	7,308	
Peak Hour	0	0	875	670	0	0	797	481	0	0	0	0	0	312	117	503	3,755	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

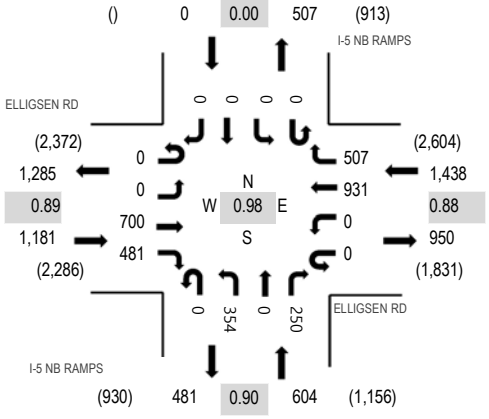
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	9	0	4	7	20	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	2	0	3	5	10	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	5	0	6	8	19	4:10 PM	0	0	0	0	0	4:10 PM	1	0	0	0	1
4:15 PM	7	0	2	6	15	4:15 PM	0	0	0	0	0	4:15 PM	1	1	0	1	3
4:20 PM	7	0	11	9	27	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	2	0	3	4	9	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	5	0	5	5	15	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	4	0	6	8	18	4:35 PM	0	0	0	0	0	4:35 PM	1	0	0	0	1
4:40 PM	4	0	5	14	23	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	7	0	6	14	27	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	3	0	3	9	15	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	4	0	1	8	13	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	2	0	4	8	14	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	3	0	2	1	6	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	7	0	0	12	19	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	3	0	3	7	13	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	3	0	5	6	14	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	5	0	6	2	13	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	6	0	5	11	22	5:30 PM	0	0	0	0	0	5:30 PM	1	0	0	0	1
5:35 PM	3	0	2	3	8	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	3	0	1	6	10	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	7	6	14	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	0	2	4	7	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	0	4	3	8	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	97	0	96	166	359	Count Total	1	0	0	0	1	Count Total	4	1	0	2	7
Peak Hour	52	0	55	98	205	Peak Hour	1	0	0	0	1	Peak Hour	3	1	0	2	6

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

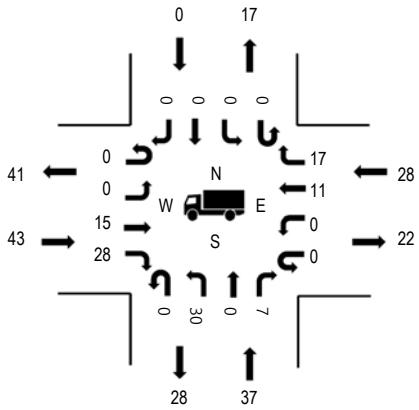
Location: 2 I-5 NB RAMPS & ELLIGSEN RD PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:10 PM - 05:10 PM
Peak 15-Minutes: 04:20 PM - 04:35 PM

Peak Hour

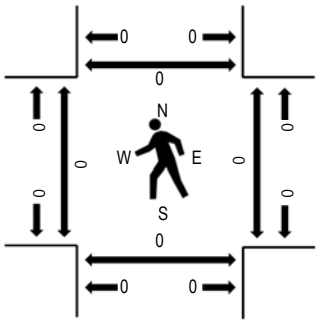
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.6%	0.89
WB	1.9%	0.88
NB	6.1%	0.90
SB	0.0%	0.00
All	3.4%	0.98

Traffic Counts - Motorized Vehicles

Interval Start Time	ELLIGSEN RD Eastbound				ELLIGSEN RD Westbound				I-5 NB RAMPS Northbound				I-5 NB RAMPS Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	69	40	0	0	83	24	0	40	0	32	0	0	0	0	288	3,201
4:05 PM	0	0	54	37	0	0	58	46	0	34	0	18	0	0	0	0	247	3,179
4:10 PM	0	0	68	37	0	0	84	47	0	31	0	21	0	0	0	0	288	3,223
4:15 PM	0	0	66	46	0	0	68	29	0	21	0	24	0	0	0	0	254	3,174
4:20 PM	0	0	73	32	0	0	67	46	0	30	0	27	0	0	0	0	275	3,181
4:25 PM	0	0	77	40	0	0	66	28	0	39	0	24	0	0	0	0	274	3,135
4:30 PM	0	0	58	48	0	0	58	52	0	37	0	21	0	0	0	0	274	3,095
4:35 PM	0	0	42	34	0	0	83	44	0	28	0	21	0	0	0	0	252	3,045
4:40 PM	0	0	35	27	0	0	77	45	0	32	0	20	0	0	0	0	236	3,023
4:45 PM	0	0	59	63	0	0	102	33	0	38	0	23	0	0	0	0	318	3,018
4:50 PM	0	0	63	25	0	0	78	40	0	24	0	24	0	0	0	0	254	2,910
4:55 PM	0	0	57	45	0	0	66	38	0	22	0	13	0	0	0	0	241	2,862
5:00 PM	0	0	49	46	0	0	94	30	0	29	0	18	0	0	0	0	266	2,845
5:05 PM	0	0	53	38	0	0	88	75	0	23	0	14	0	0	0	0	291	
5:10 PM	0	0	37	40	0	0	94	31	0	20	0	17	0	0	0	0	239	
5:15 PM	0	0	56	48	0	0	80	36	0	26	0	15	0	0	0	0	261	
5:20 PM	0	0	43	37	0	0	60	41	0	30	0	18	0	0	0	0	229	
5:25 PM	0	0	69	38	0	0	55	31	0	22	0	19	0	0	0	0	234	
5:30 PM	0	0	48	39	0	0	68	29	0	22	0	18	0	0	0	0	224	
5:35 PM	1	0	43	32	0	0	67	25	0	33	0	29	0	0	0	0	230	
5:40 PM	0	0	45	42	0	0	50	41	0	36	0	17	0	0	0	0	231	
5:45 PM	0	0	64	29	0	0	42	34	0	27	0	14	0	0	0	0	210	
5:50 PM	0	0	58	24	0	0	55	33	0	21	0	15	0	0	0	0	206	
5:55 PM	0	0	69	43	0	0	48	35	0	15	0	14	0	0	0	0	224	
Count Total	1	0	1,355	930	0	0	1,691	913	0	680	0	476	0	0	0	0	6,046	
Peak Hour	0	0	700	481	0	0	931	507	0	354	0	250	0	0	0	0	3,223	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	5	0	0	9	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	3	1	0	4	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	4	2	2	0	8	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	4	1	1	0	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	5	7	7	0	19	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	3	4	2	0	9	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	5	5	1	0	11	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	4	4	0	10	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	4	1	3	0	8	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	3	6	2	0	11	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	3	3	3	0	9	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	5	0	0	0	5	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	2	1	0	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	4	2	2	0	8	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	7	0	0	0	7	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	3	2	3	0	8	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	4	1	0	5	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	2	4	3	0	9	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	4	1	4	0	9	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	3	2	2	0	7	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	1	1	0	4	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	2	3	3	0	8	5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0
5:50 PM	1	1	3	0	5	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	2	2	0	5	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	72	65	51	0	188	Count Total	1	0	1	0	2	Count Total	0	0	0	0	0
Peak Hour	43	37	28	0	108	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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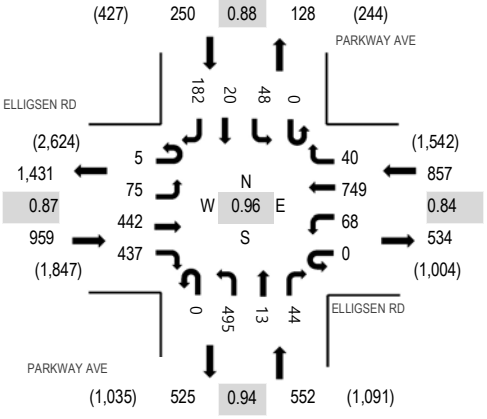
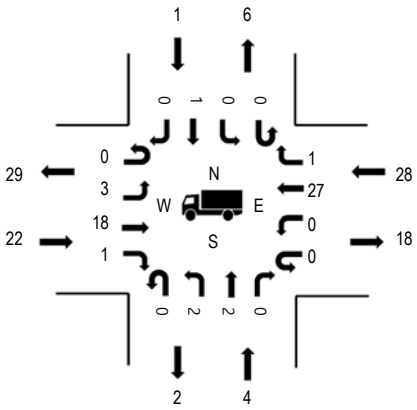
Location: 3 PARKWAY AVE & ELLIGSEN RD PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:10 PM - 05:10 PM
Peak 15-Minutes: 04:55 PM - 05:10 PM

Peak Hour

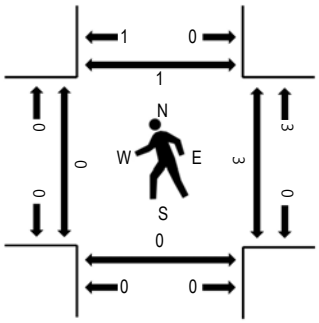
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.3%	0.87
WB	3.3%	0.84
NB	0.7%	0.94
SB	0.4%	0.88
All	2.1%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	ELLIGSEN RD Eastbound				ELLIGSEN RD Westbound				PARKWAY AVE Northbound				PARKWAY AVE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	4	55	40	0	3	56	3	0	43	1	7	0	5	3	18	238	2,573
4:05 PM	1	6	43	25	0	0	48	5	0	36	4	1	0	5	2	15	191	2,534
4:10 PM	0	4	47	42	0	5	64	0	0	42	1	0	0	4	1	24	234	2,618
4:15 PM	1	12	42	37	0	5	39	4	0	39	1	2	0	4	1	10	197	2,567
4:20 PM	0	6	37	48	0	0	60	6	0	46	3	2	0	3	0	11	222	2,589
4:25 PM	0	9	49	45	0	11	55	7	0	33	1	4	0	3	3	10	230	2,546
4:30 PM	0	7	36	36	0	4	51	2	0	43	2	5	0	3	1	12	202	2,500
4:35 PM	0	4	32	32	0	5	58	1	0	44	0	3	0	2	2	23	206	2,484
4:40 PM	1	5	19	30	0	5	73	4	0	32	0	7	0	5	4	11	196	2,457
4:45 PM	1	7	34	39	0	2	58	2	0	57	2	4	0	5	2	17	230	2,438
4:50 PM	0	6	42	39	0	7	62	3	0	37	1	4	0	5	1	12	219	2,385
4:55 PM	1	7	33	34	0	14	58	2	0	36	1	6	0	2	3	11	208	2,356
5:00 PM	1	4	26	23	0	6	70	1	0	47	1	0	0	4	2	14	199	2,334
5:05 PM	0	4	45	32	0	4	101	8	0	39	0	7	0	8	0	27	275	
5:10 PM	1	1	17	26	0	1	53	3	0	52	1	5	0	7	4	12	183	
5:15 PM	0	4	43	36	0	12	74	1	0	31	2	3	0	0	0	13	219	
5:20 PM	1	8	23	31	0	8	49	4	0	43	0	6	0	0	1	5	179	
5:25 PM	1	5	29	43	0	7	40	4	0	40	5	0	0	1	3	6	184	
5:30 PM	3	5	25	37	0	6	53	3	0	33	1	5	0	3	2	10	186	
5:35 PM	2	6	27	36	0	7	40	2	0	45	1	2	0	3	1	7	179	
5:40 PM	1	1	30	34	0	4	40	1	0	44	5	3	0	2	0	12	177	
5:45 PM	2	8	34	32	0	3	46	2	0	28	2	6	0	3	1	10	177	
5:50 PM	0	5	30	42	0	6	52	2	0	35	0	4	0	3	1	10	190	
5:55 PM	0	4	35	46	0	7	37	3	0	37	4	4	0	1	0	8	186	
Count Total	17	132	833	865	0	132	1,337	73	0	962	39	90	0	81	38	308	4,907	
Peak Hour	5	75	442	437	0	68	749	40	0	495	13	44	0	48	20	182	2,618	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

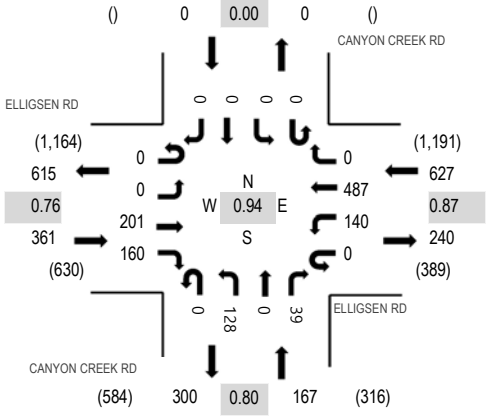
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	3	0	1	0	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	1	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	3	0	5	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	0	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	2	1	7	0	10	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	2	0	2	0	4	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	1	1	1	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	3	0	4	4:35 PM	0	0	0	0	0	4:35 PM	0	0	2	0	2
4:40 PM	2	0	3	0	5	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	3	0	2	0	5	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	2	0	3	0	5	4:50 PM	0	0	0	0	0	4:50 PM	0	0	1	0	1
4:55 PM	3	2	1	0	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	1	1
5:05 PM	3	0	1	0	4	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	3	0	0	0	3	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	2	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	3	1	4
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	3	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	3	0	5	0	8	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	2	0	2	1	5	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	1	1	0	0	2	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	4	0	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	1	1	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	36	5	49	4	94	Count Total	1	0	0	0	1	Count Total	0	0	6	2	8
Peak Hour	22	4	28	1	55	Peak Hour	1	0	0	0	1	Peak Hour	0	0	3	1	4

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

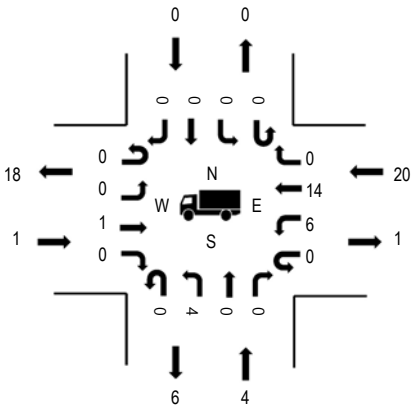
Location: 4 CANYON CREEK RD & ELLIGSEN RD PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour

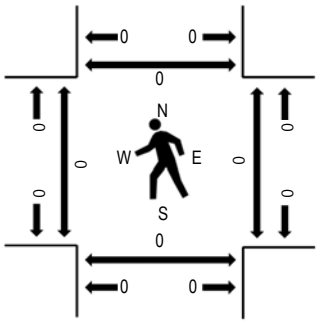
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.3%	0.76
WB	3.2%	0.87
NB	2.4%	0.80
SB	0.0%	0.00
All	2.2%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	ELLIGSEN RD Eastbound				ELLIGSEN RD Westbound				CANYON CREEK RD Northbound				CANYON CREEK RD Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	37	15	0	3	32	0	0	9	0	2	0	0	0	0	98	1,155
4:05 PM	0	0	25	17	0	15	40	0	0	10	0	2	0	0	0	0	109	1,143
4:10 PM	0	0	15	10	0	18	36	0	0	15	0	5	0	0	0	0	99	1,144
4:15 PM	0	0	18	15	0	11	32	0	0	17	0	3	0	0	0	0	96	1,139
4:20 PM	0	0	14	21	0	11	20	0	0	13	0	2	0	0	0	0	81	1,140
4:25 PM	0	0	17	10	0	16	47	0	0	8	0	3	0	0	0	0	101	1,133
4:30 PM	0	0	14	20	0	9	49	0	0	9	0	7	0	0	0	0	108	1,122
4:35 PM	0	0	13	7	0	12	41	0	0	9	0	3	0	0	0	0	85	1,100
4:40 PM	0	0	11	6	0	9	37	0	0	11	0	3	0	0	0	0	77	1,096
4:45 PM	0	0	16	11	0	11	41	0	0	9	0	1	0	0	0	0	89	1,079
4:50 PM	0	0	12	14	0	5	57	0	0	6	0	6	0	0	0	0	100	1,049
4:55 PM	0	0	9	14	0	20	55	0	0	12	0	2	0	0	0	0	112	1,013
5:00 PM	0	0	7	6	0	13	46	0	0	13	0	1	0	0	0	0	86	982
5:05 PM	0	0	15	14	0	19	45	0	0	14	0	3	0	0	0	0	110	
5:10 PM	0	0	17	4	0	13	42	0	0	15	0	3	0	0	0	0	94	
5:15 PM	0	0	7	18	0	7	47	0	0	17	0	1	0	0	0	0	97	
5:20 PM	0	0	7	10	0	12	35	0	0	9	0	1	0	0	0	0	74	
5:25 PM	0	0	11	10	0	20	36	0	0	11	0	2	0	0	0	0	90	
5:30 PM	0	0	9	7	0	17	44	0	0	5	0	4	0	0	0	0	86	
5:35 PM	0	0	10	12	0	13	36	0	0	9	0	1	0	0	0	0	81	
5:40 PM	0	0	8	17	0	5	20	0	0	7	0	3	0	0	0	0	60	
5:45 PM	0	0	13	12	0	5	17	0	0	12	0	0	0	0	0	0	59	
5:50 PM	0	0	9	15	0	5	23	0	0	11	0	1	0	0	0	0	64	
5:55 PM	0	0	14	17	0	13	31	0	0	4	0	2	0	0	0	0	81	
Count Total	0	0	328	302	0	282	909	0	0	255	0	61	0	0	0	0	2,137	
Peak Hour	0	0	201	160	0	140	487	0	0	128	0	39	0	0	0	0	1,155	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	1	1	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	1	0	2	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	1	1	0	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	1	1	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	2	0	2	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	4	0	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	5	0	5	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	1	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	2	0	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	1	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	1	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	1	1
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	1	0	0	1
5:15 PM	0	0	2	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	2	0	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	4	0	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	4	0	5	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	1	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	2	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	2	5	37	0	44	Count Total	0	0	0	0	0	Count Total	0	1	0	1	2
Peak Hour	1	4	20	0	25	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

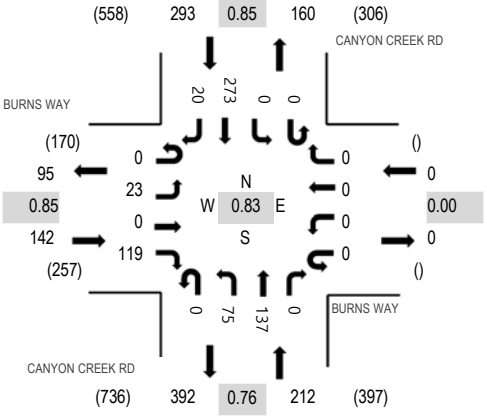
ALL TRAFFIC DATA SERVICES

(303) 216-2439
www.alltrafficdata.net

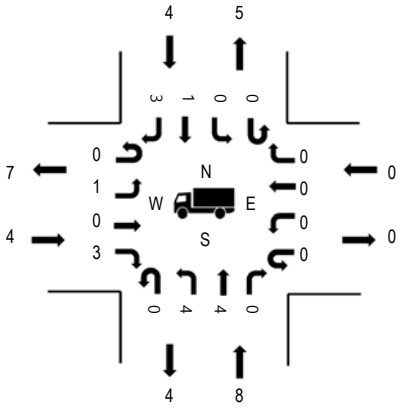
Location: 5 CANYON CREEK RD & BURNS WAY PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:05 PM - 05:05 PM
Peak 15-Minutes: 04:05 PM - 04:20 PM

Peak Hour

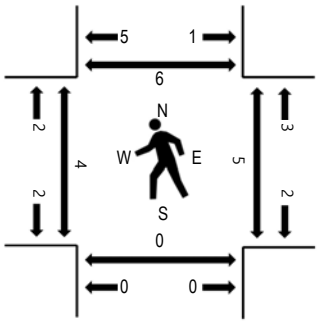
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.8%	0.85
WB	0.0%	0.00
NB	3.8%	0.76
SB	1.4%	0.85
All	2.5%	0.83

Traffic Counts - Motorized Vehicles

Interval Start Time	BURNS WAY Eastbound				BURNS WAY Westbound				CANYON CREEK RD Northbound				CANYON CREEK RD Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	7	0	0	0	0	0	4	10	0	0	0	19	0	40	646
4:05 PM	0	4	0	11	0	0	0	0	0	10	13	0	0	0	29	2	69	647
4:10 PM	0	0	0	10	0	0	0	0	0	6	17	0	0	0	24	2	59	639
4:15 PM	0	1	0	16	0	0	0	0	0	8	16	0	0	0	24	3	68	629
4:20 PM	0	1	0	8	0	0	0	0	0	5	9	0	0	0	26	1	50	598
4:25 PM	0	3	0	8	0	0	0	0	0	7	7	0	0	0	26	1	52	604
4:30 PM	0	5	0	8	0	0	0	0	0	7	11	0	0	0	26	2	59	604
4:35 PM	0	1	0	6	0	0	0	0	0	6	9	0	0	0	22	0	44	594
4:40 PM	0	1	0	8	0	0	0	0	0	4	9	0	0	0	17	0	39	597
4:45 PM	0	3	0	13	0	0	0	0	0	7	7	0	0	0	18	0	48	604
4:50 PM	0	2	0	6	0	0	0	0	0	5	12	0	0	0	15	2	42	598
4:55 PM	0	2	0	13	0	0	0	0	0	7	18	0	0	0	30	6	76	603
5:00 PM	0	0	0	12	0	0	0	0	0	3	9	0	0	0	16	1	41	566
5:05 PM	0	4	0	5	0	0	0	0	0	6	12	0	0	0	30	4	61	
5:10 PM	0	2	0	13	0	0	0	0	0	4	13	0	0	0	15	2	49	
5:15 PM	0	0	0	8	0	0	0	0	0	4	15	0	0	0	10	0	37	
5:20 PM	0	2	0	11	0	0	0	0	0	5	10	0	0	0	26	2	56	
5:25 PM	0	2	0	11	0	0	0	0	0	3	14	0	0	0	20	2	52	
5:30 PM	0	2	0	6	0	0	0	0	0	7	9	0	0	0	24	1	49	
5:35 PM	0	3	0	4	0	0	0	0	0	6	9	0	0	0	23	2	47	
5:40 PM	0	0	0	9	0	0	0	0	0	1	13	0	0	0	22	1	46	
5:45 PM	0	0	0	8	0	0	0	0	0	6	10	0	0	0	17	1	42	
5:50 PM	0	0	0	10	0	0	0	0	0	4	11	0	0	0	17	5	47	
5:55 PM	0	0	0	8	0	0	0	0	0	4	5	0	0	0	21	1	39	
Count Total	0	38	0	219	0	0	0	0	0	129	268	0	0	0	517	41	1,212	
Peak Hour	0	23	0	119	0	0	0	0	0	75	137	0	0	0	273	20	647	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

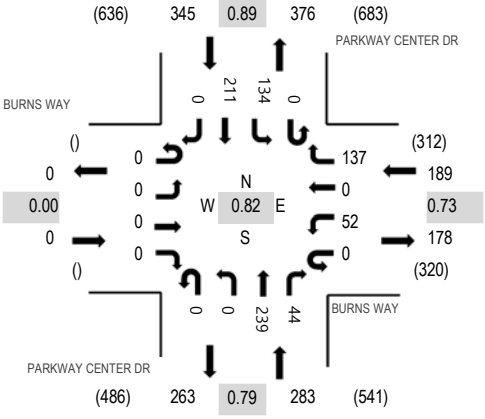
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	3	0	0	3	4:05 PM	0	0	0	0	0	4:05 PM	0	0	2	0	2
4:10 PM	1	1	0	1	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	1	0	0	2	4:15 PM	0	0	0	0	0	4:15 PM	2	0	0	2	4
4:20 PM	1	0	0	0	1	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	0	1	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	2	0	2
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	1	0	0	0	1
4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	1	0	1
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	1	1	2
4:50 PM	0	1	0	1	2	4:50 PM	0	0	0	0	0	4:50 PM	1	0	0	3	4
4:55 PM	0	0	0	1	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	1	0	1
5:15 PM	1	0	0	0	1	5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	4	3	7
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	1	0	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	1	1	5:50 PM	0	0	0	0	0	5:50 PM	1	0	0	0	1
5:55 PM	0	1	0	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	7	11	0	6	24	Count Total	2	0	0	0	2	Count Total	5	1	11	9	26
Peak Hour	4	8	0	4	16	Peak Hour	1	0	0	0	1	Peak Hour	4	0	6	6	16

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

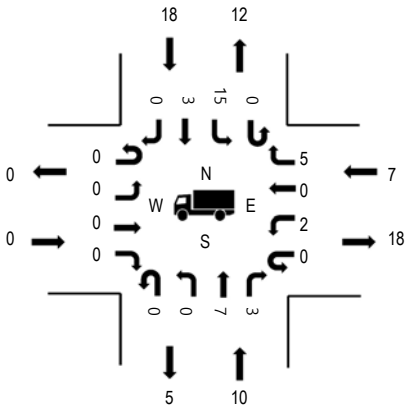
Location: 6 PARKWAY CENTER DR & BURNS WAY PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:10 PM - 05:10 PM
Peak 15-Minutes: 04:55 PM - 05:10 PM

Peak Hour

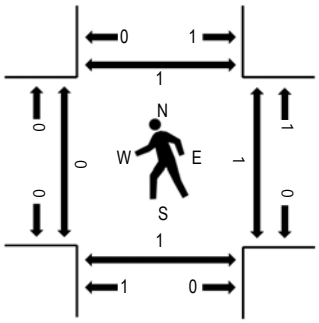
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	3.7%	0.73
NB	3.5%	0.79
SB	5.2%	0.89
All	4.3%	0.82

Traffic Counts - Motorized Vehicles

Interval Start Time	BURNS WAY Eastbound				BURNS WAY Westbound				PARKWAY CENTER DR Northbound				PARKWAY CENTER DR Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	5	0	7	0	0	25	2	0	11	18	0	68	771
4:05 PM	0	0	0	0	0	2	0	14	0	0	19	3	0	8	14	0	60	772
4:10 PM	0	0	0	0	0	1	0	7	0	0	22	6	0	12	23	0	71	817
4:15 PM	0	0	0	0	0	3	0	17	0	0	17	5	0	9	18	0	69	808
4:20 PM	0	0	0	0	0	4	0	12	0	0	14	1	0	11	7	0	49	795
4:25 PM	0	0	0	0	0	5	0	11	0	0	17	0	0	11	21	0	65	790
4:30 PM	0	0	0	0	0	6	0	7	0	0	14	4	0	15	17	0	63	792
4:35 PM	0	0	0	0	0	5	0	11	0	0	19	2	0	10	17	0	64	785
4:40 PM	0	0	0	0	0	4	0	6	0	0	27	2	0	10	9	0	58	779
4:45 PM	0	0	0	0	0	7	0	6	0	0	19	6	0	16	13	0	67	765
4:50 PM	0	0	0	0	0	3	0	9	0	0	14	4	0	7	25	0	62	754
4:55 PM	0	0	0	0	0	5	0	7	0	0	21	6	0	18	18	0	75	744
5:00 PM	0	0	0	0	0	3	0	23	0	0	20	4	0	4	15	0	69	718
5:05 PM	0	0	0	0	0	6	0	21	0	0	35	4	0	11	28	0	105	
5:10 PM	0	0	0	0	0	4	0	10	0	0	21	4	0	7	16	0	62	
5:15 PM	0	0	0	0	0	4	0	7	0	0	12	2	0	9	22	0	56	
5:20 PM	0	0	0	0	0	3	0	2	0	0	15	5	0	9	10	0	44	
5:25 PM	0	0	0	0	0	1	0	10	0	0	18	3	0	13	22	0	67	
5:30 PM	0	0	0	0	0	5	0	6	0	0	18	3	0	9	15	0	56	
5:35 PM	0	0	0	0	0	4	0	7	0	0	20	1	0	10	16	0	58	
5:40 PM	0	0	0	0	0	4	0	2	0	0	19	4	0	7	8	0	44	
5:45 PM	0	0	0	0	0	4	0	6	0	0	24	2	0	9	11	0	56	
5:50 PM	0	0	0	0	0	3	0	7	0	0	17	2	0	10	13	0	52	
5:55 PM	0	0	0	0	0	2	0	4	0	0	17	2	0	7	17	0	49	
Count Total	0	0	0	0	0	93	0	219	0	0	464	77	0	243	393	0	1,489	
Peak Hour	0	0	0	0	0	52	0	137	0	0	239	44	0	134	211	0	817	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

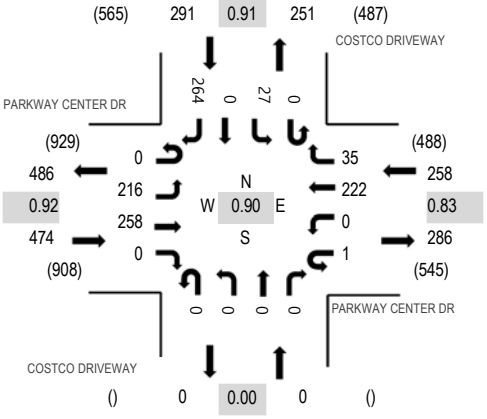
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	2	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	1	0	1
4:05 PM	0	0	1	0	1	4:05 PM	0	0	0	0	0	4:05 PM	2	0	0	0	2
4:10 PM	0	3	0	2	5	4:10 PM	0	0	0	0	0	4:10 PM	0	1	0	1	2
4:15 PM	0	0	4	1	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	2	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0
4:30 PM	0	1	0	1	2	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	1	1	2	4	4:40 PM	0	0	0	0	0	4:40 PM	0	0	1	0	1
4:45 PM	0	1	0	3	4	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	1	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	2	1	3	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	2	3	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	1	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	1	0	2	5:25 PM	0	0	0	0	0	5:25 PM	0	1	0	3	4
5:30 PM	0	0	0	4	4	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	3	3	5:35 PM	0	0	0	0	0	5:35 PM	0	0	1	0	1
5:40 PM	0	0	1	1	2	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	11	14	31	56	Count Total	0	0	1	1	2	Count Total	2	2	3	4	11
Peak Hour	0	10	7	18	35	Peak Hour	0	0	1	1	2	Peak Hour	0	1	1	1	3

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

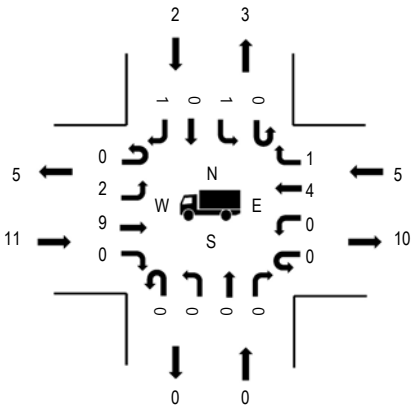
Location: 7 COSTCO DRIVEWAY & PARKWAY CENTER DR PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:10 PM - 05:10 PM
Peak 15-Minutes: 04:55 PM - 05:10 PM

Peak Hour

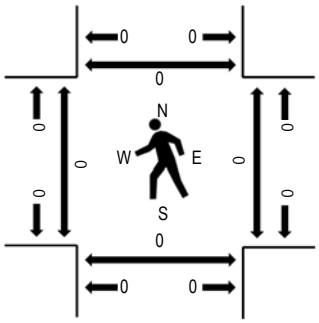
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.3%	0.92
WB	1.9%	0.83
NB	0.0%	0.00
SB	0.7%	0.91
All	1.8%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	PARKWAY CENTER DR Eastbound				PARKWAY CENTER DR Westbound				COSTCO DRIVEWAY Northbound				COSTCO DRIVEWAY Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	13	24	0	0	0	18	5	0	0	0	0	0	2	0	20	82	997
4:05 PM	0	20	20	0	0	0	17	2	0	0	0	0	0	3	0	24	86	997
4:10 PM	0	25	24	0	0	0	17	1	0	0	0	0	0	4	0	21	92	1,023
4:15 PM	0	17	21	0	0	0	23	0	0	0	0	0	0	3	0	25	89	1,008
4:20 PM	0	16	13	0	0	0	11	4	0	0	0	0	0	1	0	20	65	1,010
4:25 PM	0	17	18	0	0	0	17	4	0	0	0	0	0	0	0	25	81	1,004
4:30 PM	0	15	17	0	0	0	19	5	0	0	0	0	0	1	0	22	79	1,009
4:35 PM	0	25	19	0	0	0	21	6	0	0	0	0	0	3	0	11	85	1,011
4:40 PM	0	18	30	0	0	0	11	0	0	0	0	0	0	0	0	20	79	1,006
4:45 PM	0	17	21	0	0	0	12	4	0	0	0	0	0	2	0	31	87	994
4:50 PM	0	20	17	0	0	0	23	1	0	0	0	0	0	2	0	20	83	982
4:55 PM	0	12	23	0	1	0	25	3	0	0	0	0	0	4	0	21	89	973
5:00 PM	0	18	19	0	0	0	16	3	0	0	0	0	0	4	0	22	82	964
5:05 PM	0	16	36	0	0	0	27	4	0	0	0	0	0	3	0	26	112	
5:10 PM	0	16	23	0	0	0	18	6	0	0	0	0	0	3	0	11	77	
5:15 PM	0	26	13	0	0	0	23	2	0	0	0	0	0	2	0	25	91	
5:20 PM	0	17	13	0	0	0	11	2	0	0	0	0	0	4	0	12	59	
5:25 PM	0	14	22	0	0	0	20	1	0	0	0	0	0	2	0	27	86	
5:30 PM	0	21	20	0	0	0	14	1	0	0	0	0	0	1	0	24	81	
5:35 PM	0	11	20	0	0	0	20	6	0	0	0	0	0	0	0	23	80	
5:40 PM	0	16	18	0	0	0	11	2	0	0	0	0	0	3	0	17	67	
5:45 PM	0	17	24	0	0	0	16	1	0	0	0	0	0	3	0	14	75	
5:50 PM	0	15	19	0	0	0	11	3	0	0	0	0	0	2	0	24	74	
5:55 PM	0	16	16	0	0	0	17	3	0	0	0	0	0	2	0	26	80	
Count Total	0	418	490	0	1	0	418	69	0	0	0	0	0	54	0	511	1,961	
Peak Hour	0	216	258	0	1	0	222	35	0	0	0	0	0	27	0	264	1,023	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

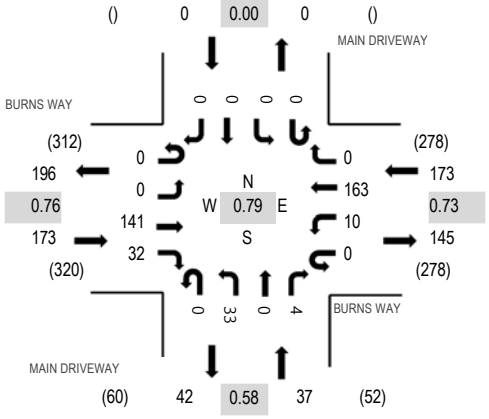
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	2	0	2	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	1	1
4:10 PM	3	0	0	0	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	1	1	3	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	1	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	1	0	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	3	0	1	0	4	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	1	1	2	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	2	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	1	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	11	0	10	3	24	Count Total	0	0	0	0	0	Count Total	0	0	0	1	1
Peak Hour	11	0	5	2	18	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

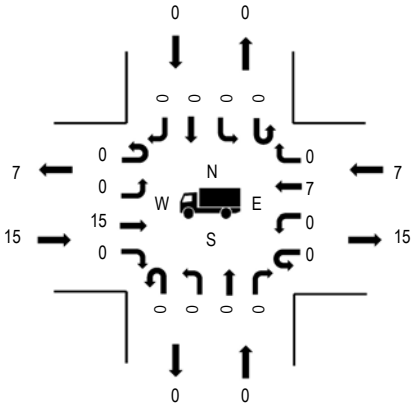
Location: 8 MAIN DRIVEWAY & BURNS WAY PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:55 PM - 05:10 PM

Peak Hour

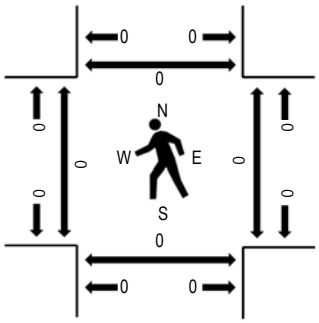
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	8.7%	0.76
WB	4.0%	0.73
NB	0.0%	0.58
SB	0.0%	0.00
All	5.7%	0.79

Traffic Counts - Motorized Vehicles

Interval Start Time	BURNS WAY Eastbound				BURNS WAY Westbound				MAIN DRIVEWAY Northbound				MAIN DRIVEWAY Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	13	0	0	0	12	0	0	1	0	0	0	0	0	0	26	349
4:05 PM	0	0	13	0	0	1	13	0	0	3	0	0	0	0	0	0	30	359
4:10 PM	0	0	12	0	0	0	6	0	0	0	0	0	0	0	0	0	18	372
4:15 PM	0	0	17	1	0	2	19	0	0	1	0	0	0	0	0	0	40	383
4:20 PM	0	0	9	3	0	0	16	0	0	0	0	0	0	0	0	0	28	362
4:25 PM	0	0	10	1	0	0	14	0	0	3	0	1	0	0	0	0	29	356
4:30 PM	0	0	13	4	0	0	10	0	0	2	0	0	0	0	0	0	29	355
4:35 PM	0	0	6	4	0	0	13	0	0	4	0	0	0	0	0	0	27	351
4:40 PM	0	0	10	3	0	0	7	0	0	2	0	0	0	0	0	0	22	344
4:45 PM	0	0	20	5	0	0	11	0	0	2	0	1	0	0	0	0	39	340
4:50 PM	0	0	5	4	0	1	8	0	0	0	0	1	0	0	0	0	19	325
4:55 PM	0	0	20	4	0	3	10	0	0	5	0	0	0	0	0	0	42	327
5:00 PM	0	0	7	2	0	1	22	0	0	4	0	0	0	0	0	0	36	301
5:05 PM	0	0	14	0	0	2	20	0	0	7	0	0	0	0	0	0	43	
5:10 PM	0	0	10	1	0	1	13	0	0	3	0	1	0	0	0	0	29	
5:15 PM	0	0	8	1	0	0	10	0	0	0	0	0	0	0	0	0	19	
5:20 PM	0	0	14	2	0	0	5	0	0	1	0	0	0	0	0	0	22	
5:25 PM	0	0	15	2	0	0	8	0	0	3	0	0	0	0	0	0	28	
5:30 PM	0	0	11	2	0	2	9	0	0	1	0	0	0	0	0	0	25	
5:35 PM	0	0	7	1	0	0	10	0	0	2	0	0	0	0	0	0	20	
5:40 PM	0	0	12	0	0	1	4	0	0	1	0	0	0	0	0	0	18	
5:45 PM	0	0	10	3	0	0	10	0	0	1	0	0	0	0	0	0	24	
5:50 PM	0	0	9	2	0	0	8	0	0	2	0	0	0	0	0	0	21	
5:55 PM	0	0	9	1	0	0	6	0	0	0	0	0	0	0	0	0	16	
Count Total	0	0	274	46	0	14	264	0	0	48	0	4	0	0	0	0	650	
Peak Hour	0	0	141	32	0	10	163	0	0	33	0	4	0	0	0	0	383	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

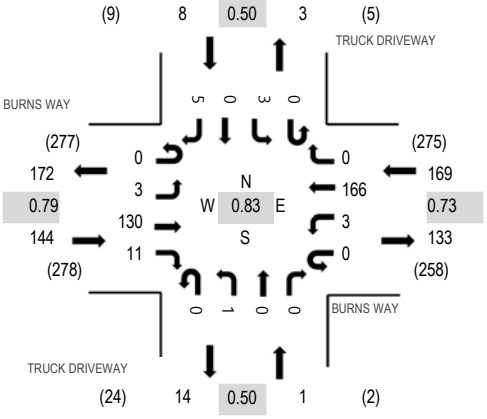
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	1	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	4	0	0	0	4	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	0	4	0	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	2	0	0	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	1	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	5	0	0	0	5	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0
4:50 PM	0	0	1	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	3	0	1	0	4	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	0	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	0	0	0	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	0	1	0	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	2	0	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	1	0	0	1
5:40 PM	2	0	1	0	3	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	27	0	14	0	41	Count Total	1	0	1	0	2	Count Total	0	2	0	0	2
Peak Hour	15	0	7	0	22	Peak Hour	1	0	1	0	2	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

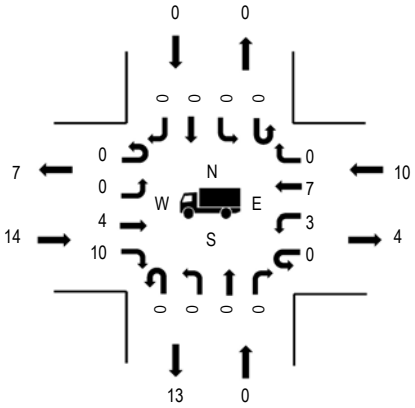
Location: 9 TRUCK DRIVEWAY & BURNS WAY PM
Date: Tuesday, April 4, 2023
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:55 PM - 05:10 PM

Peak Hour

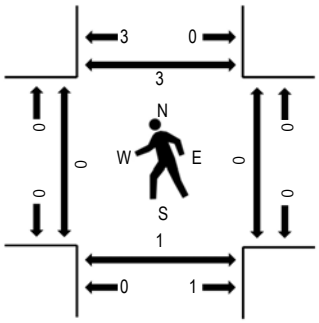
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	9.7%	0.79
WB	5.9%	0.73
NB	0.0%	0.50
SB	0.0%	0.50
All	7.5%	0.83

Traffic Counts - Motorized Vehicles

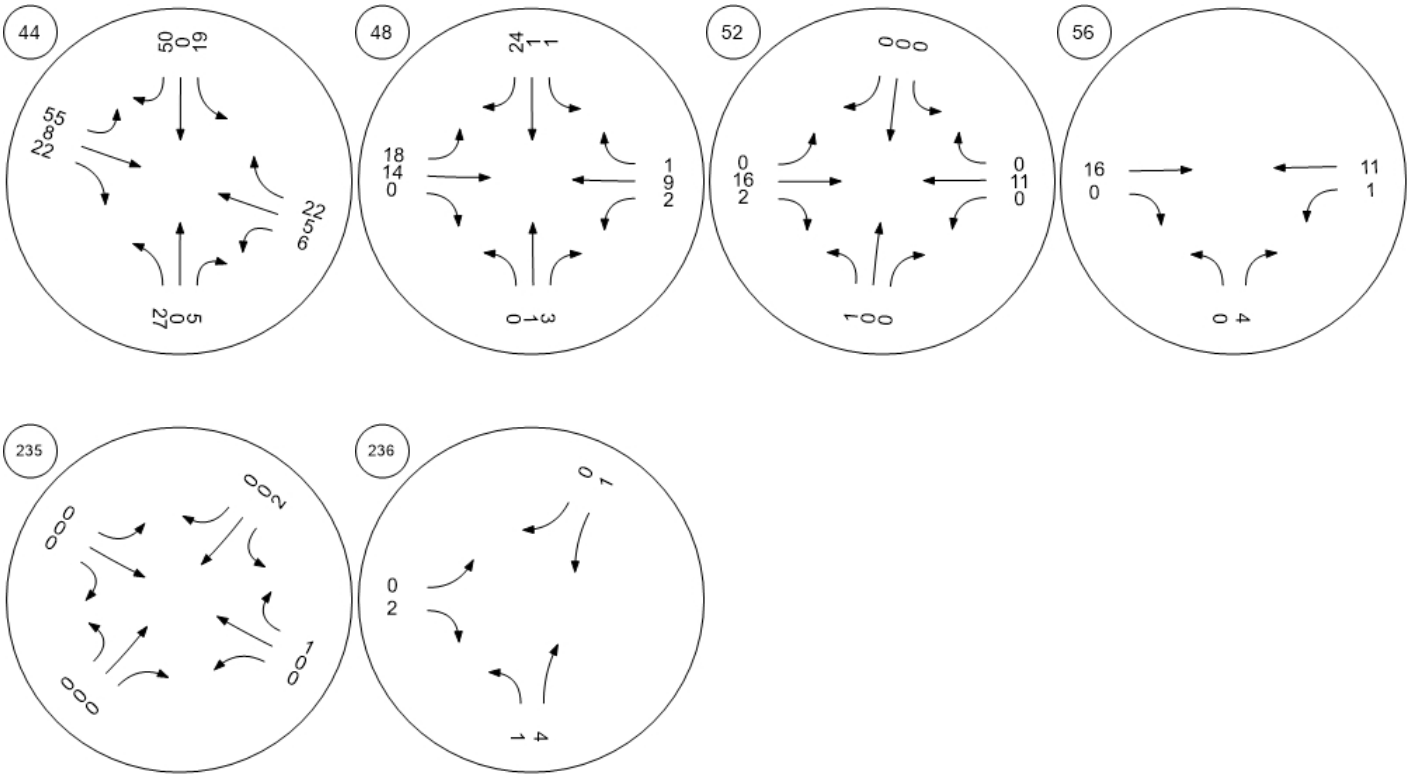
Interval Start Time	BURNS WAY Eastbound				BURNS WAY Westbound				TRUCK DRIVEWAY Northbound				TRUCK DRIVEWAY Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	11	1	0	0	12	0	0	0	0	0	0	0	0	0	24	305
4:05 PM	0	0	14	0	0	1	15	0	0	0	0	0	0	0	0	0	30	310
4:10 PM	0	0	11	1	0	1	6	0	0	0	0	0	0	0	0	0	19	312
4:15 PM	0	0	16	0	0	0	18	0	0	0	0	0	0	0	0	0	34	322
4:20 PM	0	0	7	2	0	0	17	0	0	0	0	0	0	1	0	2	29	307
4:25 PM	0	0	9	0	0	0	13	0	0	0	0	0	0	1	0	0	23	295
4:30 PM	0	0	13	0	0	1	9	0	0	1	0	0	0	0	0	0	24	295
4:35 PM	0	1	6	0	0	0	14	0	0	0	0	0	0	1	0	0	22	294
4:40 PM	0	1	10	0	0	0	7	0	0	0	0	0	0	0	0	0	18	290
4:45 PM	0	0	15	5	0	0	10	0	0	0	0	0	0	0	0	1	31	288
4:50 PM	0	0	6	0	0	1	7	0	0	0	0	0	0	0	0	1	15	277
4:55 PM	0	0	19	3	0	0	14	0	0	0	0	0	0	0	0	0	36	281
5:00 PM	0	0	7	0	0	0	22	0	0	0	0	0	0	0	0	0	29	259
5:05 PM	0	0	9	1	0	1	21	0	0	0	0	0	0	0	0	0	32	
5:10 PM	0	1	13	0	0	0	14	0	0	0	0	0	0	0	0	1	29	
5:15 PM	0	0	8	1	0	0	9	0	0	1	0	0	0	0	0	0	19	
5:20 PM	0	0	12	0	0	0	5	0	0	0	0	0	0	0	0	0	17	
5:25 PM	0	0	15	0	0	0	8	0	0	0	0	0	0	0	0	0	23	
5:30 PM	0	1	9	2	0	0	10	0	0	0	0	0	0	0	0	1	23	
5:35 PM	0	1	7	0	0	0	10	0	0	0	0	0	0	0	0	0	18	
5:40 PM	0	0	11	1	0	0	4	0	0	0	0	0	0	0	0	0	16	
5:45 PM	0	0	8	1	0	0	11	0	0	0	0	0	0	0	0	0	20	
5:50 PM	0	0	10	0	0	1	8	0	0	0	0	0	0	0	0	0	19	
5:55 PM	0	0	9	0	0	0	5	0	0	0	0	0	0	0	0	0	14	
Count Total	0	5	255	18	0	6	269	0	0	2	0	0	0	3	0	6	564	
Peak Hour	0	3	130	11	0	3	166	0	0	1	0	0	0	3	0	5	322	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	2	0	1	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	2	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	1	1
4:10 PM	4	0	1	0	5	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	0	4	0	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	2	0	0	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	1	0	0	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	0	1
4:40 PM	0	0	1	0	1	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	5	0	0	0	5	4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	2	2
4:50 PM	0	0	2	0	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	3	0	1	0	4	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	1	0	1	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	0	0	0	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	2	1	0	0	3	5:15 PM	0	0	0	1	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	3	3
5:30 PM	2	0	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	1	0	0	1
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	1	0	0	1
5:40 PM	2	0	1	0	3	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	1	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	1	0	1	2
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	27	1	18	0	46	Count Total	1	0	1	1	3	Count Total	0	4	0	8	12
Peak Hour	14	0	10	0	24	Peak Hour	1	0	1	0	2	Peak Hour	0	1	0	3	4

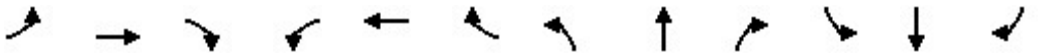
APPENDIX C: STAGE II LIST

Traffic Volume - Future Total Volume



APPENDIX D: HCM REPORT - EXISTING

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
1	Synchro HCM 6th Signal	I-5 SB Ramp & Boones Ferry	Signal	B	13.2	0.47
2	Synchro HCM 6th Signal	I-5 NB Ramp & Elligsen Rd	Signal	A	8.8	0.41
3	Synchro HCM 6th Signal	Parkway Ave & Elligsen Rd	Signal	C	21.1	0.48
4	Synchro HCM 6th Signal	Parkway Center Dr & Elligse	Signal	B	14.2	0.43
5	Synchro HCM 6th Signal	Canyon Creek Rd & Elligsen	Signal	A	6.0	0.43



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰	↰	↱
Traffic Volume (veh/h)	0	877	704	0	798	505	0	0	0	328	123	528
Future Volume (veh/h)	0	877	704	0	798	505	0	0	0	328	123	528
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1841	0	1811	1885				1841	1781	1678
Adj Flow Rate, veh/h	0	904	0	0	823	0				232	275	148
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	3	4	0	6	1				4	8	15
Cap, veh/h	0	2590		0	2528					315	320	254
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	3618	1560	0	3532	1598				1753	1781	1415
Grp Volume(v), veh/h	0	904	0	0	823	0				232	275	148
Grp Sat Flow(s),veh/h/ln	0	1763	1560	0	1721	1598				1753	1781	1415
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				13.1	15.7	10.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				13.1	15.7	10.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2590		0	2528					315	320	254
V/C Ratio(X)	0.00	0.35		0.00	0.33					0.74	0.86	0.58
Avail Cap(c_a), veh/h	0	2590		0	2528					417	424	337
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.84	0.00	0.00	0.89	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				40.7	41.8	39.4
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.3	0.0				3.5	11.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0				5.8	7.6	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.3	0.0	0.0	0.3	0.0				44.2	53.1	40.7
LnGrp LOS	A	A		A	A					D	D	D
Approach Vol, veh/h		904			823						655	
Approach Delay, s/veh		0.3			0.3						47.2	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		81.1		23.9		81.1						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		70.0		25.0		42.0						
Max Q Clear Time (g_c+I1), s		2.0		17.7		2.0						
Green Ext Time (p_c), s		8.5		1.2		7.2						

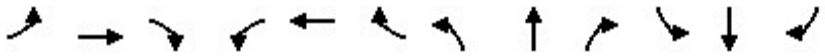
Intersection Summary		
HCM 6th Ctrl Delay		13.2
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

User approved changes to right turn type.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

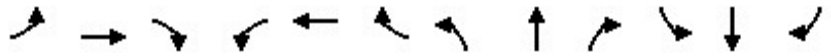


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱	↰↰		↱			
Traffic Volume (veh/h)	0	700	505	0	931	532	372	0	262	0	0	0
Future Volume (veh/h)	0	700	505	0	931	532	372	0	262	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1811	0	1885	1856	1781	0	1856			
Adj Flow Rate, veh/h	0	714	0	0	950	0	380	0	0			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	2	6	0	1	3	8	0	3			
Cap, veh/h	0	2729		0	2750		466	0				
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00	0.14	0.00	0.00			
Sat Flow, veh/h	0	3647	1535	0	3676	1572	3291	0	1572			
Grp Volume(v), veh/h	0	714	0	0	950	0	380	0	0			
Grp Sat Flow(s),veh/h/ln	0	1777	1535	0	1791	1572	1646	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2729		0	2750		466	0				
V/C Ratio(X)	0.00	0.26		0.00	0.35		0.81	0.00				
Avail Cap(c_a), veh/h	0	2729		0	2750		1113	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.90	0.00	0.00	0.89	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	43.7	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0	4.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	0.3	0.0	45.9	0.0	0.0			
LnGrp LOS	A	A		A	A		D	A				
Approach Vol, veh/h		714			950			380				
Approach Delay, s/veh		0.2			0.3			45.9				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		85.6				85.6		19.4				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		60.0				60.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				2.0		13.8				
Green Ext Time (p_c), s		6.1				9.1		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



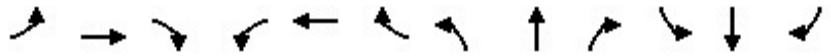
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	451	437	68	786	40	495	13	44	48	20	182
Future Volume (veh/h)	75	451	437	68	786	40	495	13	44	48	20	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1900	1900	1841	1870	1900	1678	1900	1900	1826	1900
Adj Flow Rate, veh/h	78	470	304	71	819	38	526	0	7	50	21	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	0	0	4	2	0	15	0	0	5	0
Cap, veh/h	100	1928	1144	91	2680	124	619	0	274	75	57	16
Arrive On Green	0.02	0.18	0.18	0.10	1.00	1.00	0.17	0.00	0.17	0.04	0.04	0.04
Sat Flow, veh/h	1753	3497	1575	1810	4922	228	3619	0	1602	1810	1358	388
Grp Volume(v), veh/h	78	470	304	71	557	300	526	0	7	50	0	27
Grp Sat Flow(s),veh/h/ln	1753	1749	1575	1810	1675	1799	1810	0	1602	1810	0	1746
Q Serve(g_s), s	4.7	12.1	11.0	4.0	0.0	0.0	14.8	0.0	0.4	2.9	0.0	1.6
Cycle Q Clear(g_c), s	4.7	12.1	11.0	4.0	0.0	0.0	14.8	0.0	0.4	2.9	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	100	1928	1144	91	1824	980	619	0	274	75	0	73
V/C Ratio(X)	0.78	0.24	0.27	0.78	0.31	0.31	0.85	0.00	0.03	0.66	0.00	0.37
Avail Cap(c_a), veh/h	175	1928	1144	181	1824	980	1034	0	458	259	0	249
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.9	24.2	10.1	46.7	0.0	0.0	42.2	0.0	36.2	49.6	0.0	49.0
Incr Delay (d2), s/veh	4.6	0.3	0.5	4.8	0.4	0.7	1.5	0.0	0.0	3.7	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	5.7	7.6	1.8	0.1	0.2	6.8	0.0	0.2	1.4	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	24.5	10.7	51.5	0.4	0.7	43.7	0.0	36.2	53.2	0.0	50.1
LnGrp LOS	E	C	B	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		852			928			533			77	
Approach Delay, s/veh		22.4			4.4			43.6			52.2	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	62.9		9.4	10.5	62.2		23.0
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	10.5	30.0		15.0	10.5	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.0	14.1		4.9	6.7	2.0		16.8
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	2.2		0.7

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	303	186	91	559	3	325	8	45	0	5	10
Future Volume (veh/h)	17	303	186	91	559	3	325	8	45	0	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1767	1900	1841	1900	1870	1722	1900	1900	1900	1604
Adj Flow Rate, veh/h	19	337	144	101	621	3	361	9	2	0	6	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	6	1	9	0	4	0	2	12	0	0	0	20
Cap, veh/h	577	1143	1110	779	2334	11	471	186	41	0	45	0
Arrive On Green	0.07	1.00	1.00	0.08	0.65	0.65	0.14	0.14	0.14	0.00	0.02	0.00
Sat Flow, veh/h	1725	1885	1494	1810	3569	17	3456	1361	302	0	1900	0
Grp Volume(v), veh/h	19	337	144	101	304	320	361	0	11	0	6	0
Grp Sat Flow(s),veh/h/ln	1725	1885	1494	1810	1749	1838	1728	0	1664	0	1900	0
Q Serve(g_s), s	0.4	0.0	0.0	1.8	7.7	7.7	10.6	0.0	0.6	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.8	7.7	7.7	10.6	0.0	0.6	0.0	0.3	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.18	0.00		0.00
Lane Grp Cap(c), veh/h	577	1143	1110	779	1144	1202	471	0	227	0	45	0
V/C Ratio(X)	0.03	0.29	0.13	0.13	0.27	0.27	0.77	0.00	0.05	0.00	0.13	0.00
Avail Cap(c_a), veh/h	683	1143	1110	803	1144	1202	1185	0	570	0	235	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.91	0.91	0.91	1.00	0.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	4.8	7.6	7.6	43.7	0.0	39.4	0.0	50.2	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.2	0.0	0.5	0.5	1.0	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.1	0.6	2.7	2.9	4.5	0.0	0.2	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.7	0.6	0.2	4.8	8.1	8.1	44.7	0.0	39.4	0.0	50.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	A	D	A
Approach Vol, veh/h		500			725			372			6	
Approach Delay, s/veh		0.8			7.7			44.6			50.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	67.6		6.5	7.6	72.7		18.3
Change Period (Y+Rc), s	5.0	5.0		5.5	5.0	5.0		5.0
Max Green Setting (Gmax), s	9.6	29.0		11.5	9.0	29.0		35.0
Max Q Clear Time (g_c+I1), s	3.8	2.0		2.3	2.4	9.7		12.6
Green Ext Time (p_c), s	0.0	0.4		0.0	0.0	0.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	160	140	487	128	39
Future Volume (veh/h)	201	160	140	487	128	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1856	1856	1900
Adj Flow Rate, veh/h	214	133	149	518	136	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	4	3	3	0
Cap, veh/h	725	451	777	1228	185	169
Arrive On Green	0.66	0.66	0.66	0.66	0.10	0.10
Sat Flow, veh/h	1096	681	1017	1856	1767	1610
Grp Volume(v), veh/h	0	347	149	518	136	5
Grp Sat Flow(s),veh/h/ln	0	1777	1017	1856	1767	1610
Q Serve(g_s), s	0.0	3.2	2.8	5.0	2.9	0.1
Cycle Q Clear(g_c), s	0.0	3.2	5.9	5.0	2.9	0.1
Prop In Lane		0.38	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1176	777	1228	185	169
V/C Ratio(X)	0.00	0.30	0.19	0.42	0.73	0.03
Avail Cap(c_a), veh/h	0	1176	777	1228	940	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	2.7	4.0	3.1	16.7	15.5
Incr Delay (d2), s/veh	0.0	0.6	0.5	1.1	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.4	0.7	1.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	3.4	4.5	4.1	20.9	15.5
LnGrp LOS	A	A	A	A	C	B
Approach Vol, veh/h	347			667	141	
Approach Delay, s/veh	3.4			4.2	20.7	
Approach LOS	A			A	C	

Timer - Assigned Phs	2		4		6
Phs Duration (G+Y+Rc), s	30.0		8.5		30.0
Change Period (Y+Rc), s	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5		20.5		25.5
Max Q Clear Time (g_c+I1), s	7.9		4.9		5.2
Green Ext Time (p_c), s	5.8		0.3		2.9

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	119	75	137	273	20
Future Vol, veh/h	23	119	75	137	273	20
Conflicting Peds, #/hr	6	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	4	3	5	3	0	15
Mvmt Flow	28	143	90	165	329	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	696	345	357	0	-	0
Stage 1	345	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.15	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.245	-	-	-
Pot Cap-1 Maneuver	405	696	1185	-	-	-
Stage 1	713	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	372	694	1181	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	706	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	2.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1181	-	609	-	-
HCM Lane V/C Ratio	0.077	-	0.281	-	-
HCM Control Delay (s)	8.3	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.1	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	141	241	44	134	211
Future Vol, veh/h	54	141	241	44	134	211
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	4	4	3	7	11	1
Mvmt Flow	66	172	294	54	163	257

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	906	323	0	0	349	0
Stage 1	322	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.21	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.299	-
Pot Cap-1 Maneuver	304	713	-	-	1161	-
Stage 1	730	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	261	712	-	-	1160	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	475	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	261	712	1160	-
HCM Lane V/C Ratio	-	-	0.252	0.242	0.141	-
HCM Control Delay (s)	-	-	23.4	11.7	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0.9	0.5	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	216	258	230	35	27	264
Future Vol, veh/h	216	258	230	35	27	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	140	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	3	2	3	4	0
Mvmt Flow	240	287	256	39	30	293

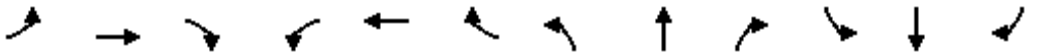
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	295	0	-	0	1043	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	767	-
Critical Hdwy	4.11	-	-	-	6.44	6.2
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.209	-	-	-	3.536	3.3
Pot Cap-1 Maneuver	1272	-	-	-	252	768
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	455	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1272	-	-	-	204	768
Mov Cap-2 Maneuver	-	-	-	-	204	-
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	455	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1272	-	-	-	204	768
HCM Lane V/C Ratio	0.189	-	-	-	0.147	0.382
HCM Control Delay (s)	8.5	-	-	-	25.7	12.6
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.7	-	-	-	0.5	1.8

APPENDIX E: HCM REPORT – EXISTING + PROJECT

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
1	Synchro HCM 6th Signal	I-5 SB Ramp & Boones Ferry	Signal	B	15.9	0.57
2	Synchro HCM 6th Signal	I-5 NB Ramp & Elligsen Rd	Signal	A	8.5	0.43
3	Synchro HCM 6th Signal	Parkway Ave & Elligsen Rd	Signal	C	21.2	0.48
4	Synchro HCM 6th Signal	Parkway Center Dr & Elligse	Signal	B	14.6	0.47
5	Synchro HCM 6th Signal	Canyon Creek Rd & Elligsen	Signal	A	6.6	0.49



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰	↰	↱
Traffic Volume (veh/h)	0	883	704	0	804	510	0	0	0	360	123	528
Future Volume (veh/h)	0	883	704	0	804	510	0	0	0	360	123	528
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1841	0	1811	1885				1841	1781	1678
Adj Flow Rate, veh/h	0	1064	0	0	969	0				291	348	240
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %	0	3	4	0	6	1				4	8	15
Cap, veh/h	0	2456		0	2397					382	388	308
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	3618	1560	0	3532	1598				1753	1781	1416
Grp Volume(v), veh/h	0	1064	0	0	969	0				291	348	240
Grp Sat Flow(s),veh/h/ln	0	1763	1560	0	1721	1598				1753	1781	1416
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				16.3	19.9	16.8
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				16.3	19.9	16.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2456		0	2397					382	388	308
V/C Ratio(X)	0.00	0.43		0.00	0.40					0.76	0.90	0.78
Avail Cap(c_a), veh/h	0	2456		0	2397					417	424	337
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.83	0.00	0.00	0.88	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				38.5	39.9	38.7
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.4	0.0				6.8	19.6	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.1	0.0				7.4	10.4	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.5	0.0	0.0	0.4	0.0				45.3	59.6	48.1
LnGrp LOS	A	A		A	A					D	E	D
Approach Vol, veh/h		1064			969						879	
Approach Delay, s/veh		0.5			0.4						51.7	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		77.1		27.9		77.1						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		70.0		25.0		42.0						
Max Q Clear Time (g_c+I1), s		2.0		21.9		2.0						
Green Ext Time (p_c), s		11.0		0.9		9.0						

Intersection Summary		
HCM 6th Ctrl Delay		15.9
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

User approved changes to right turn type.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱	↰↰		↱			
Traffic Volume (veh/h)	0	738	505	0	942	544	372	0	276	0	0	0
Future Volume (veh/h)	0	738	505	0	942	544	372	0	276	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1811	0	1885	1856	1781	0	1856			
Adj Flow Rate, veh/h	0	777	0	0	992	0	392	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	6	0	1	3	8	0	3			
Cap, veh/h	0	2715		0	2736		479	0				
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	0	3647	1535	0	3676	1572	3291	0	1572			
Grp Volume(v), veh/h	0	777	0	0	992	0	392	0	0			
Grp Sat Flow(s),veh/h/ln	0	1777	1535	0	1791	1572	1646	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	12.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	12.1	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2715		0	2736		479	0				
V/C Ratio(X)	0.00	0.29		0.00	0.36		0.82	0.00				
Avail Cap(c_a), veh/h	0	2715		0	2736		1113	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.85	0.00	0.00	0.88	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	43.5	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0	4.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	0.3	0.0	45.7	0.0	0.0			
LnGrp LOS	A	A		A	A		D	A				
Approach Vol, veh/h		777			992			392				
Approach Delay, s/veh		0.2			0.3			45.7				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		85.2				85.2		19.8				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		60.0				60.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				2.0		14.1				
Green Ext Time (p_c), s		6.9				9.7		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	502	437	68	809	40	495	13	44	48	20	182
Future Volume (veh/h)	75	502	437	68	809	40	495	13	44	48	20	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1900	1900	1841	1870	1900	1678	1900	1900	1826	1900
Adj Flow Rate, veh/h	80	534	306	72	861	39	537	0	7	51	21	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	0	0	4	2	0	15	0	0	5	0
Cap, veh/h	102	1916	1143	92	2662	120	630	0	279	75	72	3
Arrive On Green	0.02	0.18	0.18	0.10	1.00	1.00	0.17	0.00	0.17	0.04	0.04	0.04
Sat Flow, veh/h	1753	3497	1575	1810	4928	223	3619	0	1602	1810	1727	82
Grp Volume(v), veh/h	80	534	306	72	585	315	537	0	7	51	0	22
Grp Sat Flow(s),veh/h/ln	1753	1749	1575	1810	1675	1800	1810	0	1602	1810	0	1809
Q Serve(g_s), s	4.8	13.8	11.0	4.1	0.0	0.0	15.1	0.0	0.4	2.9	0.0	1.2
Cycle Q Clear(g_c), s	4.8	13.8	11.0	4.1	0.0	0.0	15.1	0.0	0.4	2.9	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	102	1916	1143	92	1810	973	630	0	279	75	0	75
V/C Ratio(X)	0.78	0.28	0.27	0.78	0.32	0.32	0.85	0.00	0.03	0.68	0.00	0.29
Avail Cap(c_a), veh/h	175	1916	1143	181	1810	973	1034	0	458	259	0	258
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	25.1	10.1	46.6	0.0	0.0	42.1	0.0	36.0	49.6	0.0	48.8
Incr Delay (d2), s/veh	4.4	0.3	0.5	4.7	0.4	0.8	1.9	0.0	0.0	3.9	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.5	7.6	1.9	0.1	0.2	6.9	0.0	0.2	1.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	25.5	10.7	51.3	0.4	0.8	43.9	0.0	36.0	53.6	0.0	49.6
LnGrp LOS	E	C	B	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		920			972			544			73	
Approach Delay, s/veh		23.1			4.3			43.8			52.4	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	62.5		9.4	10.6	61.7		23.3
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	10.5	30.0		15.0	10.5	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.1	15.8		4.9	6.8	2.0		17.1
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	2.3		0.7

Intersection Summary		
HCM 6th Ctrl Delay		21.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	303	237	95	559	3	348	8	48	0	5	10
Future Volume (veh/h)	17	303	237	95	559	3	348	8	48	0	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1767	1900	1841	1900	1870	1722	1900	1900	1900	1604
Adj Flow Rate, veh/h	20	365	192	114	673	4	419	10	0	0	6	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	6	1	9	0	4	0	2	12	0	0	0	20
Cap, veh/h	536	1110	1108	728	2271	13	526	262	0	0	45	0
Arrive On Green	0.07	1.00	1.00	0.08	0.64	0.64	0.15	0.15	0.00	0.00	0.02	0.00
Sat Flow, veh/h	1725	1885	1494	1810	3564	21	3456	1722	0	0	1900	0
Grp Volume(v), veh/h	20	365	192	114	330	347	419	10	0	0	6	0
Grp Sat Flow(s),veh/h/ln	1725	1885	1494	1810	1749	1837	1728	1722	0	0	1900	0
Q Serve(g_s), s	0.5	0.0	0.0	2.2	8.9	8.9	12.3	0.5	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	2.2	8.9	8.9	12.3	0.5	0.0	0.0	0.3	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	536	1110	1108	728	1114	1170	526	262	0	0	45	0
V/C Ratio(X)	0.04	0.33	0.17	0.16	0.30	0.30	0.80	0.04	0.00	0.00	0.13	0.00
Avail Cap(c_a), veh/h	640	1110	1108	750	1114	1170	1185	590	0	0	235	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.87	0.87	0.87	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	0.0	5.4	8.5	8.5	42.9	37.9	0.0	0.0	50.2	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.3	0.0	0.6	0.6	1.1	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.1	0.7	3.2	3.4	5.2	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.8	0.3	5.4	9.1	9.1	44.0	38.0	0.0	0.0	50.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	D	A	A	D	A
Approach Vol, veh/h		577			791			429			6	
Approach Delay, s/veh		0.8			8.6			43.8			50.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	65.8		6.5	7.7	70.9		20.0
Change Period (Y+Rc), s	5.0	5.0		5.5	5.0	5.0		5.0
Max Green Setting (Gmax), s	9.0	29.0		11.5	9.0	29.0		35.0
Max Q Clear Time (g_c+I1), s	14.2	2.0		2.3	2.5	10.9		14.3
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	0.5		0.3

Intersection Summary		
HCM 6th Ctrl Delay		14.6
HCM 6th LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	204	160	142	491	128	41
Future Volume (veh/h)	204	160	142	491	128	41
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1856	1856	1900
Adj Flow Rate, veh/h	249	152	173	599	156	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	4	3	3	0
Cap, veh/h	720	439	717	1209	210	191
Arrive On Green	0.65	0.65	0.65	0.65	0.12	0.00
Sat Flow, veh/h	1104	674	968	1856	1767	1610
Grp Volume(v), veh/h	0	401	173	599	156	0
Grp Sat Flow(s),veh/h/ln	0	1779	968	1856	1767	1610
Q Serve(g_s), s	0.0	4.0	3.8	6.5	3.3	0.0
Cycle Q Clear(g_c), s	0.0	4.0	7.8	6.5	3.3	0.0
Prop In Lane		0.38	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1159	717	1209	210	191
V/C Ratio(X)	0.00	0.35	0.24	0.50	0.74	0.00
Avail Cap(c_a), veh/h	0	1159	717	1209	926	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	3.1	4.8	3.5	16.7	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.8	1.5	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.5	1.1	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	3.9	5.6	5.0	20.6	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	401			772	156	
Approach Delay, s/veh	3.9			5.1	20.6	
Approach LOS	A			A	C	

Timer - Assigned Phs	2		4		6
Phs Duration (G+Y+Rc), s	30.0		9.1		30.0
Change Period (Y+Rc), s	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5		20.5		25.5
Max Q Clear Time (g_c+I1), s	9.8		5.3		6.0
Green Ext Time (p_c), s	6.5		0.3		3.4

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	119	75	137	273	22
Future Vol, veh/h	25	119	75	137	273	22
Conflicting Peds, #/hr	6	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	5	3	0	15
Mvmt Flow	26	123	77	141	281	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	598	297	308	0	-	0
Stage 1	297	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.15	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.245	-	-	-
Pot Cap-1 Maneuver	462	740	1236	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	431	738	1232	-	-	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	744	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	2.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1232	-	657	-	-
HCM Lane V/C Ratio	0.063	-	0.226	-	-
HCM Control Delay (s)	8.1	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	141	267	46	134	266
Future Vol, veh/h	56	141	267	46	134	266
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	4	3	7	11	1
Mvmt Flow	57	144	272	47	137	271

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	843	298	0	0	320	0
Stage 1	297	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.21	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.299	-
Pot Cap-1 Maneuver	331	737	-	-	1191	-
Stage 1	749	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	292	736	-	-	1190	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	2.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	292	736	1190	-
HCM Lane V/C Ratio	-	-	0.196	0.195	0.115	-
HCM Control Delay (s)	-	-	20.3	11.1	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.7	0.4	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	216	277	2	10	277	35	2	2	9	27	2	264
Future Vol, veh/h	216	277	2	10	277	35	2	2	9	27	2	264
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	140	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	3	0	0	2	3	0	0	0	4	0	0
Mvmt Flow	240	308	2	11	308	39	2	2	10	30	2	293

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	347	0	0	310	0	0	1286	1158	309	1145	1140	328
Stage 1	-	-	-	-	-	-	789	789	-	350	350	-
Stage 2	-	-	-	-	-	-	497	369	-	795	790	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1218	-	-	1262	-	-	143	198	736	175	203	718
Stage 1	-	-	-	-	-	-	387	405	-	662	636	-
Stage 2	-	-	-	-	-	-	559	624	-	378	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1218	-	-	1262	-	-	71	158	736	144	162	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	158	-	144	162	-
Stage 1	-	-	-	-	-	-	311	325	-	532	630	-
Stage 2	-	-	-	-	-	-	327	618	-	297	324	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.2	20.6	15.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	245	1218	-	-	1262	-	-	144	700
HCM Lane V/C Ratio	0.059	0.197	-	-	0.009	-	-	0.208	0.422
HCM Control Delay (s)	20.6	8.7	-	-	7.9	-	-	36.5	13.8
HCM Lane LOS	C	A	-	-	A	-	-	E	B
HCM 95th %tile Q(veh)	0.2	0.7	-	-	0	-	-	0.8	2.1

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	17	478	8	19	524
Future Vol, veh/h	7	17	478	8	19	524
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	8	19	531	9	21	582

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1160	536	0	0	540	0
Stage 1	536	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	218	549	-	-	1039	-
Stage 1	591	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	211	549	-	-	1039	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	374	1039	-
HCM Lane V/C Ratio	-	-	0.071	0.02	-
HCM Control Delay (s)	-	-	15.4	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	484	0	28	503
Future Vol, veh/h	0	2	484	0	28	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	0	2	538	0	31	559

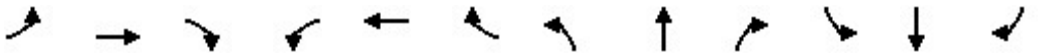
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1159	538	0	0	538	0
Stage 1	538	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	218	547	-	-	1040	-
Stage 1	589	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	547	-	-	1040	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	547	1040	-
HCM Lane V/C Ratio	-	-	0.004	0.03	-
HCM Control Delay (s)	-	-	11.6	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

APPENDIX F: HCM REPORT – EXISTING + STAGE II

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
1	Synchro HCM 6th Signal	I-5 SB Ramp & Boones Ferry	Signal	B	18.4	0.64
2	Synchro HCM 6th Signal	I-5 NB Ramp & Elligsen Rd	Signal	A	8.9	0.44
3	Synchro HCM 6th Signal	Parkway Ave & Elligsen Rd	Signal	C	21.8	0.49
4	Synchro HCM 6th Signal	Parkway Center Dr & Elligse	Signal	B	14.3	0.47
5	Synchro HCM 6th Signal	Canyon Creek Rd & Elligsen	Signal	A	6.6	0.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰	↰	↱
Traffic Volume (veh/h)	0	940	726	0	830	511	0	0	0	347	123	578
Future Volume (veh/h)	0	940	726	0	830	511	0	0	0	347	123	578
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1841	0	1811	1885				1841	1781	1678
Adj Flow Rate, veh/h	0	1133	0	0	1000	0				283	337	333
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %	0	3	4	0	6	1				4	8	15
Cap, veh/h	0	2384		0	2327					417	424	337
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00				0.24	0.24	0.24
Sat Flow, veh/h	0	3618	1560	0	3532	1598				1753	1781	1416
Grp Volume(v), veh/h	0	1133	0	0	1000	0				283	337	333
Grp Sat Flow(s),veh/h/ln	0	1763	1560	0	1721	1598				1753	1781	1416
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				15.4	18.7	24.6
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				15.4	18.7	24.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2384		0	2327					417	424	337
V/C Ratio(X)	0.00	0.48		0.00	0.43					0.68	0.79	0.99
Avail Cap(c_a), veh/h	0	2384		0	2327					417	424	337
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.81	0.00	0.00	0.87	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				36.3	37.6	39.8
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.5	0.0				3.9	9.6	45.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.2	0.0				6.7	8.9	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	0.0	0.5	0.0				40.2	47.2	85.3
LnGrp LOS	A	A		A	A					D	D	F
Approach Vol, veh/h		1133			1000						953	
Approach Delay, s/veh		0.6			0.5						58.4	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		75.0		30.0		75.0						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		70.0		25.0		42.0						
Max Q Clear Time (g_c+I1), s		2.0		26.6		2.0						
Green Ext Time (p_c), s		12.1		0.0		9.4						

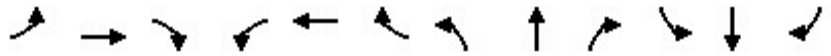
Intersection Summary		
HCM 6th Ctrl Delay		18.4
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

User approved changes to right turn type.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

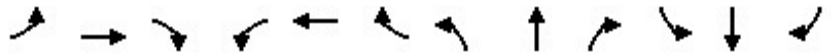


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱	↰↰		↱			
Traffic Volume (veh/h)	0	727	560	0	942	554	399	0	268	0	0	0
Future Volume (veh/h)	0	727	560	0	942	554	399	0	268	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1811	0	1885	1856	1781	0	1856			
Adj Flow Rate, veh/h	0	765	0	0	992	0	420	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	6	0	1	3	8	0	3			
Cap, veh/h	0	2683		0	2704		509	0				
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	0	3647	1535	0	3676	1572	3291	0	1572			
Grp Volume(v), veh/h	0	765	0	0	992	0	420	0	0			
Grp Sat Flow(s),veh/h/ln	0	1777	1535	0	1791	1572	1646	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2683		0	2704		509	0				
V/C Ratio(X)	0.00	0.29		0.00	0.37		0.83	0.00				
Avail Cap(c_a), veh/h	0	2683		0	2704		1113	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.83	0.00	0.00	0.87	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	43.0	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0	5.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	0.3	0.0	45.2	0.0	0.0			
LnGrp LOS	A	A		A	A		D	A				
Approach Vol, veh/h		765			992			420				
Approach Delay, s/veh		0.2			0.3			45.2				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		84.3				84.3		20.7				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		60.0				60.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				2.0		15.0				
Green Ext Time (p_c), s		6.7				9.7		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



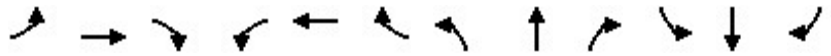
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	465	437	70	795	41	495	14	47	49	21	206
Future Volume (veh/h)	93	465	437	70	795	41	495	14	47	49	21	206
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1900	1900	1841	1870	1900	1678	1900	1900	1826	1900
Adj Flow Rate, veh/h	99	495	304	74	846	40	538	0	7	52	22	12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	0	0	4	2	0	15	0	0	5	0
Cap, veh/h	125	1902	1137	95	2581	122	631	0	279	79	48	26
Arrive On Green	0.02	0.18	0.18	0.10	1.00	1.00	0.17	0.00	0.17	0.04	0.04	0.04
Sat Flow, veh/h	1753	3497	1575	1810	4917	232	3619	0	1602	1810	1102	601
Grp Volume(v), veh/h	99	495	304	74	576	310	538	0	7	52	0	34
Grp Sat Flow(s),veh/h/ln	1753	1749	1575	1810	1675	1799	1810	0	1602	1810	0	1703
Q Serve(g_s), s	5.9	12.8	11.0	4.2	0.0	0.0	15.1	0.0	0.4	3.0	0.0	2.0
Cycle Q Clear(g_c), s	5.9	12.8	11.0	4.2	0.0	0.0	15.1	0.0	0.4	3.0	0.0	2.0
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	125	1902	1137	95	1758	944	631	0	279	79	0	75
V/C Ratio(X)	0.79	0.26	0.27	0.78	0.33	0.33	0.85	0.00	0.03	0.65	0.00	0.46
Avail Cap(c_a), veh/h	175	1902	1137	181	1758	944	1034	0	458	259	0	243
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.5	24.9	10.3	46.4	0.0	0.0	42.0	0.0	35.9	49.4	0.0	49.0
Incr Delay (d2), s/veh	9.3	0.3	0.5	4.7	0.4	0.8	1.9	0.0	0.0	3.4	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.0	7.6	1.9	0.1	0.2	6.9	0.0	0.2	1.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	25.2	10.8	51.1	0.4	0.8	43.9	0.0	36.0	52.8	0.0	50.6
LnGrp LOS	E	C	B	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		898			960			545			86	
Approach Delay, s/veh		24.2			4.5			43.8			51.9	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	62.1		9.6	12.0	60.1		23.3
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	10.5	30.0		15.0	10.5	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.2	14.8		5.0	7.9	2.0		17.1
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	2.3		0.7

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	319	188	91	570	3	326	8	45	0	5	10
Future Volume (veh/h)	17	319	188	91	570	3	326	8	45	0	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1767	1900	1841	1900	1870	1722	1900	1900	1900	1604
Adj Flow Rate, veh/h	20	384	151	110	687	4	393	10	0	0	6	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	6	1	9	0	4	0	2	12	0	0	0	20
Cap, veh/h	536	1124	1108	744	2297	13	502	250	0	0	45	0
Arrive On Green	0.07	1.00	1.00	0.08	0.64	0.64	0.15	0.15	0.00	0.00	0.02	0.00
Sat Flow, veh/h	1725	1885	1494	1810	3565	21	3456	1722	0	0	1900	0
Grp Volume(v), veh/h	20	384	151	110	337	354	393	10	0	0	6	0
Grp Sat Flow(s),veh/h/ln	1725	1885	1494	1810	1749	1837	1728	1722	0	0	1900	0
Q Serve(g_s), s	0.4	0.0	0.0	2.1	8.9	8.9	11.5	0.5	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	2.1	8.9	8.9	11.5	0.5	0.0	0.0	0.3	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	536	1124	1108	744	1127	1183	502	250	0	0	45	0
V/C Ratio(X)	0.04	0.34	0.14	0.15	0.30	0.30	0.78	0.04	0.00	0.00	0.13	0.00
Avail Cap(c_a), veh/h	640	1124	1108	767	1127	1183	1185	590	0	0	235	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.87	0.87	0.87	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	5.1	8.2	8.2	43.3	38.6	0.0	0.0	50.2	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.2	0.0	0.6	0.6	1.0	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.1	0.7	3.2	3.4	4.9	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	0.8	0.2	5.1	8.8	8.8	44.3	38.6	0.0	0.0	50.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	D	A	A	D	A
Approach Vol, veh/h		555			801			403			6	
Approach Delay, s/veh		0.9			8.3			44.2			50.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	66.6		6.5	7.7	71.6		19.2
Change Period (Y+Rc), s	5.0	5.0		5.5	5.0	5.0		5.0
Max Green Setting (Gmax), s	9.0	29.0		11.5	9.0	29.0		35.0
Max Q Clear Time (g_c+I1), s	4.1	2.0		2.3	2.4	10.9		13.5
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	0.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	217	160	141	498	128	43
Future Volume (veh/h)	217	160	141	498	128	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1856	1856	1900
Adj Flow Rate, veh/h	265	155	172	607	156	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	4	3	3	0
Cap, veh/h	732	428	702	1209	210	191
Arrive On Green	0.65	0.65	0.65	0.65	0.12	0.00
Sat Flow, veh/h	1124	658	951	1856	1767	1610
Grp Volume(v), veh/h	0	420	172	607	156	0
Grp Sat Flow(s),veh/h/ln	0	1782	951	1856	1767	1610
Q Serve(g_s), s	0.0	4.2	3.9	6.6	3.3	0.0
Cycle Q Clear(g_c), s	0.0	4.2	8.1	6.6	3.3	0.0
Prop In Lane		0.37	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1161	702	1209	210	191
V/C Ratio(X)	0.00	0.36	0.25	0.50	0.74	0.00
Avail Cap(c_a), veh/h	0	1161	702	1209	926	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	3.1	5.0	3.5	16.7	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.8	1.5	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.5	1.1	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.0	5.8	5.0	20.6	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	420			779	156	
Approach Delay, s/veh	4.0			5.2	20.6	
Approach LOS	A			A	C	

Timer - Assigned Phs	2		4		6
Phs Duration (G+Y+Rc), s	30.0		9.1		30.0
Change Period (Y+Rc), s	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5		20.5		25.5
Max Q Clear Time (g_c+I1), s	10.1		5.3		6.2
Green Ext Time (p_c), s	6.5		0.3		3.6

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	121	76	141	274	20
Future Vol, veh/h	23	121	76	141	274	20
Conflicting Peds, #/hr	6	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	5	3	0	15
Mvmt Flow	24	125	78	145	282	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	604	297	307	0	-	0
Stage 1	297	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.15	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.245	-	-	-
Pot Cap-1 Maneuver	458	740	1237	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	426	738	1233	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	740	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	2.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1233	-	661	-	-
HCM Lane V/C Ratio	0.064	-	0.225	-	-
HCM Control Delay (s)	8.1	-	12	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	142	241	44	136	211
Future Vol, veh/h	54	142	241	44	136	211
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	4	3	7	11	1
Mvmt Flow	55	145	246	45	139	215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	764	271	0	0	292	0
Stage 1	270	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.21	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.299	-
Pot Cap-1 Maneuver	369	763	-	-	1220	-
Stage 1	771	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	762	-	-	1219	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	326	762	1219	-
HCM Lane V/C Ratio	-	-	0.169	0.19	0.114	-
HCM Control Delay (s)	-	-	18.3	10.8	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.7	0.4	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	216	258	230	35	27	264
Future Vol, veh/h	216	258	230	35	27	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	140	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	3	2	3	4	0
Mvmt Flow	240	287	256	39	30	293

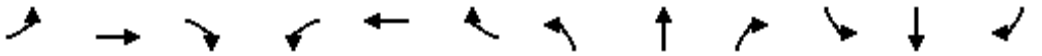
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	295	0	-	0	1043	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	767	-
Critical Hdwy	4.11	-	-	-	6.44	6.2
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.209	-	-	-	3.536	3.3
Pot Cap-1 Maneuver	1272	-	-	-	252	768
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	455	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1272	-	-	-	204	768
Mov Cap-2 Maneuver	-	-	-	-	204	-
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	455	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1272	-	-	-	204	768
HCM Lane V/C Ratio	0.189	-	-	-	0.147	0.382
HCM Control Delay (s)	8.5	-	-	-	25.7	12.6
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.7	-	-	-	0.5	1.8

APPENDIX G: HCM REPORT – EXISTING + PROJECT + STAGE II

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
1	Synchro HCM 6th Signal	I-5 SB Ramp & Boones Ferry	Signal	C	21.2	0.65
2	Synchro HCM 6th Signal	I-5 NB Ramp & Elligsen Rd	Signal	A	8.8	0.44
3	Synchro HCM 6th Signal	Parkway Ave & Elligsen Rd	Signal	C	21.8	0.5
4	Synchro HCM 6th Signal	Parkway Center Dr & Elligse	Signal	B	14.5	0.49
5	Synchro HCM 6th Signal	Canyon Creek Rd & Elligsen	Signal	A	6.6	0.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑	↱				↰	↰	↱
Traffic Volume (veh/h)	0	946	726	0	836	516	0	0	0	379	123	578
Future Volume (veh/h)	0	946	726	0	836	516	0	0	0	379	123	578
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1841	0	1811	1885				1841	1781	1678
Adj Flow Rate, veh/h	0	1140	0	0	1007	0				302	364	347
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %	0	3	4	0	6	1				4	8	15
Cap, veh/h	0	2384		0	2327					417	424	337
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00				0.24	0.24	0.24
Sat Flow, veh/h	0	3618	1560	0	3532	1598				1753	1781	1416
Grp Volume(v), veh/h	0	1140	0	0	1007	0				302	364	347
Grp Sat Flow(s),veh/h/ln	0	1763	1560	0	1721	1598				1753	1781	1416
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				16.6	20.5	25.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				16.6	20.5	25.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2384		0	2327					417	424	337
V/C Ratio(X)	0.00	0.48		0.00	0.43					0.72	0.86	1.03
Avail Cap(c_a), veh/h	0	2384		0	2327					417	424	337
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.81	0.00	0.00	0.87	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				36.8	38.3	40.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.5	0.0				5.6	15.6	56.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.2	0.0				7.5	10.4	22.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	0.0	0.5	0.0				42.4	53.9	96.6
LnGrp LOS	A	A		A	A					D	D	F
Approach Vol, veh/h		1140			1007						1013	
Approach Delay, s/veh		0.6			0.5						65.1	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		75.0		30.0		75.0						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		70.0		25.0		42.0						
Max Q Clear Time (g_c+I1), s		2.0		27.0		2.0						
Green Ext Time (p_c), s		12.3		0.0		9.5						

Intersection Summary		
HCM 6th Ctrl Delay		21.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

User approved changes to right turn type.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	765	560	0	953	566	399	0	280	0	0	0
Future Volume (veh/h)	0	765	560	0	953	566	399	0	280	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1811	0	1885	1856	1781	0	1856			
Adj Flow Rate, veh/h	0	805	0	0	1003	0	420	0	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	6	0	1	3	8	0	3			
Cap, veh/h	0	2683		0	2704		509	0				
Arrive On Green	0.00	1.00	0.00	0.00	1.00	0.00	0.15	0.00	0.00			
Sat Flow, veh/h	0	3647	1535	0	3676	1572	3291	0	1572			
Grp Volume(v), veh/h	0	805	0	0	1003	0	420	0	0			
Grp Sat Flow(s),veh/h/ln	0	1777	1535	0	1791	1572	1646	0	1572			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2683		0	2704		509	0				
V/C Ratio(X)	0.00	0.30		0.00	0.37		0.83	0.00				
Avail Cap(c_a), veh/h	0	2683		0	2704		1113	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.82	0.00	0.00	0.87	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	43.0	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0	5.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	0.3	0.0	45.2	0.0	0.0			
LnGrp LOS	A	A		A	A		D	A				
Approach Vol, veh/h		805			1003			420				
Approach Delay, s/veh		0.2			0.3			45.2				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		84.3				84.3		20.7				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		60.0				60.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0				2.0		15.0				
Green Ext Time (p_c), s		7.2				9.9		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	516	437	70	818	41	495	14	47	49	21	206
Future Volume (veh/h)	93	516	437	70	818	41	495	14	47	49	21	206
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1900	1900	1841	1870	1900	1678	1900	1900	1826	1900
Adj Flow Rate, veh/h	99	549	306	74	870	40	538	0	7	52	22	13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	0	0	4	2	0	15	0	0	5	0
Cap, veh/h	125	1902	1137	95	2584	119	631	0	279	80	47	28
Arrive On Green	0.02	0.18	0.18	0.10	1.00	1.00	0.17	0.00	0.17	0.04	0.04	0.04
Sat Flow, veh/h	1753	3497	1575	1810	4924	226	3619	0	1602	1810	1067	630
Grp Volume(v), veh/h	99	549	306	74	591	319	538	0	7	52	0	35
Grp Sat Flow(s),veh/h/ln	1753	1749	1575	1810	1675	1800	1810	0	1602	1810	0	1697
Q Serve(g_s), s	5.9	14.3	11.0	4.2	0.0	0.0	15.1	0.0	0.4	3.0	0.0	2.1
Cycle Q Clear(g_c), s	5.9	14.3	11.0	4.2	0.0	0.0	15.1	0.0	0.4	3.0	0.0	2.1
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	125	1902	1137	95	1758	944	631	0	279	80	0	75
V/C Ratio(X)	0.79	0.29	0.27	0.78	0.34	0.34	0.85	0.00	0.03	0.65	0.00	0.47
Avail Cap(c_a), veh/h	175	1902	1137	181	1758	944	1034	0	458	259	0	242
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.5	25.5	10.3	46.4	0.0	0.0	42.0	0.0	35.9	49.4	0.0	49.0
Incr Delay (d2), s/veh	9.1	0.3	0.5	4.6	0.5	0.9	1.9	0.0	0.0	3.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.7	7.7	1.9	0.1	0.2	6.9	0.0	0.2	1.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	25.9	10.8	51.0	0.5	0.9	43.9	0.0	36.0	52.7	0.0	50.7
LnGrp LOS	E	C	B	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		954			984			545			87	
Approach Delay, s/veh		24.5			4.4			43.8			51.9	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	62.1		9.6	12.0	60.1		23.3
Change Period (Y+Rc), s	4.5	5.0		5.0	4.5	5.0		5.0
Max Green Setting (Gmax), s	10.5	30.0		15.0	10.5	30.0		30.0
Max Q Clear Time (g_c+I1), s	6.2	16.3		5.0	7.9	2.0		17.1
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	2.3		0.7

Intersection Summary		
HCM 6th Ctrl Delay		21.8
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	319	239	95	570	3	349	8	48	0	5	10
Future Volume (veh/h)	17	319	239	95	570	3	349	8	48	0	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1885	1767	1900	1841	1900	1870	1722	1900	1900	1900	1604
Adj Flow Rate, veh/h	20	384	193	114	687	4	420	10	0	0	6	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	6	1	9	0	4	0	2	12	0	0	0	20
Cap, veh/h	529	1110	1108	718	2270	13	527	263	0	0	45	0
Arrive On Green	0.07	1.00	1.00	0.08	0.64	0.64	0.15	0.15	0.00	0.00	0.02	0.00
Sat Flow, veh/h	1725	1885	1494	1810	3565	21	3456	1722	0	0	1900	0
Grp Volume(v), veh/h	20	384	193	114	337	354	420	10	0	0	6	0
Grp Sat Flow(s),veh/h/ln	1725	1885	1494	1810	1749	1837	1728	1722	0	0	1900	0
Q Serve(g_s), s	0.5	0.0	0.0	2.2	9.1	9.1	12.3	0.5	0.0	0.0	0.3	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	2.2	9.1	9.1	12.3	0.5	0.0	0.0	0.3	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.00	0.00		0.00
Lane Grp Cap(c), veh/h	529	1110	1108	718	1114	1170	527	263	0	0	45	0
V/C Ratio(X)	0.04	0.35	0.17	0.16	0.30	0.30	0.80	0.04	0.00	0.00	0.13	0.00
Avail Cap(c_a), veh/h	633	1110	1108	741	1114	1170	1185	590	0	0	235	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	0.87	0.87	0.87	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	7.3	0.0	0.0	5.4	8.6	8.6	42.9	37.9	0.0	0.0	50.2	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.3	0.0	0.6	0.6	1.1	0.0	0.0	0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.1	0.7	3.3	3.5	5.2	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.8	0.3	5.4	9.2	9.2	44.0	37.9	0.0	0.0	50.7	0.0
LnGrp LOS	A	A	A	A	A	A	D	D	A	A	D	A
Approach Vol, veh/h		597			805			430			6	
Approach Delay, s/veh		0.9			8.6			43.8			50.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.7	65.8		6.5	7.7	70.9		20.0
Change Period (Y+Rc), s	5.0	5.0		5.5	5.0	5.0		5.0
Max Green Setting (Gmax), s	9.0	29.0		11.5	9.0	29.0		35.0
Max Q Clear Time (g_c+I1), s	4.2	2.0		2.3	2.5	11.1		14.3
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	0.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	220	160	143	502	128	45
Future Volume (veh/h)	220	160	143	502	128	45
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1856	1856	1900
Adj Flow Rate, veh/h	268	155	174	612	156	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	0	0	4	3	3	0
Cap, veh/h	736	426	699	1209	210	191
Arrive On Green	0.65	0.65	0.65	0.65	0.12	0.00
Sat Flow, veh/h	1129	653	949	1856	1767	1610
Grp Volume(v), veh/h	0	423	174	612	156	0
Grp Sat Flow(s),veh/h/ln	0	1782	949	1856	1767	1610
Q Serve(g_s), s	0.0	4.2	4.0	6.7	3.3	0.0
Cycle Q Clear(g_c), s	0.0	4.2	8.3	6.7	3.3	0.0
Prop In Lane		0.37	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1161	699	1209	210	191
V/C Ratio(X)	0.00	0.36	0.25	0.51	0.74	0.00
Avail Cap(c_a), veh/h	0	1161	699	1209	926	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	3.1	5.0	3.5	16.7	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	1.5	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.6	1.1	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.0	5.9	5.1	20.6	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	423			786	156	
Approach Delay, s/veh	4.0			5.2	20.6	
Approach LOS	A			A	C	

Timer - Assigned Phs	2		4		6
Phs Duration (G+Y+Rc), s	30.0		9.1		30.0
Change Period (Y+Rc), s	4.5		4.5		4.5
Max Green Setting (Gmax), s	25.5		20.5		25.5
Max Q Clear Time (g_c+I1), s	10.3		5.3		6.2
Green Ext Time (p_c), s	6.6		0.3		3.6

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	121	76	141	274	22
Future Vol, veh/h	25	121	76	141	274	22
Conflicting Peds, #/hr	6	0	4	0	0	4
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	5	3	0	15
Mvmt Flow	26	125	78	145	282	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	605	298	309	0	-	0
Stage 1	298	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.15	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.245	-	-	-
Pot Cap-1 Maneuver	458	739	1235	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	426	737	1231	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	740	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	2.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1231	-	655	-	-
HCM Lane V/C Ratio	0.064	-	0.23	-	-
HCM Control Delay (s)	8.1	-	12.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	142	267	46	136	266
Future Vol, veh/h	56	142	267	46	136	266
Conflicting Peds, #/hr	1	1	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	4	3	7	11	1
Mvmt Flow	57	145	272	47	139	271

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	298	0	0	320	0
Stage 1	297	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.21	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.299	-
Pot Cap-1 Maneuver	330	737	-	-	1191	-
Stage 1	749	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	291	736	-	-	1190	-
Mov Cap-2 Maneuver	291	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	506	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	2.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	291	736	1190	-
HCM Lane V/C Ratio	-	-	0.196	0.197	0.117	-
HCM Control Delay (s)	-	-	20.4	11.1	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.7	0.4	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	216	277	2	10	277	35	2	2	9	27	2	264
Future Vol, veh/h	216	277	2	10	277	35	2	2	9	27	2	264
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	140	-	-	150	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	3	0	0	2	3	0	0	0	4	0	0
Mvmt Flow	260	334	2	12	334	42	2	2	11	33	2	318

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	376	0	0	336	0	0	1394	1255	335	1241	1235	355
Stage 1	-	-	-	-	-	-	855	855	-	379	379	-
Stage 2	-	-	-	-	-	-	539	400	-	862	856	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.3
Pot Cap-1 Maneuver	1188	-	-	1235	-	-	120	173	712	150	178	693
Stage 1	-	-	-	-	-	-	356	378	-	639	618	-
Stage 2	-	-	-	-	-	-	530	605	-	347	377	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1188	-	-	1235	-	-	53	134	712	120	138	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	134	-	120	138	-
Stage 1	-	-	-	-	-	-	278	295	-	499	612	-
Stage 2	-	-	-	-	-	-	283	599	-	265	294	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	0.2	24.6	17.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	199	1188	-	-	1235	-	-	120	673
HCM Lane V/C Ratio	0.079	0.219	-	-	0.01	-	-	0.271	0.476
HCM Control Delay (s)	24.6	8.9	-	-	7.9	-	-	45.8	15.1
HCM Lane LOS	C	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.3	0.8	-	-	0	-	-	1	2.6

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	17	478	8	19	524
Future Vol, veh/h	7	17	478	8	19	524
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	8	19	531	9	21	582

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1160	536	0	0	540	0
Stage 1	536	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	218	549	-	-	1039	-
Stage 1	591	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	211	549	-	-	1039	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	374	1039	-
HCM Lane V/C Ratio	-	-	0.071	0.02	-
HCM Control Delay (s)	-	-	15.4	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	2	484	0	28	503
Future Vol, veh/h	0	2	484	0	28	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	0	2	538	0	31	559

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1159	538	0	0	538	0
Stage 1	538	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	218	547	-	-	1040	-
Stage 1	589	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	547	-	-	1040	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	547	1040	-
HCM Lane V/C Ratio	-	-	0.004	0.03	-
HCM Control Delay (s)	-	-	11.6	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	-

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

TREE PROTECTION PLAN

for

SYSCO WILSONVILLE

site address

26120 SW PARKWAY AVE,
WILSONVILLE, OR 97070

Submitted by

Peter van Oss PN-8145A

Date Friday, April 28, 2023

Teragan and Associates, Inc.
Arboricultural Consultants
3145 Westview Circle, Lake Oswego, OR 97034
503-697-1975 | info@teragan.com

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Summary

Teragan and Associates has been contracted with Sysco Wilsonville to provide arboricultural consulting services. This report is the tree plan for the construction phase of the proposed project. The tree plan meets the recommendations and requirements of the City of Wilsonville Code.

Background

The plans propose the construction of new commercial buildings including site improvements in the form of ROW improvements, utility upgrades, and landscaping. The site improvements are proposed to allow for the expansion of the existing warehouse to the west. The property to the west is currently vacant land that has a treed area near Parkway Center drive where the old farmhouse used to be and a trees man-made culvert on the eastside. This tree plan addresses the proposed removals needed to allow for the expansion and the protection of the trees during the development project.

Tree Inventory

I completed the inventory during the site visit on March 17th, 2023, for the trees on the property. The tree diameters were recorded using a diameter tape. The health and conditions of the trees are determined by the plant species profiles compared to the current condition the trees present. Attributes that can negatively impact the ratings are growing conditions, bark inclusions, broken branches, poor vigor…etc. All trees are tagged with aluminum tags that have the corresponding numbers scribed on them except for trees that were not accessible due to accessibility restrictions.

Purpose and Use of the Report

The purpose of this report is to establish tree protection measures that will need to be adhered to during the construction project to ensure a positive outcome of the retention efforts. This report may be used by the owner to establish communications between the City of Wilsonville – Planning Department, contractors, and sub-contractors regarding the tree protection efforts of the project.

Observations

There are two areas where trees will be impacted by the proposed development. There is one area of trees where the old farmhouse used to be located that consists of Oregon-white-oak (*Quercus garryana)* and coniferous trees. The trees in this area are mostly proposed to be retained except for some of the coniferous trees.

The second location is the man-made swale on the east side of the property. The plans propose to enclose the swale to allow for a continuous expansion of the existing warehouse. The trees in this area are mostly planted landscape trees except for five black-cottonwood trees (*Populus trichocarpa).*

Proposed Removals

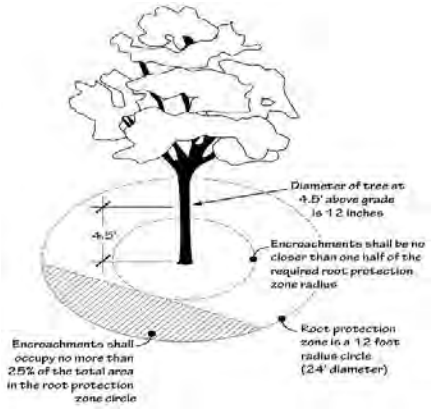
The trees are in the direct footprint of the development or are proposed for removal due to their conditions (Tree #1). The attached information in Appendix D – Inventory shows the details of the individual trees. In total 73 trees are proposed for removal to allow for the expansion of the Sysco site.

Tree Protection During Construction

Trees with low canopies should be pruned prior to the start of the project to ensure that there is enough clearance for the equipment being used. Care must be taken to prevent damages to any of the tree parts including the roots, tree trunk, scaffold, and secondary branches (canopy of the tree).

Trees that are retained should be protected at the recommended distance of 6 inches per diameter inch of the trees. This means that the soil disturbance should be 6 inches per diameter inch away from the tree in circumference of the tree. The site plan attached in Appendix C, shows the tree protection to be placed at the 12X diameter distance of the retained trees. Any work within the tree protection zone must be supervised by the project arborist.

The project arborist shall be notified if ground disturbance takes place near 12X (Blue Circles), a distance measured at a rate of twelve inches per diameter inch of the tree, measured from the face of the trunk.



The attached plan shows a proposed parking lot south of tree #11. To allow for additional trees to be retained, the parking lot is redesigned to be located on the NW side of the stand of oak trees. This will allow for 9 additional trees to be preserved.

The entire stand of oak trees will be protected by tree protection fencing to ensure that there is no impact to the root systems of the trees.

Additional Tree Protection Mitigation in Appendix E

Conclusion

It is my professional opinion that the tree protection measures set forth in this tree plan will suffice in the protection of the trees during construction. It is important to adhere to the standards in this report to ensure that the retention goals are successful.

Please feel free to contact me with any questions or concerns.

Sincerely,

Peter van Oss

Peter van Oss | Senior Associate
ISA Certified Arborist PN-8145A
Tree Risk Assessment Qualified
ASCA Member

Enclosures:

Appendix A: Certification of Performance

Appendix B: Assumptions and Limiting Conditions

Appendix C: Site Plan Fencing Placement and Proposed Removals

Appendix D: Inventory

Appendix E: Tree Protection Standards

Appendix A: Certification of Performance

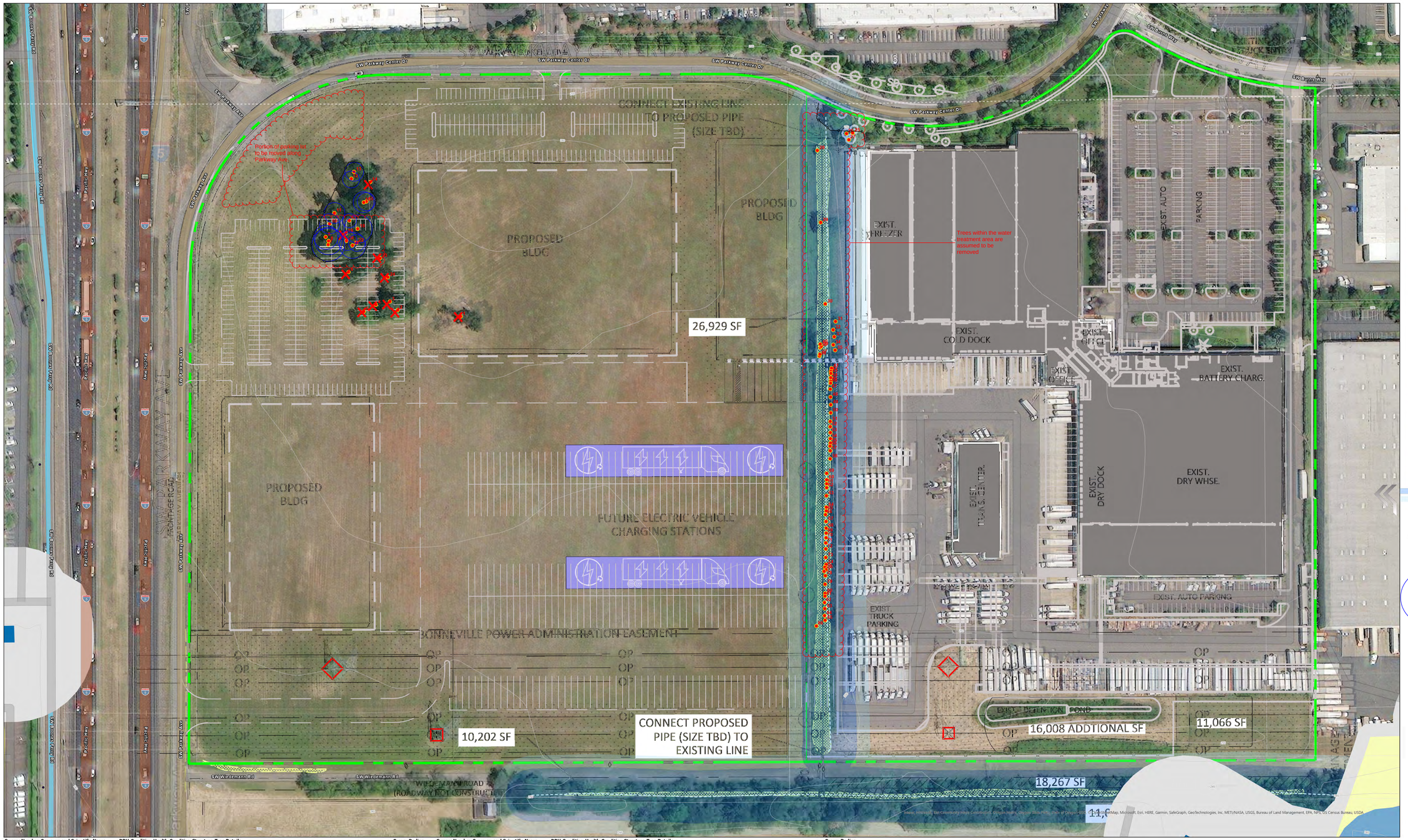
I, Peter van Oss, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of the Assignment.
- I have no current or prospective interest in the vegetation or the property that is subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions and conclusions stated herein are my own and are based on current professional procedures and facts.
- My analysis, opinions and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated in the report.
- My compensation is not contingent upon reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member of, and certified as an arborist by the ISA. I have been involved in the arboricultural field in a full- time capacity for a period of 17 years.

Appendix B: Assumptions and Limiting Conditions

1. A field examination of the site was made. My observations and conclusions are as of that date.
2. Care has been taken to obtain all information from a reliable source, however the arborist can neither guarantee nor be responsible for accuracy of information provided by others.
3. Unless stated otherwise, information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection. The inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee that problems or deficiencies of the subject tree may not arise in the future.
4. This report and any values/opinions expressed herein represents my opinion as an arborist. Inaction on the part of those receiving the report is not the responsibility of the arborist.
5. Loss or alteration of this report invalidates the entire report.
6. Any legal description provided to the consultant/ appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
7. The consultant/ appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment for such services.
8. Possession of this report does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written consent of the consultant/ appraiser.



TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

- Survey Point
- Study Area Tax Lots
- Vicinity Tax Lots
- Contours - SR

Riparian and Upland Areas
- Class A
- Class B
- Class C
- Class I
- Class II
- Class III
- Areas Where nearby Activies have an Impact on Resources
- PGE Transmission Poles
- PGE Transmission Lines
- Water Abandoned Lines OMS
- Sanitary Fittings OMS

Streams
- INTERMITTENT
- PERENNIAL
- <all other values>

Boeckman Rd Floodplain LOMR
- ZONE A
- ZONE AE
- SROZ
- SROZ Impact Area
- Greenway
- Upland
- Non-significant Wetlands

Significant Wetlands
- Significant Wetland
- <all other values>

c2023-03-17-Draft-_PDFToTIFF.tif
RGB
- Red: Band_1
- Green: Band_2
- Blue: Band_3

- SROZ
- SROZ Impact Area

Tree Protection Fencing
Construction fencing secured with metal posts at each panel

Tree Protection Zones at 12X the diameter of the tree

X Proposed Removals

Survey Number	Common and Scientific Name	DBH	Condition Health	Condition Structure	Tree Details	Crown Radius
1	Oregon-white-oak (Quercus garryana)	55	Poor	Failed/Failing	80% of the canopy failed. only the lower scaffold limbs remain	30
2	ponderosa-pine (Pinus ponderosa)	38	Fair	Poor	large scaffold previously failed.	20
3	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Fair	top failed. twig die back	15
4	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair		15
5	English-walnut (Juglans regia)	24	Poor	Failed/Failing	large die back	15
6	Douglas-fir (Pseudotsuga menziesii)	32	Fair	Fair	sap ooze	15
7	Oregon-white-oak (Quercus garryana)	49	Fair	Fair	Codominate leaders at base 42,26', cracking at union, pruned for utility clearance	25
8	Oregon-white-oak (Quercus garryana)	41	Poor	Fair	Swelling of lower trunk, canopy leaning to south, suggesting root issues	20
9	Douglas-fir (Pseudotsuga menziesii)	36	Good	Poor	Trunk leaning to west, reiterating main stem with crooks in trunk	20
10	Oregon-white-oak (Quercus garryana)	30	Good	Fair	Canopy leaning to south, growing amongst stand	20
11	Oregon-white-oak (Quercus garryana)	31	Good	Good	Full canopy, many wasp galls present	20
12	Oregon-white-oak (Quercus garryana)	28	Fair	Fair	Canopy leaning to south, many wasp galls n canopy	15
13	Oregon-white-oak (Quercus garryana)	28	Good	Fair	One sided, leaning canopy to north and west	15
14	Oregon-white-oak (Quercus garryana)	36	Poor	Fair	Large wounds from previous crown failures, unbalanced canopy	25
15	Oregon-white-oak (Quercus garryana)	27	Fair	Fair	Vascular damage on south side, canopy has heavy lean to east	25
16	Oregon-white-oak (Quercus garryana)	31	Fair	Poor	Large deadwood and large wounds from previous crown failures	20
17	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Fair	Evidence of previous crown failures, live top remains	15
18	Oregon-white-oak (Quercus garryana)	42	Fair	Fair	Codominate leaders at approx 30', dominant canopy to east	20
19	Douglas-fir (Pseudotsuga menziesii)	16	Dead/Dying	Poor	Dead top, many crown failures	5
20	Oregon-white-oak (Quercus garryana)	29	Fair	Fair	Leaning, one sided canopy to south, large deadwood present	25
21	Oregon-white-oak (Quercus garryana)	39	Fair	Poor	Large hanging branches present, canopy growing to south	25
22	Oregon-white-oak (Quercus garryana)	25	Fair	Fair	Suppressed vertical growth, canopy leaning to east	20
23	Oregon-white-oak (Quercus garryana)	30	Fair	Fair	Evidence of previous crown failures, extended lateral growth	20
24	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	Thinning of foliage, needle loss in canopy	20
25	sweetgum (Liquidambar styraciflua)	13	Poor	Poor	Excessive woodpecker damage at approx 15', associated suckering present	15
26	sweetgum (Liquidambar styraciflua)	15	Poor	Poor	Excessive woodpecker damage at approx 15', associated suckering present	12
27	sweetgum (Liquidambar styraciflua)	16	Fair	Poor	Girdling roots at base, Codominate leaders, broken tops from storm damage	15
28	weeping-willow (Salix babylonica)	10	Good	Fair	Many stems growing from base, stump was under water during inventory	10
29	black cottonwood (Populus trichocarpa)	27	Good	Fair	3 stems at base, growing from creek bank	20
30	red alder (Alnus rubra)	6	Good	Good	Some suckering at base, full canopy, growing in creek bank	10
31	red oak (Quercus rubra)	17	Fair	Fair	Canopy leaning to west, main leader possibly topped in past	20
32	deodora-cedar (Cedrus deodara)	17	Good	Fair	Suppressed lateral growth, growing in row along parking lot	15
33	deodora-cedar (Cedrus deodara)	17	Good	Fair	Suppressed lateral growth, growing in row along parking lot	15
34	deodora-cedar (Cedrus deodara)	9	Poor	Fair	Suppressed canopy, growing in row	10
35	black pine (Pinus nigra)	23	Fair	Fair	Codominate leaders with included bark at approx 8'	15
36	black cottonwood (Populus trichocarpa)	6	Fair	Fair	Two stems at base, growing from creek bed, tree not tagged and DBH is approximate	5
37	black cottonwood (Populus trichocarpa)	8	Fair	Fair	growing from creek bed, tree not tagged and DBH is approximate	10
38	black cottonwood (Populus trichocarpa)	8	Fair	Fair	Growing from creek bank, canopy leaning to east	10
39	black cottonwood (Populus trichocarpa)	25	Fair	Fair	Growing from creek bank, canopy leaning to east, tree not tagged and DBH is approximate	15
40	black cottonwood (Populus trichocarpa)	12	Fair	Fair	Leaning to north, tree not tagged and DBH is approximate	10
41	black pine (Pinus nigra)	16	Good	Fair	Codominate leaders, tree growing in row along parking lot	15
42	black pine (Pinus nigra)	10	Good	Fair	Growing in row along parking lot, tree not tagged	10
43	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
44	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
45	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
46	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
47	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
48	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
49	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
50	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
51	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
52	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
53	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
54	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
55	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
56	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
57	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
58	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
59	black cottonwood (Populus trichocarpa)	15	Good	Fair	Clump of stems at base, growing from creek bank, tree not tagged	10
60	black cottonwood (Populus trichocarpa)	10	Good	Fair	Clump of stems at base, growing from creek bank, tree not tagged	10
61	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
62	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
63	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
64	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
65	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
66	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
67	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
68	black pine (Pinus nigra)	12	Good	Fair	Two stems at base, Growing in row along parking lot, tree not tagged	10
69	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
70	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
71	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
72	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
73	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
74	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
75	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
76	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
77	black pine (Pinus nigra)	10	Good	Fair	Growing in row along parking lot, tree not tagged	10
78	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
79	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
80	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
81	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
82	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
83	black pine (Pinus nigra)	16	Good	Fair	Growing in row along parking lot, tree not tagged	10
84	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
85	black pine (Pinus nigra)	16	Good	Fair	Growing at end of row along parking lot	15
86	weeping-willow (Salix babylonica)	10	Good	Fair	Growing from creek bank, multi stem near base	5

Reference map for collaboration
NOT FOR CONSTRUCTION

100 50 0 100 200 300 400 Feet

N

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
1	Oregon-white-oak (Quercus garryana)	55	Poor	Failed/Failing	30	Moderate	80% of the canopy failed. only the lower scaffold limbs remain		X
2	ponderosa-pine (Pinus ponderosa)	38	Fair	Poor	20	Good	large scaffold previously failed.		X
3	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Fair	15	Good	top failed. twig die back		X
4	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair	15	Good			X
5	English-walnut (Juglans regia)	24	Poor	Failed/Failing	15	Good	large die back		X
6	Douglas-fir (Pseudotsuga menziesii)	32	Fair	Fair	15	Good	sap ooze		X
7	Oregon-white-oak (Quercus garryana)	49	Fair	Fair	25	Poor	Codominate leaders at base 42,26", cracking at union, pruned for utility clearance	X	
8	Oregon-white-oak (Quercus garry	41	Poor	Fair	20	Poor	Swelling of lower trunk, canopy leaning to south, suggesting root issues	X	
9	Douglas-fir (Pseudotsuga menziesii)	36	Good	Poor	20	Moderate	Trunk leaning to west, reiterating main stem with crooks in trunk	X	
10	Oregon-white-oak (Quercus garry	30	Good	Fair	20	Poor	Canopy leaning to south, growing amongst stand	X	
11	Oregon-white-oak (Quercus garryana)	31	Good	Good	20	Poor	Full canopy, many wasp galls present	X	
12	Oregon-white-oak (Quercus garryana)	28	Fair	Fair	15	Poor	Canopy leaning to south, many wasp galls n canopy	X	
13	Oregon-white-oak (Quercus garryana)	28	Good	Fair	15	Poor	One sided, leaning canopy to north and west	X	
14	Oregon-white-oak (Quercus garryana)	36	Poor	Poor	25	Poor	Large wounds from previous crown failures, unbalanced canopy		X
15	Oregon-white-oak (Quercus garryana)	27	Fair	Fair	25	Poor	Vascular damage on south side, canopy has heavy lean to east	X	
16	Oregon-white-oak (Quercus garryana)	31	Fair	Poor	20	Poor	Large deadwood and large wounds from previous crown failures	X	
17	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Fair	15	Moderate	Evidence of previous crown failures, live top remains	X	
18	Oregon-white-oak (Quercus garryana)	42	Fair	Fair	20	Poor	Codominate leaders at approx 30', dominant canopy to east	X	
19	Douglas-fir (Pseudotsuga menziesii)	16	Dead/Dying	Poor	5	Poor	Dead top, many crown failures		X
20	Oregon-white-oak (Quercus garryana)	29	Fair	Fair	25	Poor	Leaning, one sided canopy to south, large deadwood present	X	
21	Oregon-white-oak (Quercus garryana)	39	Fair	Poor	25	Poor	Large hanging branches present, canopy growing to south	X	

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
22	Oregon-white-oak (Quercus garryana)	25	Fair	Fair	20	Poor	Suppressed vertical growth, canopy leaning to east		X
23	Oregon-white-oak (Quercus garryana)	30	Fair	Fair	20	Moderate	Evidence of previous crown failures, extended lateral growth		X
24	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	20	Moderate	Thinning of foliage, needle loss in canopy		X
25	sweetgum (Liquidambar styraciflua)	13	Poor	Poor	15	Moderate	Excessive woodpecker damage at approx 15', associated suckering present		X
26	sweetgum (Liquidambar styraciflua)	15	Poor	Poor	12	Moderate	Excessive woodpecker damage at approx 15', associated suckering present		X
27	sweetgum (Liquidambar styraciflua)	16	Fair	Poor	15	Moderate	Girdling roots at base, Codominate leaders, broken tops from storm damage		X
28	weeping-willow (Salix babylonica)	10	Good	Fair	10	Moderate	Many stems growing from base, stump was under water during inventory		X
29	black cottonwood (Populus trichocarpa)	27	Good	Fair	20	Moderate	3 stems at base, growing from creek bank		X
30	red alder (Alnus rubra)	6	Good	Good	10	Poor	Some suckering at base, full canopy, growing in creek bank		X
31	red oak (Quercus rubra)	17	Fair	Fair	20	Moderate	Canopy leaning to west, main leader possibly topped in past		X
32	deodora-cedar (Cedrus deodara)	17	Good	Fair	15	Moderate	Suppressed lateral growth, growing in row along parking lot		X
33	deodora-cedar (Cedrus deodara)	17	Good	Fair	15	Moderate	Suppressed lateral growth, growing in row along parking lot		X
34	deodora-cedar (Cedrus deodara)	9	Poor	Fair	10	Moderate	Suppressed canopy, growing in row		X
35	black pine (Pinus nigra)	23	Fair	Fair	15	Moderate	Codominate leaders with included bark at approx 8'		X
36	black cottonwood (Populus trichocarpa)	6	Fair	Fair	5	Moderate	Two stems at base, growing from creek bed, tree not tagged and DBH is approximate		X
37	black cottonwood (Populus trichocarpa)	8	Fair	Fair	10	Moderate	growing from creek bed, tree not tagged and DBH is approximate		X
38	black cottonwood (Populus trichocarpa)	8	Fair	Fair	10	Moderate	Growing from creek bank, canopy leaning to east		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
39	black cottonwood (Populus trichocarpa)	25	Fair	Fair	15	Moderate	Growing from creek bank, canopy leaning to east, tree not tagged and DBH is approximate		X
40	black cottonwood (Populus trichocarpa)	12	Fair	Fair	10	Moderate	Leaning to north, tree not tagged and DBH is approximate		X
41	black pine (Pinus nigra)	16	Good	Fair	15	Moderate	Codominate leaders, tree growing in row along parking lot		X
42	black pine (Pinus nigra)	10	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
43	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
44	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
45	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
46	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
47	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
48	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
49	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
50	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
51	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
52	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
53	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
54	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
55	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
56	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
57	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
58	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
59	black cottonwood (Populus trichocarpa)	15	Good	Fair	10	Moderate	Clump of stems at base, growing from creek bank, tree not tagged		X
60	black cottonwood (Populus trichocarpa)	10	Good	Fair	10	Moderate	Clump of stems at base, growing from creek bank, tree not tagged		X
61	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
62	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
63	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
64	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
65	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
66	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
67	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
68	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Two stems at base, Growing in row along parking lot, tree not tagged		X
69	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
70	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
71	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
72	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
73	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
74	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
75	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
76	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
77	black pine (Pinus nigra)	10	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
78	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
79	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
80	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
81	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
82	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
83	black pine (Pinus nigra)	16	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
84	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
85	black pine (Pinus nigra)	16	Good	Fair	15	Moderate	Growing at end of row along parking lot		X
86	weeping-willow (Salix babylonica)	10	Good	Fair	5	Moderate	Growing from creek bank, multi stem near base		X
								13	**73**

Appendix E: Tree Protection Specifications

It is critical that the following steps be taken to ensure that they are retained and protected.

Before Construction Begins

2. Notify all contractors of the tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection. It can only take one mistake with a misplaced trench or other action to destroy the future of a tree.

a. Hold a Tree Protection meeting with all contractors to fully explain goals of tree protection.

b. Have all subcontractors sign memoranda of understanding regarding the goals of tree protection. Memoranda to include penalty for violating tree protection plan. Penalty to equal appraised value of tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline by the Council of Tree & Landscape Appraisers current edition of the *Guide for Plant Appraisal*.

c. Trees that require pruning to provide clearance shall be pruned prior to the start of the project to avoid damaged to the tree parts. The pruning shall adhere to ANSI a300 standards, and the project arborist should be onsite to oversee the activities.

3. Fencing.

a. Establish fencing around each tree or grove of trees to be retained as shown on the tree protection site plan.

b. The fencing is to be put in place before the ground is cleared to protect the trees and the soil around the trees from any disturbance at all. Exception is if trees are to be removed that are located within the tree protection zones, they should be removed prior to installing the tree protection fencing without the use of mechanized wheeled or tracked equipment.

c. Fencing is to be placed at the edge of the root protection zone as shown on the Tree Protection Plan (Appendix C). Root protection zones are established by the project arborist based on the needs of the site and the tree to be protected.

d. “Protection fencing consisting of a minimum 4-foot-high metal fencing, secured with 6-foot metal posts shall be established at the edge of the root protection zone and permissible encroachment area on the development site. Existing structures and/or existing secured fencing at least 3.5 feet tall can serve as the required protective fencing.” If construction fencing is used it is recommended that the panels are secured to prevent movement of the fencing during construction.

e. Fencing is to remain in the position that is established by the project arborist and not to be moved without written permission from the project arborist until the end of the project.

4. Signage

a. All tree protection fencing should have signage clearly indicating that the area is a vegetation protection zone. (Appendix F).

b. Signage should be placed as to be visible from all sides of a tree protection area and spaced every 35 feet.

During Construction

5. 1 Protection guidelines within the Root Protection Zone

a. No traffic shall be allowed within the root protection zone. No vehicle, heavy equipment, or even repeated foot traffic.

b. No storage of materials including but not limited to soil, construction material, or waste from the site.

c. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.

d. Construction trailers are not to be parked / placed within the root protection zone without written clearance from the project arborist.

e. No vehicles shall be allowed to park within the root protection areas.

f. No activity shall be allowed that will cause soil compaction within the root protection zone.

6. Tree protection. Retained trees shall be protected from any cutting, skinning, or breaking of branches, trunks, or roots. The project arborist shall be onsite to observe ground disturbance within 12X the diameter of the tree.

7. Root pruning. Any roots that are to be cut from existing trees that are to be retained, the project consulting arborist shall be notified to evaluate, document, and oversee the proper cutting of roots with sharp cutting tools. Cut roots are to be immediately covered with soil or mulch to prevent them from drying out.

8. Grade changes. No grade change should be allowed within the root protection zone.

9. Root protection zone changes. Any necessary deviation of the root protection zone shall be cleared by the project consulting arborist in writing.

10. Watering. Provide water to trees during the summer months as needed. Tree(s) that will have had root system(s) cut back will need supplemental water to overcome the loss of ability to absorb necessary moisture during the summer months.

11. Utilities. Any necessary passage of utilities through the root protection zone shall be by means of tunneling under roots by hand digging or boring.

12. Re-inspection of fencing. Tree protection fencing is subject to inspection by the city. The project arborist highly recommends monthly inspections of tree protection fencing to ensure compliance with the permit and protection of the trees.

After Construction

14. Fences are to remain standing until the completion of the project.

15. Carefully landscape around the tree. Do not allow trenching within the root protection zone which still exists even though the tree protection fencing has been removed for landscape installation. Carefully plant new plants within the root protection zone. Avoid cutting the roots of the existing trees.

16. Do not plan for irrigation within the root protection zone of existing trees unless it is drip irrigation for a specific planting or cleared by the project arborist.

17. Provide for or ensure that adequate drainage will occur around the retained trees.

18. Pruning of the trees should be completed as one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch, or turf.

19. Trees that are retained may need to be fertilized as called for by the project arborist if acceptable thresholds are exceeded when determined by use of laboratory testing.

VEGETATION/TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THIS FENCING.
THE FENCE LOCATIONS ARE APPROVED TO PROTECT VEGETATION AND TREES.

Please contact the Code Enforcement Specialist and project arborist, if alterations to the approved location of the protection fencing are needed.

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

Project Arborist: TERAGAN & ASSOCIATES, INC 503-697-1975

Significant Resource Impact Report for the Sysco Rezone and Facility Expansion Wilsonville, Oregon

Township 3 South, Range 1 West, Section 11
Tax lots 402, portion of 1100, and Roads)

Prepared for

Peter Richter
Vice Presidential of Enterprise Asset Management
Sysco Portland, Inc.
23250 SW Parkway Center Drive
Wilsonville, OR 97070-7788

Prepared by

Joe Thompson, PWS
John van Staveren, SPWS
Pacific Habitat Services, Inc.
Wilsonville, Oregon 97070
(503) 570-0800

PHS Project Number: 7569

April 4, 2025

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1.0 INTRODUCTION

Pacific Habitat Services, Inc. (PHS) has prepared this Significant Resource Impact Report (SRIR) to address proposed improvements to property at 26250 SW Parkway Drive in Wilsonville, Oregon. Two ditches are mapped on the City of Wilsonville's Significant Resources Overlay Zone (SROZ) in the western and southern portions of the property. As proposed improvements will impact these ditches, a SRIR is required. This report follows the pertinent sections of the City of Wilsonville's Planning and Land Development Ordinance for a Standard SRIR (Section 4.139.05-06). For ease of review by the City of Wilsonville, key portions of the ordinance language are included (italicized), followed by specific responses to the requirements.

Figures 1, 2, and 3 show the general topography, tax lot map, and soils for the site, respectively. Figure 4 shows the existing site conditions. Figure 5 shows the site development plan, Figure 5A shows the Tree Removal Plan, Figure 6 shows the Mitigation Plan, Figure 7 shows the Metro Title 3 boundaries on the site, Figure 8 is the Local Wetland Inventory Map, and Figure 9 shows the Metro Title 13 boundaries. All Figures are in Attachment A.

SECTION 4.139.11.03 ALTERATION OF CONSTRUCTED DRAINAGEWAYS

Alteration of constructed drainageways may be allowed provided that such alterations do not adversely impact stream flows, flood storage capacity and in stream water quality and provide more efficient use of the land as well as provide improved habitat value through mitigation, enhancement and/or restoration. Such alterations must be evaluated through an SRIR and approved by the City Engineer and Development Review Board.

In order to facilitate the project, a constructed drainageway containing a 0.62-acre (ac) wetland (Figure 4) will be altered by relocating it to the western portion of the project area (See Figures 5 and 6). The reconstructed drainageway/ wetland will consist of 0.95 acres, which is a ratio of slightly greater than 1.5:1. As described in Section 4.139.07 Mitigation Standards and Table 5, there will be no adverse impact to stream flows, flood storage capacity, and instream water quality. The design of the proposed realignment as well as a proposed vegetated buffer that is 50-foot on average, will greatly increase the altered drainageway/wetland's habitat values for both vegetation and wildlife.

2.0 CITY DEVELOPMENT CODE

SECTION 4.139.06 SIGNIFICANT RESOURCE IMPACT REPORT (SRIR) AND REVIEW CRITERIA

(.02) Application Requirements for a Standard SRIR. The following requirements must be prepared and submitted as part of the SRIR evaluation for any development not included in paragraph A above:

A. A Site Development Permit Application must be submitted in compliance with the Planning and Land Development Ordinance.

A Site Development Permit Application is being submitted for this project in compliance with the Planning and Land Development Ordinance.

B. The SRIR shall be conducted and prepared by a natural resource professional knowledgeable and qualified to complete such a report.

The SRIR was prepared by Pacific Habitat Services, Inc. (PHS). PHS provides a wide range of services to the public and private sectors, ranging from natural resource assessments to environmental design and construction. PHS offers professional expertise in the disciplines of wetland science, wildlife biology, hydrology, soil science, environmental toxicology, botany, and environmental planning.

C. The qualifications of the person or persons preparing each element of the analysis shall be included with the SRIR.

Joe Thompson is a Professional Wetland Scientist (PWS) with PHS and has been a permanent member of the staff since 2016. Joe has over 24 years of experience on a variety of wildlife, National Environmental Policy Act (NEPA) and wetland related studies, including biological assessments, special status wildlife and rare plant surveys, wetland delineations, wetland permitting, functional assessments, and compensatory mitigation. John van Staveren is a Senior Professional Wetland Scientist (SPWS) and President of PHS and has been a permanent member of PHS since 1995. John has over 36 years of experience as a natural resource professional performing a wide range of wetland, botanical, wildlife, Endangered Species Act and NEPA studies and overseeing the work of PHS' staff.

D. The SRIR shall include the following:

1. Physical Analysis. The analysis shall include, at a minimum:

a. Soil types;

The Natural Resources Conservation Service (NRCS) depicts three soil map units within the study area: Aloha silt loam 0 to 3 percent slopes, and 3 to 6 percent slopes, Woodburn silt loam 0 to 3 percent slopes, and Huberly silt loam 0-3 percent slopes. None of these soils are listed as hydric. Figure 3 summarizes mapped locations of the soils within the site.

b. Geology;

The site is located east of Interstate 5 (I-5), and approximately 2.5 miles north of the Willamette River. The USGS DOGAMI[1] Digital Map describes the geology of the site as belonging to the Terrane Group: Quaternary Surficial Deposits, the Formation: Alluvial Deposits, and the Rock Type: Mixed Grain Sediments, which are described as:

> "*Deposits of unconsolidated sediments. Includes alluvium, colluvium, river and coastal terrace, landslide, glacial, eolian, beach, lacustrine, playa and pluvial lake deposits, and outburst flood deposits left by the Missoula and Bonneville floods.*"

Elevations in the site range from approximately 240 feet National Geodetic Vertical Datum (NGVD) in the ditch along the southeastern boundary, to approximately 262 feet NGVD in the northern and eastern portions of the site.

[1] USGS: United State Geological Survey; DOGAMI: Department of Geology and Mineral Industries

c. Hydrology of the site;

Three wetlands (Wetlands A, B, and C) and one water (Ditch 1) are present on the site (Figure 4). Wetland Delineation fieldwork was performed by PHS on September 2 and December 1 of 2022. During the summer, many seasonal wetlands in the Willamette Valley such as Wetlands B and C do not have surface water or saturation in the upper 12 inches of the soil profile and therefore, hydrology was evaluated using primary and secondary indicators including oxidized rhizospheres along living roots and geomorphic position. Similarly, ephemeral streams such as Ditch 1 do not have flowing water, and therefore, secondary indicators including a drainage pattern and drift deposits were used to identify the hydrology parameter. Mapped soils with wetlands and waters include Aloha silt loam, 0 to 3 percent slopes and Huberly silt loam.

Ditch 1 (Weideman Ditch)

Ditch 1 (9,788 square feet (sf) / 0.22 ac) is an excavated ditch that collects water from upslope areas and flows east along the southern boundary of the site towards Boeckman Creek, which is approximately 0.5 miles east of the study area. Its Cowardin classification is Riverine Intermittent Streambed Mud (R4SB5) and its Hydrogeomorphic (HGM) classification is Riverine Flow-Through (RFT). The ditch is mostly unvegetated; however, there are scattered mature trees and shrubs along the banks, including balsam poplar (*Populus balsamifera*, FAC), lodgepole pine (*Pinus contorta*, FAC), Sitka willow (*Salix sitchensis*, FACW), service berry (*Amelanchier alnifolia*, FACU), hazelnut (*Corylus avellana*, UPL), bird cherry (*Prunus avium*, UPL), dewberry (*Rubus ursinus*, FACU), sweetbriar rose (*Rosa rubiginosa*, UPL), swordfern (*Polystichum munitum*, FACU), bentgrass (*Agrostis* spp. (FAC)), and Queen Anne's lace (*Daucus carota*, FACU). OHW was mapped based on drainage patterns and drift deposits.

Wetland A

Wetland A (26,890 sf / 0.62 acre) is located in a broad and deep ditch near the site's eastern boundary. It appears to have been constructed as part of the City of Wilsonville's stormwater system and has perennial flows, due at least in part to urban runoff, but possibly also due to the ditch intercepting the water table. It is dominated by reed canarygrass (*Phalaris arundinacea*, FACW) and narrow-leaf cattail (*Typha angustifolia*, OBL), although there are some sparse patches of willows (*Salix* spp., FAC) and Himalayan blackberry (*Rubus armeniacus*, FAC); therefore, it is classified under the Cowardin System as palustrine emergent semi-permanently flooded excavated (PEMFx) and the HGM classification is RFT.

Wetland B

Wetland A (1,317 sf / 0.03 ac) is a roadside ditch located along the southern access road in the southwestern portion of the study area. Its Cowardin classification is palustrine emergent seasonally flooded/saturated (PEME) and its HGM classification is Flats. The dominant vegetation is tall fescue (*Schedonorus arundinaceus*, FAC). Soils meet the requirements for redox dark surface, and wetland hydrology indicators include high oxidized rhizospheres along living roots and geomorphic position.

Wetland C

Wetland C (475 sf / 0.01 ac) is a roadside ditch located along SW Parkway Avenue near the western study area boundary. Its Cowardin classification is PEME and its HGM classification is Flats. The dominant vegetation is tall fescue. Soils meet the requirements for redox dark surface, and wetland hydrology indicators include oxidized rhizospheres along living roots and geomorphic position.

Additional Information on Project Area Wetlands and Waters

It is the opinion of PHS that Wetlands B and C are artificial, having been accidentally created by past grading activities, and therefore, are not jurisdictional under Oregon's Removal-Fill Law. Furthermore, they are hydrologically isolated from navigable waters and would not be jurisdictional under the Clean Water Act. PHS will therefore request in the wetland delineation submitted to DSL that the State of Oregon disclaim them and will also submit an Approved Jurisdictional Determination (AJD) to the Corps.

According to the Oregon Explorer interactive web mapping service, and the local FEMA flood insurance rate mapping (FIRM), the site is entirely outside of the 100-year floodplain.

d. Outline of any existing features including, but not limited to, structures, decks, areas previously disturbed, and existing utility locations;

Like most of the large parcels remaining in Wilsonville, the site was formerly occupied by a small farm. A stand of Oregon oak trees in the northwest corner of the property once included a house, but online Google Earth aerial imagery indicates that it was demolished in 2018. A stormwater ditch along the eastern boundary appears to have been constructed between 1981 and 1994. It is also included in the 1999 Wilsonville LWI as an ephemeral stream channel, along with an abutting east-west ephemeral channel at the south end of the study area. Historic USGS topographic maps dating from 1916 to present do not depict natural streams in the proximity of either ditch. Therefore, neither is likely to be a realigned stream channel. Google Earth aerial imagery also indicates that the stormwater facility in the eastern portion of the study area was constructed in 1985 in what appears to have been a dense stand of Himalayan blackberries. The property is almost entirely surrounded by development. The I-5 freeway is west of the site and large wholesale commercial outlets (Costco and Target) are located north of the site. Sysco Portland Food Distributor and Berger Allied Moving and Storage are east of the site. There is a greenspace adjacent to the site's southern boundary and ESS Inc. is located farther to the south. Utilities including water, electricity, and natural gas are available from the street as well as the existing Sysco facility.

e. Location of any wetlands or water bodies on the site and the location of the stream centerline and top-of-bank.

As stated previously, there are three wetlands and one non-wetland ditch within the site. Figure 4 depicts the locations of Wetlands A, B, and C and Ditch 1 within the proposed project area, and the adjacent slopes, which are less than 25%.

PHS has prepared a wetland delineation report and will submit it to the Oregon Department of State Lands (DSL). Once submitted, DSL will have 120 days to review the report and issue a concurrence letter. As the project (Figure 5) will result in the filling of Wetland A and re-aligning the ditch/ channel on the west side of the property, a Joint Permit Application (JPA) will be prepared and submitted to the US Army Corps of Engineers (Corps) and DSL.

f. Within the area proposed to be disturbed, the location, size and species of all trees that are more than six (6) inches DBH. Trees outside the area proposed to be disturbed may be individually shown or shown as drip line with an indication of species type or types;

Teragan and Associates, Inc. performed a tree inventory that includes all trees on the site that are in the vicinity of the proposed development. Figure 5 shows the development plan, and Figure 5A shows the existing trees in the vicinity of the development as well as those that will be removed. Trees are depicted as either conifer or deciduous and are given a reference number so they can be matched to the tree table with information including species, diameter at breast height, and reason for removal. More information is included in the Arborist Report (Attachment B). The Site Development Permit Application will include provisions for tree removal.

g. A property survey together with topography shown by contour lines prepared at two-foot vertical intervals. Five-foot vertical intervals may be allowed for steep sloped areas. An Oregon Registered Land Surveyor or Civil Engineer shall prepare the survey.

Figure 4 shows the property as surveyed by Standridge. The two-foot contours were obtained from the National Oceanic and Atmospheric Administration (NOAA). Slopes measurements were calculated at several areas adjacent to the wetland to display slope variation and gradients below 25%.

h. The location of the SROZ and Impact Area boundaries;

Figure 4 shows the location of the City applied SROZ and Impact Area boundaries within the project area. The refined boundary is based upon a wetland delineation conducted by PHS, which differs somewhat from the City's existing SROZ boundaries. While the existing boundaries were based on a wetland determination drawn onto aerial photographs with limited ground truthing in 1998, the new boundaries are based on field documented, flagged, and surveyed wetland boundaries conducted in 2022 at a finer scale. These discrepancies as well as Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways), which eliminates the SROZ protections for Wetland A are the reason for the submittal of this SRIR and request for map verification.

The delineation methodology followed the 1987 Corps of Engineers *Wetlands Delineation Manual*, *Technical Report Y-87-1*, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* which is recognized by both the DSL and the Corps.

i. A minimum of three slope cross-section measurements transecting the site, equally spaced at no more than 100-foot increments. The measurements should be made perpendicular to the stream;

Slope measurements calculations adjacent to Wetland A and Ditch 1 are shown on Figure 4, which includes more than three measurements at less than 100-foot increments. The measurements were made perpendicular to the wetland and stream boundaries. All slopes are less than 25%.

j. A map that delineates the Metro UGMFP Title 3 Water Quality Resource Area boundary (using Metro Title 3 field observed standards);

Title 3 applies to: (1) Development in Water Quality Resource and Flood Management Areas and (2) Development which may cause temporary or permanent erosion on any property within the Metro Boundary; however, no such lands occur on the site (See Figure 7). Observations during the wetland delineation and SRIR fieldwork concur with the results of the Title 3 mapping within the study area.

k. A map that delineates the Goal 5 safe harbor boundary (using the standards found within the Oregon Administrative Rule OAR 660-23(1996));

A Goal 5 safe harbor boundary of 50 feet has been applied to Wetland A and Ditch 1; per the City of Wilsonville's SROZ GIS layer (See Figures 4 and 5). For the purposes of the SRIR, the Goal 5 Safe Harbor and SROZ are equal.

l. The existing site significant resource conditions shall be determined and identified by a natural resource professional; and

A resource assessment was conducted by Fishman Environmental Services (FES) at the site in 1998 (Local Wetland Inventory (LWI), which states that the project area includes two intermittent streams, hereby designated as Wetland A and Ditch 1. The FES report differs with PHS' delineation, which identified Wetland A as a perennial wetland/ditch. The discrepancy could be due to an increase in urban runoff since the time of the FES report, resulting in perennial wetland hydrology.

The FES report also identifies Ditch 1 as an intermittent stream; however, no water was present during the December 2021 fieldwork. Wetland A and Ditch 1 do not appear to be hydrologically connected, because they are separated by approximately 180 feet and no culvert connecting the two features was found during PHS' fieldwork. Wetland A flows east approximately 290 feet via a culvert into the stormwater treatment facility south of the Sysco truck parking area. A culvert connects the stormwater facility to Ditch 1 (See Figures 4 and 5)).

The FES report provides Oregon Freshwater Assessment Methodology (OFWAM) for wetlands; however, one is not provided for any of the wetlands or waters on the site, because at the time of the FES fieldwork, Wetland A was identified as an intermittent stream and the smaller wetlands that were identified by PHS (Wetlands B and C) are very small artificial features that may not have yet formed.

The LWI for Wilsonville assesses wetland groups for the following significance criteria:

1) Wetlands that score the highest rank for any of the four ecological functions addressed by OFWAM or equivalent: Diverse wildlife habitat, intact fish habitat, intact water quality, or intact hydrologic control.
2) Wetlands that are rated in the second highest functional category for water quality, and that occur within ¼ mile of a water quality-limited stream listed by DEQ.
3) Contain one or more rare/uncommon wetland plant communities in Oregon.
4) Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon.
5) Wetland rates in the second highest functional category for fish habitat, and has a surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".
6) Optional criterion: Wetland represents a locally unique plant community.
7) Optional criterion: Wetland rates in highest category for education potential and there is documented use for educational purposes by a school or organization.

m. Current photos of site conditions shall be provided to supplement the above information.

The wetland delineation report, which includes ground-level photos is provided in Attachment C.

2. The analysis shall include development recommendations including grading procedures, soil erosion control measures, slope stabilization measures, and methods of mitigating hydrologic impacts. For projects that affect possible wetlands, a copy of the Local Wetland Inventory (LWI) map pertaining to the site shall be provided. Notice of the proposal shall be given to the Oregon Division of State Lands and the Army Corps of Engineers.

The development will result in relocating the Wetland A channel to the western portion of the project site. The new channel will include 0.95 acres of mitigation for 26,890 sf / 0.62 acres of impacts to federal and state jurisdictional wetlands at a ratio of 1.5:1, which is greater than the (1:1) DSL requirement for created wetlands, although ultimately, DSL's approval will be based on the replacement wetlands compensating for the lost functions and values of the impacted wetlands, 0.39 acres of wetlands will be created along the east and west side of the created sloping channel and in a 0.56-acre shallow basin south of the channel. No mitigation for SROZ impacts are required for the relocation of Wetland A due to Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways), although a water quality buffer with an average 50-foot width on either side of the wetland will be planted with native vegetation and will provide considerable ecological uplift in comparison to the existing Wetland A buffer. There are no impacts to the SROZ associated with Ditch 1.

An existing manhole in Ditch 1, below OHW will be used as an outfall for treated stormwater. A linear ditch approximately 74 feet in length will be temporarily excavated within the SROZ for the placement of a pipe for the connection to the manhole, which will result in 1,160 sf/ 0.03 ac of temporary SROZ impacts. No mitigation is required for this temporary impact, which will also result in 32 linear feet and 512 sf (0.01 ac) of temporary impacts to the SR Impact Area (see Figure 5).

Wetland B, which is not designated as a Significant Resource, will not be impacted.

Wetland C, which is not designated as a Significant Resource will also be graded and permanently filled; however, no SROZ is associated with this feature and no requirements of compensatory mitigation are expected for the filling of this isolated and artificial feature.

Grading procedures will follow standard erosion control measures, including the placement of sediment fencing between grading north of Ditch 1, inlet protection around all stormwater inlets, and a construction entrance to reduce dust and tracking within and outside of the work area. Inlet protection will include a polypropylene filter sack (woven) to reduce the transport of sediment into storm pipes, the construction entrance will include subgrade reinforcement geotextile fabric to prevent infiltration or transport of sediment, and sediment fencing will consist of filter fabric material mounted to 2-foot posts around wetlands to mitigate the potential for sedimentation from the construction areas.

The proposed project will also conform to City of Wilsonville's stormwater standards and will feature two stormwater planters with bioswales that will be planted with native vegetation and will treat runoff from the proposed impervious surfaces before they are permitted to enter wetlands or waters.

Figure 8 displays the LWI map pertaining to the site.

A wetland delineation report has been prepared and will be sent to DSL for concurrence and to the Corps for an approved jurisdictional determination (AJD). Because there are wetland impacts, a Joint Permit Application (JPA) will be prepared and will be sent to DSL and the Army Corps of Engineers.

3. Ecological Analysis. The Ecological Analysis shall include a map, using the Physical Analysis map as a base, showing the delineated boundaries and coverage of wetlands, riparian corridors, and wildlife habitat resources identified on the site.

Figure 4 shows the delineated boundaries and coverage of wetland resources within the project area as well as the SROZ boundary, slope measurements calculations adjacent to Wetland A and Ditch 1, and the SR Impact Area. Figure 9 shows Metro's map of Regionally Significant Habitat (under Title 13), which shows that there is a small amount of Regionally Significant Habitat within the southeast portion of the project area, but it does not include an HCA (Habitat Conservation Area).

a. Wetland boundaries shall be delineated using the method currently accepted by the Oregon Division of State Lands and the US Army Corps of Engineers. Riparian boundaries shall be delineated using the riparian corridor descriptions in this ordinance. Boundaries of mapped Goal 5 wildlife habitat shall be verified by field observation.

PHS delineated the limits of the wetlands on the site based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* ("The 1987 Manual") and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. As stated previously, a wetland delineation report has been prepared and will be submitted DSL and the Corps.

Wetland A has no riparian habitat. The vegetation is mostly non-native grasses that are kept mowed. Although there are some native trees on the site including some Oregon white oaks in the northwest corner and a few trees including sweet cherry that are situated on the plain adjacent to Ditch 1, areas mapped as SROZ contain few riparian trees and are mostly dominated by Himalayan blackberry and as such do not constitute Goal 5 wildlife habitat.

b. The analysis shall include an inventory that lists and describes the native and ornamental dominant and sub-dominant groundcover, shrub and tree species occurring on the site and wildlife observed during at least one site visit (specify date). The report shall also include recommended measures for minimizing the adverse impacts of the proposed development on unique and/or significant features of the ecosystem. The analysis shall include a report that discusses the ecological functions and values of the SROZ area, discussing each parameter listed below. The discussion shall be based on actual field observations and data obtained by a natural resource professional.

Vegetation and Wildlife Species

Table 1 summarizes vegetation occurring on the site during the delineation field work completed during September and December of 2022. Table 2 contains wildlife species that are assumed to potentially occupy the site either for reproduction, foraging, or as part of their home-range movements, but not as rare or occasional vagrants. Focused or general surveys for wildlife were not conducted. No wildlife species listed in Table 2 were observed during the fieldwork.

Table 1. Non-Comprehensive List of Vegetation Observed within the Project Area

Scientific Name	Common Name	Non-Native or Ornamental
TREES		
Acer macrophyllum	bigleaf maple	
Alnus rubra	red alder	
Fraxinus latifolia	Oregon ash	
Pinus contorta	Lodgepole pine	
Pinus ponderosa	Ponderosa pine	X
Pinus nigra	Black pine	X
Populus balsamifera	balsam poplar	
Prunus avium	sweet cherry	X
Pseudotsuga menziesii	Douglas' fir	
Quercus garryana	Oregon white oak	
Quercus palustris	Swamp Spanish oak	X
Salix sitchensis	Sitka willow	
SHRUBS		
Amelanchier alnifolia	Serviceberry	
Crataegus douglasii	Douglas' hawthorn	
Crataegus monogyna	English hawthorn	X
Cornus alba	red osier dogwood	
Corylus avellana	commercial hazelnut	X
Frangula pershiana	Cascara buckthorn	
Ilex iberica	holly	X
Pteridium aquilinum	Bracker fern	
Quercus palustris	swamp Spanish oak	X
Ranunculus acris	meadow buttercup	
Rosa sp.	wild rose	
Rubus armeniacus	Himalayan blackberry	X
Rubus laciniatus	cutleaf blackberry	X
Rubus ursinus	trailing blackberry	
Spiraea douglasii	Douglas' spirea	
Symphoricarpos alba	snowberry	
Toxicodendron diversilobum	poison oak	
WOODY VINES		
Hedera helix	English ivy	X
HERBS		
Agrostis capillaris	colonial bentgrass	X
Alopecurus pratensis	Meadow foxtail	X
Bromus spp.	brome grasses	X
Cirsium arvense	Canada thistle	
Convolvulus arvensis	field bindweed	X
Dactylus glomerata	Orchard grass	X

Scientific Name	Common Name	Non-Native or Ornamental
Daucus carota	Queen Anne's lace	X
Dipsacus fullonum	teasel	X
Holcus lanatus	common velvet grass	X
Hypochaeris radicata	spotted cat's ear	X
Jacobaea vulgaris	stinking willie	X
Leucanthemum vulgare	ox-eye daisy	X
Lolium perenne	Italian ryegrass	X
Lotus corniculatus	bird's-foot trefoil	X
Phalaris arundinacea	reed canarygrass	X
Plantago lanceolata	English plantain	X
Polystichum munitum	swordfern	
Prunus laurocerasus	Cherry laurel	X
Raphanus raphanistrum	Wild radish	X
Schedonorus arundinaceus	tall fescue	X

Table 2. Non-Comprehensive List of Wildlife Species Potentially within the Project Area*

Common Name	Scientific Name
MAMMALS	
Black-tailed deer	*Odocoileus hemionus columbianus*
Coyote	*Canis latrans*
Deer mouse	*Peromyscus maniculatus*
Eastern fox squirrel	*Sciurus niger*
Raccoon	*Procyon lotor*
BIRDS	
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American goldfinch	*Carduelis tristis*
American robin	*Turdus migratorius*
Barn swallow	*Hirundo rustica*
Bewick's wren	*Thryomanes bewickii*
Black-capped chickadee	*Parus atricapillus*
Black-headed grosbeak	*Pheucitus melanocephalus*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown creeper	*Certhia americana*
California quail	*Callipepla californica*
Canada goose	*Branta canadensis*
Cedar waxwing	*Bombycilla cedrorum*
Chestnut-backed chickadee	*Parus rufescens*
Cooper's hawk	*Accipiter cooperii*
Dark-eyed junco	*Junco hyemalis*
Downy woodpecker	*Picoides pubescens*

Common Name	Scientific Name
European starling*	*Sturnus vulgaris*
Fox sparrow	*Passerella iliaca*
Golden-crowned kinglet	*Regulus satrapa*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Great-horned owl	*Bubo virginianus*
House finch	*Carpodacus mexicanus*
House sparrow	*Passer domesticus*
House wren	*Troglodytes aedon*
Killdeer	*Charadrius vociferus*
Lesser goldfinch	*Carduelis psaltria*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Orange-crowned warbler	*Vermivora celata*
Red-breasted nuthatch	*Sitta canadensis*
Red-breasted sapsucker	*Sphyrapicus ruber*
Red tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ruby-crowned kinglet	*Regulus calendula*
Rufous hummingbird	*Selasphorus rufus*
Savannah sparrow	*Passerculus sandwichensis*
Song sparrow	*Melospiza melodia*
Spotted towhee	*Pipilo erythrophthalmus*
Steller's jay	*Cyanocitta stelleri*
Tree swallow	*Tachycineta bicolor*
Turkey vulture	*Cathartes aura*
Varied thrush	*Ixoreus naevius*
Violet green swallow	*Tachycineta thalassina*
Western screech owl	*Otus kennicottii*
Western tanager	*Piranga ludoviciana*
White crowned sparrow	*Zonotricha leucophrys*
AMPHIBIANS	
Pacific treefrog	*Hyla regilla*
REPTILES	
Common garter snake	*Thamnophis sirtalis*

*These species are assumed to potentially occupy the habitats of the site due to its suitability for foraging, nesting, or cover. Focused or general surveys for wildlife were not conducted and no species listed on Table 2 were documented during the fieldwork.

As previously stated, riparian and forested communities are not mapped within the project site, nor were they observed during the fieldwork.

The largest habitat by area is the non-native grassland in the western portion of the study area, which likely provides foraging and breeding opportunities for small mammals such as the camas pocket gopher (*Thomomys bulbivorus*), ground nesting birds such as western meadowlarks (*Sturnella neglecta*) and reptiles including gopher snakes (*Pituophis catenifer*).

A small grove of Oregon white oak (*Quercus garryana*) and Douglas fir trees (*Pseudotsuga menziesii*) in the northwestern portion of the project site may provide foraging and nesting habitat for acorn woodpeckers (*Melanerpres formicivorus*), which use the bark of Douglas fir trees as granaries for acorn storage.

Wetland A is fenced with chain link for safety, which also restricts access for common medium-sized and larger mammals such as raccoons (*Procyon lotor*), striped skunks (*Memphitis memphitis*) and coyotes (*Canis latrans*), which would otherwise at least forage on the site; however, due to the presence of some saplings, shrubs, and narrow-leaf cattail, it has low to moderate potential as foraging and nesting habitat for birds commonly found in Willamette Valley wetlands, including red-winged blackbirds (*Agelaius phoeniceus*), Brewer's blackbirds (*Euphagus cyanocephalus*), and snipe (*Gallinago delicata*) as well as Pacific chorus frog (*Pseudacris regilla*). Due to the wetland's relatively small size, the presence of any such species would be few in number.

Ditch 1 has a narrow and fragmented cover of native trees on both banks including Douglas' firs, Oregon white oaks, and non-native bird cherry (*Prunus avium*); therefore, it has at least moderate wildlife value, specifically for nesting birds, including raptors and songbirds. The density of cover increases as one proceeds east along the channel, although a lot of the increased cover is due to a dense shrub layer of invasive Himalayan blackberry (*Rubus armeniacus*). The channel also provides concealment cover for the home-range movements of small and medium sized mammals such as raccoons, striped skunks, and coyotes.

Impacts to unique or significant features of the ecosystem

As depicted in the Site Plan (Figure 5), the proposed development would result in grading and filling Wetland A (26,890 sf / 0.62 ac) and Wetland C (475 sf / 0.01 ac). Wetland A has significant value for water quality, since is collects runoff from a large commercial center north of the project; however, Wetland C is a man-made artifact of grading and has relatively low ecological value.

The project would also result in 96,455 sf / 2.21 ac of permanent impacts to the SROZ boundary associated with Wetland A and 33,546 sf / 0.77 ac of impacts to the City of Wilsonville SR Impact Area associated with Wetland A; however, as previously stated, for Wetland A, Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways) allow these impacts to proceed without requiring mitigation.

The project will result in the removal of 65 trees, 13 of which are native to the Willamette Valley. Native trees removed include three Oregon white oaks, one Douglas' fir, eight black cottonwoods (*Populus balsamifera*), and one red alder (*Alnus rubra*). The removal of these trees will also require onsite mitigation. Mitigation for the loss of trees will take place in the Water Quality Buffer for the mitigation wetlands.

c. Wetlands (based on evaluation criteria in the Oregon Freshwater Wetlands Assessment Methodology (OFWAM), Oregon Division of State Lands)
   i. wildlife habitat diversity
   ii. fish habitat
   iii. water quality protection
   iv. hydrologic control

Ecological Functions and Values of the resources are discussed below.

Wetland A and Ditch 1 are included in the SROZ; however, Wetlands B and C are shallow, low functioning depressional wetlands that were not included in the LWI and in fact, are artificial features that may not have formed by the time of the LWI fieldwork.

Wildlife Habitat Diversity

Wetlands A and Ditch 1 were not evaluated using OFWAM; however, PHS field biologist evaluated habitats of the project site for wildlife value during the wetland delineation fieldwork.

Wetland A

The City of Wilsonville LWI lists Wetland A as an intermittent stream; thus, no OFWAM sheet was prepared. It is likely that at the time of the LWI fieldwork, the ditch now identified as Wetland A, was intermittent; however, urbanization in areas upstream (north) since the 1998 LWI fieldwork have almost certainly resulted in the ditch's permanently flooded/saturated hydrology regime, which now support PSS and PEM wetlands.

Wetland A is located within an SROZ; however, it is not in a Habitat Conservation Area (HCA), since it was determined by the City to not have high wildlife value and does not have an open connection to waters that would allow access to anadromous fish species. The Wildlife Habitat Diversity function of Wetland A is **Low**. The diversity of nesting bird habitat is **Low**, since the vegetation at the top-of-bank consists of non-native grasses that are periodically mowed, which likely prohibits ground-nesting birds, and the small patches of cattails and shrub habitat are way too small to be used for colony nesting waterbirds such as red-winged blackbirds (*Agelaius phoeniceus*). It is also highly unlikely that waterfowl or geese would use the wetland since there is little open water and the chain-link fence and adjacent commercial building reduce the chance of escape for waterfowl, as they prefer open areas where they can see approaching predators. As the wetland is fenced with chain link, it prevents entry of medium to large mammals. Western pond turtles (*Actinemys marmorata*) are not present since there is no large woody debris, which is required for basking and there is no ingress or egress due to the chain-link fence. Fish are not likely since there is no access to downstream waters; however, there may be amphibians and small reptiles since the wetland has perennial hydrology due to urban runoff. The Wildlife Habitat Diversity of Wetland A is also **Low**, since it is relatively small, isolated from other waters, there is no riparian habitat, has no potential for fish presence, and is surrounded by a fence.

Ditch 1

The Wildlife Habitat Diversity function of Ditch 1 is considered **Moderate**. The diversity of bird habitat is **Moderate**, since there are occasional trees and shrubs that could provide some nesting habitat and cover for native resident and migratory birds. The intermittent or ephemeral stream channel provides cover that could be used as wildlife corridors for medium sized mammals such as

opossums (*Delphis virginiana*), raccoons, and striped skunks, and possibly coyotes, although far better habitats are present in dense riparian cover east and south of the site and unsuitable habitats including I-5 and a mowed field are located west and north of the ditch; therefore, the Wildlife Habitat Diversity Value of Ditch 1 is **Low**.

Fish Habitat

Wetland A and Ditch 1

Wetland A and Ditch 1 do not appear to be hydrologically connected, because they are separated by approximately 180 feet and no culvert connecting the two features was found during PHS' fieldwork. Wetland A flows east approximately 290 feet via culvert into the wastewater treatment facility south of the Sysco truck parking area. There may be a culvert connecting overflow from the wastewater facility to Ditch 1; however, no culvert was found in Ditch 1. Thus, there is no fish access from Ditch 1 to Wetland A. Furthermore, no water was present in Ditch 1 during December of 2022, indicating that flows in Ditch 1, which is described in the LWI as intermittent, is more likely ephemeral, at least in the reach of the project area. The function of Fish Habitat, therefore, is considered **Low** for both features. The value of Wetland A as fish habitat is also considered **Low** due to a lack of cover, lack of diversity of habitat, lack of side channels, and the absence of a connection to known fish-bearing waters.

Ditch 1's value as Fish Habitat is **Moderate**, because it flows offsite to the east and eventually enters Canyon Creek, which connects to Boeckman Creek, which is Essential Salmonid Habitat (ESH) at its confluence with the Willamette River, which is also ESH.

Water Quality Protection

Wetland A

Wetland A flows east from its southern terminus approximately 290 feet via culvert into the wastewater treatment facility south of the Sysco truck parking area. There may be a culvert connecting overflow from the wastewater facility to Ditch 1; however, no culvert was found in Ditch 1. Wetland A has **Moderate** water quality functions because its wetland vegetation and lack of an outlet other than the stormwater pond traps sediment and processes chemicals and nutrients from upstream sources. The water quality value is **High** because the wetland is located within a drinking water source area.

Ditch 1

Ditch 1 captures small amounts of water as sheetflow, but there is very little if any sheetflow within its eastern reach within the project area. Ditch 1 appears to capture a small amount of stormwater in its western reach because some evidence of flow including drift deposits, scour, and erosion were observed during the December 2022 fieldwork; therefore, its water quality function within the project area is **Low** and its water quality value is **High** because the wetland is located within a drinking water source area.

Hydrological Control

Wetland A

Wetland A is not located in a FEMA flood zone and there is no evidence of localized flooding. There does not appear to be much sheetflow into Wetland A, because surface flows from the adjacent field are directed southward toward Ditch 1, rather than into Wetland A. Wetland A does, however, collect and store stormwater as well as urban runoff that enters via the northern culvert from developed areas north of the project area; suggesting that there is some hydrological control function and value. The hydrological control function of Wetland A is therefore considered **Moderate,** and since flooding in the vicinity of the ditch is not a problem, the value of hydrological control is considered **Moderate**.

Ditch 1

Ditch 1 mostly collects runoff as sheetflow from upslope areas, most of which are undeveloped. A grass field lies north of the ditch in the western portion of the project site, and the existing Sysco development lies north of the ditch in the eastern portion of the property and probably provides some runoff, although most of it is directed into a stormwater pond south of the existing development. The stormwater pond has a culvert for the discharge of overflow in Ditch 1.

Ditch 1 did not contain flowing water during the September and December of 2022 field work and therefore, it is the opinion of PHS that its flow regime is ephemeral, rather than intermittent as reported in the LWI, at least within the project area. Flow indicators were observed in the eastern portion of the ditch and included drift deposits, scour, and erosion. Water entering the ditch is either absorbed into the bed and bank or conveyed eastward and offsite to Canyon Creek. The hydrological control function of Ditch 1 is therefore considered **Low,** and since flooding in the vicinity of the ditch is not a problem, the value of hydrological control is considered **Moderate**.

d. Wildlife Habitat (includes riparian corridors and upland forested areas)

- ***i. wildlife habitat diversity***
- ***ii. water quality protection***
- ***iii. ecological integrity***
- ***iv. connectivity***
- ***v. uniqueness***

Wildlife Habitat Diversity

The SROZ riparian and upland forest wildlife habitat functions for Wetland A and Ditch 1 are **Low**. Riparian habitats are entirely absent in the vicinity of Wetland A and poorly developed in the vicinity of Ditch 1. The riparian trees adjacent to Ditch 1 likely support some nesting opportunities for resident and migratory birds and its cover likely benefits the home range movements of mammals. Also, the terrain has a complex microtopography, which is also beneficial to small mammals, reptiles, amphibians, and insects. The Oregon oak trees in the northwest portion of the project area are in poor physical condition; however, their cavities provide some nesting habitat for acorn woodpeckers as well as other nesting birds and insects. Otherwise, the mowed grasslands of the property provide generally low functioning wildlife habitats. The Wildlife Habitat Diversity values for Wetland A and Ditch 1 are **Low,** because the property is highly disturbed and is only likely to attract common species. Far better wildlife habitats, with more varied flora and topography are located farther east and south.

Water Quality Protection

The upland habitats of the site offer **Moderate** water quality protection function because the non-native grasslands of the site allow some percolation of stormwater into the deeper soils. This value is also **Moderate** since the property overlies a drinking water source area.

Ecological Integrity

Ecological integrity of the site is **Low** because it is far from being in a pristine condition and does not support a diverse array of organisms. Historically, the site was an oak savannah and over the last approximately 150 years was converted to a farm. During the course of that process, many oak trees were removed and the native grasses and forbs gave way to non-native grass species, and native grazing ungulates, predators, and other wild species were replaced by farm animals. In recent decades, farms in the Wilsonville area have been rapidly converted to either residential or commercial development. The poor habitat quality offers little if any value to the foraging and reproductive needs of the remaining wildlife populations in the region; therefore, its ecological value is **Low**.

Connectivity

The connectivity function of the site is **Low**. The site connects to higher quality sites to the south and east; however, I-5 is west of the site and is an impassible barrier for terrestrial wildlife and dense commercial development is located to the north; therefore, the value of the site's connectivity function is **Low**.

Uniqueness

The site is very typical of former farmlands throughout the region that are in the process of being converted to industrial uses and has no unique ecological features that would be of value to wildlife or vegetation; therefore, in terms of uniqueness, its functions and values are **Low**.

e. Riparian Corridors 1. Stream-riparian ecosystems:

- ***i. Presence and abundance of Large Woody Debris (LWD) in and adjacent to stream***
- ***ii. Tree/shrub canopy stream shade production (water temperature and aquatic plant growth control)***
- ***iii. Erosion and sediment control by riparian vegetation***
- ***iv. Water quality protection by riparian vegetation***
- ***v. River-floodplain ecosystem (Willamette River)***
- ***vi. Presence of functional floodplain (inundated annually)***
- ***vii. Type and condition of functional floodplain vegetation***
- ***viii. Use of river-floodplain by ESA-listed species***
- ***ix. Role as wildlife corridor connecting significant wildlife habitat areas***

Riparian Corridors and Stream-riparian Ecosystems

Wetland A is enclosed in a chain-link fence and although there are some small trees and shrubs, there are not enough to count as a riparian corridor. Ditch 1 has a narrow riparian corridor that is denser and of higher quality in its western portion.

Presence and abundance of Large Woody Debris (LWD) in and adjacent to stream

Wetland A has no functioning riparian corridor. Ditch 1 has sparse riparian tree cover, particularly in its western portion, therefore, there is little in the way of LWD. Since Ditch 1is ephemeral, the main benefit of the sparse LWD is to provide cover for terrestrial and some avian wildlife species as well as a source of organic material for soil health, the functions and values of Presence and abundance of Large Woody Debris (LWD) in and adjacent to streams is **Low**.

Tree/shrub canopy stream shade production (water temperature and aquatic plant growth control)

As previously stated, Wetland A has no functioning riparian cover and therefore, the tree/shrub canopy stream shade production is absent. Trees and shrub canopies over Ditch 1 provide shade cover in some areas; however, since flows are ephemeral they bear little relationship to water temperature, and aquatic plant growth is sparse aside from occasional patches of reed canarygrass. These functions and values are both **Low**.

Erosion and sediment control by riparian vegetation

Wetland A, which lacks a functioning riparian habitat, is in fact a sediment trap since it lacks a functioning outlet and sediments and debris entering via the upstream culvert may become trapped. No erosion was observed since herbaceous vegetation on the banks is well developed. Ditch 1 has a poorly developed riparian community, mostly composed of Himalayan blackberry and a small number of trees, which do perform some very minor sediment control of sheetflow entering the channel from upslope areas, but overall, these functions and values are both **Low**.

Water quality protection by riparian vegetation

Wetland A and Ditch 1 lack functioning riparian habitats, and therefore, their water quality protection functions are low; however, the need for riparian water quality protection is **Moderate.**

River-floodplain ecosystem (Willamette River)

Wetland A's herbaceous vegetation and the poorly developed riparian habitats of Ditch 1 can scarcely be described as river-floodplain ecosystems since they are both man-made linear ditches with little or no riparian habitat, and dominated by non-native species. Therefore, the river-floodplain ecosystem (Willamette River) functions and values are both **Low**.

Presence of functional floodplain (inundated annually)

There is no functional floodplain within the project area. Therefore, the functional floodplain functions and values are both **Low.**

Type and condition of functional floodplain vegetation

The project area does not lie within a functional or historic floodplain.

4. ***Mitigation and Enhancement Proposal. The applicant must propose a Significant Resource mitigation and enhancement plan as part of the SRIR. The mitigation and enhancement shall increase the natural values and quality of the remaining Significant Resource lands located on the site or other location as approved by the City. The mitigation and enhancement proposal shall conform to the mitigation standards identified in this Section.***

As depicted on the Proposed Site Development Plan (Figure 5), the proposed project will impact 96,455 sf / 2.21 ac within the SROZ and 33,546 sf / 0.77 ac of the City of Wilsonville SR Impact Area associated with Wetland A; however, as previously stated, Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways), eliminates the SROZ protections for Wetland A. Mitigation, however, must be performed for the 19 native trees that will be eliminated in order to facilitate construction.

The project will also permanently impact 5,618 sf / 0.13 ac of the SR buffer associated with Ditch 1, which will not require mitigation.

The requirements for tree replacement are found in Section 4.139.07 of the City of Wilsonville SROZ ordinance, which bases the required number of tree and shrub plantings on the size of removed trees. Table 3 depicts the number of trees in each size category, the required number of trees and shrubs to be replanted per category, and the total number of trees and shrubs to be replanted. Of the 65 trees to be removed, 13 are native and will require mitigation, while the remaining 52 will not require mitigation. Based on the DBH of the native trees, a total of 62 native trees and 156 shrubs will need to be planted. Tree mitigation will take place in the western portion of the project area intermixed with additional trees and shrubs that will be planted within the (171,734 sf, 3.94 acre) 50-foot buffer of the mitigation wetland.

Table 3. Mitigation Requirements for Native Tree Removal

Native Trees Proposed for Removal		Replacement Per-Tree		Total Replacement	
Quantity	**DBH (inches)**	**Trees**	**Shrubs**	**Trees**	**Shrubs**
6	6-12	2	3	12	18
2	Over 12-18	3	6	6	12
0	Over 18-24	5	12	0	0
2	Over 24-30	7	18	14	36
3	Over 30	10	30	30	90
			TOTALS	**62**	**156**

This activity will improve the function of the remaining SROZ by replacing invasive shrubs with native conifer and deciduous trees, shrubs, and herbaceous plants that will provide greater wildlife benefits and protection for the wetland resources than those that are present.

5. Waiver of Documentation: The Planning Director may waive the requirement that an SRIR be prepared where the required information has already been made available to the City, or may waive certain provisions where the Director determines that the information is not necessary to review the application. Such waivers may be appropriate for small-scale developments and shall be processed under Administrative Review. Where such waivers are granted by the Planning Director, the Director shall clearly indicate the reasons for doing so in the record, citing the relevant information relied upon in reaching the decision.

Not applicable. An SRIR is required by the City.

(.03) SRIR Review Criteria. In addition to the normal Site Development Permit Application requirements as stated in the Planning and Land Development Ordinance, the following standards shall apply to the issuance of permits requiring an SRIR. The SRIR must demonstrate how these standards are met in a manner that meets the purposes of this Section.

A. Except as specifically authorized by this code, development shall be permitted only within the Area of Limited Conflicting Use (see definition) found within the SROZ;

Development will eliminate the portion of the SROZ associated with Wetland A; however, no mitigation for SROZ impacts is required for the relocation of Wetland A due to Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways).

Alteration of constructed drainageways may be allowed provided that such alterations do not adversely impact stream flows, flood storage capacity and in stream water quality and provide more efficient use of the land as well as provide improved habitat value through mitigation, enhancement and/or restoration. The area of the replacement wetland will be at a ratio of 1.5:1, which will increase the functions of stream flows, flood storage capacity and in stream water quality and will improve habitats for native wildlife and vegetation.

Temporary impacts to the Ditch 1 SROZ resulting from the placement of a drainage line for treated stormwater discharge into Ditch 1 will not require mitigation; however, the area will be replanted with native vegetation, including trees, vegetation, and herbaceous species in order to prevent invasive weeds from becoming established.

B. Except as specifically authorized by this code, no development is permitted within Metro's Urban Growth Management Functional Plan Title 3 Water Quality Resource Areas boundary;

Not applicable, as the project area is not located within Metro's Urban Growth Management Functional Plan Title 3 Water Quality Resource Areas boundary (Figure 7).

C. No more than five (5) percent of the Area of Limited Conflicting Use (see definition) located on a property may be impacted by a development proposal. On properties that are large enough to include Areas of Limited Conflicting Use on both sides of a waterway, no more than five (5) percent of the Area of Limited Conflicting Use on each side of the riparian corridor may be impacted by a development proposal. This condition is cumulative to any successive development proposals on the subject property such that the total impact on the property shall not exceed five (5) percent;

The proposed project will impact 2.21 ac (100 percent) of the Area of Limited Conflicting Use (ALCU), for Wetland A, which is equal to its SROZ; however, as previously stated, this constructed drainageway which contains Wetland A, will be relocated to the western portion of the project area and will provide a resource buffer that is more than sufficient to replace all functions and values previously performed by Wetland A.

D. Mitigation of the area to be impacted shall be consistent with Section 4.139.06 of this code and shall occur in accordance with the provisions of this Section;

As described previously, impacts to 96,455 sf / 2.21 ac of SROZ are allowable and do not require mitigation under Special Provision Section 4.139.11.03 (Alteration of Constructed Drainageways). Nonetheless, a 50-foot buffer will be constructed adjacent to the altered drainageway and constructed shallow mitigation pond, which will consist of approximately 3.94 ac /171, 734 sf and will be planted with native vegetation in order to ensure that functions and values are equal to or greater than those of the original Wetland A/ constructed drainageway. The mitigation for the removal of 19 native trees will take place within this 50-foot buffer area of 3.94 ac (Figure 6). The applicant will remove invasive and non-native species including Himalayan and cut-leaf blackberry and holly and plant a total of 1,800 native trees and 8,800 native shrubs, which will more than offset the loss of low riparian function associated with the proposed impacts to the existing habitat. A list of native plants is included in the table below.

Table 4. Tree, Wetland Buffer, and Wetland Mitigation Plantings

Botanical Name	Common Name	Minimum rooting size	Mitigation Wetland	Wetland Mitigation Buffer
TREES				
Acer macrophyllum	Bigleaf maple	2 gallon		300
Alnus rubra	Red alder	2 gallon		300
Pinus ponderosa willamettensis	Willamette Valley Ponderosa Pine	2 gallon		300
Pseudotsuga menziesii	Douglas' fir	2 gallon		200
Quercus garryana	Oregon white oak	2 gallon		400
Thuja plicata	Western red cedar	2 gallon		300
Total Trees			**0**	**1800**
SHRUBS				
Cornus stolonifera	Redosier dogwood	1 gallon		800
Crataegus douglasii	Douglas' hawthorn	1 gallon		1200
Mahonia aquifolium	Tall Oregon grape	1 gallon		1000
Philadelphus lewisii	Mock orange	1 gallon		800
Rosa nutkana	Nutka rose	1 gallon		1000
Rubus leucodermis	Blackcap raspberry	1 gallon		1000
Rubus ursinus	Dewberry	1 gallon		1000
Spirea douglasii	Douglas' spirea	1 gallon		1000
Symphoricarpos albus	Snowberry	1 gallon		1000
Total Shrubs			**0**	**8800**
HERBACEOUS				
Schoenoplectus acutus var. acutus	Hardstem bullrush	Broadcast seed as necessary in wetlands	Seed	
Juncus effusus	Softrush		Seed	
Agrostis exarata	Spikegrass		Seed	
Deschampsia cespitosa	Tufted hairgrass		Seed	
Festuca idahoensis	Roemer's fescue		Seed	

The mitigation plan will adhere to the requirements of Section 4.139.06 of the SROZ ordinance and be designed to replace lost or impacted functions by enhancement of existing resources on, or off the impact site, or creation of new resource areas by implementing the following measures:

- Replacement trees and shrubs shall be at least one gallon in size and shall be at least twelve (12) inches in height.
- Trees shall be planted between eight (8) and twelve (12) feet on center, and shrubs shall be planted between four (4) and five (5) feet on center, or clustered in single species groups of no more than four (4) plants, with each cluster planted between eight (8) and ten (10) feet on center. When planting near existing trees, the drip line of the existing tree shall be the starting point for plant spacing measurements.
- Shrubs shall consist of at least two (2) different species. If five (5) trees or more are planted, then no more than fifty (50) percent of the trees may be of the same genus.
- Invasive non-native or noxious vegetation shall be removed within the mitigation area prior to planting, and shall be removed or controlled for five (5) years following the date that the mitigation planting is completed.
- Mulch shall be applied around new plantings at a minimum of three inches in depth and eighteen inches in diameter. Browse protection shall be installed on trees and shrubs. Mulching and browse protection shall be maintained during the two-year plant establishment period.
- Trees and shrubs that die shall be replaced in kind to the extent necessary to ensure that a minimum of eighty (80) percent of the trees and shrubs initially required shall remain alive on the fifth anniversary of the date that the mitigation planting is completed.

E. The impact on the Significant Resource is minimized by limiting the degree or magnitude of the action, by using appropriate technology or by taking affirmative steps to avoid, reduce or mitigate impacts;

As previously described, the project calls for the removal and relocation of Wetland A to the western portion of the project area. This action will create approximately 41,531 sf / 0.95 ac of replacement wetland and establish a new 50-foot (171,734 sf / 3.94 ac) wetland buffer.

F. The impacts to the Significant Resources will be rectified by restoring, rehabilitating, or creating enhanced resource values within the "replacement area" (see definitions) on the site or, where mitigation is not practical on-site, mitigation may occur in another location approved by the City;

As stated previously, the proposed mitigation plan includes replacement trees and shrubs at the re-aligned drainageway in order to replace and in most instances improve the low functions and values of the existing constructed drainageway.

G. Non-structural fill used within the SROZ area shall primarily consist of natural materials similar to the soil types found on the site;

For the development of the site, including the proposed building, parking, and stormwater facilities, it is necessary to relocate Wetland A/ constructed drainageway to the western portion of the site. The mitigation wetland and buffer will be higher functioning than the existing wetland and SROZ and materials will consist of local soil, the wetland will be sinuous rather than the straight, utilitarian design incorporated by the existing Wetland A/ drainageway, and will be planted with a diverse selection of native trees and shrubs.

H. The amount of fill used shall be the minimum required to practically achieve the project purpose;

Project objectives require a complete removal of Wetland A/ drainageway and its SROZ. As previously stated, the replacement wetland and buffer functions and values will be substantially higher than those of the existing wetland.

I. Other than measures taken to minimize turbidity during construction, stream turbidity shall not be significantly increased by any proposed development or alteration of the site;

Stormwater will be treated to SLOPES IV standards prior to leaving the construction site and is not anticipated to increase turbidity during construction due to appropriate erosion and sediment control measures, including silt fencing. Both Wetlands A and C will be eliminated. The flow path of Wetland A will be blocked at its south end where it connects to Ditch 1 and diverted at its north end to the mitigation wetland prior to filling. Wetland C is isolated and will simply be filled. Wetland B is artificial and likely to be considered non-jurisdictional by both the Corps and DSL; however, if the agencies through either the Approved Jurisdictional Determination (AJD) process for the Corps or the wetland delineation concurrence process for DSL determine that the wetland is jurisdictional, Wetland B will be protected by silt fencing to be erected prior to the onset of construction.

J. Appropriate federal and state permits shall be obtained prior to the initiation of any activities regulated by the U.S. Army Corps of Engineers and the Oregon Division of State Lands in any jurisdictional wetlands or water of the United States or State of Oregon, respectively.

A wetland delineation has been performed to the standards of the 1987 Manual and the Corps Western Mountains and Valleys Supplement and will be submitted to DSL and the Corps. A Joint Permit Application (JPA) will also be prepared and submitted to these agencies as well as DEQ.

SECTION 4.139.07 MITIGATION STANDARDS

The following mitigation standards apply to significant wildlife habitat resource areas for encroachments within the Area of Limited Conflicting uses and shall be followed by those proposing such encroachments. Wetland mitigation shall be conducted as per permit conditions from the U.S. Army Corps of Engineers and the Oregon Division of State Lands [emphasis ours]. While impacts are generally not allowed in the riparian corridor resource area, permitted impacts shall be mitigated by: using these mitigation standards if the impacts are to wildlife habitat values, and using state and federal processes if the impacts are to wetland resources in the riparian corridor…

As previously discussed in Section 4.139.06, impacts to Wetland A will be mitigated onsite in the western portion of the project area and will consist of re-routing the drainageway containing Wetland A and filling in the old channel. Wetland A will be restored at a 1.5:1 ratio and will have a 50-foot buffer planted with native vegetation in order to ensure water quality enhancement in the realigned channel. Due to site constraints, the buffer may have a width of less than 50 feet in some locations. Please see Section 4.139.06 (.03) D for specifics of the mitigation plan.

SECTION 4.139.10 DEVELOPMENT REVIEW BOARD (DRB) PROCESS

(.01) Exceptions. The following exceptions may be authorized through a Development Review Board quasi-judicial review procedure.

D <u>Map Refinement process.</u> The applicant may propose to amend the SROZ boundary through a Development Review Board quasi-judicial zone change where more detailed information is provided, such as a state approved wetland delineation. The criteria for amending the SROZ are as follows:

Adjustments to the existing SROZ are proposed based on the locations of delineated wetland, and its associated 50-foot buffer. Verification (concurrence from the DSL) of the onsite wetland is pending.

(.03) Development of structures, additions and improvements that relate to uses other than single family residential.

This SRIR addresses the development of additions and improvements to a structure other than single family residential and thus requires DRB process.

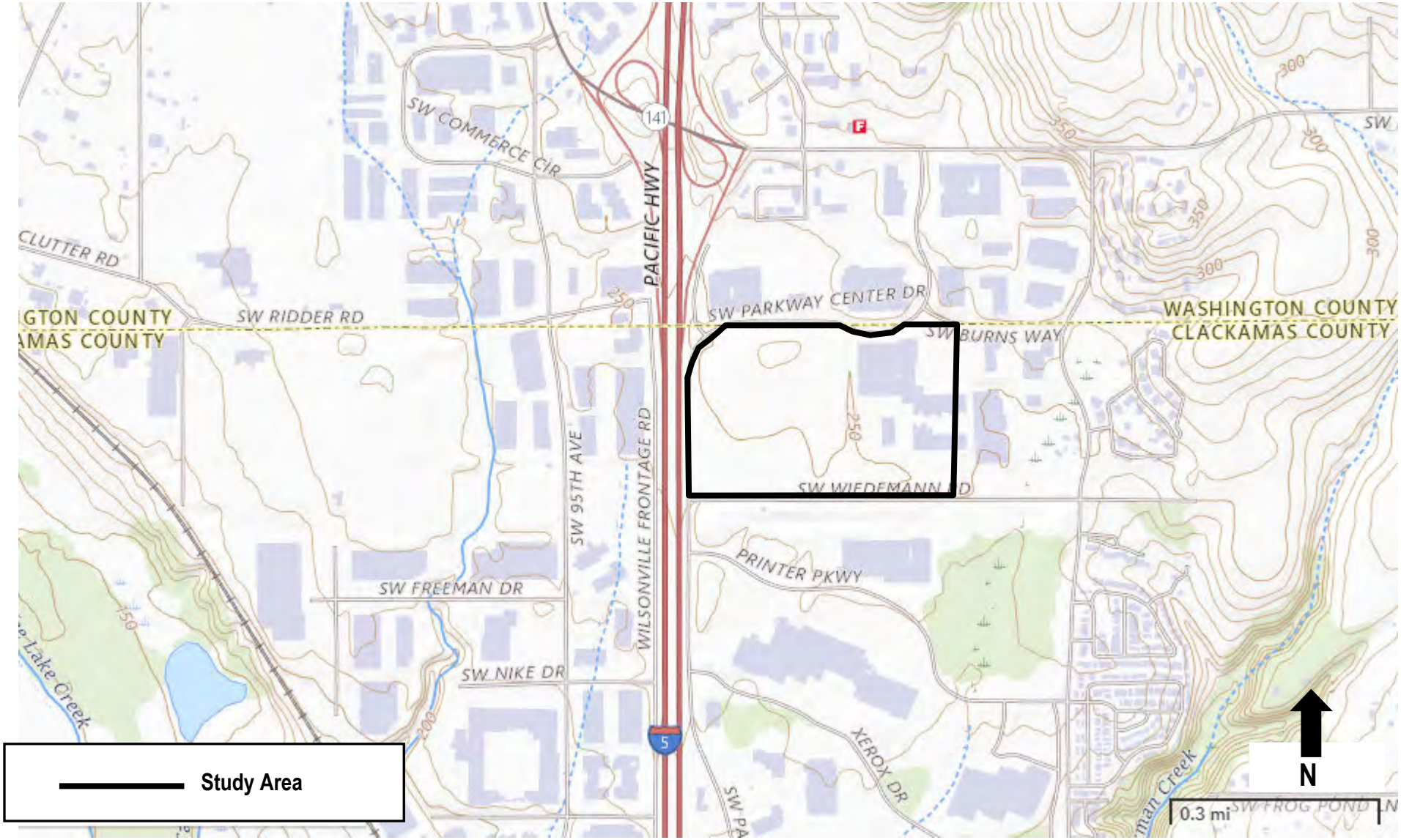
SECTION 4.139.11 SPECIAL PROVISIONS

(.03) Alteration of constructed drainageways. Alteration of constructed drainageways may be allowed provided that such alterations do not adversely impact stream flows, flood storage capacity and in stream water quality and provide more efficient use of the land as well as provide improved habitat value through mitigation, enhancement and/or restoration. Such alterations must be evaluated through an SRIR and approved by the City Engineer and Development Review Board.

As stated previously, Wetland A is located in a shallow excavation that has served for many years as a stormwater detention facility and connects via culvert to a detention facility east of Wetland A. The drainageway containing Wetland A appears to have been constructed in uplands purely for stormwater management and is not a realigned stream channel. The proposed project would clearly benefit storage by increasing water storage capacity at a ratio of 1.5:1. The increased capacity as well as the native wetland vegetation in the channel, the riparian plantings in the replacement SROZ, and large woody debris will benefit wildlife habitat, water quality protection, and water quality control.

Attachment A

Figures

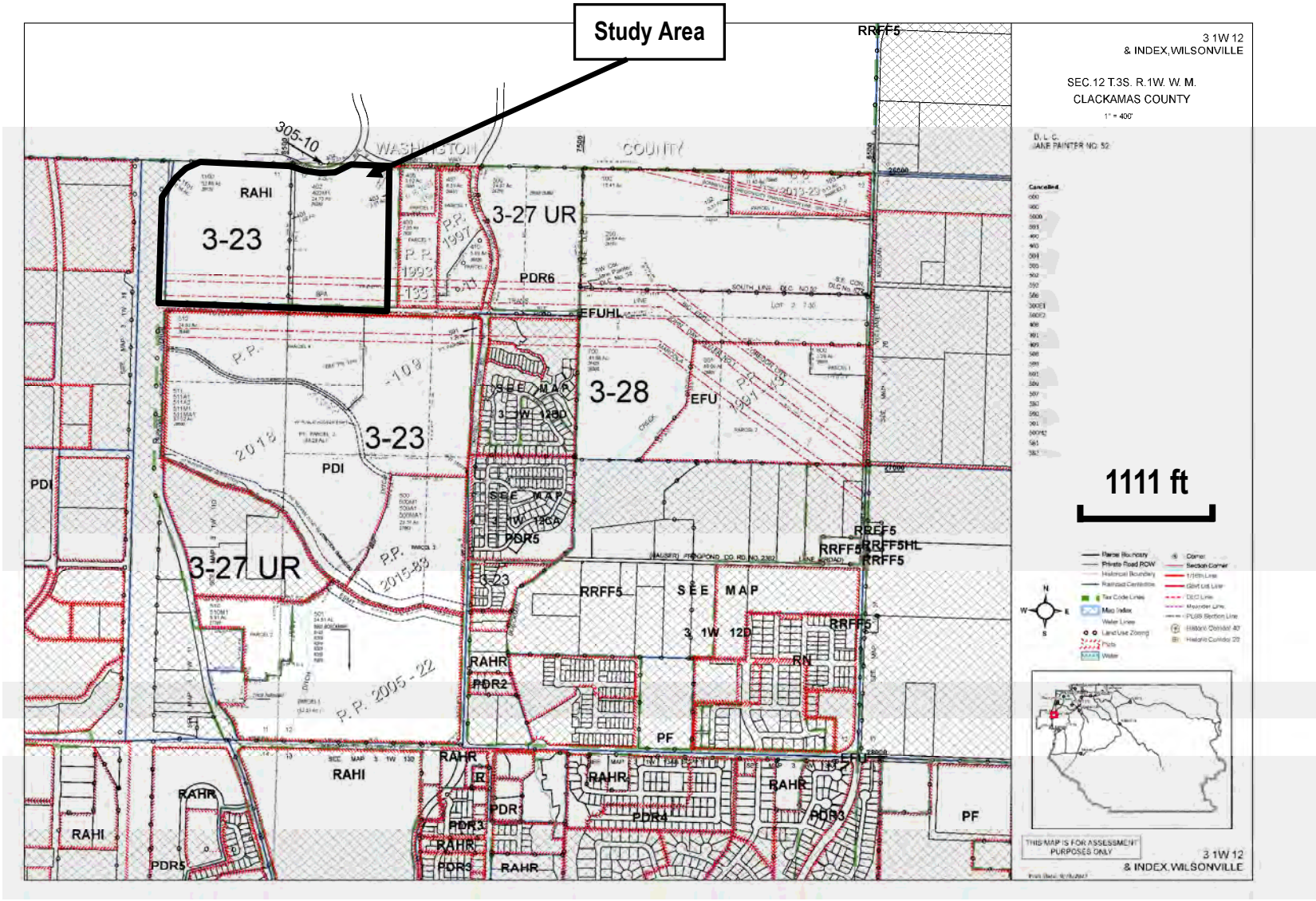


Project #7569
5/28/2024

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
Sysco Re-zone and Facility Expansion - Wilsonville, Oregon
United States Geological Survey (USGS) Sherwood, Oregon 7.5 quadrangle, 2020
(viewer.nationalmap.gov/basic)

FIGURE
1

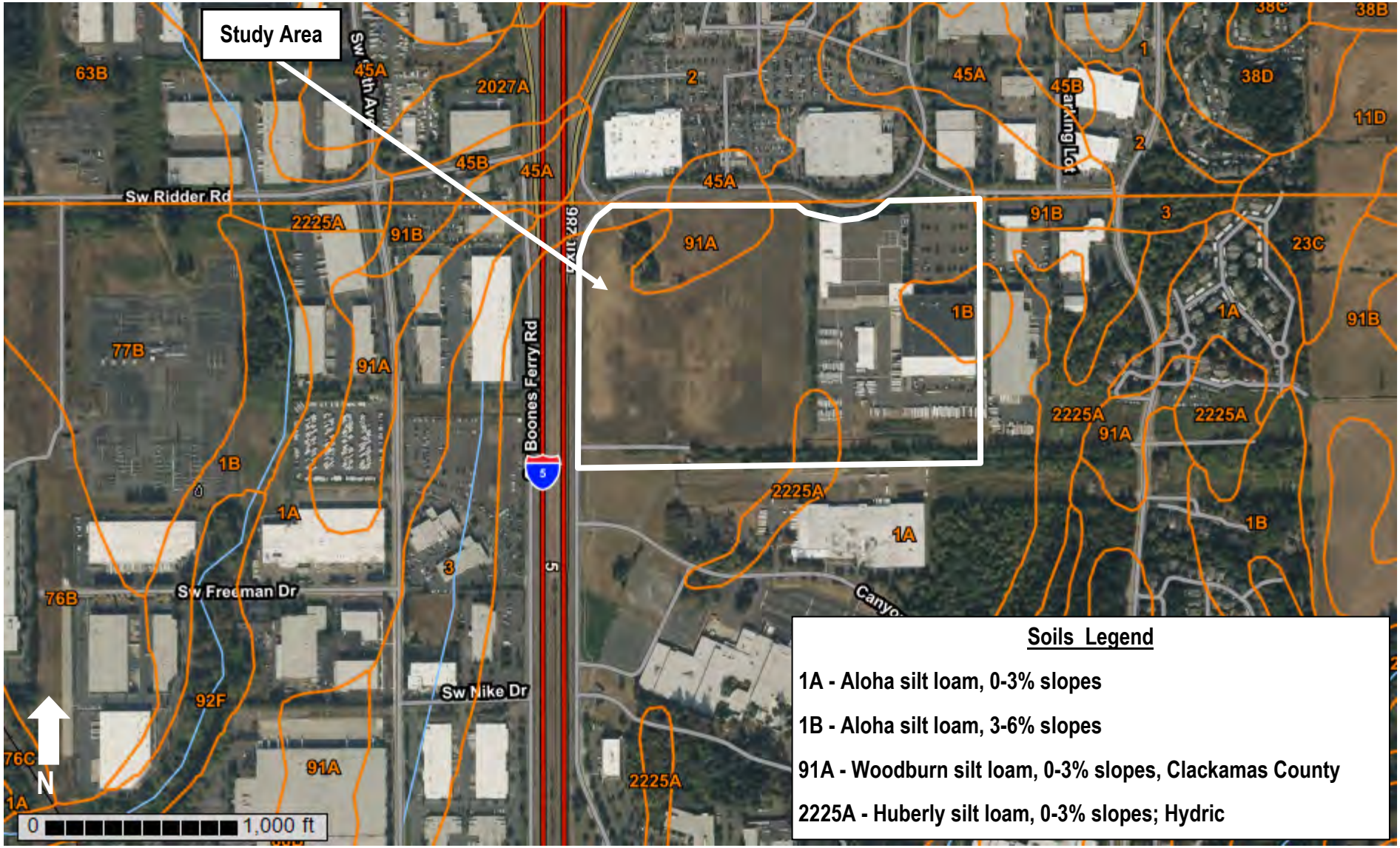


Project #7569
5/28/2024

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
Sysco Re-zone and Facility Expansion - Wilsonville, Oregon
The Oregon Map (ormap.net)

FIGURE
2

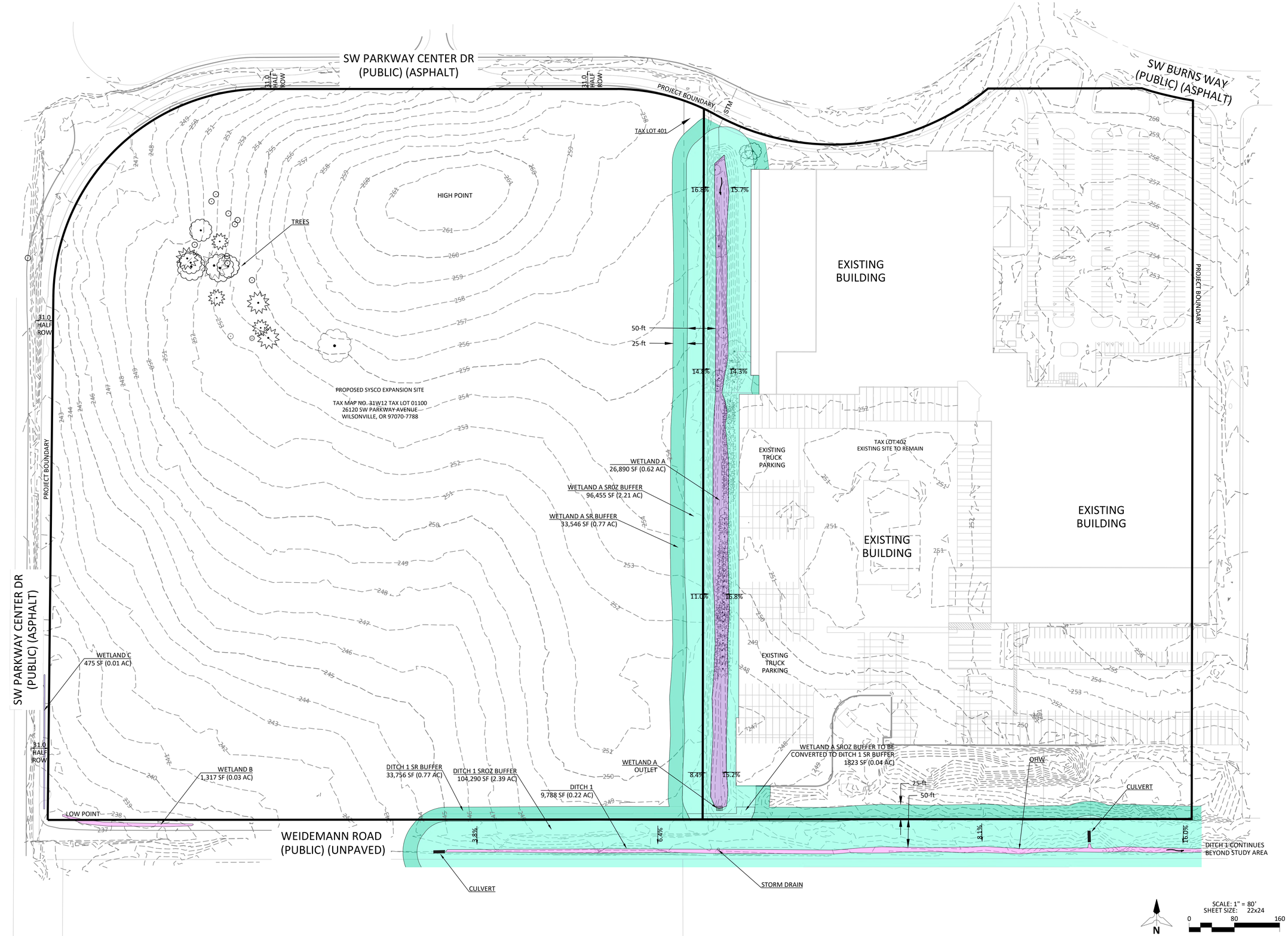


Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Soils
Sysco Re-zone and Facility Expansion - Wilsonville, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2019
(websoilsurvey.sc.egov.usda.gov)

FIGURE
3



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PROJECT:
SYSCO WILSONVILLE
RE-ZONE AND
FACILITY EXPANSION
MASTER PLAN
WILSONVILLE, OR

PREPARED FOR:
SYSCO PORTLAND, INC.
PHONE: 281.584.5999
ADDRESS: 26250 SW PARKWAY
CENTER DR
WILSONVILLE, OR 97070

STAMP

REV.	DATE	DESCRIPTION

NAME

EXISTING
CONDITIONS PLAN

PROJECT NO.:	SYS001
DESIGN BY:	MJW
REVIEWED BY:	----
DATE:	03-29-2024

SHEET

FIG. 4

SCALE: 1" = 80'
SHEET SIZE: 22x24

0 80 160

N

WETLAND MITIGATION			
		AREA IN SQUARE FEET (SF)	AREA IN ACRES (AC)
	WETLAND TO BE REMOVED	27,365 SF	0.63 AC
	PROVIDED MITIGATION		
	AREA 1	711 SF	0.02 AC
	AREA 2	8,691 SF	0.20 AC
	AREA 3	7,550 SF	0.17 AC
	AREA 4	24,579 SF	0.56 AC
	TOTAL MITIGATION	41,531 SF	0.95 AC

SW PARKWAY CENTER DR (PUBLIC) (ASPHALT)

WETLAND MITIGATION AREA 1
711 SF (0.02 AC)

WETLAND MITIGATION AREA 2
8,691 SF (0.20 AC)

LIMITS OF GRADING

STORMWATER PLANTER

WETLAND A
EXISTING STORMWATER DITCH TO BE FILLED
26,890 SF (0.62 AC)

WETLAND A
SROZ BUFFER TO BE FILLED
96,455 SF (2.21 AC)

WETLAND A
33,546 SF (0.77 AC)
OF SR BUFFER TO BE FILLED

PROPOSED BUILDING

EXISTING BUILDING

EXISTING TRUCK PARKING

WETLAND MITIGATION AREA 3
7,550 SF (0.17 SF)

WETLAND MITIGATION AREA 4
24,579 SF (0.56 AC)

WATER QUALITY / DETENTION POND

SHALLOW MITIGATION POND

DITCH 1
5,618 SF (0.13 AC)
OF SR BUFFER TO BE FILLED

DITCH 1
SROZ TO REMAIN

DITCH 1
TO REMAIN

WETLAND A SROZ BUFFER
CONVERTED TO DITCH 1 SR BUFFER BUFFER TO REMAIN

DITCH 1
SR TO REMAIN

WETLAND B TO REMAIN

WETLAND C TO BE FILLED
475 SF (0.01 AC)

WEIDEMANN ROAD (PUBLIC) (UNPAVED)

SR TEMPORARY IMPACTS (DITCH 1)
AREA: 260 SF (0.01 AC)
LINEAR FEET: 16 FT

SROZ TEMPORARY IMPACTS (DITCH 1)
AREA: 1162 SF (0.03 AC)
LINEAR FEET: 62 FT

DETENTION POND CONNECTION TO EXISTING STORM DRAIN

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PROJECT:
SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN
WILSONVILLE, OR

PREPARED FOR:
SYSCO PORTLAND, INC.
PHONE: 281.584.5999
ADDRESS: 26250 SW PARKWAY CENTER DR
WILSONVILLE, OR 97070

STAMP

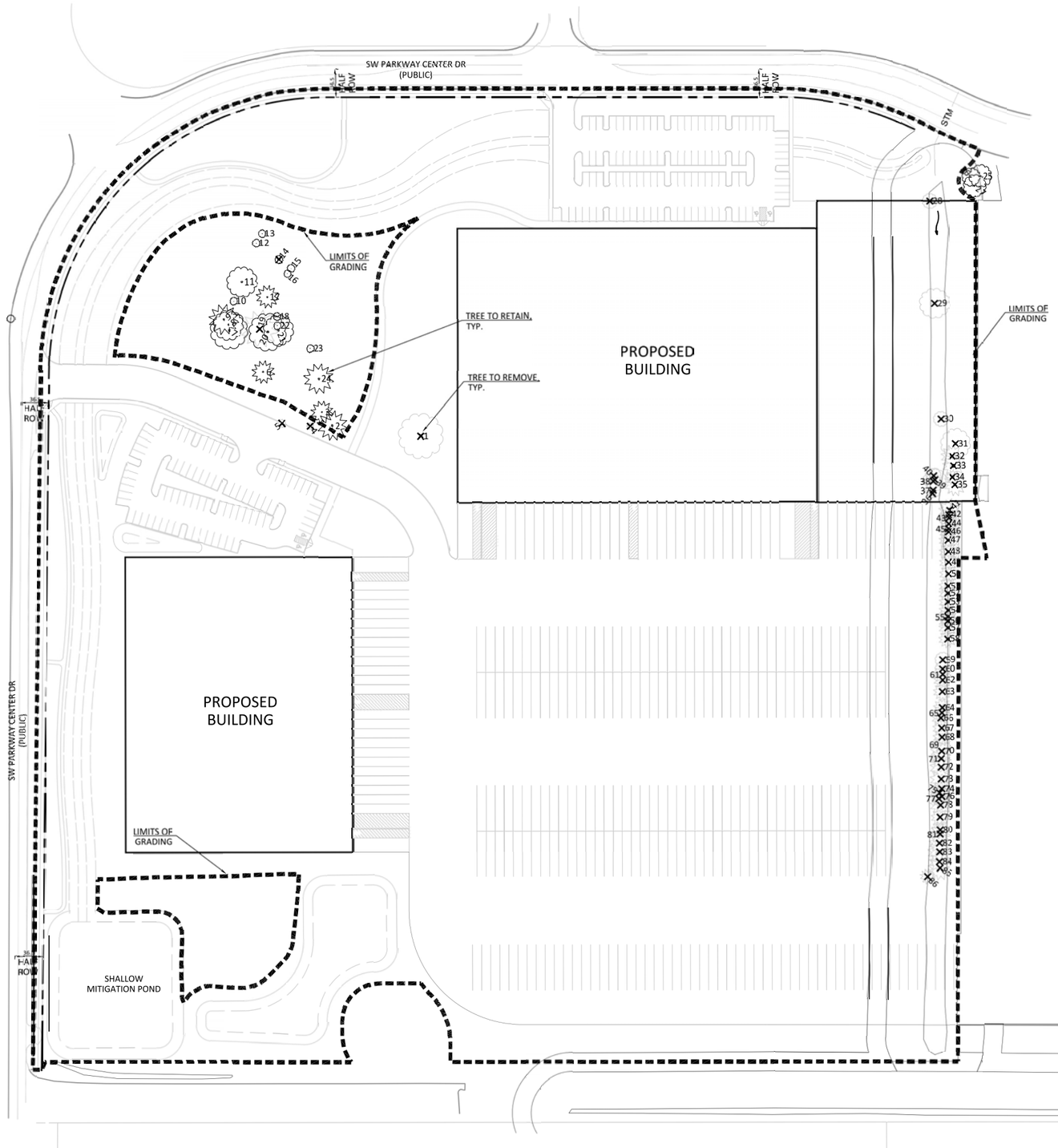
REV.	DATE	DESCRIPTION

NAME
PROPOSED SITE DEVELOPMENT

PROJECT NO.:	SYS001
DESIGN BY:	MJW
REVIEWED BY:	----
DATE:	03-29-2024

SHEET

FIG. 5



TREE TABLE

Survey Point number	Northing	Easting	Common and Scientific Name	DBH	Tag number	Retain / Remove	Reason for Removal
1	614834.786	7619225.19	Oregon-white-oak (Quercus garryana)	55	TAG 1	Remove	MOB
2	614851.423	7619108.295	ponderosa-pine (Pinus ponderosa)	38	TAG 2	Retain	
3	614869.425	7619095.281	Douglas-fir (Pseudotsuga menziesii)	27	TAG 3	Retain	
4	614851.466	7619079.646	Douglas-fir (Pseudotsuga menziesii)	34	NO TAG	Remove	Construction
5	614855.842	7619041.884	English-walnut (Juglans regia)	24	NO TAG	Remove	Construction
6	614924.301	7619018.658	Douglas-fir (Pseudotsuga menziesii)	32	TAG 6	Retain	
7	614980.261	7618975.096	Oregon-white-oak (Quercus garryana)	49	TAG 7 2/2	Retain	
8	614987.319	7618974.254	Oregon-white-oak (Quercus garry	41	TAG 8	Retain	
9	614994.919	7618968.231	Douglas-fir (Pseudotsuga menziesii)	36	TAG 9	Retain	
10	615018.697	7618982.064	Oregon-white-oak (Quercus garryana)	30	TAG 21	Retain	
11	615043.962	7618993.377	Oregon-white-oak (Quercus garryana)	31	TAG 11	Retain	
12	615094.6418	7619013.547	Oregon-white-oak (Quercus garryana)	28	NO TAG	Retain	
13	615107.083	7619021.567	Oregon-white-oak (Quercus garryana)	28	NO TAG	Retain	
14	615072.528	7619043.026	Oregon-white-oak (Quercus garryana)	36	NO TAG	Retain	
15	615060.515	7619058.8830'	Oregon-white-oak (Quercus garryana)	27	NO TAG	Retain	
16	615053.371	7619053.8920'	Oregon-white-oak (Quercus garryana)	31	NO TAG	Retain	
17	615023.58	7619026.463	Douglas-fir (Pseudotsuga menziesii)	21	TAG 17	Retain	
18	614997.229	7619038.724	Oregon-white-oak (Quercus garryana)	42	NO TAG	Retain	
19	614981.321	7619015.444	Oregon-white-oak (Quercus garryana)	16	TAG 20	Remove	MOB
20	614976.751	7619025.639	Oregon-white-oak (Quercus garryana)	29	TAG 21	Retain	
21	614979.173	7619040.273	Oregon-white-oak (Quercus garryana)	39	NO TAG	Retain	
22	614985.086	7619039.033	Oregon-white-oak (Quercus garryana)	25	NO TAG	Retain	
23	614953.8731	7619081.931	Oregon-white-oak (Quercus garryana)	30	TAG 24	Retain	
24	614913.727	7619091.979	Douglas-fir (Pseudotsuga menziesii)	31	TAG 25	Retain	
25	615161.7045	7619972.51	sweetgum (Liquidambar styraciflua)	13	NO TAG	Remove	Construction
26	615160.7003	7619960.183	sweetgum (Liquidambar styraciflua)	15	NO TAG	Remove	Construction
27	615149.0153	7619964.657	sweetgum (Liquidambar styraciflua)	16	NO TAG	Remove	Construction
28	615130.3229	7619904.803	weeping-willow (Salix babylonica)	10	NO TAG	Remove	Construction
29	614995.1183	7619908.066	black cottonwood (Populus trichocarpa)	27	NO TAG	Remove	Construction
30	614842.2113	7619913.04	red alder (Alnus rubra)	6	NO TAG	Remove	Construction
31	614808.8384	7619931.635	red oak (Quercus rubra)	17	NO TAG	Remove	Construction
32	614792.7375	7619926.51	deodora-cedar (Cedrus deodara)	17	NO TAG	Remove	Construction
33	614780.0774	7619928.303	deodora-cedar (Cedrus deodara)	17	NO TAG	Remove	Construction
34	614764.9782	7619926.203	deodora-cedar (Cedrus deodara)	9	NO TAG	Remove	Construction
35	614754.842	7619929.705	black pine (Pinus nigra)	23	NO TAG	Remove	Construction
36	614744.0305	7619899.657	black cottonwood (Populus trichocarpa)	6	NO TAG	Remove	Construction
37	614748.2491	7619900.574	black cottonwood (Populus trichocarpa)	8	NO TAG	Remove	Construction
38	614759.9881	7619901.033	black cottonwood (Populus trichocarpa)	8	NO TAG	Remove	Construction
39	614762.0057	7619903.051	black cottonwood (Populus trichocarpa)	25	NO TAG	Remove	Construction
40	614767.2332	7619901.675	black cottonwood (Populus trichocarpa)	12	NO TAG	Remove	Construction
41	614721.2841	7619921.836	black pine (Pinus nigra)	16	NO TAG	Remove	Construction
42	614715.7848	7619920.212	black pine (Pinus nigra)	10	NO TAG	Remove	Construction
43	614711.6601	7619920.614	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
44	614703.6119	7619920.011	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
45	614697.1734	7619919.507	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
46	614692.9898	7619919.301	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
47	614681.9705	7619918.491	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
48	614666.6857	7619918.488	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
49	614652.7496	7619918.488	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
50	614637.3549	7619918.163	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
51	614621.2413	7619917.034	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
52	614611.6804	7619916.71	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
53	614600.337	7619916.71	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
54	614589.1557	7619916.548	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
55	614580.7292	7619916.062	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
56	614575.2195	7619915.738	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
57	614566.4689	7619915.738	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
58	614551.3984	7619915.253	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
59	614524.1394	7619908.101	black cottonwood (Populus trichocarpa)	15	NO TAG	Remove	Construction
60	614511.9297	7619907.613	black cottonwood (Populus trichocarpa)	10	NO TAG	Remove	Construction
61	614504.9753	7619907.596	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
62	614497.3017	7619907.289	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
63	614481.9546	7619906.573	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
64	614460.8167	7619906.061	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
65	614454.064	7619905.344	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
66	614447.1066	7619903.912	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
67	614433.8058	7619904.73	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
68	614421.5804	7619904.831	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
69	614412.3721	7619904.627	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
70	614403.6913	7619904.048	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
71	614393.853	7619903.083	black pine (Pinus nigra)	15	NO TAG	Remove	Construction
72	614382.5357	7619902.826	black pine (Pinus nigra)	14	NO TAG	Remove	Construction
73	614366.6863	7619902.482	black pine (Pinus nigra)	15	NO TAG	Remove	Construction
74	614353.7429	7619902.994	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
75	614348.4701	7619899.906	black pine (Pinus nigra)	15	NO TAG	Remove	Construction
76	614343.5831	7619902.865	black pine (Pinus nigra)	15	NO TAG	Remove	Construction
77	614340.8181	7619898.813	black pine (Pinus nigra)	10	NO TAG	Remove	Construction
78	614332.2737	7619900.872	black pine (Pinus nigra)	14	NO TAG	Remove	Construction
79	614316.3053	7619899.89	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
80	614299.3446	7619899.683	black pine (Pinus nigra)	12	NO TAG	Remove	Construction
81	614294.0414	7619899.371	black pine (Pinus nigra)	14	NO TAG	Remove	Construction
82	614281.8652	7619898.376	black pine (Pinus nigra)	14	NO TAG	Remove	Construction
83	614270.2371	7619898.378	black pine (Pinus nigra)	16	NO TAG	Remove	Construction
84	614257.2063	7619897.757	black pine (Pinus nigra)	14	NO TAG	Remove	Construction
85	614249.0052	7619898.407	black pine (Pinus nigra)	16	NO TAG	Remove	Construction
86	614238.2007	7619881.853	weeping-willow (Salix babylonica)	10	NO TAG	Remove	Construction

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WILSONVILLE, OR

PREPARED FOR:
SYSCO PORTLAND, INC.
PHONE: 281.584.5999
ADDRESS: 26250 SW PARKWAY CENTER DR
WILSONVILLE, OR 97070

STAMP

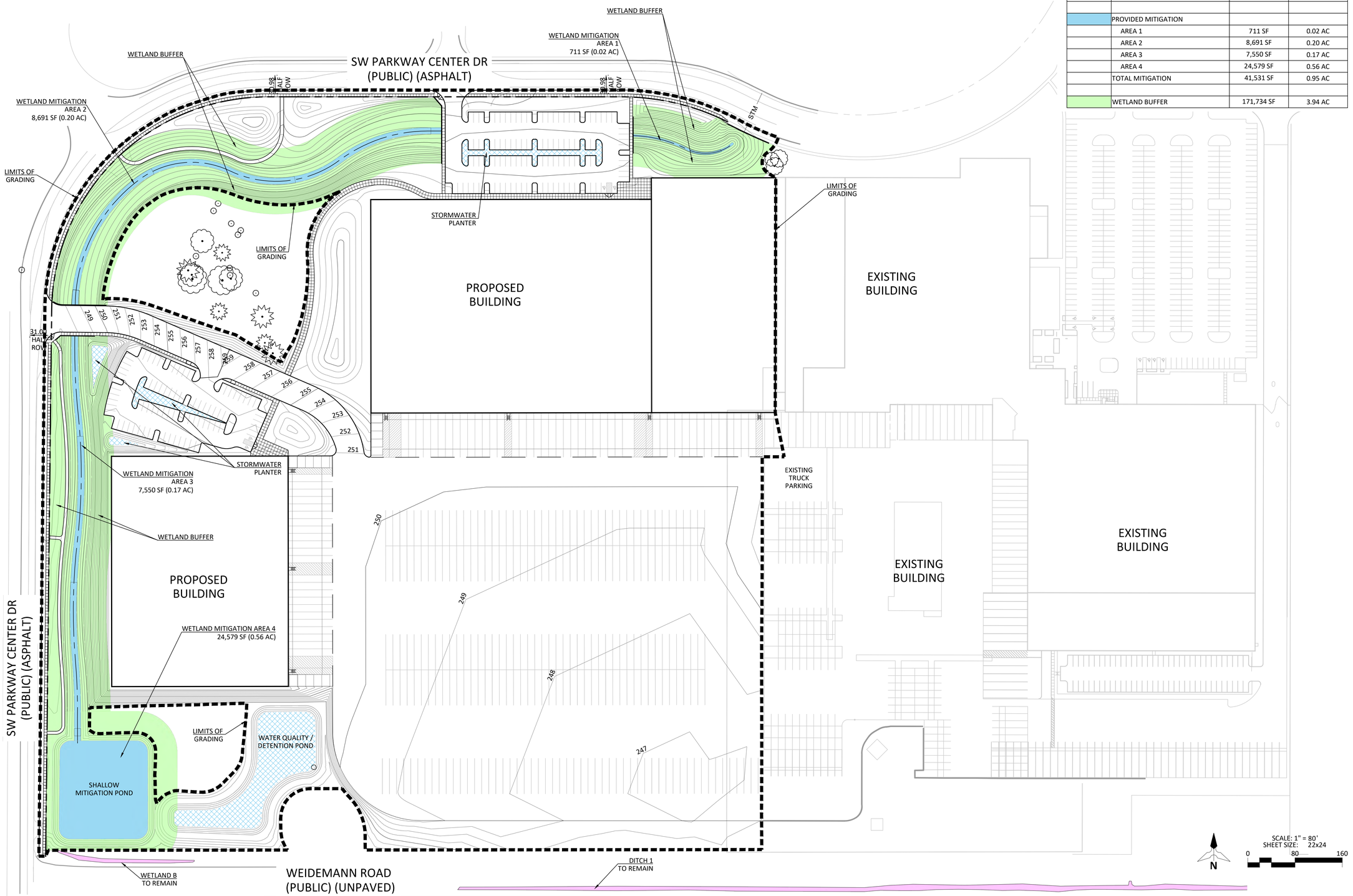
REV.	DATE	DESCRIPTION

NAME
TREE REMOVAL PLAN

PROJECT NO.: SYS001
DESIGN BY: MJW
REVIEWED BY: ----
DATE: 03-29-2024

SHEET
FIG. 5A

P:\SYS001-SYSCO Wilsonville\5 Planning\Drawings\WetlandReportFigures\SYS001-TreeRemoval_Figure5A.dwg Apr 04, 2025 - 12:15pm



WETLAND MITIGATION

		AREA IN SQUARE FEET (SF)	AREA IN ACRES (AC)
	WETLAND TO BE REMOVED	27,365 SF	0.63 AC
	PROVIDED MITIGATION		
	AREA 1	711 SF	0.02 AC
	AREA 2	8,691 SF	0.20 AC
	AREA 3	7,550 SF	0.17 AC
	AREA 4	24,579 SF	0.56 AC
	TOTAL MITIGATION	41,531 SF	0.95 AC
	WETLAND BUFFER	171,734 SF	3.94 AC

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PROJECT:

SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN

WILSONVILLE, OR

PREPARED FOR:

SYSCO PORTLAND, INC.

PHONE: 281.584.5999

ADDRESS: 26250 SW PARKWAY CENTER DR WILSONVILLE, OR 97070

STAMP

REV.	DATE	DESCRIPTION

NAME

MITIGATINON PLAN

PROJECT NO.:	SYS001
DESIGN BY:	MJW
REVIEWED BY:	----
DATE:	03-29-2024

SHEET

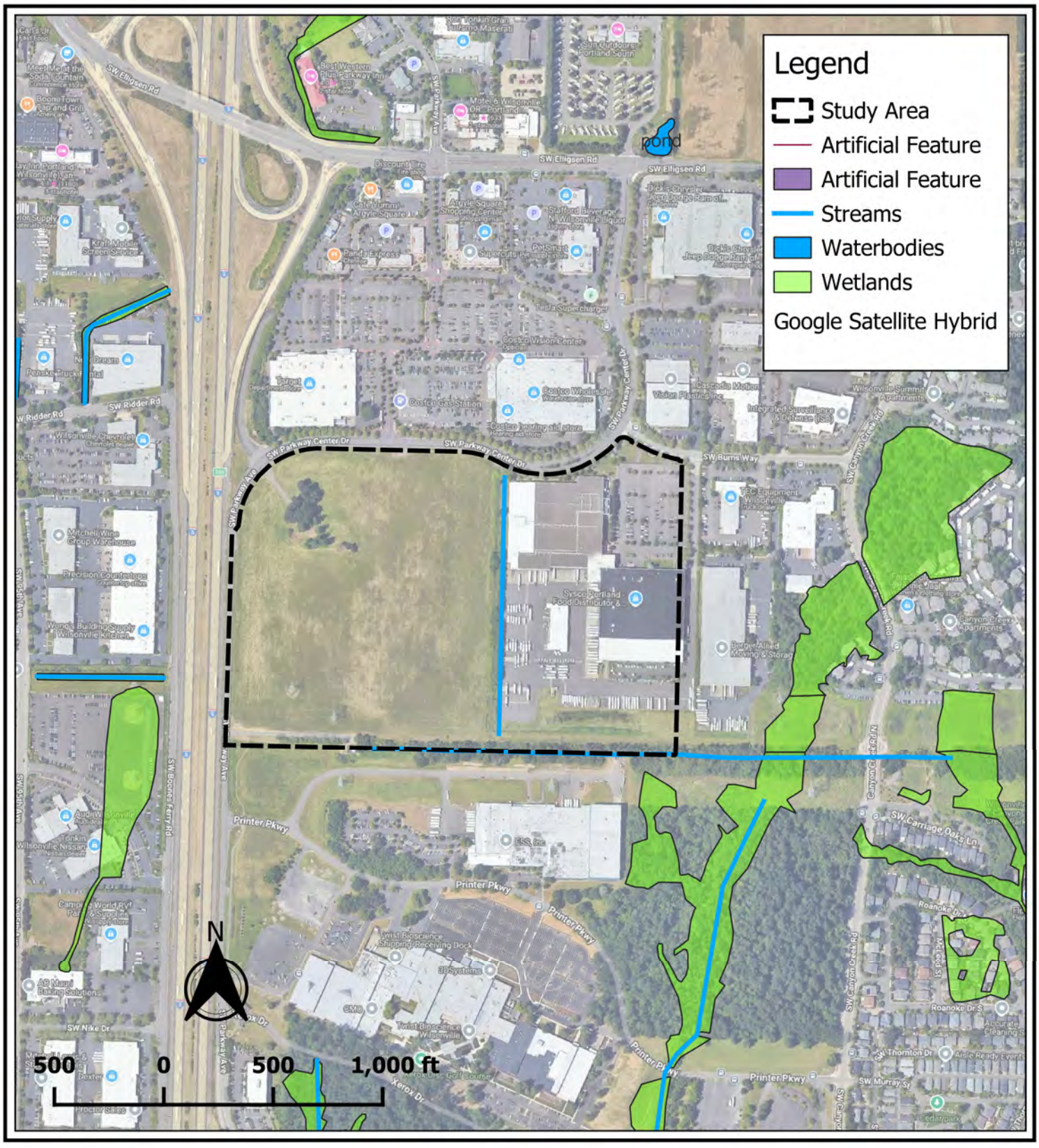
FIG. 6

#7569
12/31/2024

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Title 3 Lands in the Portland Metro Region
26120 SW Parkway Avenue - Wilsonville, OR
www.oregonmetro.gov/rlis.2012

FIGURE
7

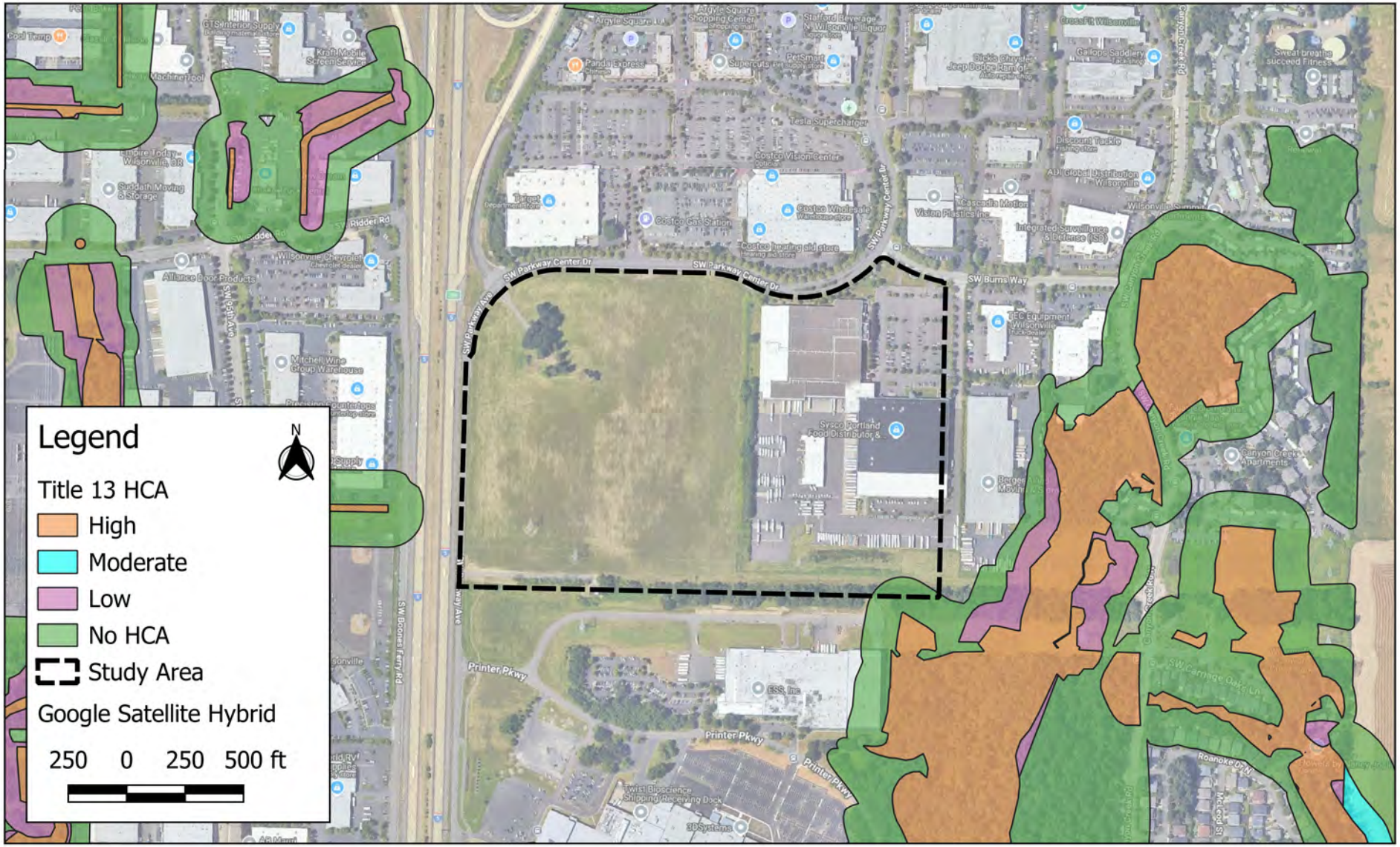


#7569
12/31/2024

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Local Wetlands Inventory
Sysco Wilsonville Rezone and Facility Expansion - Wilsonville, OR

FIGURE
8



#7569
12/31/2024

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Title 13 Land in the Portland Metro Region
26120 SW Parkway Center Drive - Wilsonville, OR
www.oregonmetro.gov/rlis.2012

FIGURE
9

Attachment B

Arborist Tree Inventory

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

TREE PROTECTION PLAN

for

SYSCO WILSONVILLE

site address

26120 SW PARKWAY AVE,
WILSONVILLE, OR 97070

Submitted by

Peter van Oss PN-8145A

Date Friday, April 28, 2023

Teragan and Associates, Inc.
Arboricultural Consultants
3145 Westview Circle, Lake Oswego, OR 97034
503-697-1975 | info@teragan.com

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Summary

Teragan and Associates has been contracted with Sysco Wilsonville to provide arboricultural consulting services. This report is the tree plan for the construction phase of the proposed project. The tree plan meets the recommendations and requirements of the City of Wilsonville Code.

Background

The plans propose the construction of new commercial buildings including site improvements in the form of ROW improvements, utility upgrades, and landscaping. The site improvements are proposed to allow for the expansion of the existing warehouse to the west. The property to the west is currently vacant land that has a treed area near Parkway Center drive where the old farmhouse used to be and a trees man-made culvert on the eastside. This tree plan addresses the proposed removals needed to allow for the expansion and the protection of the trees during the development project.

Tree Inventory

I completed the inventory during the site visit on March 17th, 2023, for the trees on the property. The tree diameters were recorded using a diameter tape. The health and conditions of the trees are determined by the plant species profiles compared to the current condition the trees present. Attributes that can negatively impact the ratings are growing conditions, bark inclusions, broken branches, poor vigor…etc. All trees are tagged with aluminum tags that have the corresponding numbers scribed on them except for trees that were not accessible due to accessibility restrictions.

Purpose and Use of the Report

The purpose of this report is to establish tree protection measures that will need to be adhered to during the construction project to ensure a positive outcome of the retention efforts. This report may be used by the owner to establish communications between the City of Wilsonville – Planning Department, contractors, and sub-contractors regarding the tree protection efforts of the project.

Observations

There are two areas where trees will be impacted by the proposed development. There is one area of trees where the old farmhouse used to be located that consists of Oregon-white-oak (*Quercus garryana)* and coniferous trees. The trees in this area are mostly proposed to be retained except for some of the coniferous trees.

The second location is the man-made swale on the east side of the property. The plans propose to enclose the swale to allow for a continuous expansion of the existing warehouse. The trees in this area are mostly planted landscape trees except for five black-cottonwood trees (*Populus trichocarpa).*

Proposed Removals

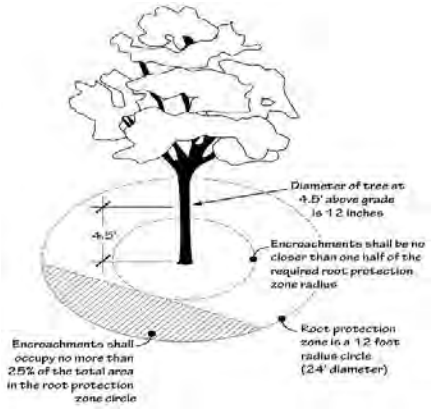
The trees are in the direct footprint of the development or are proposed for removal due to their conditions (Tree #1). The attached information in Appendix D – Inventory shows the details of the individual trees. In total 73 trees are proposed for removal to allow for the expansion of the Sysco site.

Tree Protection During Construction

Trees with low canopies should be pruned prior to the start of the project to ensure that there is enough clearance for the equipment being used. Care must be taken to prevent damages to any of the tree parts including the roots, tree trunk, scaffold, and secondary branches (canopy of the tree).

Trees that are retained should be protected at the recommended distance of 6 inches per diameter inch of the trees. This means that the soil disturbance should be 6 inches per diameter inch away from the tree in circumference of the tree. The site plan attached in Appendix C, shows the tree protection to be placed at the 12X diameter distance of the retained trees. Any work within the tree protection zone must be supervised by the project arborist.

The project arborist shall be notified if ground disturbance takes place near 12X (Blue Circles), a distance measured at a rate of twelve inches per diameter inch of the tree, measured from the face of the trunk.



The attached plan shows a proposed parking lot south of tree #11. To allow for additional trees to be retained, the parking lot is redesigned to be located on the NW side of the stand of oak trees. This will allow for 9 additional trees to be preserved.

The entire stand of oak trees will be protected by tree protection fencing to ensure that there is no impact to the root systems of the trees.

Additional Tree Protection Mitigation in Appendix E

Conclusion

It is my professional opinion that the tree protection measures set forth in this tree plan will suffice in the protection of the trees during construction. It is important to adhere to the standards in this report to ensure that the retention goals are successful.

Please feel free to contact me with any questions or concerns.

Sincerely,

Peter van Oss

Peter van Oss | Senior Associate
ISA Certified Arborist PN-8145A
Tree Risk Assessment Qualified
ASCA Member

Enclosures:

Appendix A: Certification of Performance

Appendix B: Assumptions and Limiting Conditions

Appendix C: Site Plan Fencing Placement and Proposed Removals

Appendix D: Inventory

Appendix E: Tree Protection Standards

Appendix A: Certification of Performance

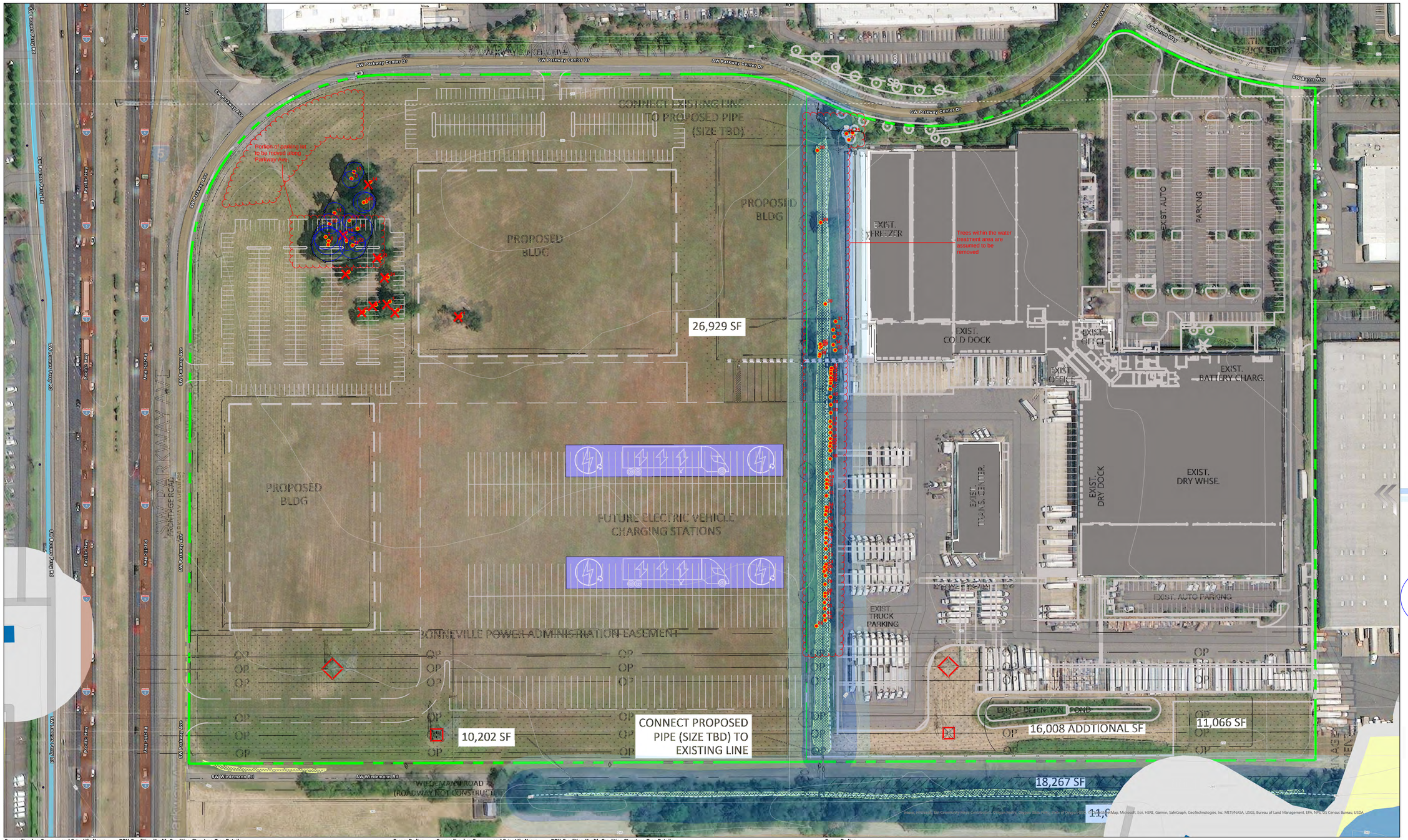
I, Peter van Oss, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of the Assignment.
- I have no current or prospective interest in the vegetation or the property that is subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions and conclusions stated herein are my own and are based on current professional procedures and facts.
- My analysis, opinions and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated in the report.
- My compensation is not contingent upon reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member of, and certified as an arborist by the ISA. I have been involved in the arboricultural field in a full- time capacity for a period of 17 years.

Appendix B: Assumptions and Limiting Conditions

1. A field examination of the site was made. My observations and conclusions are as of that date.
2. Care has been taken to obtain all information from a reliable source, however the arborist can neither guarantee nor be responsible for accuracy of information provided by others.
3. Unless stated otherwise, information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection. The inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee that problems or deficiencies of the subject tree may not arise in the future.
4. This report and any values/opinions expressed herein represents my opinion as an arborist. Inaction on the part of those receiving the report is not the responsibility of the arborist.
5. Loss or alteration of this report invalidates the entire report.
6. Any legal description provided to the consultant/ appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
7. The consultant/ appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment for such services.
8. Possession of this report does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written consent of the consultant/ appraiser.



TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

- Survey Point
- Study Area Tax Lots
- Vicinity Tax Lots
- Contours - SR

Riparian and Upland Areas
- Class A
- Class B
- Class C
- Class I
- Class II
- Class III
- Areas Where nearby Activies have an Impact on Resources
- PGE Transmission Poles
- PGE Transmission Lines
- Water Abandoned Lines OMS
- Sanitary Fittings OMS

Streams
- INTERMITTENT
- PERENNIAL
- <all other values>

Boeckman Rd Floodplain LOMR
- ZONE A
- ZONE AE
- SROZ
- SROZ Impact Area
- Greenway
- Upland
- Non-significant Wetlands

Significant Wetlands
- Significant Wetland
- <all other values>

c2023-03-17-Draft-_PDFToTIFF.tif
RGB
- Red: Band_1
- Green: Band_2
- Blue: Band_3

- SROZ
- SROZ Impact Area

Tree Protection Fencing
Construction fencing secured with metal posts at each panel

Tree Protection Zones at 12X the diameter of the tree

X Proposed Removals

Survey Number	Common and Scientific Name	DBH	Condition Health	Condition Structure	Tree Details	Crown Radius
1	Oregon-white-oak (Quercus garryana)	55	Poor	Failed/Failing	80% of the canopy failed. only the lower scaffold limbs remain	30
2	ponderosa-pine (Pinus ponderosa)	38	Fair	Poor	large scaffold previously failed.	20
3	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Fair	top failed. twig die back	15
4	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair		15
5	English-walnut (Juglans regia)	24	Poor	Failed/Failing	large die back	15
6	Douglas-fir (Pseudotsuga menziesii)	32	Fair	Fair	sap ooze	15
7	Oregon-white-oak (Quercus garryana)	49	Fair	Fair	Codominate leaders at base 42,26', cracking at union, pruned for utility clearance	25
8	Oregon-white-oak (Quercus garryana)	41	Poor	Fair	Swelling of lower trunk, canopy leaning to south, suggesting root issues	20
9	Douglas-fir (Pseudotsuga menziesii)	36	Good	Poor	Trunk leaning to west, reiterating main stem with crooks in trunk	20
10	Oregon-white-oak (Quercus garryana)	30	Good	Fair	Canopy leaning to south, growing amongst stand	20
11	Oregon-white-oak (Quercus garryana)	31	Good	Good	Full canopy, many wasp galls present	20
12	Oregon-white-oak (Quercus garryana)	28	Fair	Fair	Canopy leaning to south, many wasp galls n canopy	15
13	Oregon-white-oak (Quercus garryana)	28	Good	Fair	One sided, leaning canopy to north and west	15
14	Oregon-white-oak (Quercus garryana)	36	Poor	Fair	Large wounds from previous crown failures, unbalanced canopy	25
15	Oregon-white-oak (Quercus garryana)	27	Fair	Fair	Vascular damage on south side, canopy has heavy lean to east	25
16	Oregon-white-oak (Quercus garryana)	31	Fair	Poor	Large deadwood and large wounds from previous crown failures	20
17	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Fair	Evidence of previous crown failures, live top remains	15
18	Oregon-white-oak (Quercus garryana)	42	Fair	Fair	Codominate leaders at approx 30', dominant canopy to east	20
19	Douglas-fir (Pseudotsuga menziesii)	16	Dead/Dying	Poor	Dead top, many crown failures	5
20	Oregon-white-oak (Quercus garryana)	29	Fair	Fair	Leaning, one sided canopy to south, large deadwood present	25
21	Oregon-white-oak (Quercus garryana)	39	Fair	Poor	Large hanging branches present, canopy growing to south	25
22	Oregon-white-oak (Quercus garryana)	25	Fair	Fair	Suppressed vertical growth, canopy leaning to east	20
23	Oregon-white-oak (Quercus garryana)	30	Fair	Fair	Evidence of previous crown failures, extended lateral growth	20
24	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	Thinning of foliage, needle loss in canopy	20
25	sweetgum (Liquidambar styraciflua)	13	Poor	Poor	Excessive woodpecker damage at approx 15', associated suckering present	15
26	sweetgum (Liquidambar styraciflua)	15	Poor	Poor	Excessive woodpecker damage at approx 15', associated suckering present	12
27	sweetgum (Liquidambar styraciflua)	16	Fair	Poor	Girdling roots at base, Codominate leaders, broken tops from storm damage	15
28	weeping-willow (Salix babylonica)	10	Good	Fair	Many stems growing from base, stump was under water during inventory	10
29	black cottonwood (Populus trichocarpa)	27	Good	Fair	3 stems at base, growing from creek bank	20
30	red alder (Alnus rubra)	6	Good	Good	Some suckering at base, full canopy, growing in creek bank	10
31	red oak (Quercus rubra)	17	Fair	Fair	Canopy leaning to west, main leader possibly topped in past	20
32	deodora-cedar (Cedrus deodara)	17	Good	Fair	Suppressed lateral growth, growing in row along parking lot	15
33	deodora-cedar (Cedrus deodara)	17	Good	Fair	Suppressed lateral growth, growing in row along parking lot	15
34	deodora-cedar (Cedrus deodara)	9	Poor	Fair	Suppressed canopy, growing in row	10
35	black pine (Pinus nigra)	23	Fair	Fair	Codominate leaders with included bark at approx 8'	15
36	black cottonwood (Populus trichocarpa)	6	Fair	Fair	Two stems at base, growing from creek bed, tree not tagged and DBH is approximate	5
37	black cottonwood (Populus trichocarpa)	8	Fair	Fair	growing from creek bed, tree not tagged and DBH is approximate	10
38	black cottonwood (Populus trichocarpa)	8	Fair	Fair	Growing from creek bank, canopy leaning to east	10
39	black cottonwood (Populus trichocarpa)	25	Fair	Fair	Growing from creek bank, canopy leaning to east, tree not tagged and DBH is approximate	15
40	black cottonwood (Populus trichocarpa)	12	Fair	Fair	Leaning to north, tree not tagged and DBH is approximate	10
41	black pine (Pinus nigra)	16	Good	Fair	Codominate leaders, tree growing in row along parking lot	15
42	black pine (Pinus nigra)	10	Good	Fair	Growing in row along parking lot, tree not tagged	10
43	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
44	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
45	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
46	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
47	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
48	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
49	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
50	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
51	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
52	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
53	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
54	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
55	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
56	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
57	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
58	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
59	black cottonwood (Populus trichocarpa)	15	Good	Fair	Clump of stems at base, growing from creek bank, tree not tagged	10
60	black cottonwood (Populus trichocarpa)	10	Good	Fair	Clump of stems at base, growing from creek bank, tree not tagged	10
61	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
62	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
63	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
64	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
65	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
66	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
67	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
68	black pine (Pinus nigra)	12	Good	Fair	Two stems at base, Growing in row along parking lot, tree not tagged	10
69	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
70	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
71	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
72	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
73	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
74	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
75	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
76	black pine (Pinus nigra)	15	Good	Fair	Growing in row along parking lot, tree not tagged	10
77	black pine (Pinus nigra)	10	Good	Fair	Growing in row along parking lot, tree not tagged	10
78	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
79	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
80	black pine (Pinus nigra)	12	Good	Fair	Growing in row along parking lot, tree not tagged	10
81	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
82	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
83	black pine (Pinus nigra)	16	Good	Fair	Growing in row along parking lot, tree not tagged	10
84	black pine (Pinus nigra)	14	Good	Fair	Growing in row along parking lot, tree not tagged	10
85	black pine (Pinus nigra)	16	Good	Fair	Growing at end of row along parking lot	15
86	weeping-willow (Salix babylonica)	10	Good	Fair	Growing from creek bank, multi stem near base	5

Reference map for collaboration
NOT FOR CONSTRUCTION

100 50 0 100 200 300 400 Feet

N

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
1	Oregon-white-oak (Quercus garryana)	55	Poor	Failed/Failing	30	Moderate	80% of the canopy failed. only the lower scaffold limbs remain		X
2	ponderosa-pine (Pinus ponderosa)	38	Fair	Poor	20	Good	large scaffold previously failed.		X
3	Douglas-fir (Pseudotsuga menziesii)	27	Fair	Fair	15	Good	top failed. twig die back		X
4	Douglas-fir (Pseudotsuga menziesii)	34	Fair	Fair	15	Good			X
5	English-walnut (Juglans regia)	24	Poor	Failed/Failing	15	Good	large die back		X
6	Douglas-fir (Pseudotsuga menziesii)	32	Fair	Fair	15	Good	sap ooze		X
7	Oregon-white-oak (Quercus garryana)	49	Fair	Fair	25	Poor	Codominate leaders at base 42,26", cracking at union, pruned for utility clearance	X	
8	Oregon-white-oak (Quercus garry	41	Poor	Fair	20	Poor	Swelling of lower trunk, canopy leaning to south, suggesting root issues	X	
9	Douglas-fir (Pseudotsuga menziesii)	36	Good	Poor	20	Moderate	Trunk leaning to west, reiterating main stem with crooks in trunk	X	
10	Oregon-white-oak (Quercus garry	30	Good	Fair	20	Poor	Canopy leaning to south, growing amongst stand	X	
11	Oregon-white-oak (Quercus garryana)	31	Good	Good	20	Poor	Full canopy, many wasp galls present	X	
12	Oregon-white-oak (Quercus garryana)	28	Fair	Fair	15	Poor	Canopy leaning to south, many wasp galls n canopy	X	
13	Oregon-white-oak (Quercus garryana)	28	Good	Fair	15	Poor	One sided, leaning canopy to north and west	X	
14	Oregon-white-oak (Quercus garryana)	36	Poor	Poor	25	Poor	Large wounds from previous crown failures, unbalanced canopy		X
15	Oregon-white-oak (Quercus garryana)	27	Fair	Fair	25	Poor	Vascular damage on south side, canopy has heavy lean to east	X	
16	Oregon-white-oak (Quercus garryana)	31	Fair	Poor	20	Poor	Large deadwood and large wounds from previous crown failures	X	
17	Douglas-fir (Pseudotsuga menziesii)	21	Fair	Fair	15	Moderate	Evidence of previous crown failures, live top remains	X	
18	Oregon-white-oak (Quercus garryana)	42	Fair	Fair	20	Poor	Codominate leaders at approx 30', dominant canopy to east	X	
19	Douglas-fir (Pseudotsuga menziesii)	16	Dead/Dying	Poor	5	Poor	Dead top, many crown failures		X
20	Oregon-white-oak (Quercus garryana)	29	Fair	Fair	25	Poor	Leaning, one sided canopy to south, large deadwood present	X	
21	Oregon-white-oak (Quercus garryana)	39	Fair	Poor	25	Poor	Large hanging branches present, canopy growing to south	X	

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
22	Oregon-white-oak (Quercus garryana)	25	Fair	Fair	20	Poor	Suppressed vertical growth, canopy leaning to east		X
23	Oregon-white-oak (Quercus garryana)	30	Fair	Fair	20	Moderate	Evidence of previous crown failures, extended lateral growth		X
24	Douglas-fir (Pseudotsuga menziesii)	31	Fair	Fair	20	Moderate	Thinning of foliage, needle loss in canopy		X
25	sweetgum (Liquidambar styraciflua)	13	Poor	Poor	15	Moderate	Excessive woodpecker damage at approx 15', associated suckering present		X
26	sweetgum (Liquidambar styraciflua)	15	Poor	Poor	12	Moderate	Excessive woodpecker damage at approx 15', associated suckering present		X
27	sweetgum (Liquidambar styraciflua)	16	Fair	Poor	15	Moderate	Girdling roots at base, Codominate leaders, broken tops from storm damage		X
28	weeping-willow (Salix babylonica)	10	Good	Fair	10	Moderate	Many stems growing from base, stump was under water during inventory		X
29	black cottonwood (Populus trichocarpa)	27	Good	Fair	20	Moderate	3 stems at base, growing from creek bank		X
30	red alder (Alnus rubra)	6	Good	Good	10	Poor	Some suckering at base, full canopy, growing in creek bank		X
31	red oak (Quercus rubra)	17	Fair	Fair	20	Moderate	Canopy leaning to west, main leader possibly topped in past		X
32	deodora-cedar (Cedrus deodara)	17	Good	Fair	15	Moderate	Suppressed lateral growth, growing in row along parking lot		X
33	deodora-cedar (Cedrus deodara)	17	Good	Fair	15	Moderate	Suppressed lateral growth, growing in row along parking lot		X
34	deodora-cedar (Cedrus deodara)	9	Poor	Fair	10	Moderate	Suppressed canopy, growing in row		X
35	black pine (Pinus nigra)	23	Fair	Fair	15	Moderate	Codominate leaders with included bark at approx 8'		X
36	black cottonwood (Populus trichocarpa)	6	Fair	Fair	5	Moderate	Two stems at base, growing from creek bed, tree not tagged and DBH is approximate		X
37	black cottonwood (Populus trichocarpa)	8	Fair	Fair	10	Moderate	growing from creek bed, tree not tagged and DBH is approximate		X
38	black cottonwood (Populus trichocarpa)	8	Fair	Fair	10	Moderate	Growing from creek bank, canopy leaning to east		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
39	black cottonwood (Populus trichocarpa)	25	Fair	Fair	15	Moderate	Growing from creek bank, canopy leaning to east, tree not tagged and DBH is approximate		X
40	black cottonwood (Populus trichocarpa)	12	Fair	Fair	10	Moderate	Leaning to north, tree not tagged and DBH is approximate		X
41	black pine (Pinus nigra)	16	Good	Fair	15	Moderate	Codominate leaders, tree growing in row along parking lot		X
42	black pine (Pinus nigra)	10	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
43	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
44	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
45	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
46	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
47	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
48	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
49	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
50	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
51	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
52	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
53	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
54	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
55	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
56	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
57	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
58	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
59	black cottonwood (Populus trichocarpa)	15	Good	Fair	10	Moderate	Clump of stems at base, growing from creek bank, tree not tagged		X
60	black cottonwood (Populus trichocarpa)	10	Good	Fair	10	Moderate	Clump of stems at base, growing from creek bank, tree not tagged		X
61	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
62	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
63	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
64	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
65	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
66	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
67	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
68	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Two stems at base, Growing in row along parking lot, tree not tagged		X
69	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
70	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
71	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
72	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
73	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
74	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
75	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X

ObjectID	Common and Scientific Name	DBH	Condition Health	Condition Structure	Crown Radius	Construction Impact Tolerance	Tree Details	Protected Trees	Proposed Removals
76	black pine (Pinus nigra)	15	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
77	black pine (Pinus nigra)	10	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
78	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
79	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
80	black pine (Pinus nigra)	12	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
81	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
82	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
83	black pine (Pinus nigra)	16	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
84	black pine (Pinus nigra)	14	Good	Fair	10	Moderate	Growing in row along parking lot, tree not tagged		X
85	black pine (Pinus nigra)	16	Good	Fair	15	Moderate	Growing at end of row along parking lot		X
86	weeping-willow (Salix babylonica)	10	Good	Fair	5	Moderate	Growing from creek bank, multi stem near base		X
								13	**73**

Appendix E: Tree Protection Specifications

It is critical that the following steps be taken to ensure that they are retained and protected.

Before Construction Begins

2. Notify all contractors of the tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection. It can only take one mistake with a misplaced trench or other action to destroy the future of a tree.

a. Hold a Tree Protection meeting with all contractors to fully explain goals of tree protection.

b. Have all subcontractors sign memoranda of understanding regarding the goals of tree protection. Memoranda to include penalty for violating tree protection plan. Penalty to equal appraised value of tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline by the Council of Tree & Landscape Appraisers current edition of the *Guide for Plant Appraisal*.

c. Trees that require pruning to provide clearance shall be pruned prior to the start of the project to avoid damaged to the tree parts. The pruning shall adhere to ANSI a300 standards, and the project arborist should be onsite to oversee the activities.

3. Fencing.

a. Establish fencing around each tree or grove of trees to be retained as shown on the tree protection site plan.

b. The fencing is to be put in place before the ground is cleared to protect the trees and the soil around the trees from any disturbance at all. Exception is if trees are to be removed that are located within the tree protection zones, they should be removed prior to installing the tree protection fencing without the use of mechanized wheeled or tracked equipment.

c. Fencing is to be placed at the edge of the root protection zone as shown on the Tree Protection Plan (Appendix C). Root protection zones are established by the project arborist based on the needs of the site and the tree to be protected.

d. “Protection fencing consisting of a minimum 4-foot-high metal fencing, secured with 6-foot metal posts shall be established at the edge of the root protection zone and permissible encroachment area on the development site. Existing structures and/or existing secured fencing at least 3.5 feet tall can serve as the required protective fencing.” If construction fencing is used it is recommended that the panels are secured to prevent movement of the fencing during construction.

e. Fencing is to remain in the position that is established by the project arborist and not to be moved without written permission from the project arborist until the end of the project.

4. Signage

a. All tree protection fencing should have signage clearly indicating that the area is a vegetation protection zone. (Appendix F).

b. Signage should be placed as to be visible from all sides of a tree protection area and spaced every 35 feet.

During Construction

5. 1 Protection guidelines within the Root Protection Zone

a. No traffic shall be allowed within the root protection zone. No vehicle, heavy equipment, or even repeated foot traffic.

b. No storage of materials including but not limited to soil, construction material, or waste from the site.

c. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.

d. Construction trailers are not to be parked / placed within the root protection zone without written clearance from the project arborist.

e. No vehicles shall be allowed to park within the root protection areas.

f. No activity shall be allowed that will cause soil compaction within the root protection zone.

6. Tree protection. Retained trees shall be protected from any cutting, skinning, or breaking of branches, trunks, or roots. The project arborist shall be onsite to observe ground disturbance within 12X the diameter of the tree.

7. Root pruning. Any roots that are to be cut from existing trees that are to be retained, the project consulting arborist shall be notified to evaluate, document, and oversee the proper cutting of roots with sharp cutting tools. Cut roots are to be immediately covered with soil or mulch to prevent them from drying out.

8. Grade changes. No grade change should be allowed within the root protection zone.

9. Root protection zone changes. Any necessary deviation of the root protection zone shall be cleared by the project consulting arborist in writing.

10. Watering. Provide water to trees during the summer months as needed. Tree(s) that will have had root system(s) cut back will need supplemental water to overcome the loss of ability to absorb necessary moisture during the summer months.

11. Utilities. Any necessary passage of utilities through the root protection zone shall be by means of tunneling under roots by hand digging or boring.

12. Re-inspection of fencing. Tree protection fencing is subject to inspection by the city. The project arborist highly recommends monthly inspections of tree protection fencing to ensure compliance with the permit and protection of the trees.

After Construction

14. Fences are to remain standing until the completion of the project.

15. Carefully landscape around the tree. Do not allow trenching within the root protection zone which still exists even though the tree protection fencing has been removed for landscape installation. Carefully plant new plants within the root protection zone. Avoid cutting the roots of the existing trees.

16. Do not plan for irrigation within the root protection zone of existing trees unless it is drip irrigation for a specific planting or cleared by the project arborist.

17. Provide for or ensure that adequate drainage will occur around the retained trees.

18. Pruning of the trees should be completed as one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch, or turf.

19. Trees that are retained may need to be fertilized as called for by the project arborist if acceptable thresholds are exceeded when determined by use of laboratory testing.

VEGETATION/TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THIS FENCING.
THE FENCE LOCATIONS ARE APPROVED TO PROTECT VEGETATION AND TREES.

Please contact the Code Enforcement Specialist and project arborist, if alterations to the approved location of the protection fencing are needed.

TERAGAN & ASSOCIATES, INC.
ARBORICULTURAL CONSULTANTS

Project Arborist: TERAGAN & ASSOCIATES, INC 503-697-1975

Attachment C

Wetland Delineation Report

Wetland Delineation
Sysco Facility Expansion Master Plan at 26120 SW Parkway Avenue, Wilsonville, Oregon

Township	Range	Section	Tax Lots
3 South	1 West	11	Roads (No Tax Lots)
		12	1100, 401, and portion of 402

Prepared for

Peter Richter
Vice Presidential of Enterprise Asset Management
Sysco Portland, Inc.
23250 SW Parkway Center Drive
Wilsonville, OR 97070-7788

Prepared by

Joe Thompson (PWS), Carlee Michelson (PWS),
Tina Farrelly (PWS), and
John van Staveren (SPWS)
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
(503) 570-0800

PHS Project Number: 7569

October 23, 2023

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I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation to support the proposed zone change and the Sysco facility expansion master plan at 26120 SW Parkway Avenue in Wilsonville, Oregon (Township 3S, Range 1W, Section 11, Roads; and Section 12 Tax lots 1100, 401 and a portion of 402). This report presents the results of PHS's delineation of the study area. Figures, including a map depicting the location of wetlands within the study area, are in Appendix A. Data sheets documenting on-site conditions are provided in Appendix B, and ground-level photos of the study area are included in Appendix C

II. RESULTS AND DISCUSSION

A. Landscape Setting and Land Use

The approximately 42.2-acre study area is located mostly in undeveloped parcels (Tax Lots 401 and 1100) in the eastern portion of Wilsonville, east of SW Parkway Avenue and south of SW Parkway Center Drive. The landscape setting consists of former farmland that is gradually being converted to industrial parks, office buildings, and residential developments. A small portion of the existing Sysco Facility, which is not developed, is also within the study area (TL 402)

The majority of the site is a non-native grassland, with a few Oregon oak trees (*Quercus garryana*, FACU) trees in the northwest corner. The dominant vegetation in the grassland is typical of fallowed former hayfields in the region and consists of tall fescue *(Schedonorus arundinacea*, FAC), rough cat's ear (*Hypochaeris radicata*, FACU), hairy hawkbit (*Leontodon saxatilis*, FACU), dandelion (*Taraxacum officinalis*, FACU), self-heal (*Prunella vulgaris*, FACU), and English plantain (*Plantago lanceolata*, FACU).

A roadside drainage ditch containing wetlands (Wetland C) is adjacent to SW Parkway Avenue and north of the southern access road and is dominated by tall fescue. A stormwater detention ditch (Wetland A) oriented north to south is located on the site's eastern boundary and is dominated by willows (*Salix* spp., (FAC)), Himalayan blackberry (*Rubus armeniacus*, FAC), and reed canarygrass (*Phalaris arundinacea*, FACW).

The Natural Resources Conservation Service (NRCS) depicts three soil map units within the study area: Aloha silt loam, 0 to 3 percent slopes, Woodburn silt loam, 0 to 3 percent slopes, and Huberly silt loam, 0-3 percent slopes. Only the Huberly soil is considered hydric.

B. Site Alterations

The history of the project site, including site alterations potentially affecting jurisdictional areas, was determined based on historic aerial photos in Appendix D (Exhibit A; 1952 and Exhibit B; 1981), and online Google Earth aerial imagery dating from 1984 to the present as well as online historic USGS topographic maps.

A farmhouse previously stood within the stand of Oregon oak trees in the northwest corner of the property, but online Google Earth aerial imagery indicates that it was demolished in 2018. The stormwater ditch along the eastern boundary is not visible in Exhibit B, but is visible in 1994 Google Earth imagery, indicating that is was constructed between 1981 and 1994. It is also included in the 1999 Wilsonville Local Wetland Inventory (LWI) as an ephemeral stream channel, along with an abutting east-west intermittent channel at the south end of the study area. Historic USGS topographic maps dating from 1916 to present do not depict natural streams in the proximity of either ditch, therefore, neither is likely to be a realigned stream channel. The Google Earth aerial imagery also indicates that the stormwater facility in the eastern portion of the study area was constructed in 1985 in what appears to have been a dense stand of Himalayan blackberries.

C. Precipitation Data and Analysis

PHS performed the wetland delineation and data collection on September 22 and December 1 of 2022. Recorded precipitation for the water year, beginning on October 1, 2022 and ending on August 30, 2023 was 41.96 inches, which is 97 percent of normal (43.17 inches).

For climate analysis, PHS used the Direct Antecedent Rainfall Analysis Method (DAREM) for both field dates. Using DAREM, if rainfall of prior period was drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18). The Oregon City Weather Station was used for both the recorded precipitation and WETs Table. As shown in Table 1A, the weighted average precipitation for the three months preceding the September fieldwork was drier than normal. Only 0.01 inches of precipitation was recorded in the two weeks preceding the fieldwork and no precipitation fell on the day of the fieldwork.

Table 1A: Comparison of recorded monthly precipitation at the Oregon City Weather Station to the WETS Tables, prior to the September 2022 wetland delineation field work.

Prior Month Name	WETS[1] Rainfall Percentile (inches)		Measured Rainfall[2] (inches)	Condition*:	Condition Value	Month weight	Multiply Previous two columns
	30th	70th		Dry, Wet, Normal	(1=dry, 2=normal, or 3=wet)		
August	0.14	0.54	0.00	Dry	1	3	3
July	0.15	0.45	0.04	Dry	1	2	2
June	0.97	1.82	3.64	Wet	3	1	3
						Sum	**8**

[1] WETS Table for the Oregon City Weather Station; Source: (http://agacis.rcc-acis.org/?fips=41005)

[2] Observed precipitation is the precipitation recorded at the Oregon City Weather Station. Source: (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/?fips=41005)

Additional fieldwork was conducted on December 1, 2022. As shown in Table 1B, the weighted average precipitation for the three months preceding the December fieldwork was drier than normal. Recorded precipitation for the two weeks preceding the December fieldwork was 2.42 inches, which is 74 percent of normal (3.27 inches); 0.10 inches fell on the day of this fieldwork.

Table 1B: Comparison of recorded monthly precipitation at the Oregon City Weather Station to the WETS Tables, prior to the December 2022 wetland delineation field work.

Prior Month Name	WETS[1] Rainfall Percentile (inches)		Measured Rainfall[2] (inches)	Condition*:	Condition Value	Month weight	Multiply Previous two columns
	30th	70th		Dry, Wet, Normal	(1=dry, 2=normal, or 3=wet)		
November	4.48	8.07	7.19	Normal	2	3	6
October	1.93	4.24	3.02	Normal	2	2	4
September	0.94	2.20	0.11	Dry	1	1	1
						Sum	**11**

[1] WETS Table for the Oregon City Weather Station; Source: (http://agacis.rcc-acis.org/?fips=41005)
[2] Observed precipitation is the precipitation recorded at the Oregon City Weather Station. Source: (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/?fips=41005)

D. Methods

Wetland Methodology

PHS delineated the limits of the wetlands in the study area based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the routine onsite determination method, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y 87 1* ("The 1987 Manual") and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. As stated above the field work took place on September 22 and December 1, 2022.

Investigations of potential wetlands were performed in all undeveloped areas of the site; however, the majority of the fieldwork took place in ditches. Because hydrological conditions were below normal during the September fieldwork, soils/hydrology pits were excavated to 24 inches whenever hydrophytic vegetation and hydric soils were present, but sufficient wetland hydrology indicators were not observed in the upper 12 inches of the soil profile.

Waters Methodology:

The ordinary high water line (OHWL) of Ditch 1 was delineated based on topography and the presence of a bed and bank. Observed field indicators for OHWL at this site included drainage patterns and drift deposits.

E. Description of all Wetlands and Other Waters

PHS identified the limits of one potentially jurisdictional water of the State/U.S. and two potentially jurisdictional wetlands within the study area.

Ditch 1

Ditch 1 (10,190 square feet /0.23 acre) is an excavated ditch that collects water from upslope areas and flows east along the southern boundary of the site towards Boeckman Creek, which is approximately 0.5 miles east of the study area. Its Cowardin classification is riverine intermittent streambed mud (R4SB5) and its Hydrogeomorphic (HGM) is Riverine Flow Through (RFT).

The ditch is mostly unvegetated, however, there are mature trees and shrubs along the banks, including balsam poplar (*Populus balsamifera*, FAC); lodgepole pine (*Pinus contorta*, FAC); Sitka willow (*Salix sitchensis*, FACW); service berry (*Amelanchier alnifolia*, FACU); hazelnut (*Corylus avellana*, UPL); bird cherry (*Prunus avium*, UPL); dewberry (*Rubus ursinus*, FACU); sweetbriar rose (*Rosa rubiginosa*, UPL); swordfern (*Polystichum munitum*, FACU); bentgrass (*Agrostis* spp. (FAC)); and Queen Anne's lace (*Daucus carota*, FACU). OHW was mapped based on drainage patterns and drift deposits.

Wetland A

Wetland A (26,805 square feet/ 0.62 acre) is located in a broad and deep ditch near the site's eastern boundary. It appears to have been constructed as part of the City of Wilsonville's stormwater system and has perennial flows, due at least in part to urban runoff, but possibly also due to the ditch intercepting the water table. It is dominated by reed canarygrass and narrow-leaf cattail (*Typha angustifolia*, OBL), although there are some small patches of willows (*Salix* spp., FAC) and Himalayan blackberry (*Rubus armeniacus*, FAC); therefore, it is classified under the Cowardin System as palustrine emergent semi-permanently flooded excavated (PEMFx). The HGM classification is RFT.

Dominant vegetation in the adjacent uplands includes Himalayan blackberry, meadow foxtail (*Alopecurus pratensis*, FAC), Queen Anne's lace, tall fescue, and orchard grass (*Dactylis glomerata*, FACU). Hydric soils and wetland hydrology are absent.

Wetland B

Wetland B (1,379 square feet/ 0.03 acre) is a roadside ditch located along the southern access road in the southwestern portion of the study area. Its Cowardin classification is Palustrine Emergent Seasonally Flooded/Saturated (PEME) and its HGM classification is Flats. The dominant vegetation is tall fescue. Soils meet the requirements for redox dark surface, and wetland hydrology indicators include oxidized rhizospheres along living roots and geomorphic position.

The adjacent uplands were dominated by Himalayan blackberry, tall fescue, rough cat's ear, and Queen Anne's lace. Hydric soils and wetland hydrology are absent.

Wetland C

Wetland C (478 square feet / 0.01 acre) is a roadside ditch located along SW Parkway Avenue near the western study area boundary. Its Cowardin classification is PEME and its HGM classification is Flats. The dominant vegetation is tall fescue. Soils meet the requirements for redox dark surface, and wetland hydrology indicators include high oxidized rhizospheres along living roots and geomorphic position.

The adjacent uplands were dominated by tall fescue, rough cat's ear, and Queen Anne's lace. Hydric soils and wetland hydrology are absent.

F. Deviation from Local or National Wetland Inventories

The 1999 Wilsonville LWI does not depict any wetlands within the study area; however, it depicts two intermittent channels in the same locations as Wetland A and Ditch 1. PHS determined that Wetland A is perennial, most likely due to urban runoff, but possibly also due to the deep ditch intercepting the water table. Ditch 1 appears to only have flows during and shortly after rainfall and does not have adjacent wetlands or other evidence of groundwater, therefore it is classified as intermittent.

G. Mapping Method

The wetlands, waters and sample points were surveyed by Stanbridge. The study area was prepared based on the Clackamas County tax lots and aerial photography in GIS and its estimated accuracy is submeter.

H. Additional Information

Ditch 1 is likely not a jurisdictional water of the state, subject to DSL concurrence based on the following: It is an ephemeral channel that does not support food and game fish, and its OHW is less than 10 feet.

It is not likely to be Corps jurisdictional either because it lacks a free and open connection to a navigable waterway. PHS did not investigate Ditch 1 west of the study area on foot; however, using Google Earth it is apparent that the ditch passes through a large culvert approximately 780 feet east of the study area and the riparian habitat ends abruptly approximately 770 feet farther east, with no linear continuation of the ditch eastward. The culverts may present a barrier to flow that would cause the Corps to not take jurisdiction; however, there are two narrow ditches east of the culvert that extend southward from the ditch and may be interpreted as carrying flows southward to Boeckman Creek, which is a certainly a Corps jurisdictional waterway. An Approved Jurisdictional Determination (AJD) request will be submitted to the Corps, who will make the final determination on the Corps jurisdictional status of the stream.

I. Results and Conclusions

PHS delineated the boundaries of one potentially jurisdictional water and three wetlands. The total area of potentially jurisdictional wetlands within the study area is 0.66 acres and total waters is 0.23 acres, as summarized in Table 2.

Table 2: Summary of Wetlands and Water Resources within the Study Area

Resource	Area (acres)	Cowardin Class	HGM Class
Wetland A	0.62	PSS1Ex/PEMFx	RFT
Wetland B	0.03	PEMC	Flats
Wetland C	0.01	PEMC	Flats
Total Wetlands	**0.66**		
Ditch 1	0.23	R4SB5	RFT
Total Waters	**0.23**		

J. Required Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

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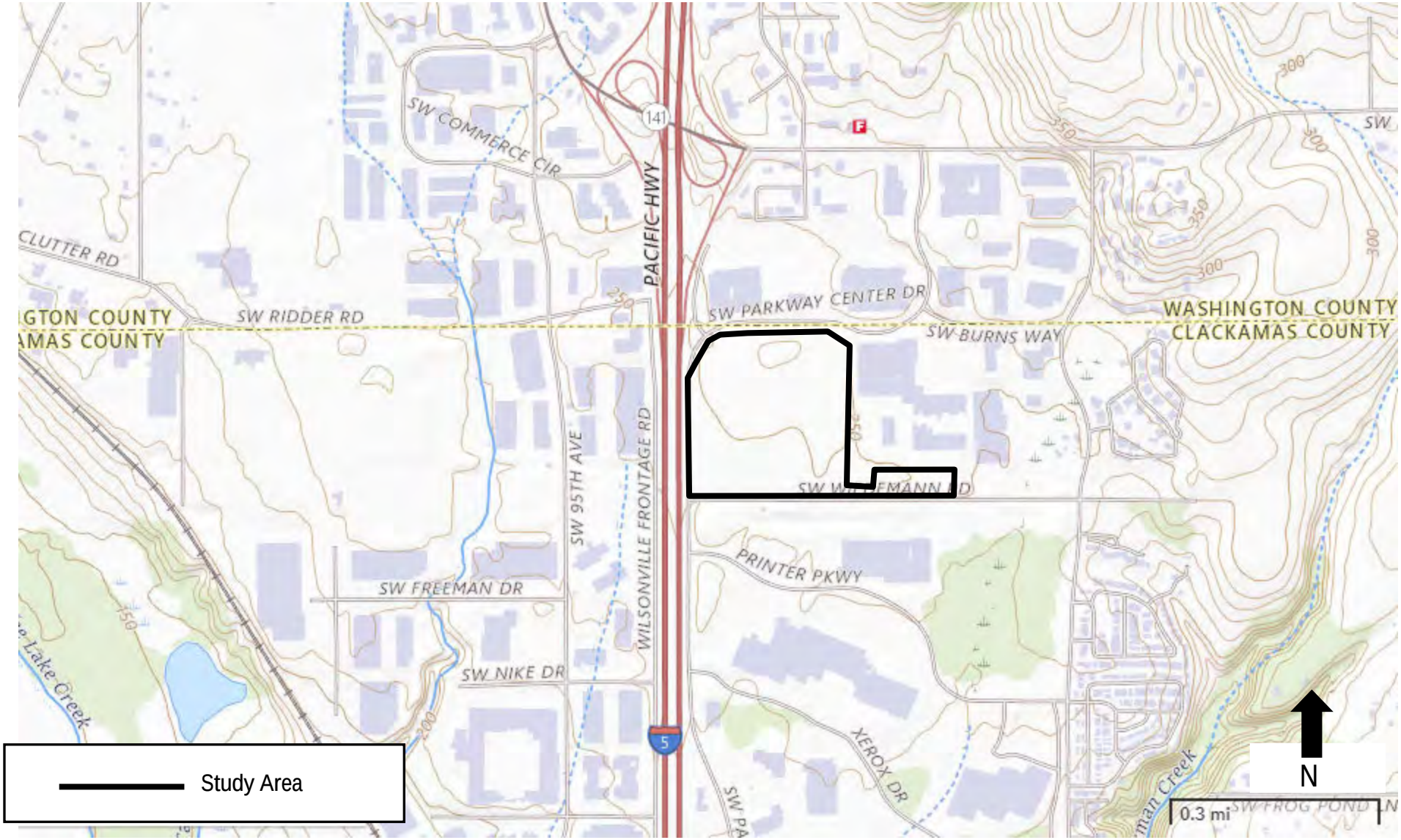
Appendix A

Figures

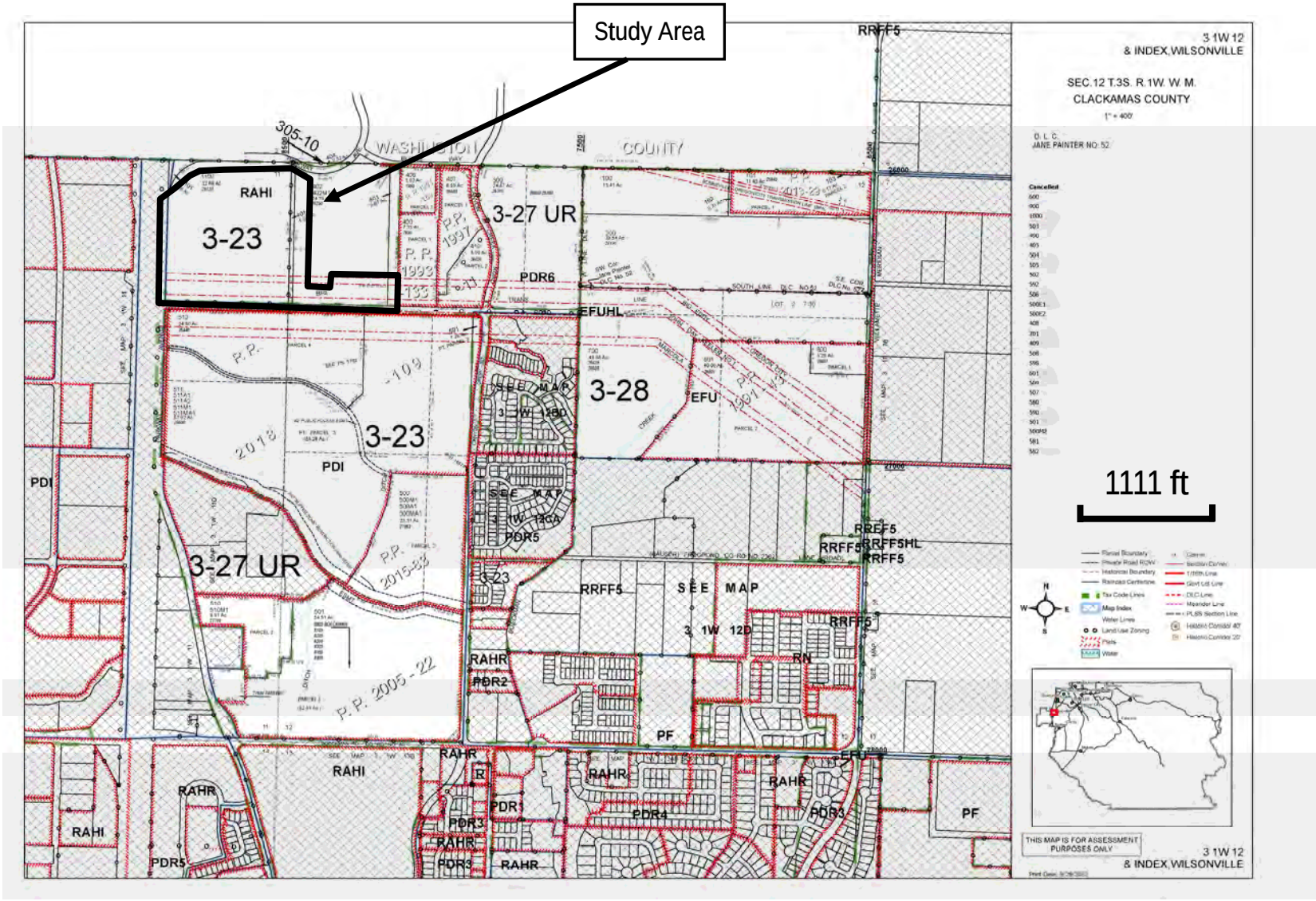


Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
26120 SW Parkway Avenue - Wilsonville, Oregon
United States Geological Survey (USGS) Sherwood, Oregon 7.5 quadrangle, 2020
(viewer.nationalmap.gov/basic)

FIGURE
1

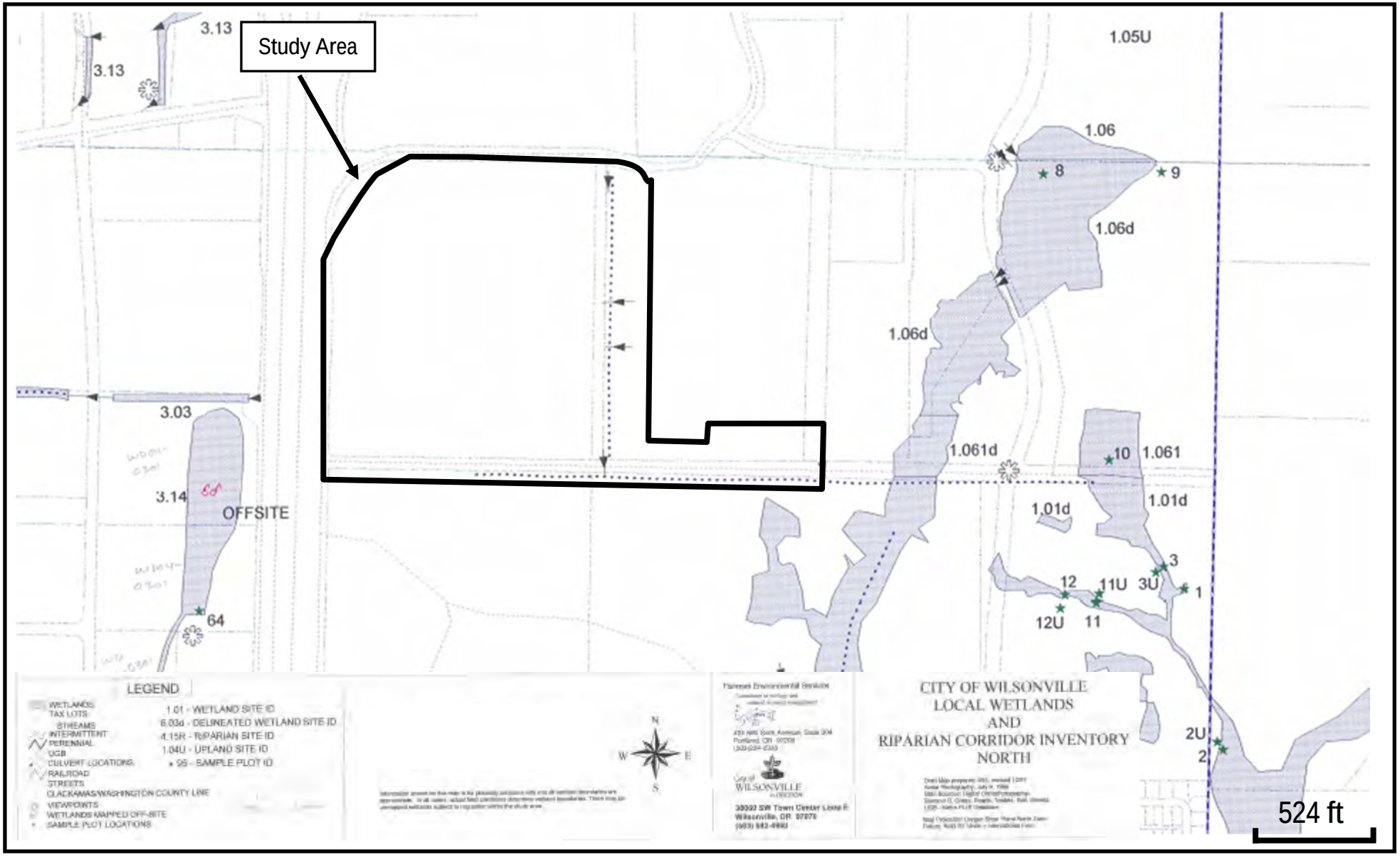


Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
26120 SW Parkway Avenue - Wilsonville, Oregon
The Oregon Map (ormap.net)

FIGURE
2

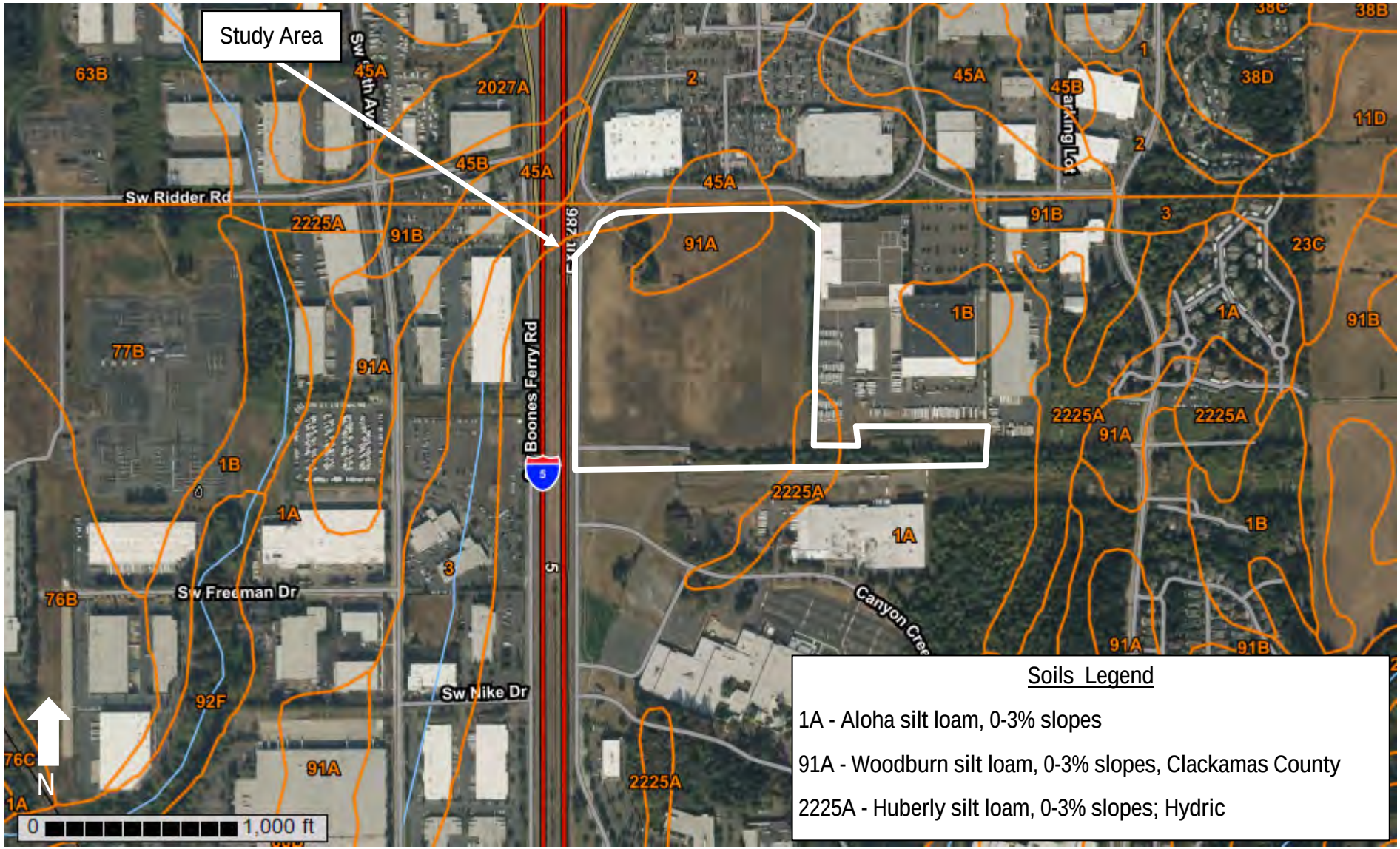


Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Local Wetlands Inventory
26120 SW Parkway Avenue - Wilsonville, Oregon
Fishman Environmental Services, 1999

FIGURE
3



Soils Legend

1A - Aloha silt loam, 0-3% slopes

91A - Woodburn silt loam, 0-3% slopes, Clackamas County

2225A - Huberly silt loam, 0-3% slopes; Hydric

Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Soils
26120 SW Parkway Avenue- Wilsonville, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2019
(websoilsurvey.sc.egov.usda.gov)

FIGURE
4

Project #7569
8/31/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Aerial Photo (May, 2023)
26120 SW Parkway Avenue - Wilsonville, Oregon
GoogleEarth, 2023

FIGURE
5

TL 200
3S102DD

TL 100
3S102DD

TL 404
3S102DD

TL 1900
3S10100

SW PARKWAY CENTER DRIVE

TL 401
3S1W12

Wetland A
(26,805 sf / 0.62 ac)
PEMFx / RFT

31W11

TL 1100
31W12

TL 402
31W12

TL 403
3S10100

SW PARKWAY AVENUE

Wetland C
(478 sf / 0.01 ac)
PEME / Flats

Wetland B
(1,379 sf / 0.03 ac)
PEME / Flats

Ditch 1
(10,578 sf / 0.24 ac)

WIEDEMANN ROAD
(ROADWAY DEDICATED BUT NOT CONSTRUCTED)

LEGEND

- Study Area Boundary (1,837,448 sf / 42.2 ac)
- Wetland (28,594 sf / 0.66 ac)
- Waters of the State/US (10,190 sf / 0.23 ac)
- Ordinary High Water (OHW)
- Direction of Flow
- Sample Point
- Photo Point
- Tax Lot

0 100 200 400
SCALE IN FEET

N

Pacific Habitat Services,Inc.
9450 SW Commerce Circle, Suite 180 Wilsonville, Oregon 97070
Phone: (503) 570-0800 Fax (503) 570-0855

The wetlands, waters and sample points were surveyed by Stanbridge.
The study area was prepared based on the Clackamas County tax lots
and aerial photography in GIS and its estimated accuracy is submeter.

Wetland Delineation
26120 SW Parkway Avenue - Wilsonville, Oregon

FIGURE
6

10-10-2023

C:\Users\Lisa\Desktop\WorkFromHome\7569 26250 SW Parkway Center Dr. Wilsonville\AutoCAD\Plot DWGs\Fig6 WetDel.dwg, 10/25/2023 12:02:37 PM, AutoCAD PDF (High Quality Print).pc3

Appendix B

Wetland Determination Data Sheets

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **1**

Investigator(s): **CM/JT** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **1**

Subregion (LRR): **LRR A** Lat: **45.3283** Long: **-122.7668** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present?	Yes		No	X	

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 ***Prunus avium***	80	X	FACU
2 ***Amelanchier alnifolia***	25	X	FACU
3			
4			
	105	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 ***Rubus ursinus***	80	X	FACU
2 ***Prunus avium***	50	X	FACU
3 ***Crataegus douglasii***	30		FAC
4 ***Fraxinus latifolia***	20		FACW
5			
	180	= Total Cover	
Herb Stratum (plot size: 5)			
1 ***Polystichum munitum***	10	X	FACU
2			
3			
4			
5			
6			
7			
8			
	10	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **90**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL PHS # **7569** Sampling Point: **1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	**7.5YR 2.5/2**	**100**					**Silt Loam**	
6-14	**7.5YR 3/2**	**99**	**7.5YR 3/4**	**1**	**C**	**M**	**Silt Loam**	**Fine**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>14**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>14**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **2**

Investigator(s): **CM/JT** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Ditch** Local relief (concave, convex, none): **Concave** Slope (%): **3**

Subregion (LRR): **LRR A** Lat: **45.3284** Long: **-122.7686** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		
Hydric Soil Present?	Yes	**X**	No	**Is Sampled Area within a Wetland?**	Yes **X** No
Wetland Hydrology Present?	Yes	**X**	No		

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Lolium perenne***	**50**	**X**	**FAC**
2 ***Schedonorus arundinaceus***	**25**	**X**	**FAC**
3 ***Unidentified grass***	**25**	**X**	**(FAC)**
4 ***Raphanus raphanistrum***	**5**		**(UPL)**
5 ***Convolvulus arvensis***	**5**		**(UPL)**
6			
7			
8			
	110	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

- ____ 1- Rapid Test for Hydrophytic Vegetation
- **X** 2- Dominance Test is >50%
- ____ 3-Prevalence Index is ≤ 3.0[1]
- ____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ 5- Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	**10YR 4/2**	**100**					**Silty Clay Loam**	
6-13	**10YR 5/1**	**33**	**10YR 4/6**	**2**	**C**	**PL**	**Silty Clay Loam**	**Medium**
6-13	**10YR 4/2**	**60**	**10YR 4/6**	**5**	**C**	**M**	**Silty Clay Loam**	**Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) **(except MLRA 1)**
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
X	Depleted Below Dark Surface (A11)	**X**	Depleted Matrix (F3)
	Thick Dark Surface (A12)		Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Very Shallow Dark Surface (TF12)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**		Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
	High Water Table (A2)				
	Saturation (A3)		Salt Crust (B11)		Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)	**X**	Oxidized Rhizospheres along Living Roots (C3)	**X**	Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)		Fac-Neutral Test (D5)
	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**		Raised Ant Mounds (D6) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Frost-Heave Hummocks (D7)
	Sparsely Vegetated Concave Surface (B8)				

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>13**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>13**

Wetland Hydrology Present?

Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **3**

Investigator(s): **JT/CM** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Flat** Local relief (concave, convex, none): **None** Slope (%): **<1**

Subregion (LRR): **LRR A** Lat: **45.3284** Long: **-122.7686** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Hypochaeris radicata***	**50**	**X**	**FACU**
2 ***Schedonorus arundinaceus***	**30**	**X**	**FAC**
3 ***Daucus carota***	**20**	**X**	**FACU**
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL PHS # 7569 Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	>12
Saturation Present? (includes capillary fringe)	Yes		No X	Depth (inches):	>12

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **4**

Investigator(s): **JT/CM** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Swale** Local relief (concave, convex, none): **Concave** Slope (%): **<1**

Subregion (LRR): **LRR A** Lat: **45.3283** Long: **-122.7684** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Hypochaeris radicata***	**80**	**X**	**FACU**
2 ***Schedonorus arundinaceus***	**10**		**FAC**
3 ***Daucus carota***	**10**		**FACU**
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species	____	x 1 =	**0**
FACW species	____	x 2 =	**0**
FAC Species	____	x 3 =	**0**
FACU Species	____	x 4 =	**0**
UPL Species	____	x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL PHS # 7569 Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	>13
Saturation Present? (includes capillary fringe)	Yes		No X	Depth (inches):	>13

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **5**

Investigator(s): **JT/CM** Section, Township, Range: **S11, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Ditch** Local relief (concave, convex, none): **Concave** Slope (%): **<1**

Subregion (LRR): **LRR A** Lat: **45.3291** Long: **-122.7688** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		
Hydric Soil Present?	Yes	**X**	No	**Is Sampled Area within a Wetland?**	Yes **X** No
Wetland Hydrology Present?	Yes	**X**	No		

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Schedonorus arundinaceus***	**100**	**X**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

- ____ 1- Rapid Test for Hydrophytic Vegetation
- **X** 2- Dominance Test is >50%
- ____ 3-Prevalence Index is ≤ 3.0[1]
- ____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ 5- Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:
Rosa sp (FAC) is less than 1% in shrub layer. Mowed.

SOIL PHS # **7569** Sampling Point: **5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	**7.5YR 3/2**	**100**					**Silt Loam**	
4-5	**7.5YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**PL**	**Silt Loam**	
5-12	**7.5YR 3/2**	**95**	**7.5YR 4/6**	**5**	**C**	**M**	**Silt Loam**	**Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) **(except MLRA 1)**
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)
	Thick Dark Surface (A12)	**X**	Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Very Shallow Dark Surface (TF12)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**		Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
	High Water Table (A2)				
	Saturation (A3)		Salt Crust (B11)		Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)	**X**	Oxidized Rhizospheres along Living Roots (C3)	**X**	Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)		Fac-Neutral Test (D5)
	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**		Raised Ant Mounds (D6) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Frost-Heave Hummocks (D7)
	Sparsely Vegetated Concave Surface (B8)				

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>12**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>12**

Wetland Hydrology Present?

Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **6**

Investigator(s): **CM/JT** Section, Township, Range: **S11, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Ditch** Local relief (concave, convex, none): **Concave** Slope (%): **3**

Subregion (LRR): **LRR A** Lat: **45.3291** Long: **-122.7688** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No ____	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Rubus armeniacus***	**10**	**X**	**FAC**
2			
3			
4			
5			
	10	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Schedonorus arundinaceus***	**80**	**X**	**FAC**
2 ***Daucus carota***	**10**		**FACU**
3 ***Hypochaeris radicata***	**10**		**FACU**
4 ***Lotus corniculatus***	**5**		**FAC**
5 ***Plantago lanceolata***	**5**		**FACU**
6			
7			
8			
	110	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL

PHS # 7569 Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**7.5YR 3/2**	**100**					**Silt Loam**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	>12
Saturation Present? (includes capillary fringe)	Yes		No X	Depth (inches):	>12

Wetland Hydrology Present?

Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **7**

Investigator(s): **CM/JT** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Slope** Local relief (concave, convex, none): **None** Slope (%): **25**

Subregion (LRR): **LRR A** Lat: **45.3308** Long: **-122.7642** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		**Is Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes		No	**X**	
Wetland Hydrology Present?	Yes		No	**X**	

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: **30**)			
1 ***Populus balsamifera***	**70**	**X**	**FAC**
2 ***Crataegus douglasii***	**10**		**FAC**
3			
4			
	80	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Rubus armeniacus***	**80**	**X**	**FAC**
2 ***Populus balsamifera***	**10**		**FAC**
3 ***Quercus palustris***	**5**		**(UPL)**
4			
5			
	95	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Agrostis capillaris***	**25**	**X**	**FAC**
2 ***Schedonorus arundinaceus***	**25**	**X**	**FAC**
3 ***Holcus lanatus***	**20**	**X**	**FAC**
4 ***Phalaris arundinacea***	**10**		**FACW**
5 ***Cirsium arvense***	**5**		**FAC**
6			
7			
8			
	85	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **15**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	**10YR 4/2**	**100**					**Silt Loam**	
2-14	**10YR 4/2**	**36**	**10YR 6/6**	**2**			**Silt Loam**	**Fine**
2-14	**10YR 3/2**	**60**	**10YR 6/6**	**2**			**Silt Loam**	**Fine**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>14**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>14**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **8**

Investigator(s): **CM/JT** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Slope** Local relief (concave, convex, none): **Convex** Slope (%): **25**

Subregion (LRR): **LRR A** Lat: **45.3282** Long: **-122.7624** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: **30**)			
1 ***Populus balsamifera***	**40**	**X**	**FAC**
2 ***Pinus contorta***	**20**	**X**	**FAC**
3 ***Salix sitchensis***	**10**		**FACW**
4 ***Quercus garryana***	**10**		**FACU**
	80	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Rubus ursinus***	**75**	**X**	**FACU**
2 ***Corylus cornuta***	**50**	**X**	**FACU**
3 ***Crataegus monogyna***	**50**	**X**	**FAC**
4 ***Rosa sp***	**25**		**(FAC)**
5 ***Frangula purshiana***	**10**		**FAC**
	220	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Pteridium aquilinum***	**50**	**X**	**FACU**
2 ***Schedonorus arundinaceus***	**10**		**FAC**
3 ***Polystichum munitum***	**5**		**FACU**
4			
5			
6			
7			
8			
	65	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **35**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **6** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:
Shrubs continued: Holodiscus discolor (FACU) and Quercus garryana (FACU) both 5%.

SOIL PHS # **7569** Sampling Point: **8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	**7.5YR 3/3**	**100**					**Silt Loam**	
2-8	**7.5YR 4/3**	**95**	**7.5YR 4/4**	**5**	**C**	**M**	**Silt Loam**	**Medium**
8-14	**10YR 5/4**	**95**	**10YR 4/6**	**5**	**C**	**M**	**Silty Clay Loam**	**Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>14**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>14**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **9**

Investigator(s): **JT/CM** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Flat** Local relief (concave, convex, none): **None** Slope (%): **<1**

Subregion (LRR): **LRR A** Lat: **45.3283** Long: **-122.7627** Datum: **WGS84**

Soil Map Unit Name: **Huberly silt loam** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Salix sitchensis***	**60**	**X**	**FACW**
2 ***Corylus avellana***	**30**	**X**	**UPL**
3 ***Rubus armeniacus***	**20**		**FAC**
4 ***Crataegus monogyna***	**10**		**FAC**
5 ***Rubus ursinus***	**10**		**FACU**
	130	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Agrostis sp***	**70**	**X**	**(FAC)**
2 ***Daucus carota***	**20**	**X**	**FACU**
3 ***Holcus lanatus***	**10**		**FAC**
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species	**60**	x 2 =	**120**
FAC Species	**70**	x 3 =	**210**
FACU Species	**20**	x 4 =	**80**
UPL Species	**30**	x 5 =	**150**
Column Totals	**180** (A)		**560** (B)

Prevalence Index =B/A = **3.11**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL PHS # **7569** Sampling Point: **9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	**10YR 3/2**	**100**					**Silt Loam**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>13**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>13**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **10**

Investigator(s): **CM/JT** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.): **Slope** Local relief (concave, convex, none): **Concave** Slope (%): **1**

Subregion (LRR): **LRR A** Lat: **45.3283** Long: **-122.7663** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No **X**	**Is Sampled Area within a Wetland?**	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**			
Wetland Hydrology Present?	Yes ____	No **X**			

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: **30**)			
1 ***Amelanchier alnifolia***	**100**	**X**	**FACU**
2 ***Fraxinus latifolia***	**10**		**FACW**
3			
4			
	110	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Rubus ursinus***	**20**	**X**	**FACU**
2 ***Rosa rubiginosa***	**20**	**X**	**UPL**
3 ***Rubus laciniatus***	**10**		**FACU**
4 ***Rubus armeniacus***	**10**		**FAC**
5			
	60	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Agrostis capillaris***	**10**	**X**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	10	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **90**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species	____	x 1 =	**0**
FACW species	____	x 2 =	**0**
FAC Species	____	x 3 =	**0**
FACU Species	____	x 4 =	**0**
UPL Species	____	x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

____ 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:

SOIL PHS # **7569** Sampling Point: **10**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	**10YR 2/2**	**100**					**Silt Loam**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>14**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>14**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **9/22/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **11**

Investigator(s): **JT/CM** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Flat** Local relief (concave, convex, none): **None** Slope (%): **<1**

Subregion (LRR): **LRR A** Lat: **45.3292** Long: **-122.7666** Datum: **WGS84**

Soil Map Unit Name: **Aloha silt loam, 0 to 3 percent slopes** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No **X** (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		**Is Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes		No	**X**	
Wetland Hydrology Present?	Yes		No	**X**	

Remarks:
Precipitation is below normal for three months as well as two weeks preceding the fieldwork.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Unidentified grass***	**90**	**X**	**(FAC)**
2 ***Plantago sp***	**5**		**(FAC)**
3 ***Jacobaea vulgaris***	**5**		**FACU**
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	**10YR 3/2**	**100**					**Silt Loam**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>12**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>12**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **12/1/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **12**

Investigator(s): **CM/TF** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.): **Slope** Local relief (concave, convex, none): **Convex** Slope (%): **3**

Subregion (LRR): **LRR A** Lat: **45.3288** Long: **-122.7643** Datum: **WGS84**

Soil Map Unit Name: **Huberly silt loam** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No ____ (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		**Is Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes		No	**X**	
Wetland Hydrology Present?	Yes		No	**X**	

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Rubus armeniacus***	**50**	**X**	**FAC**
2			
3			
4			
5			
	50	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Alopecurus pratensis***	**30**	**X**	**FAC**
2 ***Daucus carota***	**20**	**X**	**FACU**
3 ***Schedonorus arundinaceus***	**20**	**X**	**FAC**
4 ***Dactylis glomerata***	**20**	**X**	**FACU**
5 ***Leucanthemum vulgare***	**10**		**FACU**
6 ***Plantago lanceolata***	**10**		**FACU**
7 ***Agrostis capillaris***	**10**		**FAC**
8			
	120	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **60%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **12**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	**10YR 3/2**	**100**					**Silty Clay Loam**	
14-16	**10YR 4/2**	**98**	**10YR 3/3**	**2**	**C**	**M**	**Silty Clay Loam**	**Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):	
Water Table Present?	Yes		No **X**	Depth (inches):	**>16**
Saturation Present? (includes capillary fringe)	Yes		No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **12/1/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **13**

Investigator(s): **CM/TF** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.): **Slope** Local relief (concave, convex, none): **Convex** Slope (%): **3**

Subregion (LRR): **LRR A** Lat: **45.3288** Long: **-122.7641** Datum: **WGS84**

Soil Map Unit Name: **Huberly silt loam** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No ____ (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		
Hydric Soil Present?	Yes	**X**	No	**Is Sampled Area within a Wetland?**	Yes **X** No
Wetland Hydrology Present?	Yes	**X**	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Salix sp***	**5**	**X**	**(FAC)**
2 ***Rubus armeniacus***	**5**	**X**	**FAC**
3			
4			
5			
	10	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Phalaris arundinacea***	**90**	**X**	**FACW**
2 ***Cirsium arvense***	**8**		**FAC**
3 ***Juncus effusus***	**2**		**FACW**
4			
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **0**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

- ____ 1- Rapid Test for Hydrophytic Vegetation
- **X** 2- Dominance Test is >50%
- ____ 3-Prevalence Index is ≤ 3.0[1]
- ____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ 5- Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **13**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	**10YR 4/2**	**97**	**10YR 3/4**	**1**	**C**	**M**	**Silty Clay Loam**	**Medium**
			10YR 3/1	**2**	**D**	**M**		
5-10	**10YR 5/1**	**95**	**10YR 4/6**	**5**	**C**	**M**	**Silty Clay Loam**	**Medium**
10-14	**10YR 5/1**	**90**	**10YR 3/6**	**5**	**C**	**M**	**Silty Clay Loam**	**Medium**
			7.5YR 4/6	**5**	**C**	**M**		**Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) **(except MLRA 1)**
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)	**X**	Depleted Matrix (F3)
	Thick Dark Surface (A12)		Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Very Shallow Dark Surface (TF12)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**		Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
X	High Water Table (A2)				
X	Saturation (A3)		Salt Crust (B11)		Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Oxidized Rhizospheres along Living Roots (C3)		Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)		Fac-Neutral Test (D5)
	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**		Raised Ant Mounds (D6) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Frost-Heave Hummocks (D7)
	Sparsely Vegetated Concave Surface (B8)				

Field Observations:

Surface Water Present?	Yes		No **X**	Depth (inches):		
Water Table Present?	Yes	**X**	No	Depth (inches):	**10**	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes	**X**	No	Depth (inches):	**0**	**Yes X No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 7569

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: **26120 SW Parkway Center Dr** City/County: **Wilsonville/Clackamas** Sampling Date: **12/1/2022**

Applicant/Owner: **Standridge, Inc.** State: **OR** Sampling Point: **14**

Investigator(s): **TF/CM** Section, Township, Range: **S12, T3S, R1W**

Landform (hillslope, terrace, etc.:) **Slope** Local relief (concave, convex, none): **Convex** Slope (%): **3**

Subregion (LRR): **LRR A** Lat: **45.3288** Long: **-122.7641** Datum: **WGS84**

Soil Map Unit Name: **Huberly silt loam** NWI Classification: **N/A**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No ____ (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) **Y**

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	**X**	No		**Is Sampled Area within a Wetland?** Yes ____ No **X**
Hydric Soil Present?	Yes		No	**X**	
Wetland Hydrology Present?	Yes		No	**X**	

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: **15**)			
1 ***Prunus laurocerasus***	**30**	**X**	**(UPL)**
2 ***Rubus armeniacus***	**15**	**X**	**FAC**
3			
4			
5			
	45	= Total Cover	
Herb Stratum (plot size: **5**)			
1 ***Poa sp***	**15**	**X**	**(FAC)**
2 ***Cirsium arvense***	**5**	**X**	**FAC**
3			
4			
5			
6			
7			
8			
	20	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum **80**

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	**0**
FACW species		x 2 =	**0**
FAC Species		x 3 =	**0**
FACU Species		x 4 =	**0**
UPL Species		x 5 =	**0**
Column Totals	**0** (A)		**0** (B)

Prevalence Index =B/A = **#DIV/0!**

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:

SOIL PHS # **7569** Sampling Point: **14**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	**10YR 3/2**	**100**					**Silty Clay Loam**	
11-16	**10YR 3/1**	**95**	**10YR 3/4**	**5**	**C**	**M**	**Silty Clay Loam**	**Fine+ Medium**

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _____ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) **(LRR A)**
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No **X**	Depth (inches):	
Water Table Present?	Yes	_____	No **X**	Depth (inches):	**>16**
Saturation Present? (includes capillary fringe)	Yes	_____	No **X**	Depth (inches):	**>16**

Wetland Hydrology Present?

Yes _____ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Study Area Photos
(ground level)

Photo A:

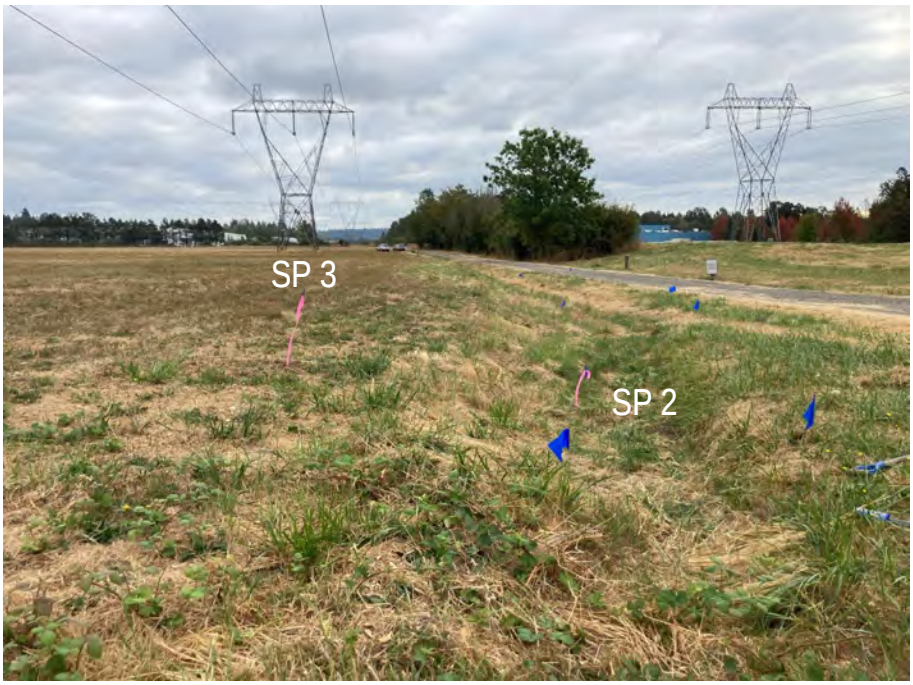
Looking northeast at Sample Point 1 (upland), which was taken in a narrow grove of trees.

Photo taken on September 22, 2022

Photo B:

Looking east Sample Points 2 (wetland) and 3 (upland).

Photo taken on September 22, 2022



Project #7569
8/14/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

26120 SW Parkway Avenue - Wilsonville, Oregon

Photo C:

Looking south at Sample Points 5 (wetland) and 6 (upland).

Photo taken on September 22, 2022

Photo D:

Looking south at Sample Point 9 (upland).

Photo taken on September 22, 2022

Project #7569
8/14/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

26120 SW Parkway Avenue - Wilsonville, Oregon

Photo E:

Looking north at Sample Points 12 (upland), 13 (wetland), and 14 (upland).

Photo taken on September 22, 2022

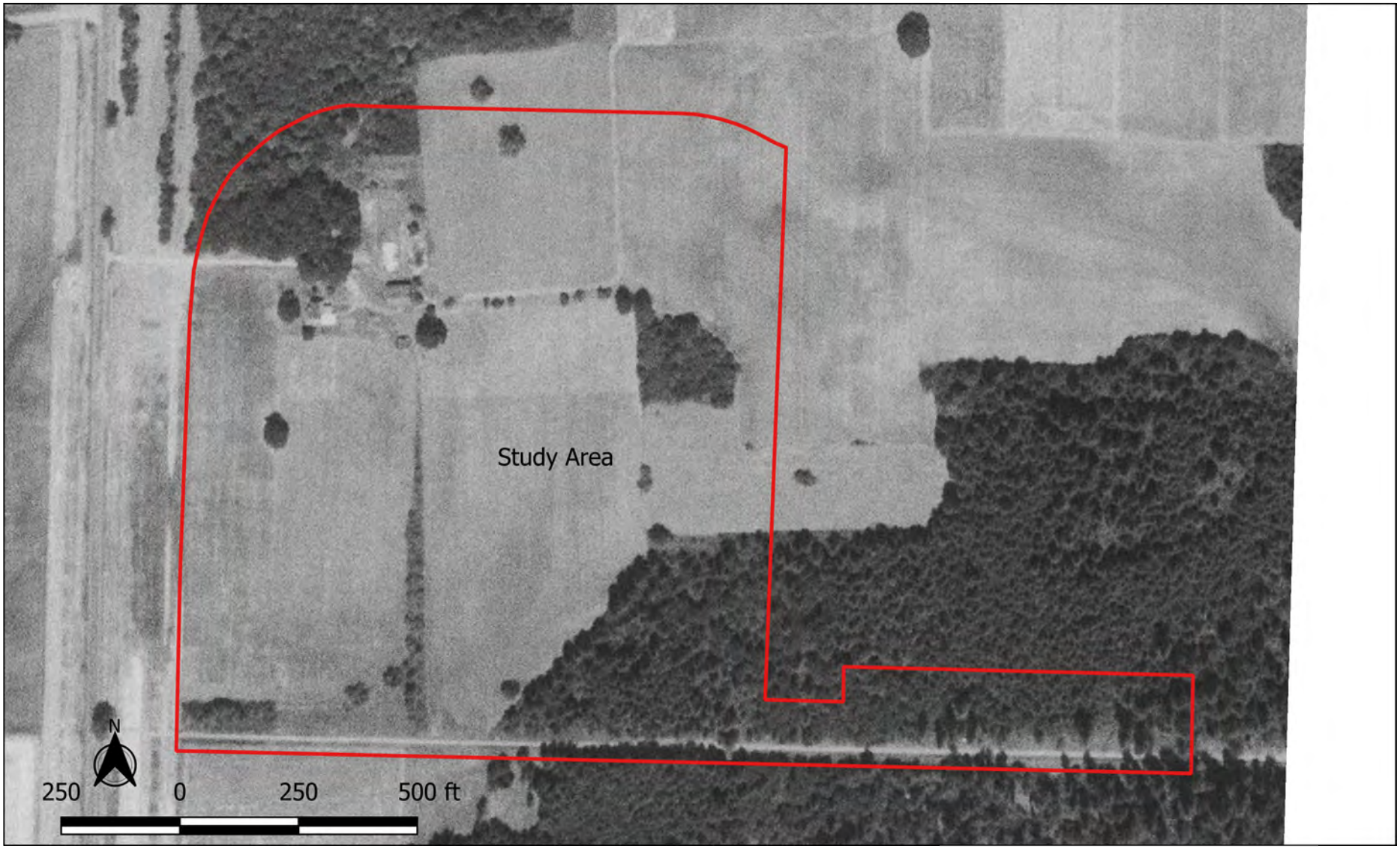
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

26120 SW Parkway Avenue - Wilsonville, Oregon

Appendix D

Historic Aerial Photos



#7659
9/4/2023

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

1952 Aerial Photo
Sysco Facility Expansion Master Plan
SW Parkway Avenue, Clackamas County - Oregon
www.historicaerials.com

EXHIBIT
A

#7569
9/4/23

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

1981 Aerial Photograph
Sysco Facility Expansion Master Plan
26120 SW Parkway Avenue, Clackamas County, Oregon
www.historicaerials.com

EXHIBIT
B

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Sysco Facility Expansion
SW Parkway Avenue and SW Parkway Center Drive
Wilsonville, Oregon

For
Sysco Portland, Inc.
June 14, 2023

Project: Sysco-2-01

NV5

June 14, 2023

Sysco Portland, Inc.
26250 SW Parkway Center Drive
Wilsonville, OR 97070

Attention: Peter Richter

Report of Geotechnical Engineering Services
Sysco Facility Expansion
SW Parkway Avenue and SW Parkway Center Drive
Wilsonville, Oregon
Project: Sysco-2-01

NV5 is pleased to present this report of geotechnical engineering services for the proposed Sysco facility expansion located at SW Parkway Avenue and SW Parkway Center Drive in Wilsonville, Oregon. Our services have been provided in accordance with our proposal dated June 23, 2022.

We appreciate the opportunity to be of service to you. Please contact us if you have questions regarding this report.

Sincerely,

NV5

Scott McDevitt, P.E., G.E.
Principal Engineer

cc: Brandon Levy, Sysco Portland, Inc.
Cable Stokes, Sysco Portland, Inc.
Ingrid Friedberg, Standridge, Inc.
Laura Standridge, Standridge, Inc.

JJP:SPM:kt
Attachments
One copy submitted
Document ID: Sysco-2-01-061423-geor.docx
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EXECUTIVE SUMMARY

Project plans include constructing three new buildings with associated parking and landscaping areas. We have assumed the buildings will consist of concrete tilt-up structures with slabs-on-grade. The following provides a summary of pertinent geotechnical considerations for the project. The report should be referenced for a thorough description of the subsurface conditions and geotechnical recommendations.

- Our explorations encountered an approximately 12- to 20-inch-thick agricultural tilled zone at the ground surface. The majority of the tilled zone does not exceed 16 inches in depth. Tilled zone soil should be replaced with structural fill or improved by scarifying and recompacting within planned pavement and floor slab areas (only possible during dry weather). The tilled zone material can also be improved by amending with cement (can be accomplished during periods of wet weather), which will provide the added benefit of protecting the subgrade from construction traffic during the wet season.

- Based on the results of the explorations and the anticipated building loads, the buildings can be supported by shallow foundations bearing on firm, undisturbed native soil or structural fill overlying firm, undisturbed native soil. All tilled zone material should be removed and replaced with structural fill below planned foundations prior to site grading. We anticipate that soft foundation subgrade soil will need to be replaced over portions of the building footprints. The project budget should include a contingency for replacing some unsuitable material with structural fill below foundations.

- Floor slabs in an existing building at the site experienced heave in a particularly cold area of the freezer, below a large cooling unit, between 2017 and 2019. Frost heaving is caused by a combination of freezing temperatures, frost-susceptible soil, and a water source (relatively shallow groundwater); all elements are present at this site. Floor slabs in such areas are typically designed with some combination of insulation, vapor barriers, and underfloor heating beneath the concrete floor slabs.

- Based on the very low infiltration testing results and presence of relatively shallow groundwater, we do not recommend on-site stormwater disposal by means of infiltration.

- The fine-grained soil present at the ground surface is easily disturbed during the wet season. If not carefully executed, site earthwork can create soft areas and moderate repair costs can result. Subgrade protection is essential and may include placing 12 to 18 inches of granular material over subgrade for staging and haul road areas or cement amending the subgrade and covering it with a thinner layer of crushed rock.

- The fine-grained soil present at the ground surface can be sensitive to small changes in moisture content and difficult, if not impossible, to adequately compact during wet weather or when the moisture content of the soil is more than a couple of percent above the optimum required for compaction. Depending on the time of year, significant drying will likely be required before using on-site fine-grained soil as structural fill. Accordingly, the on-site soil can typically only be placed as structural fill during dry summer months.

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Exploration Logs, Core Location and Core Photographs, and Laboratory Testing Results

ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AC	asphalt concrete
ACP	Asphalt Concrete Pavement
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BGS	below ground surface
CPT	cone penetration test
ESAL	equivalent single-axle load
FHWA	Federal Highway Administration
g	gravitational acceleration (32.2 feet/second^2)
H:V	horizontal to vertical
MCE	maximum considered earthquake
OSHA	Occupational Safety and Health Administration
OSSC	2021 Oregon Standard Specifications for Construction
pcf	pounds per cubic foot
pci	pounds per cubic inch
PG	performance grade
psf	pounds per square foot
psi	pounds per square inch
PVC	polyvinyl chloride
SOSSC	State of Oregon Structural Specialty Code

1.0 INTRODUCTION

NV5 is pleased to present this report of geotechnical engineering services for the proposed Sysco facility expansion located at SW Parkway Avenue and SW Parkway Center Drive in Wilsonville, Oregon. Figure 1 shows the site relative to surrounding physical features. Figure 2 shows the approximate exploration locations relative to the proposed improvements. Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

1.1 PROJECT UNDERSTANDING

A proposed site layout provided by Standridge, Inc. indicates that three buildings will be constructed with associated parking and landscaping. We have assumed the buildings will consist of concrete tilt-up structures with slabs-on-grade. Foundation loads were not available at the time of this report; however, we received a geotechnical report (Dames & Moore, 1989) for construction of the original buildings at the site and have assumed that loads will be similar for the new buildings. The 1989 report indicates that maximum column, wall, and floor loads will be on the order of 120 kips, 6 kips per lineal foot, and 150 psf.

Based on existing topography, we expect that mass cuts and fills will likely be less than a few feet each. We have assumed off-site improvements are not required for the development. If any of our assumptions on structural loads or fill thicknesses are incorrect, NV5 should review the recommendations in this report to determine if revisions are necessary.

1.2 BACKGROUND

In 2019, GeoDesign, Inc. (now NV5) provided geotechnical engineering services to address heaving floor slabs in one of the existing Sysco buildings. A section of concrete floor slab had started to rise near a cooling unit. We understand that Sysco lowered the temperature in the existing cooler room in mid-2015. The temperature in the cooler room is generally 29 degrees Fahrenheit but can range from 28 to 31 degrees Fahrenheit. We understand the floor slab was not originally designed for these lower temperatures. In early to mid-February 2017, Sysco noticed that an area of floor slab was starting to rise. Sysco personnel regularly monitored the floor slab movement and measured a maximum rise of approximately 4.75 inches. The heaving floor slab area measured roughly 40 feet by 40 feet and is directly below a large cooling unit, making this area one of the coldest locations in the cooler. The floor slab was supporting large food storage racks and the floor slab was subjected to high volumes of forklift traffic. We observed the cooler floor slab to consist of concrete that was 8.3 to 9.5 inches thick and aggregate base was generally 6 to 8.5 inches thick.

It was our opinion that the colder temperature regime introduced in mid-2015 resulted in ice lenses forming beneath and lifting the floor slab. This phenomenon is typically referred to as frost heaving or frost jacking and is fairly common in cold climates or beneath cold building areas, such as freezers or ice rinks. Frost heaving occurs when cold temperatures freeze the water within the soil and eventually form horizontal ice lenses. As the ice lenses develop, they attract additional water from deeper unfrozen soil and gradually expand as the new water reaches the ice lenses and freezes. The uplift forces created by the expanding ice lenses can lift overlying structures, such as floor slabs. The ice lenses may continue to expand if cold temperatures, a water source, and frost-susceptible soil are present.

We did not observe frozen soil or ice lenses in borings drilled away from the heaving floor slab area. The freezing soil appeared to be limited to a depth of approximately 2.5 feet below the top of the floor slab. We provided mitigation recommendations, but are unaware if such measures were implemented.

2.0 PURPOSE AND SCOPE

The purpose of our services was to provide geotechnical engineering recommendations for the proposed development. The specific scope of our services is summarized as follows:

- Coordinated and managed the field explorations, including utility locates, access preparation, and scheduling subcontractors and NV5 field staff.
- Reviewed previous geotechnical documents prepared for the site.
- Conducted a subsurface exploration program consisting of the following:
  - Excavated 16 test pits to depths between 5 and 15.5 feet BGS
  - Advanced three CPT probes depths between 40.7 and 50.7 feet BGS
  - Conducted a pore water pressure dissipation test in each CPT
  - Conducted seismic shear wave velocity testing in one CPT
- Performed two infiltration tests at the site at depths of 8 and 13.5 feet BGS.
- Maintained a continuous log of the test pits and collected soil samples at representative intervals.
- Conducted a laboratory testing program consisting of the following:
  - Twenty-two moisture content determinations in general accordance with ASTM D2216
  - Six particle-size analyses in general accordance with ASTM D1140
  - Two Atterberg limits tests in general accordance with ASTM D4318
- Provided recommendations for site preparation and grading, including temporary and permanent slopes, fill placement criteria, suitability of on-site soil for fill, trench excavation and backfill, and subgrade preparation.
- Provided recommendations for wet weather construction.
- Provided foundation support recommendations for the proposed buildings, including allowable bearing pressure, lateral resistance parameters, and settlement estimates.
- Provided recommendations for subgrade and aggregate base preparation for floor slabs, including subsurface insulation and vapor barriers.
- Provided recommendations for construction of AC pavement for on-site access roads and parking areas, including subbase, base course, and AC paving thickness.
- Provided design criteria recommendations for retaining walls, including lateral earth pressures, backfill, compaction, and drainage.
- Evaluated groundwater conditions at the site and provided general recommendations for temporary and permanent dewatering.
- Provided seismic design recommendations in accordance with the procedures outlined in the 2022 SOSSC. We have assumed that a site-specific seismic hazard evaluation is not required.
- Prepared this geotechnical engineering report that presents our findings, conclusions, and recommendations.

3.0 SITE CONDITIONS

3.1 GEOLOGIC SETTING

The site is located in the Northern Willamette Valley physiographic province. Starting in the early Eocene, approximately 40 million years ago, subduction of the Farallon Plate eastward against the North American Plate resulted in the genesis of the Cascade Volcanic Arc. Continued subduction since the Eocene has resulted in the creation of two additional physiographic provinces: (1) the Willamette Valley, a forearc basin immediately west of the Cascades, and (2) the Coast Range, a collection of accreted and uplifted volcanic and marine sedimentary rocks further westward and adjacent to the continental margin. At present, subduction by remnants of the Farallon Plate, principally the Juan de Fuca Plate, preserves the structure and character of these provinces, as well as the weak arc volcanism present in the Cascade Range (Woodward et al., 1998). Locally, the foothills of the Cascades and Coast Range converge as a band of hills around the southern edge of the Willamette Valley, underlain by a mixture of sedimentary and volcanic rocks from both ranges (Orr and Orr, 1999).

Approximately 13,000 years ago, near the end of the Pleistocene epoch, a series of cataclysmic glacial outburst floods originating in present-day Missoula, Montana, repeatedly swept across the region, scouring the landscape and depositing layers of sediments (Orr and Orr, 1999). Within the valley, these deposits generally consist of massive silts with varying amounts of fine-grained sand and are known as the Willamette Silt or Willamette Formation (Woodward et al., 1998). Post-Missoula meandering floodplain deposits by the re-establishment of the Willamette River and its tributaries has resulted in additional local units of unconsolidated clay, silt, sand, and minor gravel surrounding the modern-day river channel (O'Connor et al., 2001). Drill and well logs in the region, along with stratigraphic and isotopic dating techniques, indicate these deposits are generally less than 15 meters thick and younger than 12,000 years.

3.2 SURFACE CONDITIONS

The approximately 33-acre site is located at the southwest corner of SW Parkway Avenue and SW Parkway Center Drive, west of the existing Sysco facility, in Wilsonville, Oregon. The site consists of Tax Lots 31W120110 and 31W1200401 and a portion of Tax Lot 31W1200402. Tax Lots 31W120110 and 31W1200401 are currently vegetated with grass and scattered shrubs and trees, and Tax Lot 31W1200402 is currently occupied by existing Sysco facilities. A site survey was not available at the time of this report. Based on Google Earth information, the site slopes from an elevation of approximately 257 feet in the north portion to an elevation of approximately 245 feet at the south end of the property.

3.3 SUBSURFACE CONDITIONS

3.3.1 General

We explored subsurface conditions at the site by excavating 16 test pits (TP-1 through TP-16) to depths between 5 and 15.5 feet BGS and advancing 3 CPT probes (CPT-1 through CPT-3) to depths between 40.7 and 50.7 feet BGS. Figure 2 shows the approximate exploration locations. A description of the test pit explorations and laboratory testing program, the test pit logs, and laboratory testing results are presented in Appendix A. The results of the CPT probes are presented in Appendix B. NV5 previously completed borings and pavement cores at the existing

Sysco facility to the east of the site in 2019. The exploration logs, core photographs, and laboratory testing results from the prior 2019 explorations are presented in Appendix C.

Based on the results of our explorations, the subsurface conditions at the site generally consist of clay with varying amounts of sand. The clay is generally underlain by decomposed basalt consisting of medium stiff to very stiff clay to the maximum depths explored. Undocumented fill consisting of silt and clay was encountered over the native clay in two of the test pits.

A 4- to 6-inch-thick root zone and 12- to 20-inch-thick tilled zone were encountered at the ground surface in most of the explorations. The tilled zone is generally less than 16 inches thick. The following presents more detailed information on the subsurface conditions.

3.3.2 Undocumented Fill

Undocumented fill was observed at the ground surface to depths of 12.5 to 7.5 feet BGS in test pits TP-1 and TP-2, respectively. These test pits were located in a proposed stormwater detention pond area. The undocumented fill generally consists of soft to very stiff silt and clay with varying amounts of sand, gravel, organics, and wood debris. Laboratory testing of select samples of the undocumented fill indicates moisture contents ranging between 23 and 30 percent at the time of our explorations and a fines content of 89 percent.

3.3.3 Clay

Clay with varying amounts of sand was encountered from the ground surface or below the undocumented fill (where present) in all the test pits. The sand content generally increases with depth. The clay is generally medium stiff to very stiff in consistency. The upper portion of the clay appears to have been tilled in the past for agricultural purposes. The tilled zone is generally very soft to medium stiff. Laboratory testing indicates the moisture content of the clay was between 25 and 35 percent at the time of our explorations. Fines contents (silt and clay particles) in select samples ranged from 55 to 89 percent. Atterberg limits testing indicates the clay has low to medium plasticity.

3.3.4 Decomposed Basalt (Clay)

Medium stiff to very stiff clay that is interpreted to be residual soil from decomposed basalt was encountered in test pits TP-1, TP-7 through TP-9 and TP-11 through TP-16 from depths as shallow as approximately 2.5 feet BGS to the maximum depths explored. The overlying clay soil typically gradually transitions to the decomposed basalt. The tested moisture content of the decomposed basalt ranged from 27 to 46 percent at the time of our explorations.

3.3.5 Groundwater

Pore pressure dissipation testing indicates groundwater depths of 7, 10.5, and 6.9 feet BGS in CPT probes CPT-1, CPT-2, and CPT-3, respectively, at the time of our explorations. Seepage was observed in the test pits at depths between 0.9 foot and 13 feet BGS. Perched groundwater has been observed on decomposed basalt soil at shallow depths near the site and should be expected to be present on the underlying decomposed basalt soil at the site. The depth to groundwater may fluctuate in response to prolonged rainfall, seasonal changes, changes in surface topography, and other factors not observed during this study.

3.4 INFILTRATION TESTING

We understand that the stormwater detention pond located on the existing Sysco facility property may be expanded. Infiltration testing was performed in test pits TP-1 and TP-2 near the existing stormwater detention pond using the encased falling head method and PVC pipe in general accordance with the City of Wilsonville Public Works Standards. The final test results are summarized in Table 1. A representative soil sample was collected below the infiltration test depths for particle-size analysis.

Table 1 summarizes the results of infiltration testing and particle-size analyses. The exploration logs and results of particle-size analyses are presented in Appendix A.

Table 1. Infiltration Testing Results

Location	Depth (feet BGS)	Soil Type at Test Depth	Measured Infiltration Rate (inches per hour)	Fines Content[1] (percent)
TP-1	13.5	CLAY with sand (decomposed basalt)	~0	71
TP-2	8	CLAY, minor sand	~0	89

1. Material passing the U.S. Standard No. 200 sieve

As summarized in Table 1, the on-site soil at the site has very low infiltration capacity. It should also be noted that we observed groundwater seepage at multiple depths in test pits TP-1 and TP-2, which are above and below the infiltration test depths.

4.0 DESIGN

4.1 SEISMIC CONSIDERATIONS

4.1.1 Seismic Design Parameters

Based on our explorations and shear wave velocity testing, the design parameters in Table 2 can be used to compute seismic base shear forces, provided the structures will be designed using the applicable provisions of ASCE 7-16.

Table 2. Seismic Design Parameters

Parameter	Short Period (T_s)	1 Second Period (T_1)
MCE Spectral Acceleration, S	S_s = 0.824 g	S_1 = 0.383 g
Site Class	D	
Site Coefficient, F	F_a = 1.170	F_v = 1.917
Adjusted Spectral Acceleration, S_M	S_{MS} = 0.965 g	S_{M1} = 0.734 g
Design Spectral Response Acceleration Parameters, S_D	S_{DS} = 0.643 g	S_{D1} = 0.489 g

4,1.2 Seismic Hazards

4.1.2.1 Liquefaction

Liquefaction is caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles to near zero. Granular soil, which relies on interparticle friction for strength, is susceptible to liquefaction until the excess pore pressures can dissipate. In general, loose, saturated sand soil with low silt and clay content is the most susceptible to liquefaction. Silty soil with low plasticity is moderately susceptible to liquefaction under relatively higher levels of ground shaking. Based on the subsurface conditions encountered in the explorations and the laboratory testing results, it is our opinion that there is a low risk of seismic-induced liquefaction at the site during the design-level earthquake.

4.1.2.2 Lateral Spreading

Lateral spreading is a liquefaction-related seismic hazard. Areas subject to lateral spreading are typically gently sloping or flat sites underlain by liquefiable sediment adjacent to an open face, such as a riverbank. Since liquefaction is not a hazard at the site, lateral spreading is also not considered a site hazard.

4.2 FOUNDATION SUPPORT

4.2.1 General

Based on the results of our explorations, analysis, and assumed building loads, the proposed buildings can be supported by conventional shallow footings bearing on firm, undisturbed native soil or structural fill placed over firm, undisturbed native soil. Continuous wall and isolated spread footings should be at least 16 and 20 inches wide, respectively. The bottom of exterior column or continuous footings should be at least 18 inches below the lowest adjacent exterior grade. The bottom of interior footings should be established at least 12 inches below the base of the slab.

Foundations should not be established over the existing agricultural tilled zone or on very soft to soft soil. We recommend that the agricultural tilled zone soil be completely removed from all foundation areas prior to site grading. It is important to do this prior to grading so that the tilled zone soil is not covered by fill in isolated areas during grading. This could make it difficult to identify the presence of tilled zone soil during foundation excavation. Tilled zone material should

be replaced with structural fill in accordance with the "Structural Fill" section. As discussed later in this section, all foundation subgrade should be observed by an NV5 representative, who can assist in identifying unsuitable, soft subgrade. Soft subgrade should be removed and replaced with structural fill in accordance with the "Structural Fill" section.

4.2.2 Bearing Capacity

Column and continuous footings established on undisturbed native soil or structural fill over undisturbed native soil and prepared as recommended should be sized based on an allowable bearing pressure of 2,500 psf. The weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads and can be increased by one-third for short-term loads such as those resulting from wind or seismic forces.

4.2.3 Settlement

Based on our analysis and experience with similar soil, total post-construction consolidation-induced settlement under static conditions should be less than 1 inch, with differential settlement of less than ½ inch between footings.

4.2.4 Resistance to Sliding

Lateral loads on foundations can be resisted by passive earth pressure on the sides of the structure and by friction on the base of the foundation. Our analysis indicates that the available passive earth pressure for footings confined by on-site soil and structural fill is 350 pcf, modeled as an equivalent fluid pressure. Typically, the movement required to develop the available passive resistance may be relatively large; therefore, we recommend using a reduced passive pressure of 275 pcf equivalent fluid pressure. Adjacent floor slabs, pavement, or the upper 12-inch depth of unpaved areas should not be considered when calculating passive resistance. In addition, in order to rely on passive resistance, a minimum of 10 feet of horizontal clearance must exist between the face of the footings and any adjacent downslopes.

For foundations in contact with native soil, a coefficient of friction equal to 0.35 should be used when calculating resistance to sliding. This value can be increased to 0.45 for foundations established on the native gravel or at least 4 inches of imported granular soil.

4.2.5 Foundation Subgrade Evaluation

We recommend all foundation and floor slab subgrade be evaluated by the project geotechnical engineer or their representative to confirm suitable bearing conditions and determine if unsuitable subgrade exists. Observations should be made prior to the placement of any fill to confirm that all tilled zone material, loose or soft material, organic material, undocumented fill, prior topsoil zones, and softened subgrades (if present) have been removed. Unsuitable soil should be removed to the extent recommended by the field representative based on their observations.

Foundation-bearing surfaces should not be exposed to standing water. Should water infiltrate and pool in the excavation, the water and any damaged subgrade should be removed before placing reinforcing steel or concrete. During periods of wet weather, a layer of imported granular material should be placed over subgrade to protect it from foot traffic. Any disturbed soil from foot traffic should be removed and replaced with structural fill.

4.3 FLOOR SLABS

Satisfactory subgrade support for building floor slabs supporting floor loads up to 300 psf is achievable, provided the subgrade is prepared in accordance with this report. As discussed in the "Site Preparation" section, subgrade improvement is necessary in areas where the agricultural tilled zone is not removed during site grading. Subgrade improvement may be necessary in other areas where soft soil is encountered during site preparation. We recommend a minimum 6-inch-thick layer of aggregate base be placed and compacted over the prepared soil subgrade. Imported granular material placed beneath building floor slabs should meet the requirements for aggregate base rock in the "Structural Fill" and "Fill Placement and Compaction" sections. A subgrade reaction modulus of 150 pci can be used to design floor slabs that bear on the native soil.

The near-surface native soil is fine-grained and will tend to maintain high moisture content. In areas where moisture-sensitive floor slab and flooring will be installed, the installation of a vapor barrier is warranted in order to reduce the potential for moisture transmission through and efflorescence growth on the slab and flooring. Additional recommendations for a vapor barrier and floor slab protection in cold temperature areas are provided below.

4.3.1 Cold Temperature Protection

As discussed in the "Background" section, floor slabs in an existing building at the site experienced heave in a particularly cold area of the freezer, below a large cooling unit. Frost heaving is caused by a combination of freezing temperatures, frost-susceptible soil, and a water source (relatively shallow groundwater); all elements are present at this site. Floor slabs in such areas are typically designed with some combination of insulation, vapor barriers, and underfloor heating beneath the concrete floor slabs. STYROFOAM™ Highload produced by Dow Chemical is one insulation product we are aware of that is frequently used below freezer floors, ice rinks, highways, airport runways, and similar applications. Typical methods of underfloor heating include electric heat, pumped fluid (such as glycol), forced ventilation, and natural ventilation. We suggest these measures be considered in slab areas where temperatures are expected to be the coldest. We recommend that these approaches be discussed further with a local professional who has experience designing and constructing freezer floor slabs.

4.4 RETAINING STRUCTURES

4.4.1 Assumptions

Our retaining wall design recommendations are based on the following assumptions: (1) the walls consist of conventional, cantilevered retaining walls, (2) the walls are less than 8 feet in height, (3) the backfill is drained and consists of imported granular materials, and (4) the backfill has a slope flatter than 4H:1V. Re-evaluation of our recommendations will be required if the retaining wall design criteria for the project varies from these assumptions.

4.4.2 Wall Design Parameters

For unrestrained retaining walls, an active equivalent fluid pressure of 35 pcf should be used for design. Where retaining walls are restrained from rotation (such as basement walls), an equivalent fluid pressure of 55 pcf should be used for design. A superimposed seismic lateral force should be calculated based on a dynamic force of $7H^2$ pounds per lineal foot of wall, where H is the height of the wall in feet, and applied as a distributed load with the centroid located at a distance of 0.6H from the base of the wall.

If surcharges (e.g., retained slopes, structure foundations, vehicles, steep slopes, terraced walls, etc.) are located within a horizontal distance from the back of a wall equal to the height of the wall, additional pressures will need to be accounted for in the wall design. Our office should be contacted for appropriate wall surcharges based on the actual magnitude and configuration of the applied loads. The base of the wall footing excavations should extend a minimum of 12 inches below the lowest adjacent grade. The wall footings should be designed in accordance with the "Foundation Support" section.

4.4.3 Wall Drainage and Backfill

The above design parameters have been provided assuming back-of-wall drains will be installed to prevent buildup of hydrostatic pressure behind all walls. If a drainage system is not installed, our office should be contacted for revised design forces.

Backfill material placed behind retaining walls and extending a horizontal distance of ½H, where H is the height of the retaining wall, should consist of select granular wall backfill meeting the requirements described in the "Structural Fill" section. Alternatively, the native soil can be used as backfill material, provided a minimum 1-foot-wide column of angular drain rock wrapped in a geotextile is placed against the wall and the native soil can be adequately moisture conditioned for compaction. The rock column should extend from the perforated drainpipe to within approximately 1 foot of the ground surface. The angular drain rock should meet the requirements provided in the "Structural Fill" section. All wall backfill should be placed and compacted as recommended for select granular wall backfill in the "Structural Fill" section.

Perforated collector pipes should be placed at the base of the granular backfill behind the walls. The pipe should be embedded in a minimum 1-foot-wide zone of angular drain rock. The drain rock should meet specifications provided in the "Structural Fill" section. The drain rock should be wrapped in a drainage geotextile fabric meeting the requirements in the "Geotextile Fabric" section. The collector pipes should discharge at an appropriate location away from the base of the wall. The discharge pipe should not be tied directly into stormwater drain systems, unless measures are taken to prevent backflow into the drainage system of the wall.

Settlement of up to 1 percent of the wall height commonly occurs immediately adjacent to the wall as the wall rotates and develops active lateral earth pressures. Consequently, we recommend that construction of flatwork adjacent to retaining walls be postponed at least four weeks after backfilling of the wall, unless survey data indicates that settlement is complete prior to that time.

4.5 PAVEMENT DESIGN

Pavement should be installed on competent subgrade or new engineered fill prepared in conformance with the recommendations in the "Construction" section. This will include subgrade improvement of the agricultural tilled zone. Our pavement recommendations are based on the following assumptions:

- Reliability of 80 percent and standard deviation of 0.45
- Pavement design life of 20 years with no growth
- Initial and terminal serviceability indices of 4.2 and 2.5, respectively
- Structural coefficients of 0.42 and 0.10 for new AC and new aggregate base rock, respectively
- Subgrade resilient modulus of 4,500 psi
- New aggregate base rock resilient modulus of 20,000 psi
- New aggregate base rock drainage coefficient of 1.0

We do not have specific information on the frequency of vehicles expected at the site; however, we have assumed a breakdown of the type of vehicles likely to be used, as shown in Table 3. We have assumed traffic will consist of passenger cars in light traffic areas and a mixture of cars and trucks elsewhere. The truck traffic is assumed to be four- to five-axle tractor-trailers evenly distributed between FHWA Classes 8, 9, and 10. If any of these assumptions are incorrect, our office should be contacted with the appropriate information so that the pavement designs can be revised.

Our pavement design recommendations assuming between 0 and 50 trucks per day are presented in Table 3. If projected daily truck traffic exceeds 50 or truck axle weights are projected to exceed street legal values, our office should be contacted to provide revised pavement design thicknesses.

Table 3. Recommended Pavement Sections

Traffic Levels	Trucks per Day	ESALs	AC (inches)	Aggregate Base (inches)
Car traffic only	0	3,000	2.5	6.0
Truck area	10	88,000	4.0	11.0
	25	216,000	4.5	14.0
	50	432,000	5.0	15.0

All thicknesses in Table 3 are intended to be the minimum acceptable. Design of the recommended pavement section is based on the assumption that construction will be completed during an extended period of dry weather. Wet weather construction could require an increased thickness of aggregate base where the pavement is constructed on soil subgrade or cement amendment of the subgrade soil. The aggregate base layer can generally be decreased by 6 inches if the subgrade is cement amended in accordance with the "Cement Amendment" section, provided a minimum of 4 inches of aggregate base is included in the pavement section.

Construction traffic should be limited to non-building, unpaved portions of the site or haul roads. Construction traffic should not be allowed on new pavement. If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

4.6 DRAINAGE

Where possible, the finished ground surface around the buildings should be sloped away from the structures at a minimum 2 percent gradient for a distance of at least 5 feet. Downspouts or roof scuppers should discharge into a storm drain system that carries the collected water to an appropriate stormwater system. Trapped planter areas should not be created adjacent to the buildings without providing means for positive drainage (e.g., swales or catch basins). Embedded walls should include drainage, as discussed in the "Retaining Structures" section.

4.7 PERMANENT SLOPES

Permanent cut and fill slopes should not exceed 2H:1V. Slopes within stormwater facilities should not exceed 3H:1V. Access roads and pavement should be located at least 5 feet from the top of cut and fill slopes. The setback should be increased to 10 feet for buildings. The slopes should be planted with appropriate vegetation to provide protection against erosion as soon as possible after grading. Surface water runoff should be collected and directed away from slopes to prevent water from running down the face of the slope.

4.8 ON-SITE STORMWATER DISPOSAL

As summarized in Table 1, the soil at the site has very low infiltration capacity. In addition, groundwater was encountered as shallow as 0.9 foot BGS in past explorations. Based on the very low infiltration testing results and the presence of relatively shallow groundwater, we do not recommend on-site stormwater disposal by means of infiltration.

5.0 CONSTRUCTION

5.1 SITE PREPARATION

5.1.1 Grubbing and Stripping

Trees and shrubs should be removed from development areas. In addition, root balls should be grubbed out to the depth of the roots, which could exceed 3 feet BGS. Depending on the methods used to remove the root balls, considerable disturbance and loosening of the subgrade could occur during site grubbing. We recommend that soil disturbed during grubbing operations be removed to expose firm, undisturbed subgrade. The resulting excavations should be backfilled with structural fill.

The existing topsoil zone should be stripped and removed from all fill areas. Based on our explorations, the average depth of stripping will be approximately 4 to 6 inches, although greater stripping depths may be required to remove localized zones of loose or organic soil. The actual stripping depth should be based on field observations at the time of construction. Stripped material should be transported off site for disposal or used in landscaped areas.

5.1.2 Subgrade Improvement

Our explorations encountered an approximate 12- to 20-inch-thick agricultural tilled zone at the ground surface. The majority of the tilled zone does not exceed 16 inches in depth. The tilled zone soil was observed to be very soft to medium stiff and there is a significant risk for poor performance of floor slabs and pavement established directly over tilled zone soil. Subgrade improvement should occur in all planned pavement and floor slab areas to a depth of at least 16 inches by removing and replacing unsuitable material with structural fill or scarifying and re-compacting the on-site soil to structural fill requirements.

As discussed in the "Structural Fill" section, the native soil can be sensitive to small changes in moisture content and will be difficult, if not impossible, to compact adequately when the subgrade is more than 3 percent above optimum moisture content. While scarification and compaction of the subgrade is the best option for subgrade improvement, it will likely only be possible during the dry summer months. As discussed later in this report, cement amendment is an option for conditioning the soil for use as structural fill during periods of wet weather or when drying the soil is not an option. Cement amendment can be performed for subgrade improvement and has an added benefit of protecting the subgrade from construction traffic during wet conditions. In our opinion, cement amendment should be considered for this site.

The project budget should account for subgrade improvement across the development area.

5.1.3 Subgrade Evaluation

A member of our geotechnical staff should observe exposed structural subgrades and foundation excavations after stripping and site cutting have been completed to determine if there are additional areas of unsuitable or unstable soil. Our representative should observe a proof roll of structural fill, pavement, and slab subgrades with a fully loaded dump truck or similar heavy, rubber tire construction equipment to identify soft, loose, or unsuitable areas. In areas not accessible to proof rolling equipment, the subgrade should be evaluated by probing. Areas identified as soft, unstable, or otherwise unsuitable should be over-excavated and replaced with compacted material recommended for structural fill. Areas that appear too wet or soft to support proof rolling or compaction equipment should be evaluated by probing and prepared in accordance with the “Subgrade Protection” section.

5.1.4 Compacting Test Pit Locations

The test pit excavations were backfilled using the relatively minimal compactive effort of the excavator bucket. Soft spots can be expected at these locations. We recommend that this relatively uncompacted soil be removed from the test pits to a depth of 3 feet below finished subgrade. If a test pit is located within 10 feet of a footing, we recommend full-depth removal of the uncompacted soil. The resulting excavation should be brought back to grade with structural fill.

5.2 SUBGRADE PROTECTION

The fine-grained soil present at the ground surface on this site is easily disturbed. If not carefully executed, site preparation, utility trench work, and roadway excavation can create extensive soft areas and significant repair costs can result. Earthwork planning, regardless of the time of year, should include considerations for minimizing subgrade disturbance.

If construction occurs during the wet season, or if the moisture content of the surficial soil is more than a couple percentage points above optimum, site stripping and cutting may need to be accomplished using track-mounted equipment. Likewise, the use of granular haul roads and staging areas will be necessary for support of construction traffic during the rainy season or when the moisture content of the surficial soil is more than a few percentage points above optimum. The aggregate base rock thickness for floor slabs and pavement areas is intended to support post-construction design traffic loads and may not support construction traffic or paving equipment when the subgrade soil is wet. Accordingly, if construction is planned for periods when the subgrade soil is wet, staging and haul road areas with increased thicknesses of aggregate base rock will be required.

The size of staging and haul road areas, as well as the required thickness of granular material, will vary with the contractor's sequencing of a project and exposure to construction equipment. Based on our experience, between 12 and 18 inches of imported granular material is generally required in staging areas and between 18 and 24 inches in haul road areas. Stabilization material may be used as a substitute, provided the top 4 inches of material consists of imported granular material. The actual thickness will depend on the contractor's means and methods and, accordingly, should be the contractor's responsibility. In addition, a geotextile fabric can be placed as a barrier between fine-grained subgrade and imported granular material in areas of repeated construction traffic, such as site entrances. The imported granular material, stabilization material, and geotextile fabric should meet the specifications in the "Materials" section.

As an alternative to thickened crushed rock sections, cement amendment of the subgrade can be performed for protection, as well as subgrade improvement. This option should be strongly considered since it can be used for soil stabilization and improvement (see "Subgrade Improvement" section). The cement-amended subgrade should be covered by at least 4 inches of granular fill material. This recommendation is based on an assumed minimum unconfined compressive strength of 100 psi for subgrade amended to a depth of 12 to 16 inches. The actual thickness of the amended material and imported granular material will depend on the contractor's means and methods and, accordingly, should be the contractor's responsibility. Cement amendment is discussed in the "Materials" section.

5.3 EXCAVATION

Excavation in the on-site soil should generally be possible with conventional earthwork equipment. Excavation in the decomposed basalt will become progressively more difficult with depth.

5.3.1 Trenches and Shoring

Open excavation techniques may be used to excavate trenches, provided the walls of the excavation are cut at a slope of 1H:1V. In lieu of large and open cuts, approved temporary shoring may be used for excavation support. A wide variety of shoring and dewatering systems are available. Consequently, we recommend that the contractor be responsible for selecting the appropriate shoring and dewatering systems.

If box shoring is used, it should be understood that box shoring is a safety feature used to protect workers and does not prevent caving. If excavations are left open for extended periods of time, caving of the sidewalls will occur. The presence of caved material will limit the ability to properly backfill and compact the trenches. The contractor should be prepared to fill voids between the box shoring and the sidewalls of the trenches with sand or gravel before caving occurs.

If shoring is used, we recommend that the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation.

5.3.2 Temporary Dewatering

The contractor should be prepared to dewater excavations that extend below the groundwater table. We anticipate sumps located within a trench excavation will likely be sufficient to remove accumulated water, depending on the amount and persistence of water seepage and the length of time the trench is left open. Flow rates for dewatering are likely to vary depending on location, soil type, and the season during which the excavation occurs. Dewatering systems should be capable of adapting to variable flows. If groundwater and fine-grained soil are present in the base of the utility trench excavation, we recommend over-excavating the trench by 12 to 18 inches and placing trench stabilization material in the base.

5.3.3 Safety

All excavations should be made in accordance with applicable OSHA requirements and regulations of the state, county, and local jurisdiction. While this report describes certain approaches to excavation and dewatering, the contract documents should specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety, and providing shoring (as required) to protect personnel and adjacent structural elements.

5.4 MATERIALS

5.4.1 Structural Fill

5.4.1.1 General

Fill should be placed on subgrade that has been prepared in conformance with the "Site Preparation" section. A variety of material may be used as structural fill at the site. However, all material used as structural fill should be free of organic material or other unsuitable material and should meet the specifications provided in OSSC 00330 (Earthwork), OSSC 00400 (Drainage and Sewers), and OSSC 02600 (Aggregates), depending on the application. A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill are provided below. Fill should be compacted as described in the "Fill Placement and Compaction" section.

5.4.1.2 On-Site Soil

The on-site material should generally be suitable for use as general structural fill, provided it is properly moisture conditioned; free of debris, organic material, and particles over 8 inches in diameter; and meets the specifications provided in OSSC 00330.12 (Borrow Material). Laboratory testing indicates that the on-site soil was generally above optimum moisture content at the time of exploration. Significant moisture conditioning (drying) will be required to use on-

site soil for structural fill. Accordingly, extended dry weather will be required to adequately condition and place the on-site soil as structural fill. It will be difficult, if not impossible, to adequately compact on-site soil during the rainy season or during prolonged periods of rainfall, unless it is cement amended. In general, on-site soil should only be used as structural fill during the dry summer months.

5.4.1.3 Imported Granular Material

Imported granular material used as structural fill should be pit- or quarry-run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in OSSC 00330.14 (Selected Granular Backfill) or OSSC 00330.15 (Selected Stone Backfill). The imported granular material should also be angular, should be fairly well graded between coarse and fine material, should have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve, and should have at least two fractured faces.

5.4.1.4 Stabilization Material

Stabilization material used in staging or haul road areas, in trenches, or for other applications should consist of 4- or 6-inch-minus pit- or quarry-run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in OSSC 00330.15 (Selected Stone Backfill). The material should have a maximum particle size of 6 inches, should have less than 5 percent by dry weight passing the U.S. Standard No. 4 sieve, and should have at least two mechanically fractured faces. The material should be free of organic material and other deleterious material. Stabilization material should be placed in lifts between 12 and 24 inches thick and compacted to a firm condition.

5.4.1.5 Trench Backfill

Trench backfill placed beneath, adjacent to, and for at least 12 inches above utility lines (i.e., the pipe zone) should consist of well-graded granular material with a maximum particle size of 1½ inches and less than 10 percent by dry weight passing the U.S. Standard No. 200 sieve and should meet the specifications provided in OSSC 00405.13 (Pipe Zone Material). Within roadway alignments, the remainder of the trench backfill up to the subgrade elevation should consist of well-graded granular material with a maximum particle size of 2½ inches and less than 10 percent by dry weight passing the U.S. Standard No. 200 sieve and should meet the specifications provided in OSSC 00405.14 (Trench Backfill; Class B, C, or D).

Outside of structural improvement areas (e.g., roadway alignments or building pads), trench backfill placed above the pipe zone may consist of general fill material that is free of organic material and material over 6 inches in diameter and meets the specifications provided in OSSC 00405.14 (Trench Backfill; Class A, B, C, or D).

5.4.1.6 Drain Rock

Drain rock should consist of angular, granular material with a maximum particle size of 2 inches and should meet the specifications provided in OSSC 00430.11 (Granular Drain Backfill Material). The material should be free of roots, organic material, and other unsuitable material; should have less than 2 percent by dry weight passing the U.S. Standard No. 200 sieve (washed analysis); and should have at least two mechanically fractured faces. Drain rock should be compacted to a well-keyed, firm condition.

5.4.1.7 Aggregate Base Rock

Imported granular material used as base rock for building floor slabs and pavement should consist of ¾- or 1½-inch-minus material (depending on the application) and meet the requirements in OSSC 00641 (Aggregate Subbase, Base, and Shoulders). The aggregate should have at least two mechanically fractured faces. In addition, the aggregate should have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve.

5.4.1.8 Retaining Wall Select Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of ½H, where H is the height of the retaining wall, should consist of select granular material that meets the specifications provided in OSSC 00510.12 (Granular Wall Backfill) or OSSC 00510.13 (Granular Structure Backfill). We recommend the select granular wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the specifications provided below for drainage geotextiles.

The backfill should be placed and compacted as recommended for structural fill, with the exception of backfill placed immediately adjacent to walls. Backfill adjacent to walls should be compacted to a lesser standard to reduce the potential for generation of excessive pressure on the walls.

5.4.2 Geotextile Fabric

5.4.2.1 Subgrade Geotextile

Subgrade geotextile should conform to OSSC Table 02320-1 and OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles.

5.4.2.2 Drainage Geotextile

Drainage geotextile should conform to Type 2 material of OSSC Table 02320-1 and OSSC 00350 (Geosynthetic Installation). A minimum initial aggregate base lift of 6 inches is required over geotextiles.

5.4.3 AC

5.4.3.1 ACP

On-site AC should be Level 2, ½-inch, dense ACP according to OSSC 00745 (Asphalt Concrete Pavement – Statistical Acceptance) and compacted to 91 percent of the maximum specific gravity of the mix, as determined by AASHTO T 209. The minimum and maximum lift thicknesses are 2.0 and 3.5 inches, respectively, for ½-inch ACP. Asphalt binder should be performance graded and conform to PG 64-22 or better.

5.4.3.2 Cold Weather Paving Considerations

In general, AC paving is not recommended during cold weather (temperatures less than 40 degrees Fahrenheit). Compacting under these conditions can result in low compaction and premature pavement distress.

Each AC mix design has a recommended compaction temperature range that is specific for the particular AC binder used. In colder temperatures, it is more difficult to maintain the temperature of the AC mix as it can lose heat while stored in the delivery truck, as it is placed,

and in the time between placement and compaction. In Oregon, the AC surface temperature during paving should be at least 40 degrees Fahrenheit for lift thickness greater than 2.5 inches and at least 50 degrees Fahrenheit for lift thickness between 2.0 and 2.5 inches.

If paving activities must take place during cold weather construction as defined above, the project team should be consulted and a site meeting should be held to discuss ways to lessen low compaction risks.

5.4.4 Cement Amendment

5.4.4.1 General

As an alternative to the use of imported granular material for wet weather structural fill and/or to provide subgrade stabilization for wet weather earthwork, an experienced contractor can amend the on-site soil with portland cement to obtain suitable support properties. Cement amendment should be considered for this site since it will allow the contractor to perform subgrade improvement (see "Subgrade Improvement" section) and will provide protection from construction traffic during periods of wet weather.

Successful use of soil amendment depends on the use of correct mixing techniques, soil moisture content, and amendment quantities. The amount of cement used during amendment should be based on an assumed soil dry unit weight of 100 pcf.

5.4.4.2 Subbase Stabilization

Successful use of soil amendment depends on use of correct techniques and equipment, soil moisture content, and the amount of cement added to the soil. The recommended percentage of cement is based on soil moisture contents at the time of placing the structural fill. Based on our experience, 6 percent cement by weight of dry soil is generally satisfactory when the soil moisture content does not exceed approximately 25 percent. If the soil moisture content is in the range of 25 to 35 percent, 7 to 9 percent by weight of dry soil is recommended. It is difficult to accurately predict field performance due to the variability in soil response to cement amendment. The amount of cement added to the soil may need to be adjusted based on field observations and performance. Moreover, depending on the time of year and moisture content levels during amendment, water may need to be applied during tilling to appropriately condition the soil moisture content. The amount of cement used during amendment should be based on an assumed soil dry unit weight of 110 pcf. For preliminary design purposes, we recommend a minimum of 7 percent cement. The target cement content should be adjusted based on the actual moisture content of the soil at the time of amendment. It is not possible to amend soil during heavy or continuous rainfall. Work should be completed during suitable conditions.

We recommend cement-spreading equipment be equipped with balloon tires to reduce rutting and disturbance of the fine-grained soil. A static sheepsfoot or segmented pad roller with a minimum static weight of 40,000 pounds should be used for initial compaction of the fine-grained soil. A smooth-drum roller with a minimum applied linear force of 700 pounds per inch should be used for final compaction. The amended soil should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D1557.

A minimum curing time of four days is required between amendment and construction traffic access. Construction traffic should not be allowed on unprotected, cement-amended subgrade. To protect the cement-amended surfaces from abrasion or damage, the finished surface should be covered with 4 to 6 inches of imported granular material.

Amendment depths for building/pavement, haul road, and staging areas are typically on the order of 12, 16, and 12 inches, respectively. The crushed rock typically becomes contaminated with soil during construction. Contaminated base rock should be removed and replaced with clean rock in pavement areas. The actual thickness of the amended material and imported granular material for haul road and staging areas will depend on the anticipated traffic, as well as the contractor's means and methods and, accordingly, should be the contractor's responsibility. Cement amendment should not be attempted when air temperature is below 40 degrees Fahrenheit or during moderate to heavy precipitation. Cement should not be placed when the ground surface is saturated or standing water exists.

5.4.4.3 Cement-Amended Structural Fill

On-site silt/clay soil that is not suitable for structural fill due to high moisture content may be amended and placed as fill over a subgrade prepared in conformance with the "Site Preparation" section. The cement ratio for general cement-amended fill can generally be reduced by 1 percent (by dry weight). Typically, a minimum curing time of four days is required between amendment and construction traffic access. Consecutive lifts of fill may be amended immediately after the previous lift has been amended and compacted (e.g., the four-day wait period does not apply). However, where the final lift of fill is a building or roadway subgrade, the four-day wait period is in effect for the final lift of cement-amended soil.

5.4.4.4 Other Considerations

Portland cement-amended soil is hard and has low permeability. This soil does not drain well and it is not suitable for planting. Future planted areas should not be cement amended, if practical, or accommodations should be made for drainage and planting. Moreover, cement amending soil within building areas must be done carefully to avoid trapping water under floor slabs. We should be contacted if this approach is considered. Cement amendment should not be used if runoff during construction cannot be directed away from adjacent wetlands (if any). Cement-amended runoff should be collected, monitored, and treated in accordance with Oregon Department of Environmental Quality requirements prior to being discharged.

5.4.4.5 Specification Recommendations

We recommend that the following comments be included in the specifications for the project:

- In general, cement amendment is not recommended during cold weather (temperatures less than 40 degrees Fahrenheit) or during rainfall.
- Mixing Equipment
  - Use a pulverizer/mixer capable of uniformly mixing the cement into the soil to the design depth. Blade mixing will not be allowed.
  - Pulverize the soil-cement mixture such that 100 percent by dry weight passes a 1-inch sieve and a minimum of 70 percent passes a No. 4 sieve, exclusive of gravel or stone retained on these sieves. If water is required, the pulverizer should be equipped to inject water to a tolerance of ¼ gallon per square foot of surface area.
  - Use machinery that will not disturb the subgrade, such as using low-pressure "balloon" tires on the pulverizer/mixer vehicle. If subgrade is disturbed, the tilling/amendment depth shall extend the full depth of the disturbance.
  - Multiple "passes" of the tiller may be required to adequately blend the cement and soil mixture.
- Spreading Equipment
  - Use a spreader capable of distributing the cement uniformly on the ground to within 5 percent variance of the specified application rate.
  - Use machinery that will not disturb the subgrade, such as using low-pressure "balloon" tires on the spreader vehicle. If subgrade is disturbed, the tilling/amendment depth shall extend the full depth of the disturbance.
- Compaction Equipment
  - Use a static, sheepsfoot or segmented pad roller with a minimum static weight of 40,000 pounds for initial compaction of fine-grained soil (silt and clay) or an alternate approved by the geotechnical engineer.

5.5 FILL PLACEMENT AND COMPACTION

Fill soil should be compacted at a moisture content that is within 3 percent of optimum. The maximum allowable moisture content varies with the soil gradation and should be evaluated during construction. Fill and backfill material should be placed in uniform, horizontal lifts and compacted with appropriate equipment. The maximum lift thickness will vary depending on the material and compaction equipment used but should generally not exceed the loose thicknesses provided in Table 4. Fill material should be compacted in accordance with the compaction criteria provided in Table 5.

Table 4. Recommended Uncompacted Lift Thickness

Compaction Equipment	Recommended Uncompacted Lift Thickness (inches)		
	Silty/Clayey Soil	Granular and Crushed Rock Maximum Particle Size ≤ 1½ Inches	Crushed Rock Maximum Particle Size > 1½ Inches
Hand tools: Plate compactor and jumping jack	4 to 8	4 to 8	Not recommended
Rubber tire equipment	6 to 8	10 to 12	6 to 8
Light roller	8 to 10	10 to 12	8 to 10
Heavy roller	10 to 12	12 to 18	12 to 16
Hoe pack equipment	12 to 16	18 to 24	18 to 24

The table above is based on our experience and is intended to serve only as a guideline. The information provided in this table should not be included in the project specifications.

Table 5. Compaction Criteria

Fill Type	Compaction Requirements in Structural Zones		
	Percent Maximum Dry Density Determined by ASTM D1557		
	0 to 2 Feet Below Subgrade (percent)	Greater Than 2 Feet Below Subgrade (percent)	Pipe Zone (percent)
Area fill (granular)	95	95	-----
Area fill (fine grained)	92	92	-----
Aggregate bases	95	95	-----
Trench backfill[1,2]	95	92	90[1,2]
Retaining wall backfill	95[3]	92[3]	-----

1. Trench backfill above the pipe zone in non-structural areas should be compacted to 85 percent.
2. Or as recommended by the pipe manufacturer.
3. Should be reduced to 90 percent within a horizontal distance of 3 feet from the retaining wall.

5.6 EROSION CONTROL

The fine-grained soil at this site is eroded easily by wind and water; therefore, erosion control measures should be carefully planned and in place before construction begins. Measures that can be employed to reduce erosion include the use of silt fences, hay bales, buffer zones of natural growth, sedimentation ponds, and granular haul roads. All erosion control methods should be in accordance with local jurisdiction standards. During earthwork at the site, the contractor should be responsible for temporary drainage of surface water as necessary to prevent standing water and/or erosion at the working surface.

6.0 OBSERVATION OF CONSTRUCTION

Satisfactory earthwork and foundation performance depend to a large degree on the quality of construction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions often requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated. In addition, sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications.

7.0 LIMITATIONS

We have prepared this report for use by Sysco Portland, Inc. and members of the design and construction team for the proposed project. The data and report can be used for estimating purposes, but our report, conclusions, and interpretations should not be construed as a warranty of the subsurface conditions and are not applicable to other sites.

Soil explorations indicate soil conditions only at specific locations and only to the depths penetrated. The soil explorations do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The site development plans and design details were preliminary at the time this report was prepared. When the design has been finalized and if there are changes in the site grades, location, or configuration; design loads; or type of construction, the conclusions and recommendations presented may not be applicable. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in this report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

NV5

Jessica Pence, E.I.T.
Project Manager

Scott McDevitt, P.E., G.E.
Principal Engineer

REFERENCES

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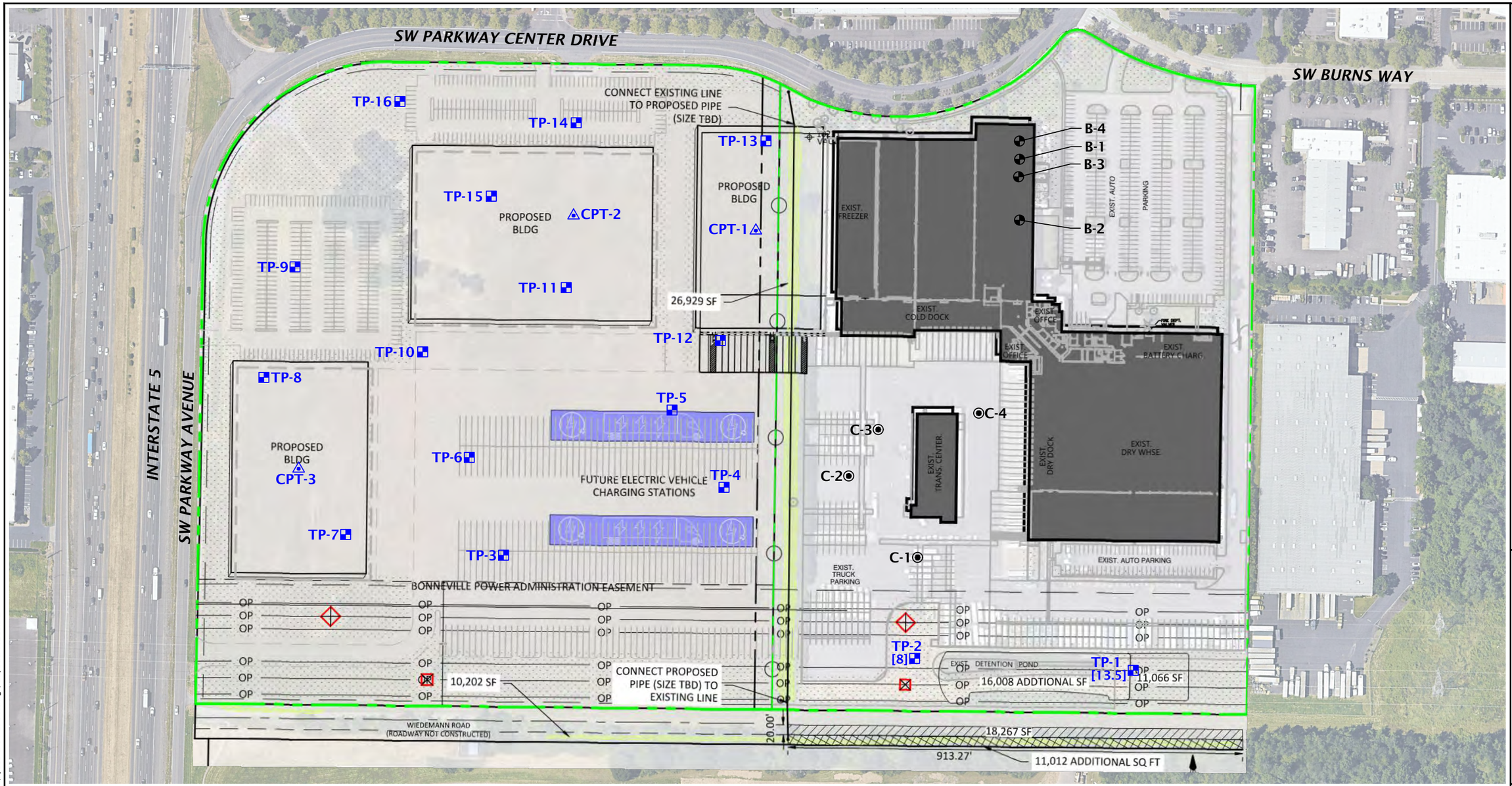
FIGURES

NIV5	SYSCO-2-01	**VICINITY MAP**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE 1**

Printed By: aday | Print Date: 6/13/2023 11:12:56 AM
File Name: J:\S-Z\Sysco\Sysco-2\Sysco-2-01\Figures\CAD\Sysco-2-01-VM01.dwg | Layout: FIGURE 1



LEGEND:

TP-1	TEST PIT
[13.5]	INFILTRATION TEST DEPTH (FEET BGS)
CPT-1	CPT
B-1	PRIOR BORING (GEODESIGN, INC., 2019)
C-1	PRIOR PAVEMENT BORING (GEODESIGN, INC., 2019)

N

0 200 400

(SCALE IN FEET)

NOTES:

1. SITE PLAN BASED ON IMAGE OF EXHIBIT 1 SYSCO FACILITY EXPANSION DATED MARCH 17, 2023, PREPARED BY STANDRIDGE, INC.
2. AERIAL PHOTOGRAPH DATED JULY 10, 2022, OBTAINED FROM GOOGLE EARTH PRO.

SITE PLAN

FIGURE 2

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

SYSCO-2-01

JUNE 2023

NV5

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File Name: J:\S-Z\Sysco\Sysco-2\Sysco-2-01\Figures\CAD\Sysco-2-01-SP01.dwg | Layout: FIGURE 2

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

We explored subsurface conditions at the site by excavating 16 test pits (TP-1 through TP-16) to depths between 5 and 15.5 feet BGS and advancing 3 CPT probes (CPT-1 through CPT-3) to depths between 40.7 and 50.7 feet BGS. The test pits were excavated by Dan J. Fischer Excavating, Inc. of Forest Gove, Oregon, on April 19, 2023, using a CASE 580 backhoe. The explorations were completed under the supervision of NV5 personnel. The exploration logs are presented in this appendix. The CPT results are presented in Appendix B.

The approximate exploration locations are shown on Figure 2. The exploration locations were determined in the field by pacing from existing site features. This information should be considered accurate to the degree implied by the method used.

SOIL SAMPLING

Representative grab samples were collected from the base and sides of the test pits. Sampling methods and intervals are shown on the exploration logs.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are presented in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change actually could be gradual. If the change occurred between sample locations, the depth was interpreted. Classifications are shown on the exploration logs.

LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are shown on the exploration logs if those classifications differed from the field classifications.

MOISTURE CONTENT

The natural moisture content of select soil samples was determined in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

PARTICLE-SIZE ANALYSIS

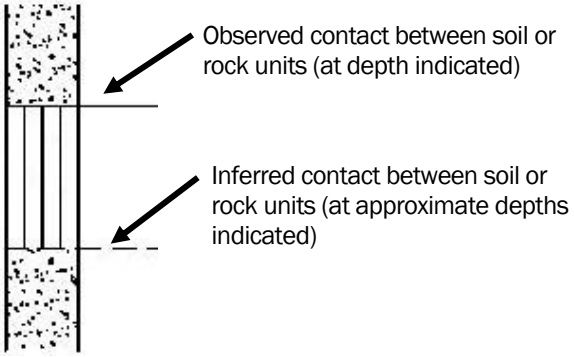
Particle-size analysis on performed on select soil samples in general accordance with ASTM D1140. This test is a quantitative determination of the amount of material finer than the U.S. Standard No. 200 sieve expressed as a percentage of soil weight. The test results are presented in this appendix.

ATTERBERG LIMITS

The plastic limit and liquid limit (Atterberg limits) of select soil samples were determined in general accordance with ASTM D4318. The Atterberg limits and the plasticity index were completed to aid in the classification of the soil and evaluation of liquefaction susceptibility. The plastic limit is defined as the moisture content (in percent) where the soil becomes brittle. The liquid limit is defined as the moisture content where the soil begins to act similar to a liquid. The plasticity index is the difference between the liquid and plastic limits. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample collected in general accordance with ASTM D1586 using Standard Penetration Test (SPT) with recovery
	Location of sample collected using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D1587 with recovery
	Location of sample collected using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample collected using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample collected using 3-inch-outside diameter California split-spoon sampler and 140-pound hammer with recovery
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density		
DS	Direct Shear	RES	Resilient Modulus
HYD	Hydrometer Gradation	SIEV	Sieve Gradation
MC	Moisture Content	TOR	Torvane
MD	Moisture-Density Relationship	UC	Unconfined Compressive Strength
NP	Non-Plastic	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
		MS	Moderate Sheen
ppm	Parts per Million	HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL

Relative Density	Standard Penetration Test (SPT) Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very loose	0 – 4	0 – 11	0 – 4
Loose	4 – 10	11 – 26	4 – 10
Medium dense	10 – 30	26 – 74	10 – 30
Dense	30 – 50	74 – 120	30 – 47
Very dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOIL

Consistency	Standard Penetration Test (SPT) Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 – 4	3 – 6	2 – 5	0.25 – 0.50
Medium stiff	4 – 8	6 – 12	5 – 9	0.50 – 1.0
Stiff	8 – 15	12 – 25	9 – 19	1.0 – 2.0
Very stiff	15 – 30	25 – 65	19 – 31	2.0 – 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVEL WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)	SW or SP	SAND
		SAND WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SAND WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOIL			PT	PEAT

MOISTURE CLASSIFICATION		ADDITIONAL CONSTITUENTS					
		Secondary granular components or other materials such as organics, man-made debris, etc.					
			Silt and Clay In:			Sand and Gravel In:	
Term	Field Test	Percent	Fine-Grained Soil	Coarse-Grained Soil	Percent	Fine-Grained Soil	Coarse-Grained Soil
dry	very low moisture, dry to touch						
moist	damp, without visible moisture	< 5	trace	trace	< 5	trace	trace
		5 – 12	minor	with	5 – 15	minor	minor
wet	visible free water, usually saturated	> 12	some	silty/clayey	15 – 30	with	with
					> 30	sandy/gravelly	Indicate %

NV5

SOIL CLASSIFICATION SYSTEM

TABLE A-2

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Soft to medium stiff, brown with light brown and gray mottled SILT with organics (ML), minor sand; moist, organics are roots and rootlets, sand is fine, blocky (6-inch-thick root zone) - **FILL**.		PP	☒		Slow groundwater seepage observed at 0.9 foot. PP = 0.5 tsf
	stiff at 2.0 feet		PP			PP = 1.5 tsf
2.5	Stiff, gray with dark brown and orange mottled CLAY (CH), trace sand, gravel, and organics (rootlets); moist, sand is fine, gravel is subangular - **FILL**.	2.6	PP	☒		Slow groundwater seepage observed at 2.3 feet. PP = 1.5 tsf
			PP	☒		PP = 3.0 tsf
5.0	Soft to medium stiff, dark brown with light brown mottled CLAY (CL), minor sand, trace organics (rootlets) and debris (wood); moist, sand is fine - **FILL**.	5.0	P200	☒ ●		P200 = 89%
7.5	Medium stiff, dark gray with light gray mottled SILT (ML), trace to minor sand, organics (rootlets), and debris (wood); moist, sand is fine - **FILL**.	6.2		☒		
	with debris (wood) at 9.0 feet					
10.0						
12.5	Medium stiff, red-brown with black mottled CLAY with sand (CL); moist, sand is fine, blocky (decomposed basalt).	12.5	P200	☒ ●		Slow groundwater seepage observed at 13.0 feet. Infiltration test at 13.5 feet. P200 = 71%
15.0	Exploration completed at a depth of 15.0 feet.	15.0		☒		No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-1**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE A-1**

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 50 100)	COMMENTS
0.0	Soft to medium stiff, brown SILT with organics (ML), trace sand and gravel; moist, organics are rootlets, sand is fine, gravel is coarse and angular (6-inch-thick root zone) - **FILL**.		PP			PP = 0.5 tsf
	without gravel at 1.0 foot		PP			PP = 2.25 tsf
	very stiff at 2.0 feet					
2.5	Very stiff, brown with light brown mottled SILT (ML), trace to minor sand, trace organics (rootlets) and debris (wood); moist, sand is fine, lenses of CLAY - **FILL**.	2.5	PP			PP = 3.25 tsf
			PP			PP = 2.25 tsf
						Slow groundwater seepage observed at 4.5 feet.
5.0	Soft to medium stiff, light brown to light gray with orange streaked CLAY (CH), minor to with sand, trace debris (wood); moist, sand is fine - **FILL**.	5.0				
7.5	Medium stiff, light brown to light gray with orange streaked CLAY (CL), minor sand; moist, sand is fine.	7.5	P200			Infiltration test at 8.0 feet. P200 = 89%
						Slow groundwater seepage observed at 9.4 feet.
10.0						
	with sand at 12.0 feet					Moderate groundwater seepage observed at 12.0 feet.
12.5						
15.0	Exploration completed at a depth of 15.5 feet.	15.5				No caving observed to the depth explored.
						Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

NV5

SYSCO-2-01

TEST PIT TP-2

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0		Soft to medium stiff, light gray-brown with orange mottled CLAY (CL), trace to minor sand, trace organics (rootlets); moist, sand is fine (12-inch-thick tilled zone, 4-inch-thick root zone).		PP			PP = 0.25 tsf
				PP	☒		PP = 0.5 tsf
2.5		medium stiff at 2.5 feet brown, sandy at 2.7 feet		PP			PP = 0.75 tsf
				P200 PP	☒	●	P200 = 55% PP = 1.0 tsf
5.0					☒	●	Slow groundwater seepage observed at 5.0 feet.
		Exploration completed at a depth of 5.5 feet.	5.5				No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

NV5	SYSCO-2-01	**TEST PIT TP-3**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-3

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 50 100)	COMMENTS
0.0		Medium stiff, light gray to brown with orange streaked, sandy CLAY (CL), trace organics (rootlets); moist, sand is fine (12-inch-thick tilled zone, 5-inch-thick root zone).		PP	☒		PP = 0.75 tsf
2.5		stiff, brown at 2.8 feet		PP			PP = 1.5 tsf
				PP	☒		PP = 1.5 tsf
5.0					☒	●	Slow groundwater seepage observed at 5.4 feet.
		Exploration completed at a depth of 5.5 feet.	5.5				No caving observed to the depth explored.
							Surface elevation was not measured at the time of exploration.
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

NV5

SYSCO-2-01

TEST PIT TP-4

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-4

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0		Soft to medium stiff, light gray to light brown with orange streaked CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (12-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 0.5 tsf
2.5		stiff, brown with orange streaks, sandy at 2.0 feet		PP	☒		PP = 1.5 tsf
				PP			PP = 1.5 tsf
5.0		brown with orange and gray streaks at 5.0 feet		P200	☒	●	P200 = 79% Slow groundwater seepage observed at 5.5 feet.
			5.5				No caving observed to the depth explored.
		Exploration completed at a depth of 5.5 feet.					Surface elevation was not measured at the time of exploration.
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

NV5

SYSCO-2-01

TEST PIT TP-5

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-5

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0		Soft to medium stiff, light gray to brown with orange streaked, sandy CLAY (CL), trace organics (rootlets); moist, sand is fine (15-inch-thick tilled zone, 5-inch-thick root zone).		PP	☒		PP = 0.5 tsf
2.5		stiff, brown with light gray and orange streaks at 2.2 feet		PP			PP = 1.75 tsf
		very stiff at 3.5 feet		PP	☒	●	PP = 3.5 tsf
5.0					☒		Slow groundwater seepage observed at 5.9 feet.
		Exploration completed at a depth of 6.0 feet.	6.0				No caving observed to the depth explored.
7.5							Surface elevation was not measured at the time of exploration.
10.0							
12.5							
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

NV5	SYSCO-2-01	**TEST PIT TP-6**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-6

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Very soft to soft, light brown with orange and black mottled CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (12-inch-thick tilled zone, 5-inch-thick root zone).		PP	☒		PP = 0.25 tsf
2.5	very stiff, brown with gray and orange streaks, sandy at 2.4 feet		PP			PP = 2.5 tsf
			PP	☒	●	PP = 2.75 tsf
5.0						
7.5	medium stiff, brown with orange streaks, with sand (decomposed basalt) at 7.0 feet			☒		Slow groundwater seepage observed at 7.0 feet.
	orange-brown with orange streaks and black mottles at 9.0 feet					
10.0						Moderate groundwater seepage observed at 10.0 feet.
	red to red-brown with black mottles at 11.0 feet					
12.5						
15.0				☒		
	Exploration completed at a depth of 15.5 feet.	15.5				No caving observed to the depth explored.
17.5						Surface elevation was not measured at the time of exploration.
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-7**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-7

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Medium stiff, brown with gray and orange streaked CLAY (CL), minor to with sand, trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).					
			ATT PP	☒	●	PP = 0.75 tsf LL = 31% PL = 20%
2.5	without organics at 2.5 feet		PP			PP = 2.75 tsf
			PP			PP = 1.5 tsf
5.0	with sand at 5.0 feet					
				☒		Slow groundwater seepage observed at 7.0 feet.
7.5	red-brown with orange streaks and black mottles at 7.0 feet					
	(decomposed basalt) at 8.5 feet					Moderate groundwater seepage observed at 9.0 feet.
	trace to minor sand at 9.5 feet			☒		
10.0						
12.5						
15.0	Exploration completed at a depth of 15.5 feet.	15.0		☒	●	No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

NV5

SYSCO-2-01

TEST PIT TP-8

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-8

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT % (0 50 100)	COMMENTS
0.0		Stiff, brown CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (20-inch-thick tilled zone, 5-inch-thick root zone).		PP	☒		PP = 0.5 tsf
2.5		without organics at 2.5 feet		PP			PP = 1.5 tsf
		medium stiff to stiff at 3.5 feet		PP	☒	●	PP = 1.0 tsf
		brown with black mottles (decomposed basalt) at 4.5 feet			☒		
5.0		Exploration completed at a depth of 5.0 feet.	5.0				No groundwater seepage observed to the depth explored. No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

N|V|5	SYSCO-2-01	**TEST PIT TP-9**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE A-9**

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0		Very soft to soft, brown with light gray and orange streaked CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 0.25 tsf
2.5		stiff at 2.5 feet		PP	☒		PP = 1.5 tsf
		without organics at 3.0 feet		PP			PP = 1.25 tsf
5.0							Slow groundwater seepage observed at 6.0 feet.
7.5					☒	●	
		red-brown with black mottles; blocky at 8.0 feet					
10.0					☒		
12.5							
15.0		Exploration completed at a depth of 15.0 feet.	15.0		☒		No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

N|V|5	SYSCO-2-01	**TEST PIT TP-10**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE A-10**

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Soft to medium stiff, brown with light gray and orange mottled CLAY (CL), minor sand, trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP	☒	●	PP = 0.5 tsf
2.5	medium stiff to stiff at 2.5 feet		PP			PP = 1.0 tsf
	very stiff, brown with orange and black mottles, with sand at 3.2 feet		PP	☒		PP = 2.25 tsf
5.0						
	blocky (decomposed basalt) at 6.5 feet					Slow groundwater seepage observed at 7.0 feet.
7.5				☒		
10.0	red-brown with orange and black streaks at 10.0 feet					Moderate groundwater seepage observed at 10.5 feet.
12.5						
	black, brown, and red at 13.0 feet					
15.0	Exploration completed at a depth of 15.0 feet.	15.0		☒		No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

N|V|5	SYSCO-2-01	**TEST PIT TP-11**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE A-11**

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Very soft to soft, light gray with orange streaked CLAY (CL), minor sand, trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 0.25 tsf
2.5	medium stiff, brown at 2.5 feet		PP	☒		PP = 0.75 tsf
	stiff, brown with black mottles, without organics at 3.5 feet		PP			PP = 1.75 tsf Slow groundwater seepage observed at 4.0 feet.
5.0						Slow groundwater seepage observed at 6.0 feet.
	red-brown with light brown and black streaks (decomposed basalt) at 6.0 feet			☒		
7.5						
				☒	●	
10.0	brown with black and yellow mottles at 10.0 feet					
12.5						
	black with light gray and yellow streaks at 14.0 feet			☒		
15.0	Exploration completed at a depth of 15.0 feet.	15.0				No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-12**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-12

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Stiff, light brown to light gray with orange streaked CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 1.25 tsf
2.5	medium stiff to stiff, sandy, without organics at 3.0 feet		PP	☒	●	PP = 1.75 tsf
			PP			PP = 1.0 tsf
5.0	brown with orange streaks, with sand at 6.5 feet		ATT	☒	●	LL = 45% PL = 26%
7.5	red-brown with black mottles (decomposed basalt) at 9.0 feet			☒		Moderate groundwater seepage observed at 9.0 feet.
10.0	brown and light gray with black streaks at 12.0 feet					
12.5				☒		
14.5	Exploration completed at a depth of 14.5 feet.	14.5				No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
15.0						
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-13**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR — **FIGURE A-13**

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 50 100)	COMMENTS
0.0		Stiff to very stiff, brown with black mottled CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 2.0 tsf
2.5		very stiff at 2.5 feet		PP	☒		PP = 2.5 tsf
		brown with light brown and black streaks, without organics (decomposed basalt) at 3.0 feet		PP			PP = 3.5 tsf
					☒		Slow groundwater seepage observed at 4.0 feet.
5.0							
							Slow groundwater seepage observed at 6.5 feet.
7.5		red-brown with black mottles at 8.0 feet			☒	●	
10.0							
		brown and gray with black and red streaks at 11.0 feet					
12.5				P200	☒	●	P200 = 79%
		Exploration completed at a depth of 14.5 feet.	14.5				No caving observed to the depth explored.
15.0							Surface elevation was not measured at the time of exploration.
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23:KT

NV5

SYSCO-2-01

TEST PIT TP-14

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-14

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 50 100)	COMMENTS
0.0		Medium stiff, brown with black mottled CLAY with sand (CL), trace organics (rootlets); moist, sand is fine (14-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 0.75 tsf
2.5		very stiff at 2.5 feet hard, without organics (decomposed basalt) at 2.8 feet		PP PP	☒		PP = 2.5 tsf PP = >4.5 tsf
5.0		red-brown with black mottles at 5.0 feet			☒		
7.5							
10.0					☒	●	Moderate groundwater seepage observed at 9.5 feet.
12.5					☒		
		Exploration completed at a depth of 14.0 feet.	14.0				No caving observed to the depth explored. Surface elevation was not measured at the time of exploration.
15.0							
17.5							
20.0							

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-15**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-15

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT

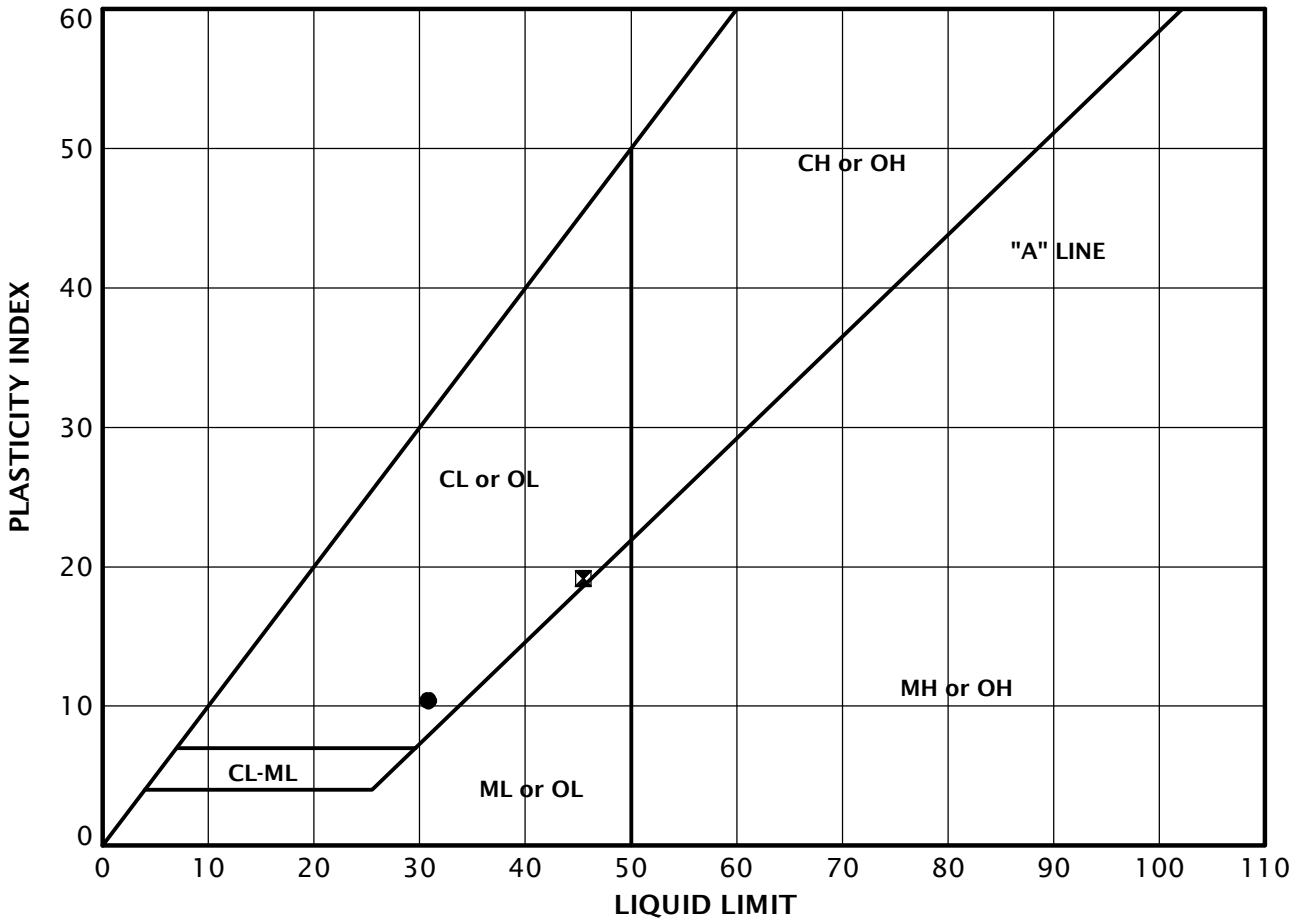
DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	MOISTURE CONTENT % (0 – 50 – 100)	COMMENTS
0.0	Medium stiff to stiff, brown CLAY (CL), minor to with sand, trace organics (rootlets); moist, sand is fine (16-inch-thick tilled zone, 5-inch-thick root zone).		PP			PP = 1.0 tsf
2.5	medium stiff at 2.5 feet		PP	☒		PP = 0.75 tsf
	without organics at 3.5 feet		PP			PP = 0.75 tsf
5.0						Slow groundwater seepage observed at 6.0 feet.
7.5	red-brown to brown with black mottles (decomposed basalt) at 7.0 feet			☒	●	
						Moderate groundwater seepage observed at 9.0 feet.
10.0						
12.5				☒		
	Exploration completed at a depth of 14.0 feet.	14.0				No caving observed to the depth explored.
15.0						Surface elevation was not measured at the time of exploration.
17.5						
20.0						

EXCAVATED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: I. Allen COMPLETED: 04/19/23

EXCAVATION METHOD: backhoe (see document text)

NV5	SYSCO-2-01	**TEST PIT TP-16**
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR
		FIGURE A-16

TEST PIT LOG - NV5 - 1 PER PAGE SYSCO-2-01-TP1_16.GPJ GDL_NV5.GDT PRINT DATE: 6/13/23:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	TP-8	2.0	26	31	20	11
⊠	TP-13	5.0	35	45	26	19

NV5	SYSCO-2-01	ATTERBERG LIMITS TEST RESULTS	
	JUNE 2023	SYSCO FACILITY EXPANSION WILSONVILLE, OR	FIGURE A-17

_ATTERBERG_LIMITS 7 SYSCO-2-01-TP1_16.GPJ GEODESIGN.GDT PRINT DATE: 6/13/23:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
TP-1	6.0		30				89			
TP-1	13.5		28				71			
TP-2	3.0		23							
TP-2	8.0		26				89			
TP-3	3.5		32				55			
TP-3	5.0		34							
TP-4	5.0		31							
TP-5	5.0		30				79			
TP-6	3.5		27							
TP-7	4.0		28							
TP-8	2.0		26					31	20	11
TP-8	14.5		32							
TP-9	3.0		30							
TP-10	6.5		32							
TP-11	1.5		25							
TP-12	9.0		27							
TP-13	2.5		31							
TP-13	5.0		35					45	26	19
TP-14	8.5		30							
TP-14	14.0		46				79			
TP-15	10.5		30							
TP-16	7.0		31							

LAB SUMMARY - GDI-NV5 SYSCO-2-01-TP1_16.GPJ GDI_NV5.GDT PRINT DATE: 6/13/23 KT

NV5

SYSCO-2-01

SUMMARY OF LABORATORY DATA

JUNE 2023

SYSCO FACILITY EXPANSION
WILSONVILLE, OR

FIGURE A-18

APPENDIX B

APPENDIX B

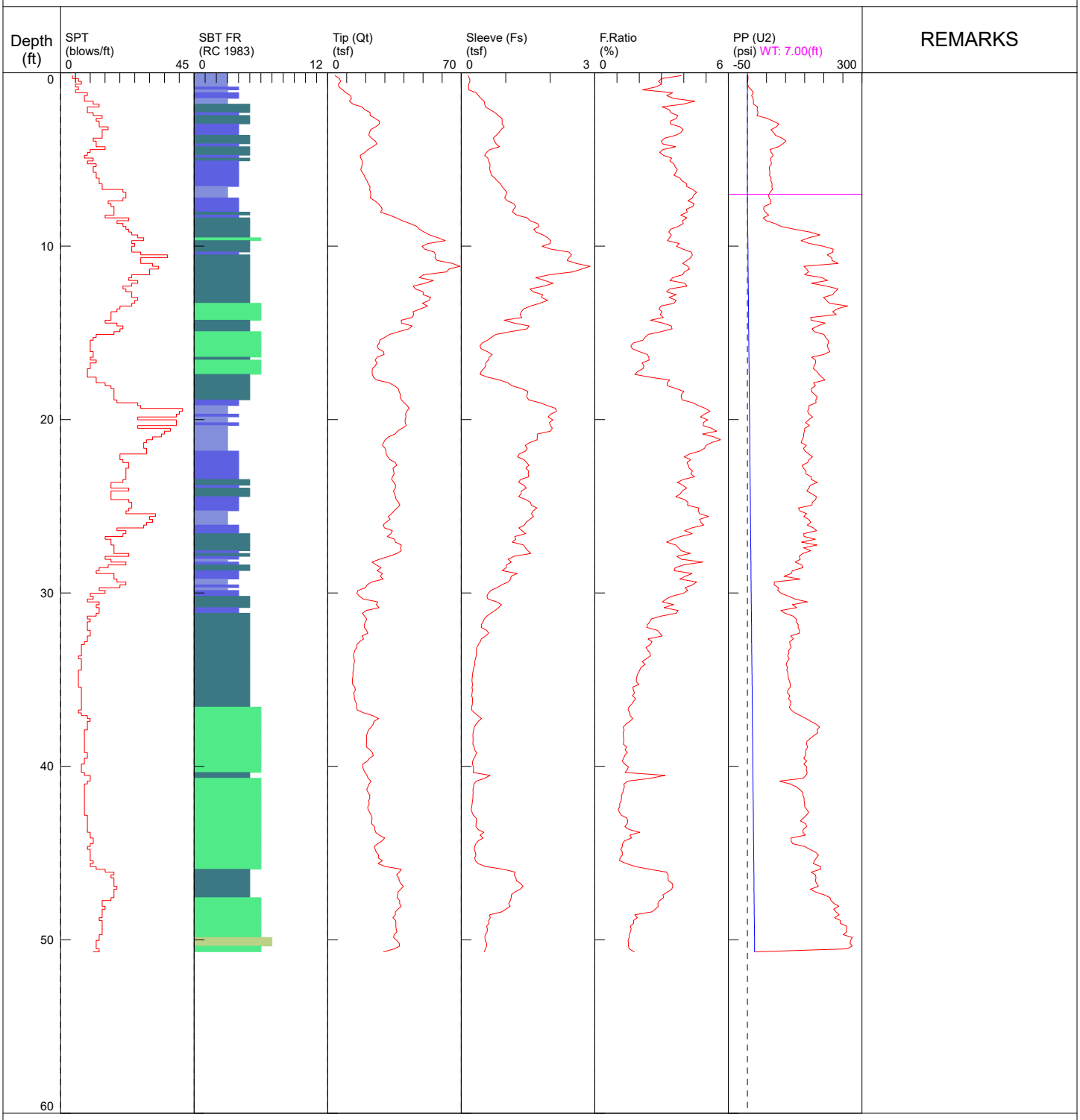
CONE PENETROMETER TESTING

We explored subsurface conditions at the site by advancing three CPT probes (CPT-1 through CPT-3) to depths between 40.7 and 50.7 feet BGS. The CPT probes were performed in general accordance with ASTM D5778 by Oregon Geotechnical Explorations of Keizer, Oregon, on April 19, 2021. The results of the CPTs completed for this project are presented in this appendix.

The CPT is an in-situ test that provides characterizes subsurface stratigraphy. The testing includes advancing a 35.6-millimeter-diameter cone equipped with a load cell and a friction sleeve through the soil profile. The cone is advanced at a rate of approximately 2 centimeters per second. Tip resistance, sleeve friction, and pore pressure are typically recorded at 0.1-meter intervals. Shear wave velocity testing was completed in CPT-2 at 2-meter intervals.

NV5 / CPT-1 / 25858 SW Parkway Ave Wilsonville

OPERATOR: OGE DMM
CONE ID: DDG1615
TEST DATE: 4/19/2023 8:46:15 AM
TOTAL DEPTH: 50.689 ft

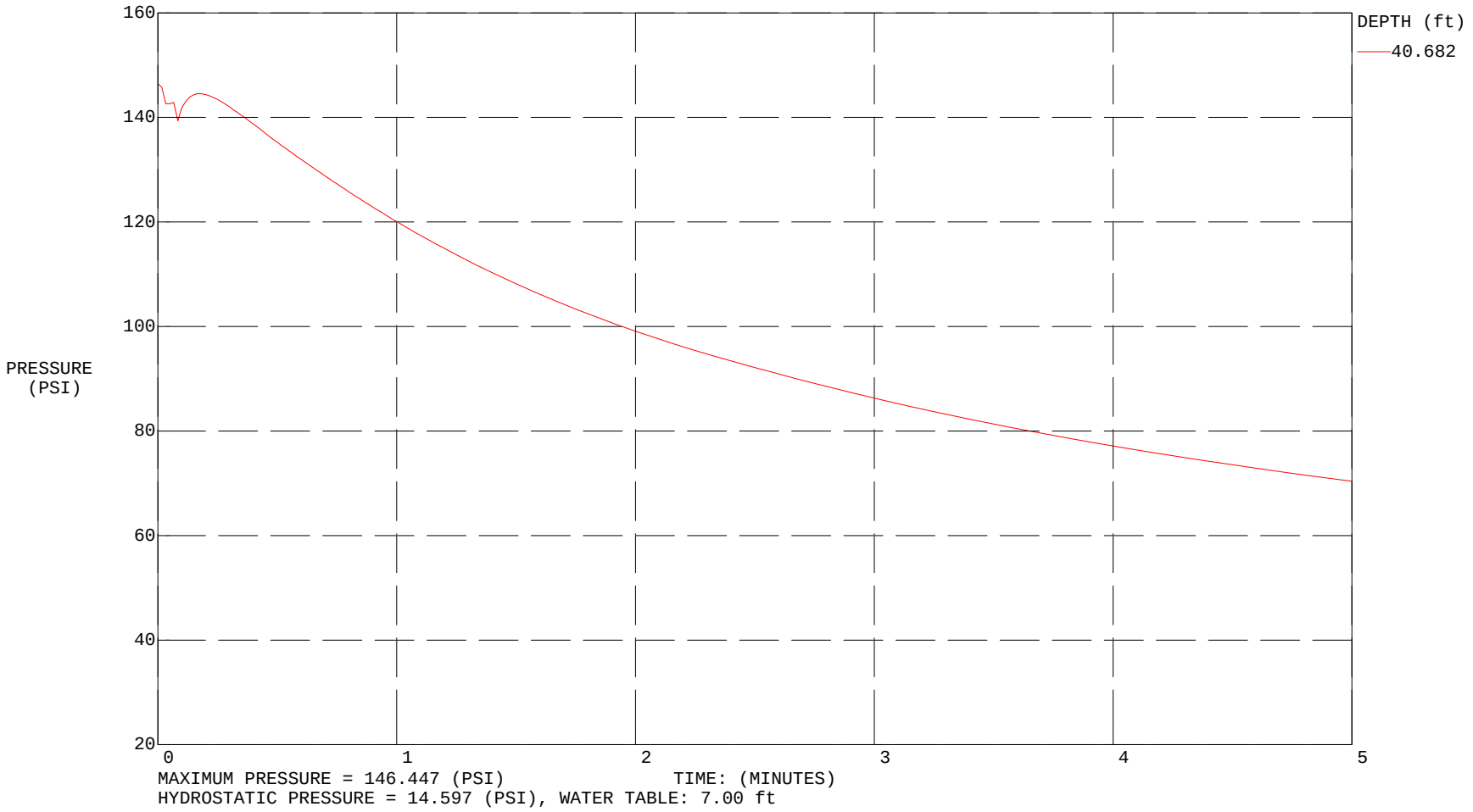


1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

COMMENT: NV5 / CPT-1 / 25858 SW Parkway Ave Wilsonville

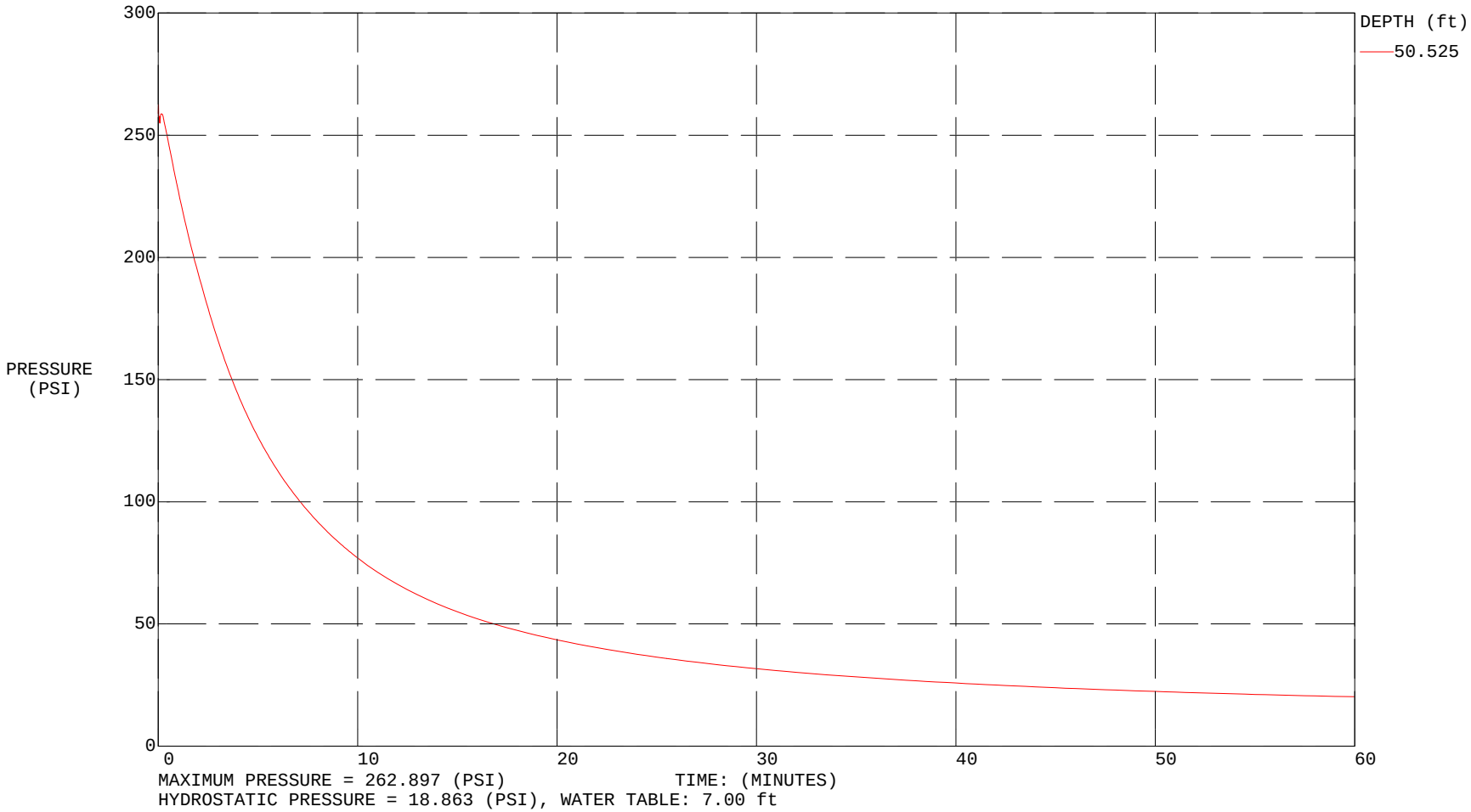
CONE ID: DDG1615
TEST DATE: 4/19/2023 8:46:15 AM



MAXIMUM PRESSURE = 146.447 (PSI)
HYDROSTATIC PRESSURE = 14.597 (PSI), WATER TABLE: 7.00 ft

COMMENT: NV5 / CPT-1 / 25858 SW Parkway Ave Wilsonville

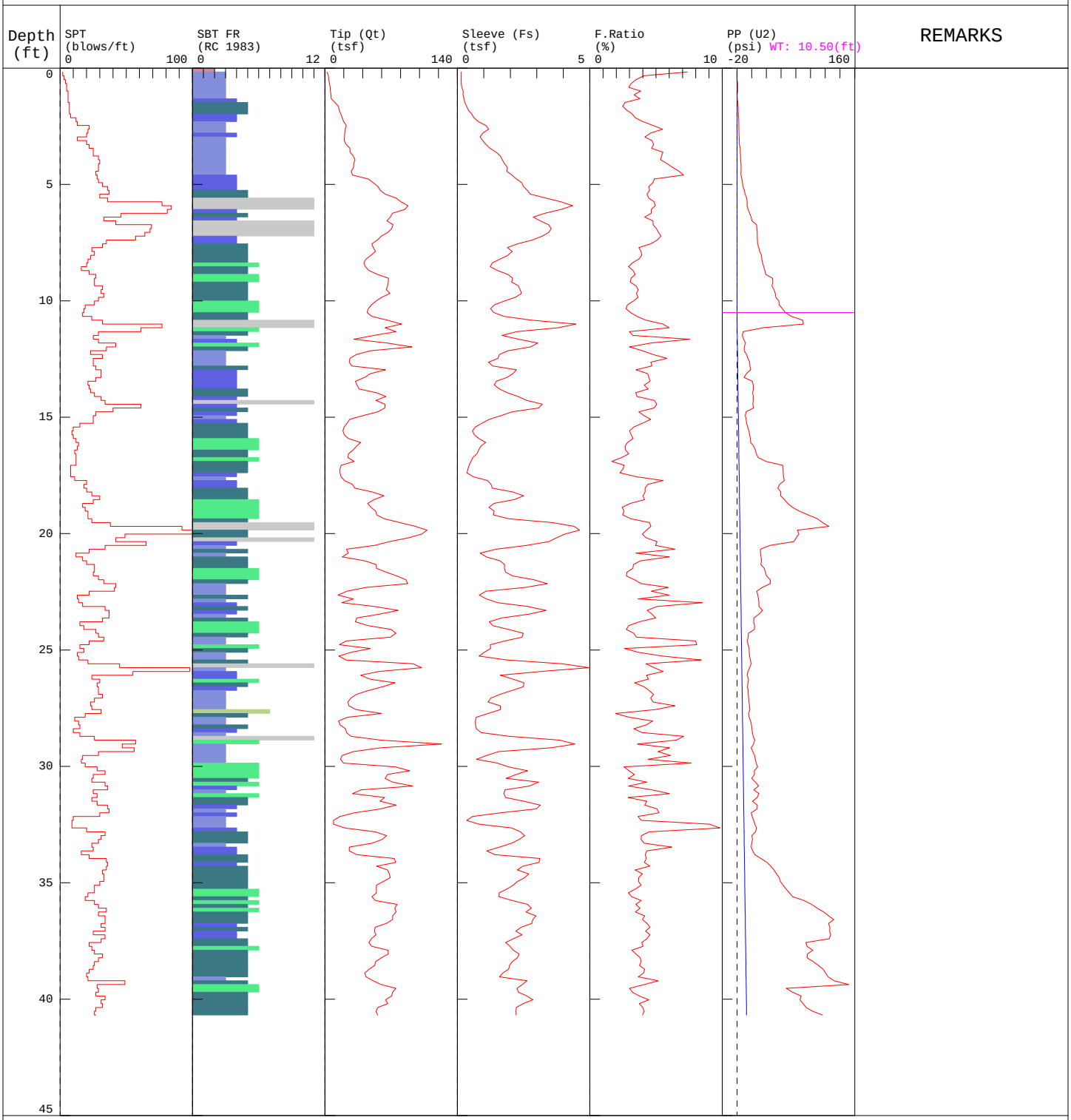
CONE ID: DDG1615
TEST DATE: 4/19/2023 8:46:15 AM



MAXIMUM PRESSURE = 262.897 (PSI)
HYDROSTATIC PRESSURE = 18.863 (PSI), WATER TABLE: 7.00 ft

NV5 / CPT-2 / 25858 SW Parkway Ave Wilsonville

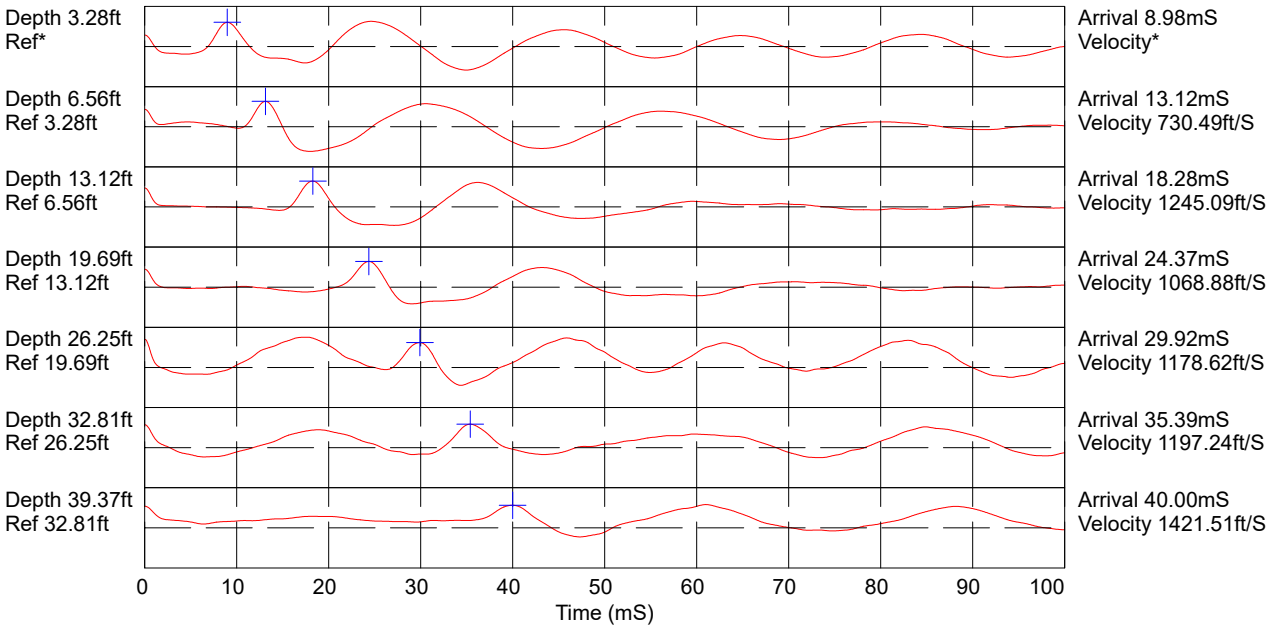
OPERATOR: OGE DMM
CONE ID: DDG1615
TEST DATE: 4/19/2023 10:35:46 AM
TOTAL DEPTH: 40.682 ft



1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty cl
6 sandy silt to clayey si
7 silty sand to sandy si
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

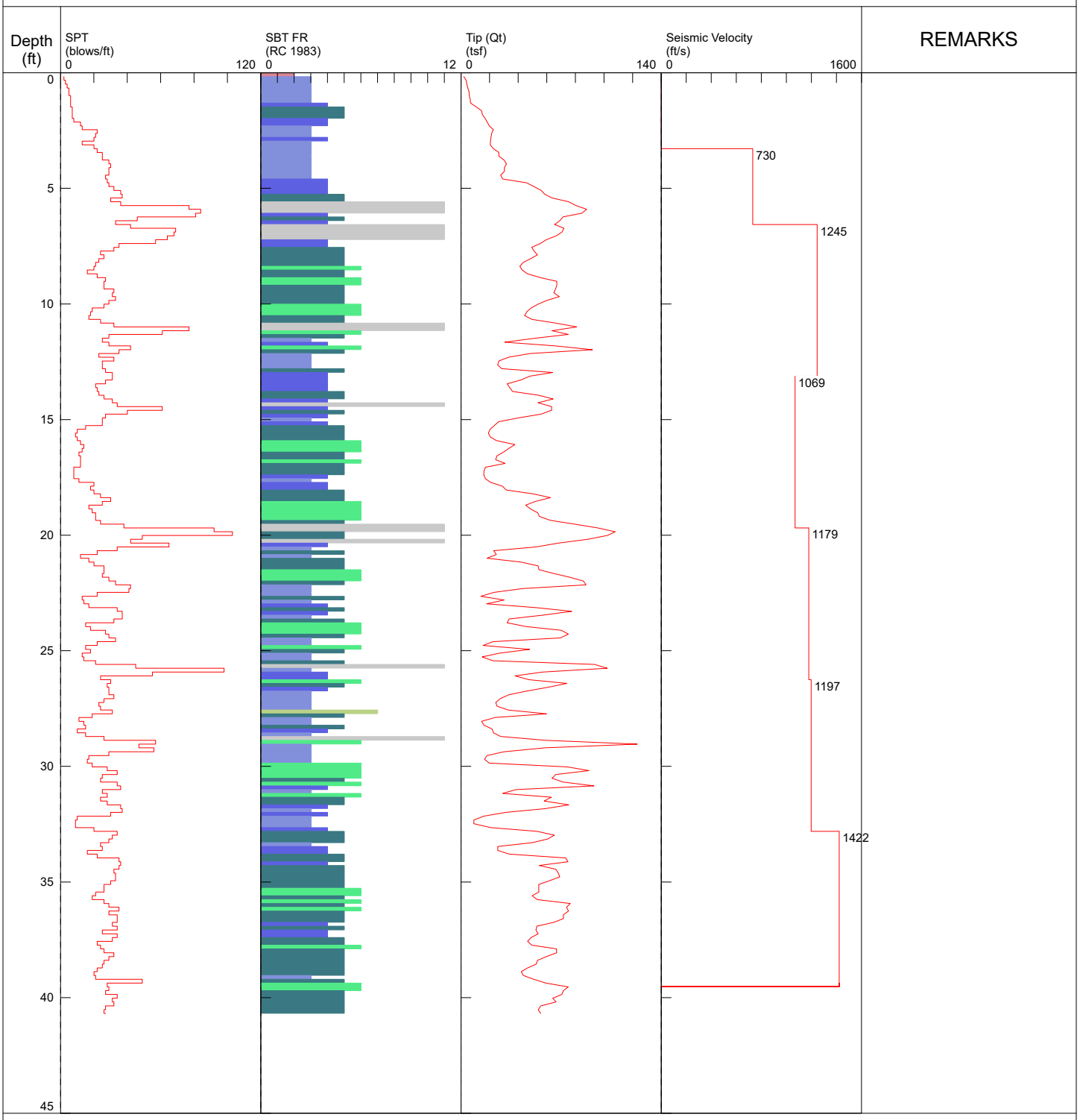
COMMENT: NV5 / CPT-2 / 25858 SW Parkway Ave Wilsonville



Hammer to Rod String Distance (ft): 1.97
* = Not Determined

NV5 / CPT-2 / 25858 SW Parkway Ave Wilsonville

OPERATOR: OGE DMM
CONE ID: DDG1615
TEST DATE: 4/19/2023 10:35:46 AM
TOTAL DEPTH: 40.682 ft

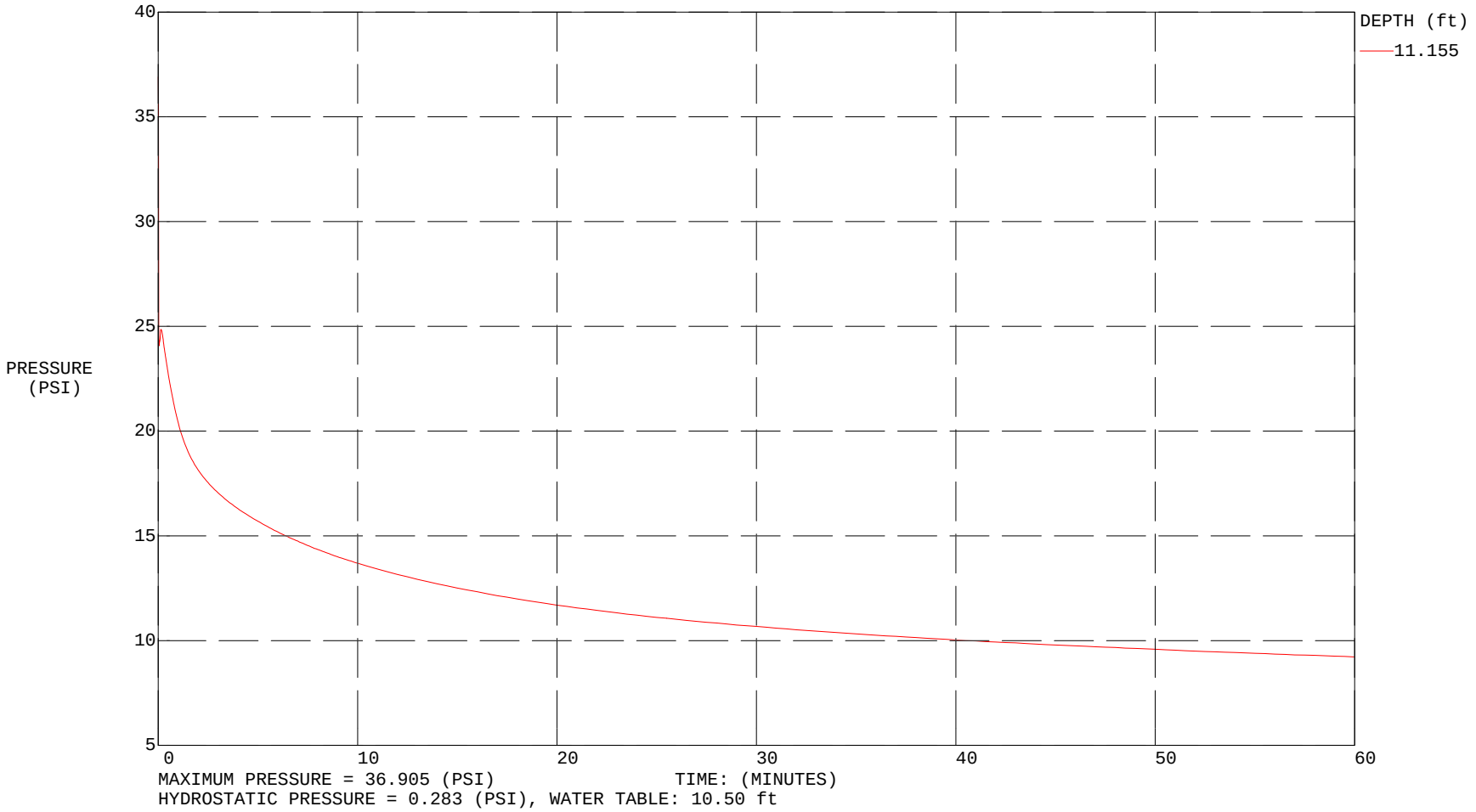


1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

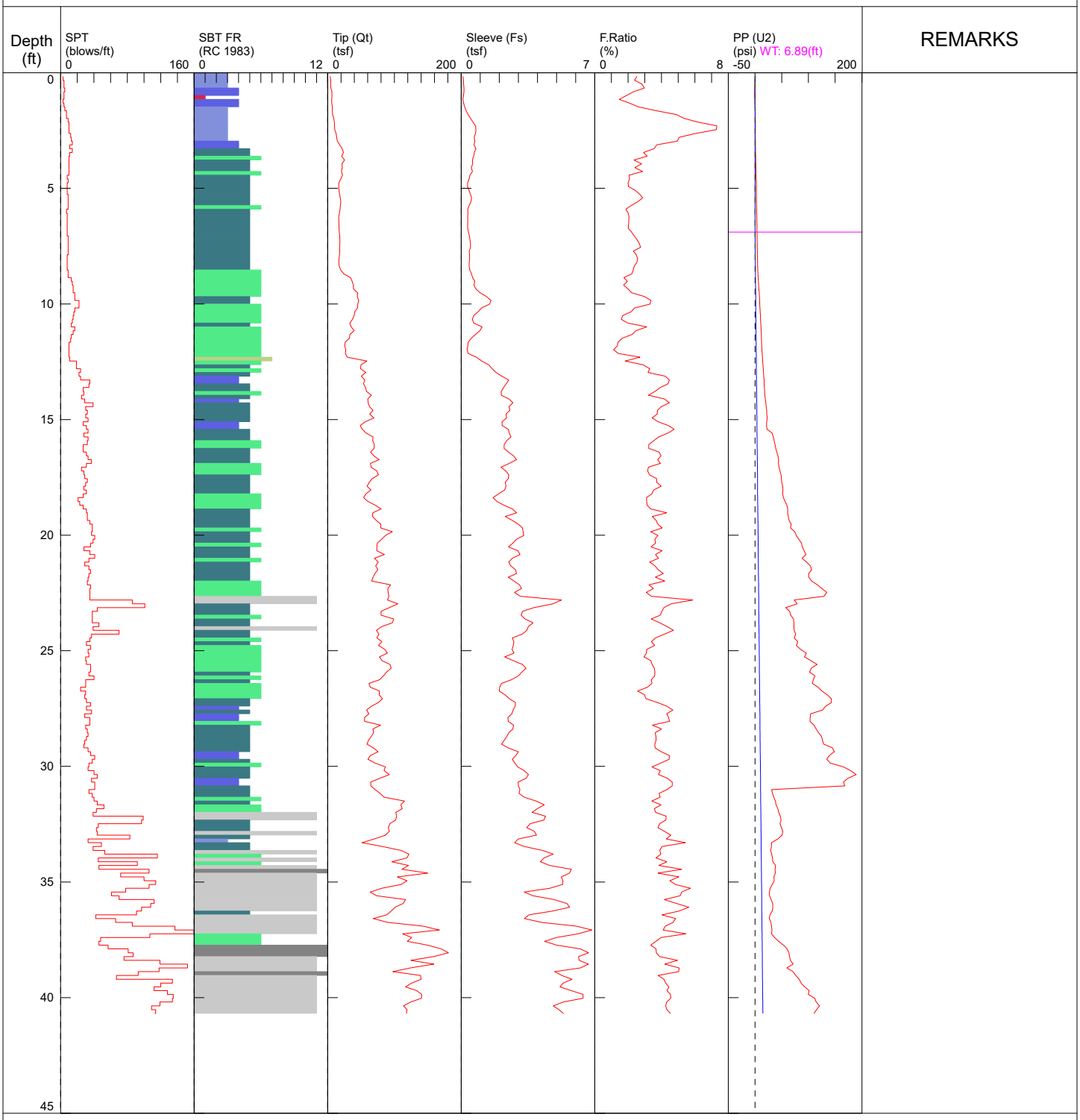
COMMENT: NV5 / CPT-2 / 25858 SW Parkway Ave Wilsonville

CONE ID: DDG1615
TEST DATE: 4/19/2023 10:35:46 AM



NV5 / CPT-3 / 25858 SW Parkway Ave Wilsonville

OPERATOR: OGE DMM
CONE ID: DDG1615
TEST DATE: 4/19/2023 12:11:54 PM
TOTAL DEPTH: 40.682 ft

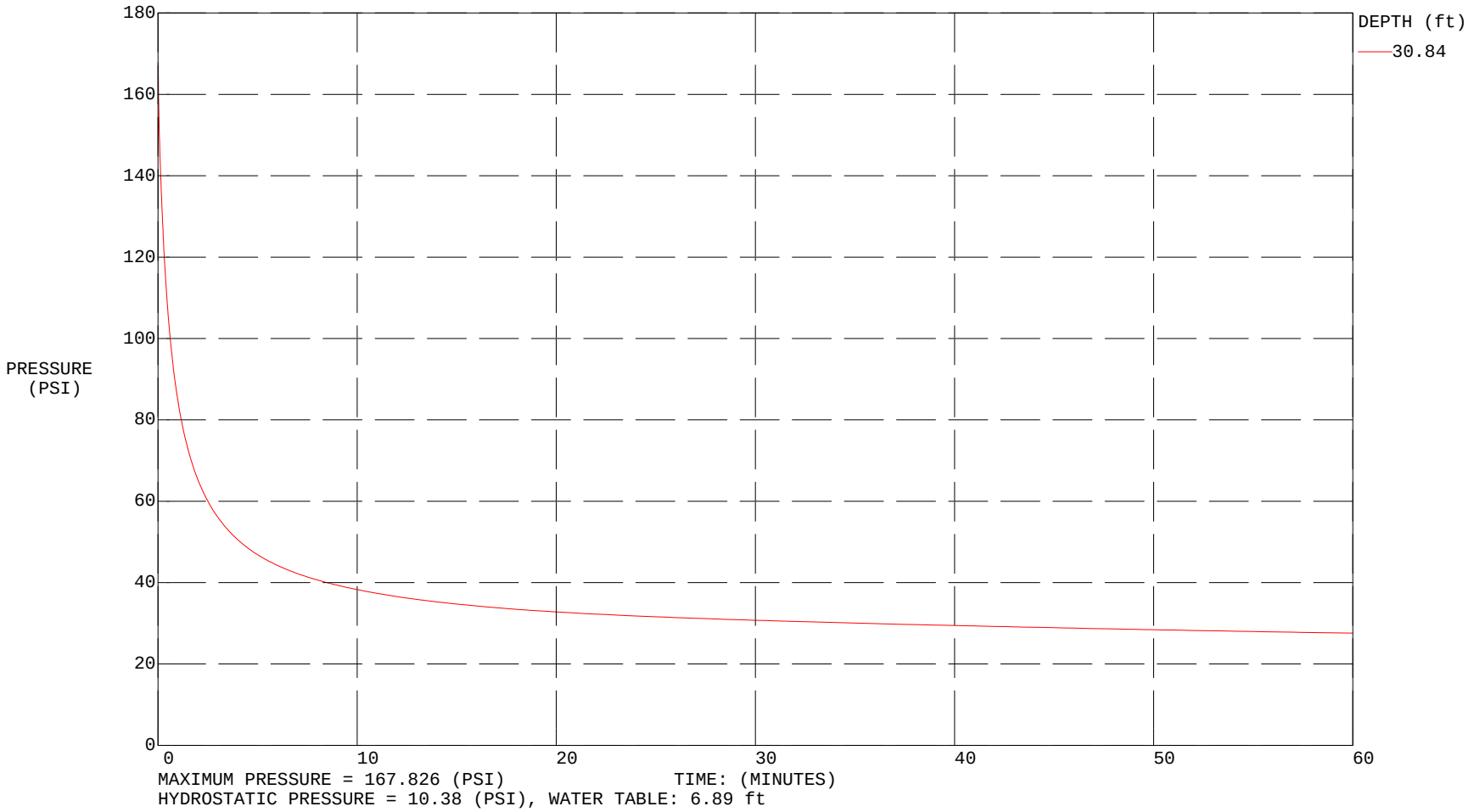


1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

COMMENT: NV5 / CPT-3 / 25858 SW Parkway Ave Wilsonville

CONE ID: DDG1615
TEST DATE: 4/19/2023 12:11:54 PM



APPENDIX C

APPENDIX C

PRIOR EXPLORATIONS AND LABORATORY TESTING RESULTS

In 2019, GeoDesign, Inc. (now NV5) drilled four borings (B-1 through B-4) and four pavement borings at the existing Sysco facility. The approximate locations of the prior explorations at the site are shown on Figure 2. The exploration logs, core location and core photographs, and laboratory testing results are presented in this appendix.

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT %	COMMENTS
C-1						0 50 100	
0.0		ASPHALT CONCRETE (5.0 inches).					
		AGGREGATE BASE (14.0 inches).	0.4				
		Stiff, gray-brown CLAY (CL), trace silt, sand, and organics (wood debris, charcoal); moist, clay has medium plasticity - **FILL**.	1.6	OC		▲9 ●	OC = 3.5% Silt with sand at tip of sampler at 3.5 feet.
2.5		Very stiff, light gray with brown mottled CLAY (CL), trace silt and sand; moist, clay has medium plasticity.	3.5			▲17	
5.0		Exploration completed at a depth of 5.0 feet. Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.	5.0				CORE DETAILS: No patch observed. Cored on moderate fatigue crack.
7.5							
C-2						0 50 100	
0.0		ASPHALT CONCRETE (5.0 inches).					
		AGGREGATE BASE (15.0 inches).	0.4				
		Stiff, light gray-green CLAY (CL), minor silt and sand, trace organics; moist, clay has medium plasticity - **FILL**.	1.7			▲12 ●	
2.5		Stiff, light gray with brown mottled CLAY (CL), trace silt and sand, clay has medium plasticity.	3.0			▲14	
		Stiff, light brown with gray mottled SILT (ML), minor sand and clay; moist, silt has low plasticity.	4.5				
5.0		Exploration completed at a depth of 5.0 feet.	5.0				CORE DETAILS: No patch observed. Cored on moderate fatigue crack.
		Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.					
7.5							

DRILLED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: L. Gose/J. Hook COMPLETED: 03/08/19

BORING METHOD: core drill/solid-stem auger (see document text) BORING BIT DIAMETER: 5 inches/4 inches

GEODESIGN INC
9450 SW Commerce Circle - Suite 300
Wilsonville OR 97070
503.968.8787 www.geodesigninc.com

SYSCO-1-01

BORING

APRIL 2019

SYSCO PORTLAND
WILSONVILLE, OR

FIGURE A-1

BORING LOG - 2 PER PAGE SYSCO-1-01-C1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/6/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT %	COMMENTS
C-3						0 50 100	
0.0		ASPHALT CONCRETE (6.2 inches).					
		AGGREGATE BASE (10.8 inches).	0.5				
		Stiff, light gray CLAY (CL), minor silt and sand, trace organics (wood debris); moist, clay has medium plasticity - **FILL**.	1.4				
2.5		Very stiff, light brown with orange mottled CLAY (CL), trace silt and sand; moist.	2.0			▲16 ●	
		stiff at 3.5 feet				▲12	
		minor sand; sand is fine at 4.0 feet					
5.0		Exploration completed at a depth of 5.0 feet.	5.0				CORE DETAILS: No patch observed. Cored on low fatigue crack.
		Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.					
7.5							
						0 50 100	
C-4						0 50 100	
0.0		ASPHALT CONCRETE (5.2 inches).					
		AGGREGATE BASE (7.8 inches).	0.4				
		Very stiff, light brown with gray mottled CLAY (CL), minor sand and silt; moist, clay has medium plasticity.	1.1	ATT		▲18 ●	LL = 42% PL = 21%
2.5		Stiff, light brown SILT (ML), minor sand and clay; moist, silt has low plasticity.	3.5			▲11	
5.0		Exploration completed at a depth of 5.0 feet.	5.0				CORE DETAILS: No patch observed. Cored on moderate fatigue crack.
		Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.					
7.5							
						0 50 100	

DRILLED BY: Dan J. Fischer Excavating, Inc. LOGGED BY: L. Gose/J. Hook COMPLETED: 03/08/19

BORING METHOD: core drill/solid-stem auger (see document text) BORING BIT DIAMETER: 5 inches/4 inches

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SYSCO-1-01

BORING (continued)

APRIL 2019

SYSCO PORTLAND
WILSONVILLE, OR

FIGURE A-2

BORING LOG - 2 PER PAGE SYSCO-1-01-C1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/6/19:KM:KT

CORE LOCATION C-1.

CORE C-1.

Sysco-1-01-FA3_A6-CPH.docx Print Date: 4/6/19

GeoDesign Inc 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	SYSCO-1-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
	APRIL 2019	SYSCO PORTLAND WILSONVILLE, OR	**FIGURE A-3**

CORE LOCATION C-2.

CORE C-2.

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SYSCO-1-01	CORE LOCATION AND CORE PHOTOGRAPHS	
APRIL 2019	SYSCO PORTLAND WILSONVILLE, OR	FIGURE A-4

CORE LOCATION C-3.

CORE C-3.

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SYSCO-1-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
APRIL 2019	SYSCO PORTLAND WILSONVILLE, OR	**FIGURE A-5**

CORE LOCATION C-4.

CORE C-4.

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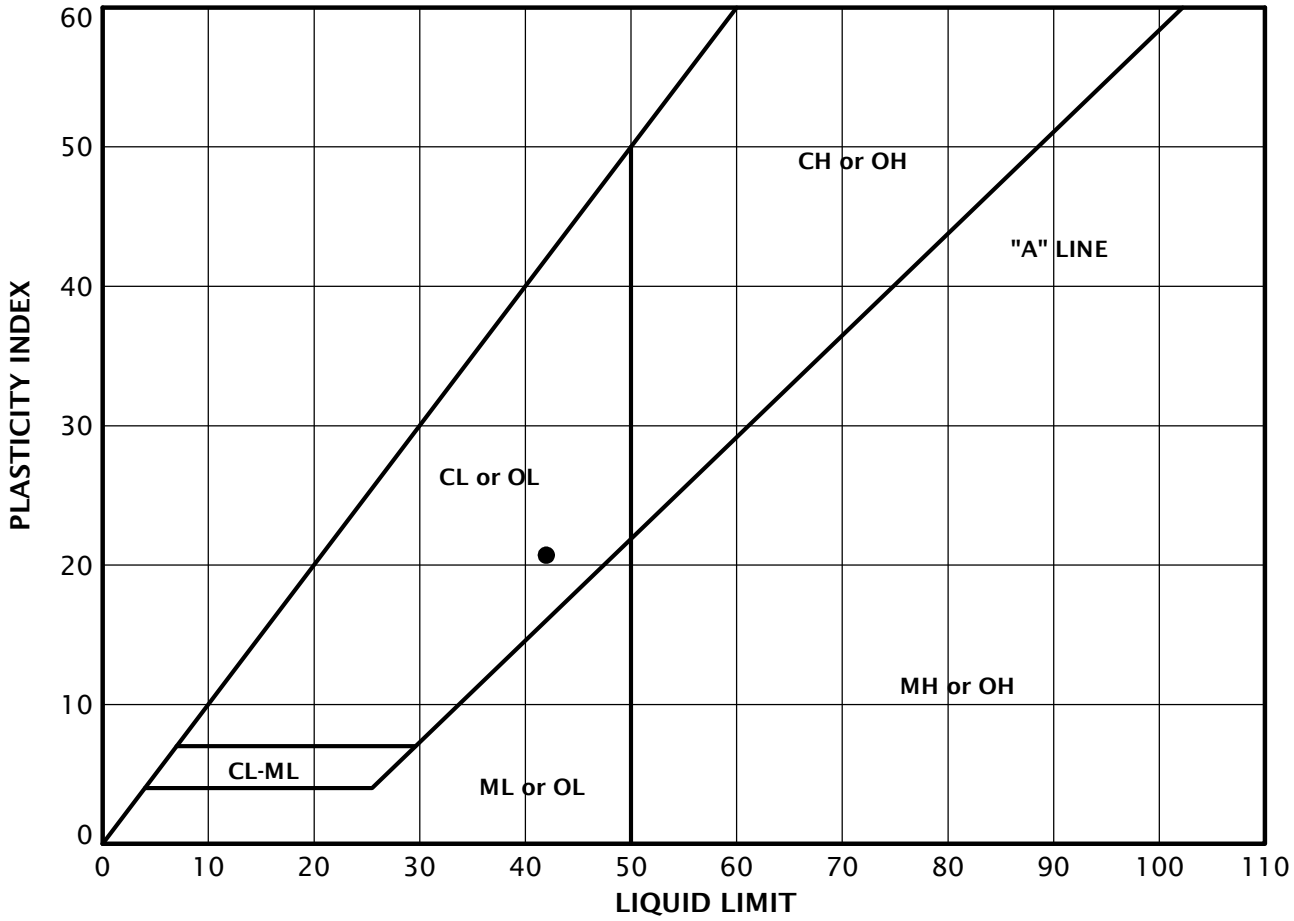
SYSCO-1-01	**CORE LOCATION AND CORE PHOTOGRAPHS**	
APRIL 2019	SYSCO PORTLAND WILSONVILLE, OR	**FIGURE A-6**



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	C-4	1.5	28	42	21	21

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SYSCO-1-01

ATTERBERG LIMITS TEST RESULTS

APRIL 2019

SYSCO PORTLAND
WILSONVILLE, OR

FIGURE A-7

ATTERBERG_LIMITS 7 SYSCO-1-01-C1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/6/19:KT

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
C-1	2.0		23							
C-2	2.0		31							
C-3	1.5		29							
C-4	1.5		28					42	21	21

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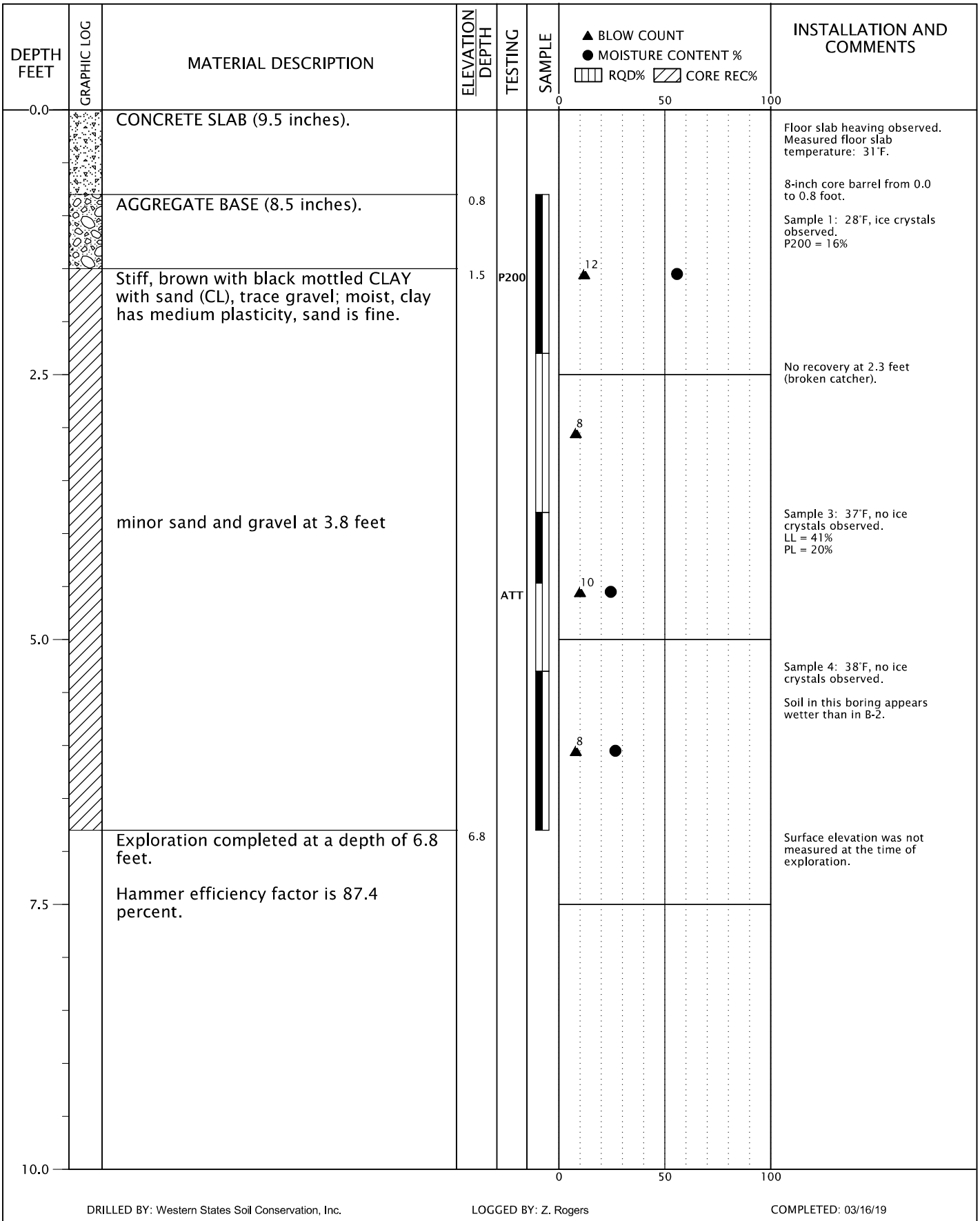
SYSCO-1-01

SUMMARY OF LABORATORY DATA

APRIL 2019

SYSCO PORTLAND
WILSONVILLE, OR

FIGURE A-8



DRILLED BY: Western States Soil Conservation, Inc. LOGGED BY: Z. Rogers COMPLETED: 03/16/19

BORING METHOD: direct push (see document text) BORING BIT DIAMETER: 2 3/4 inches

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SYSCO-1-02

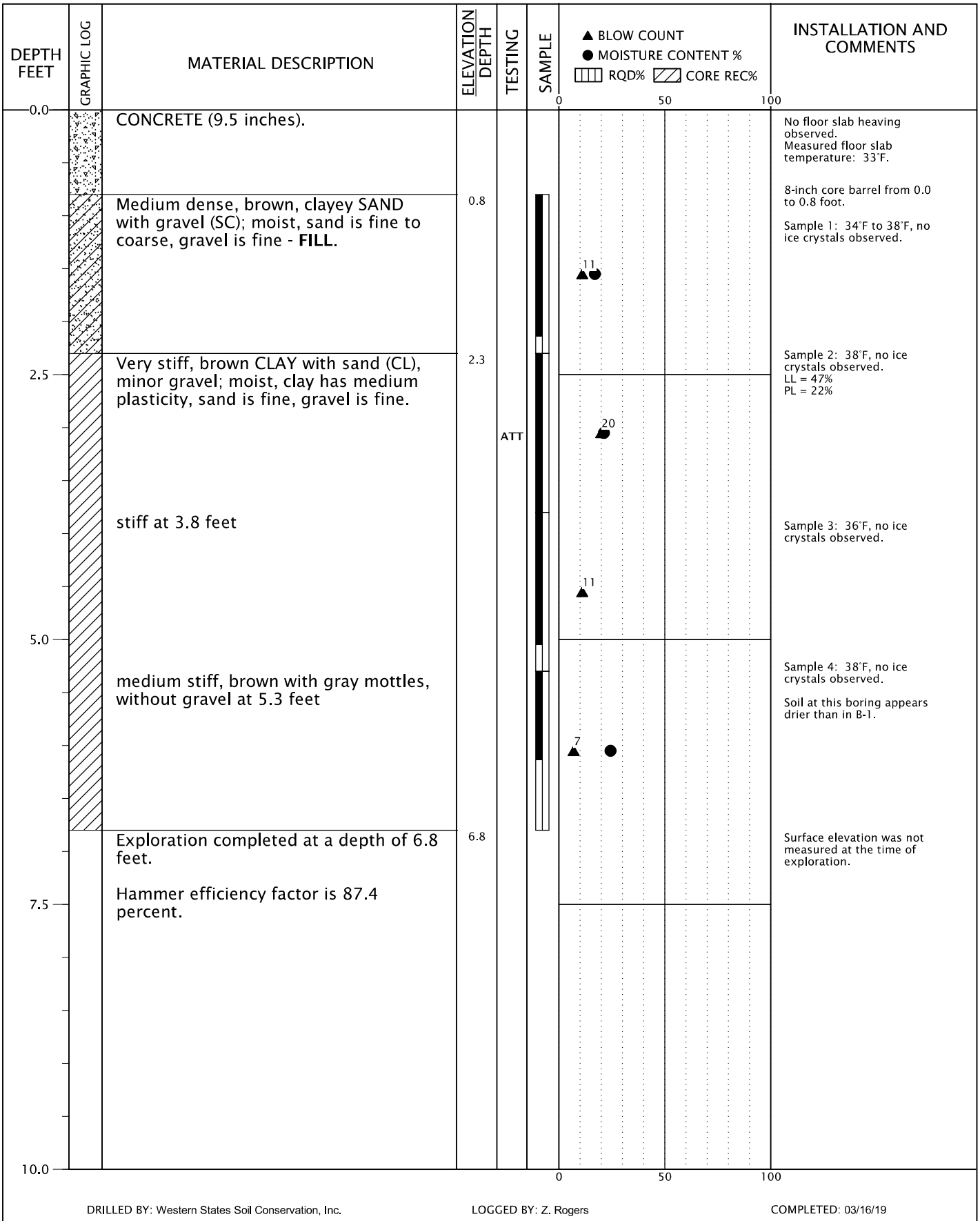
BORING B-1

APRIL 2019

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-1

BORING LOG SYSCO-1-02-B1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/11/19:KM:KT



DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: Z. Rogers

COMPLETED: 03/16/19

BORING METHOD: direct push (see document text)

BORING BIT DIAMETER: 2 3/4 inches

BORING LOG SYSCO-1-02-B1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/11/19:KM:KT

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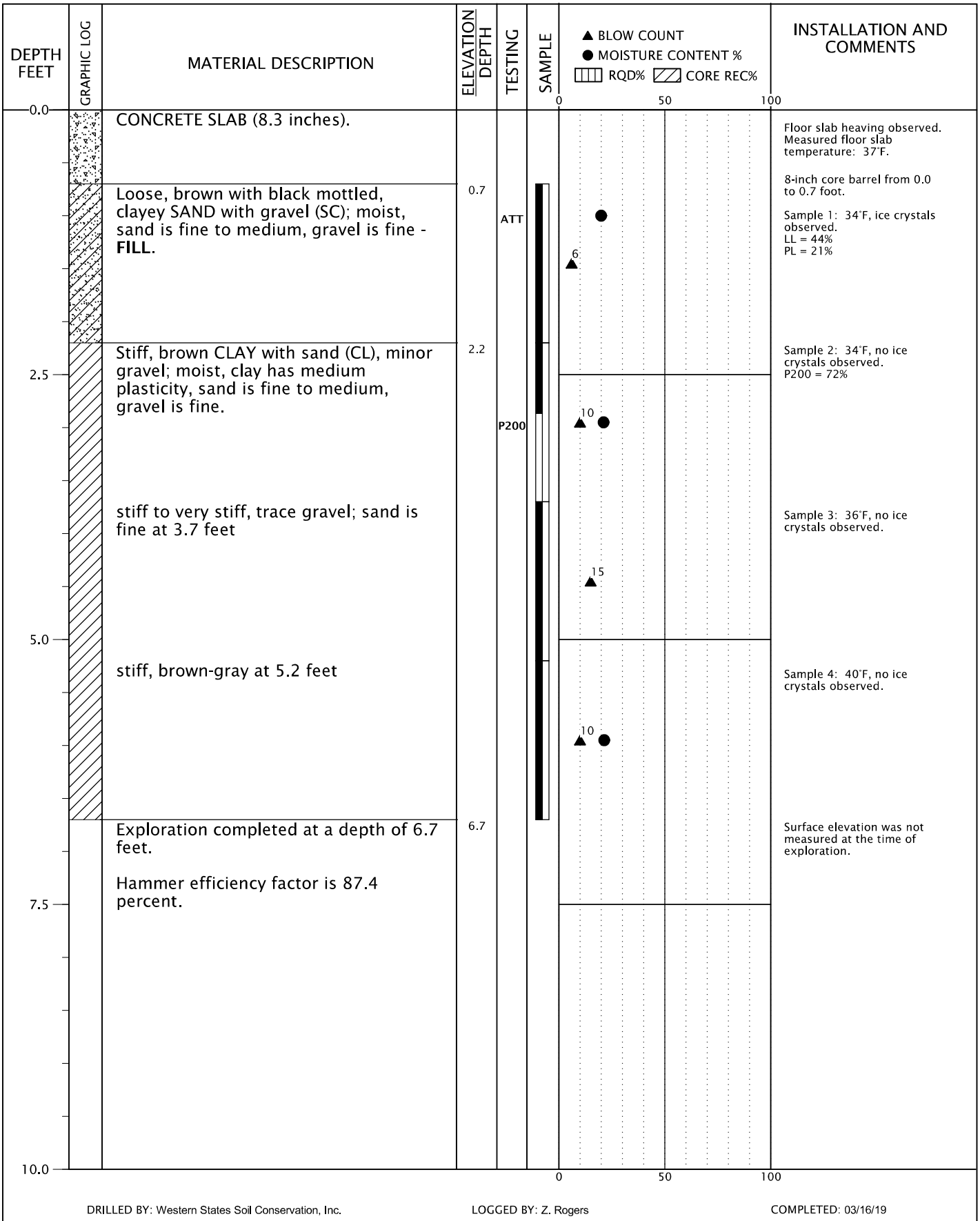
SYSCO-1-02

APRIL 2019

BORING B-2

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-2



DRILLED BY: Western States Soil Conservation, Inc. LOGGED BY: Z. Rogers COMPLETED: 03/16/19

BORING METHOD: direct push (see document text) BORING BIT DIAMETER: 2 3/4 inches

BORING LOG SYSCO-1-02-B1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/11/19:KM:KT

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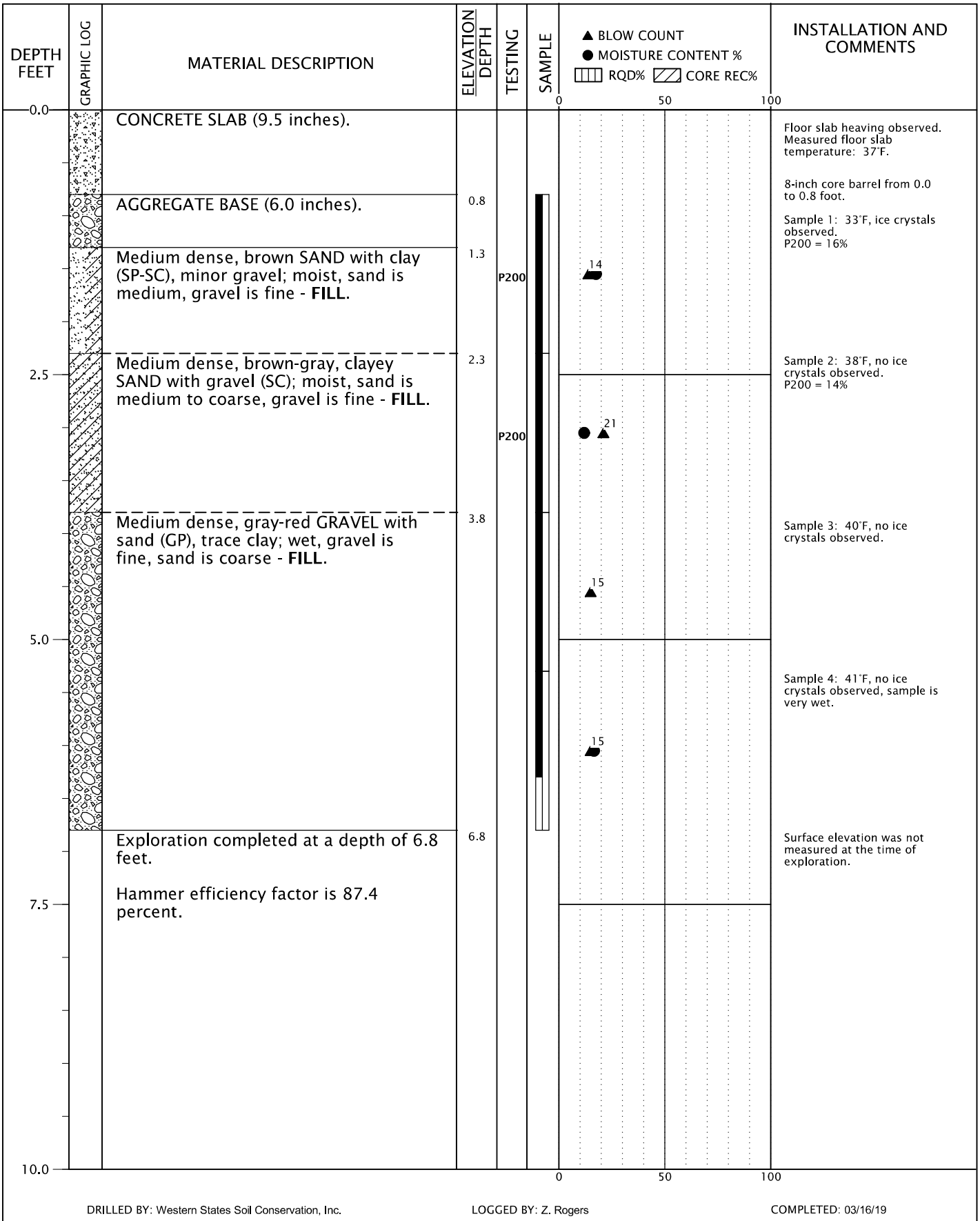
SYSCO-1-02

BORING B-3

APRIL 2019

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-3



DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: Z. Rogers

COMPLETED: 03/16/19

BORING METHOD: direct push (see document text)

BORING BIT DIAMETER: 2 3/4 inches

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SYSCO-1-02

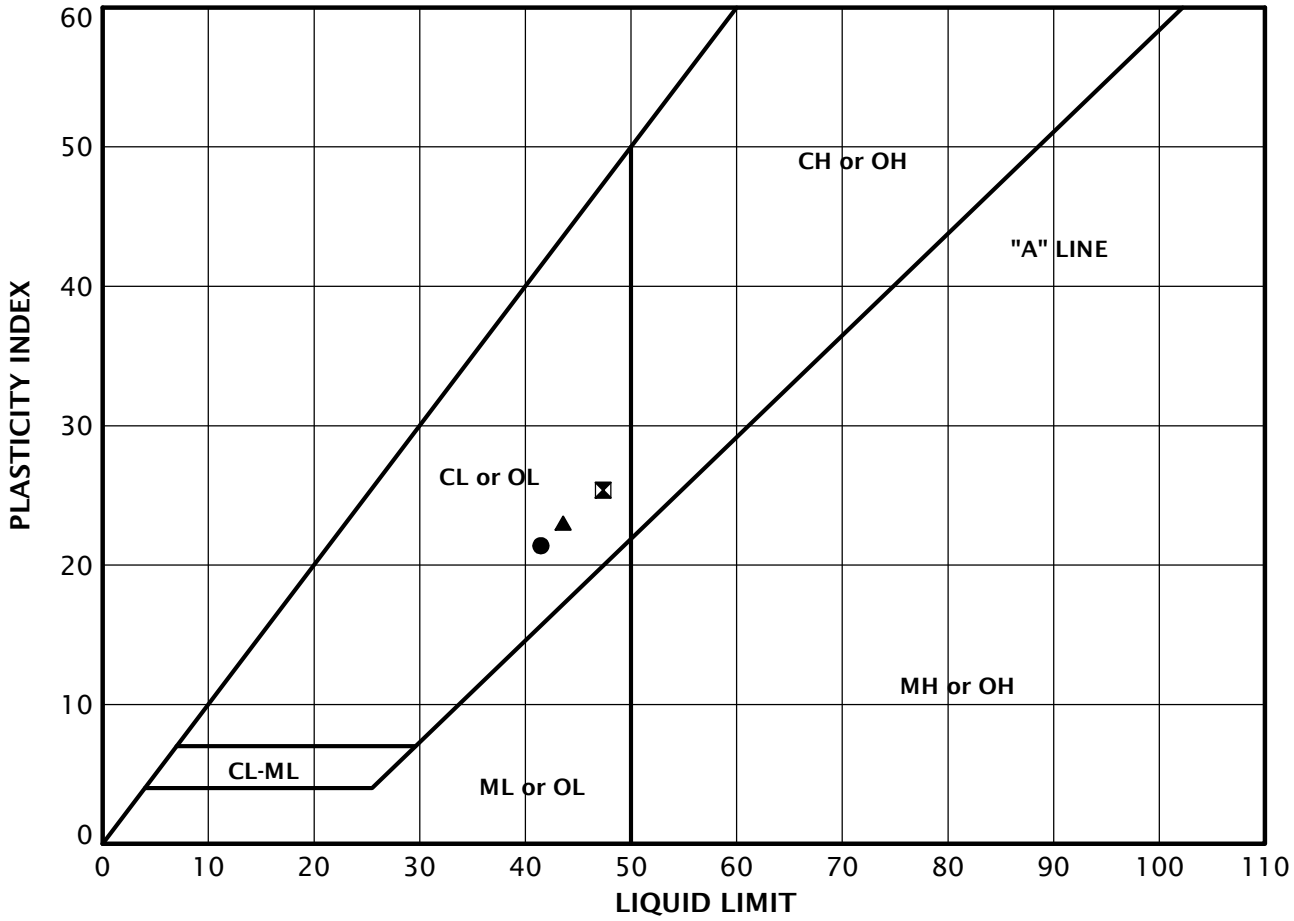
BORING B-4

APRIL 2019

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-4

BORING LOG SYSCO-1-02-B1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/11/19:KM:KT



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-1	3.8	24	41	20	21
⊠	B-2	2.3	21	47	22	25
▲	B-3	1.0	28	44	21	23

ATTERBERG_LIMITS 7 SYSCO-1-02-B1_4.GPJ GEODESIGN.GDT PRINT DATE: 4/6/19:KT

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SYSCO-1-02

ATTERBERG LIMITS TEST RESULTS

APRIL 2019

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-5

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-1	0.8		56				16			
B-1	3.8		24					41	20	21
B-1	5.3		27							
B-2	0.8		17							
B-2	2.3		21					47	22	25
B-2	5.3		24							
B-3	1.0		20					44	21	23
B-3	2.2		21				72			
B-3	5.2		21							
B-4	0.8		18				16			
B-4	2.3		12				14			
B-4	5.3		17							

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SYSCO-1-02

APRIL 2019

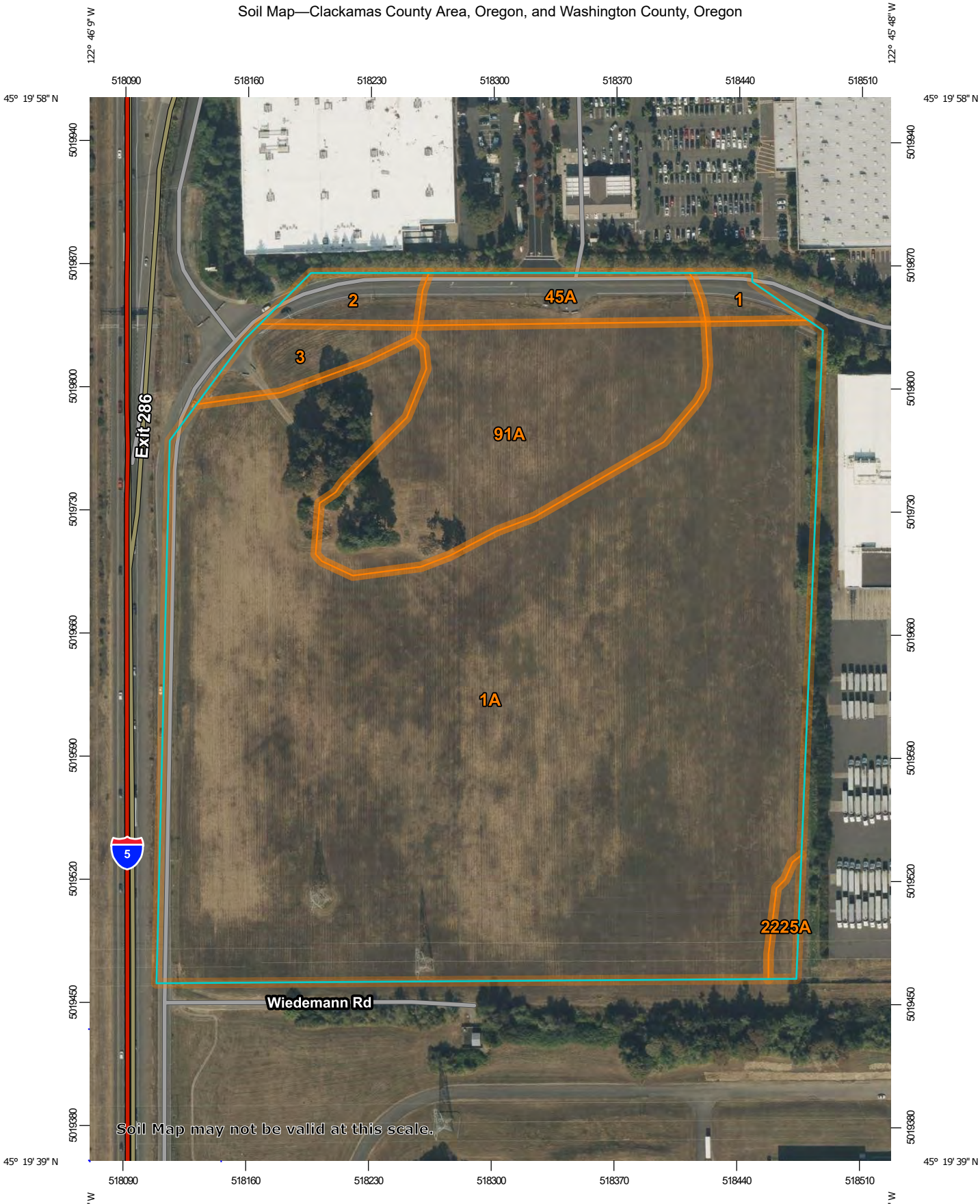
SUMMARY OF LABORATORY DATA

SYSCO COOLER SLAB
WILSONVILLE, OR

FIGURE A-6

NV5

Delivering Solutions
Improving Lives



Map Scale: 1:2,940 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

Map Unit Description

Printable Version

Report — Map Unit Description

Clackamas County Area, Oregon

1A—Aloha silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 223l
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Aloha and similar soils: 85 percent
Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aloha

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 51 inches: silt loam
H3 - 51 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group
Forage suitability group: Somewhat Poorly Drained (G002XY005OR)
Other vegetative classification: Somewhat Poorly Drained (G002XY005OR)
Hydric soil rating: No

Minor Components

Huberly

Percent of map unit: 3 percent
Landform: Swales on terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Dayton

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Report — Map Unit Description

Clackamas County Area, Oregon

3—Amity silt loam

Map Unit Setting

National map unit symbol: 2247
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Amity and similar soils: 85 percent
Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amity

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Typical profile

H1 - 0 to 22 inches: silt loam
H2 - 22 to 62 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group
Forage suitability group: Somewhat Poorly Drained (G002XY005OR)
Other vegetative classification: Somewhat Poorly Drained (G002XY005OR)
Hydric soil rating: No

Minor Components

Dayton

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Huberly

Percent of map unit: 2 percent
Landform: Swales on terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Report — Map Unit Description

Clackamas County Area, Oregon

91A—Woodburn silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 227y
Elevation: 150 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodburn and similar soils: 85 percent
Minor components: 6 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodburn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Typical profile

H1 - 0 to 16 inches: silt loam
H2 - 16 to 38 inches: silty clay loam
H3 - 38 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 25 to 32 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: R002XC008OR - Valley Terrace Group
Forage suitability group: Moderately Well Drained < 15% Slopes (G002XY004OR)
Other vegetative classification: Moderately Well Drained < 15% Slopes (G002XY004OR)
Hydric soil rating: No

Minor Components

Huberly

Percent of map unit: 3 percent
Landform: Swales on terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Dayton

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Aquolls

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

Map Unit Description

Printable Version

Report — Map Unit Description

Clackamas County Area, Oregon

2225A—Huberly silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2sv3y
Elevation: 150 to 260 feet
Mean annual precipitation: 39 to 51 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Huberly and similar soils: 90 percent
Minor components: 3 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Huberly

Setting

Landform: Swales on terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Silty glaciolacustrine deposits

Typical profile

A - 0 to 8 inches: silt loam
BAg - 8 to 15 inches: silt loam
Btg - 15 to 25 inches: silt loam
2Btx1 - 25 to 38 inches: silt loam
2Btx2 - 38 to 59 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.01 in/hr)
Depth to water table: About 0 to 8 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group
Forage suitability group: Poorly Drained (G002XY006OR)
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Minor Components

Verboort

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 20, Sep 7, 2023

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 23, Sep 7, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Sep 26, 2022—Oct 11, 2022

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1A	Aloha silt loam, 0 to 3 percent slopes	27.8	77.9%
3	Amity silt loam	0.8	2.2%
91A	Woodburn silt loam, 0 to 3 percent slopes	4.9	13.7%
2225A	Huberly silt loam, 0 to 3 percent slopes	0.2	0.6%
Subtotals for Soil Survey Area		**33.7**	**94.4%**
Totals for Area of Interest		**35.7**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Aloha silt loam	0.3	0.8%
2	Amity silt loam	0.6	1.6%
45A	Woodburn silt loam, 0 to 3 percent slopes	1.1	3.2%
Subtotals for Soil Survey Area		**2.0**	**5.6%**
Totals for Area of Interest		**35.7**	**100.0%**

Fidelity National Title
Company of Oregon

PUBLIC RECORD REPORT FOR NEW SUBDIVISION OR LAND PARTITION

THIS REPORT IS ISSUED BY THE ABOVE-NAMED COMPANY ("THE COMPANY") FOR THE EXCLUSIVE USE OF THE FOLLOWING CUSTOMER:

Sysco Portland, INC
Phone No.: (999)-999-9999

Date Prepared: May 28, 2024
Effective Date: May 16, 2024 / 08:00 AM
Charge: $450.00
Order No.: 45142211804
Reference: 26120 SW Parkway Avenue

The information contained in this report is furnished to the Customer by Fidelity National Title Company of Oregon (the "Company") as an information service based on the records and indices maintained by the Company for the county identified below. This report is not title insurance, is not a preliminary title report for title insurance, and is not a commitment for title insurance. No examination has been made of the Company's records, other than as specifically set forth in this report ("the Report"). Liability for any loss arising from errors and/or omissions is limited to the lesser of the fee paid or the actual loss to the Customer, and the Company will have no greater liability by reason of this report. This report is subject to the Definitions, Conditions and Stipulations contained in it.

REPORT

A. The Land referred to in this report is located in the County of Clackamas, State of Oregon, and is described as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

B. As of the Effective Date, the tax account and map references pertinent to the Land are as follows:

As fully set forth on Exhibit "B" attached hereto and by this reference made a part hereof.

C. As of the Effective Date and according to the Public Records, we find title to the land apparently vested in:

As fully set forth on Exhibit "C" attached hereto and by this reference made a part hereof.

D. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

As fully set forth on Exhibit "D" attached hereto and by this reference made a part hereof.

EXHIBIT "A"
(Land Description)

For APN/Parcel ID(s): 00805043, 00805604, 01406678 and R2004187
For Tax Map ID(s): 31W12 01100, 31W12 00401, 31W12 00402 and 3S1010001510

Parcel I:

That portion of the Northeast one-quarter of the Northeast one-quarter of Section 11, Township 3 South, Range 1 West, of the Willamette Meridian, in the City of Wilsonville, County of Clackamas and State of Oregon, described as follows:

Beginning at the Northeast corner of said Section 11; thence West along the North line of said section, 1140 feet, more or less, to a point on the East line of County Road No. 217 (also known as East Frontage Road); thence South, along the East line of said road, 1300 feet, more or less, to a point on the North line of that tract conveyed to Clackamas County for road purposes by Deed recorded February 21, 1949, in Book 416, Page 602, Clackamas County Deed Records; thence East, along said North line, 1140 feet, more or less, to the East line of said Section 11; thence North along said East line, 1300 feet, more or less, to the point of beginning.

EXCEPTING THEREFROM that portion conveyed to Burns-Western, a general partnership, by Deed recorded August 27, 1984, Recorder's Fee No. 84-029680, Clackamas County Records.

Parcel II:

A tract of land situated in the Northwest one-quarter of Section 12, Township 3 South, Range 1 West, of the Willamette Meridian, in the City of Wilsonville, County of Clackamas and State of Oregon, described as follows:

Beginning at a point on the West line of Section 12 that is South 01°23'49" West, a distance of 20.64 feet from the Northwest corner thereof; thence South 01°23'49" West along the West line of Section 12 a distance of 1269.55 feet to a point on the North line of Wiedman Road; thence South 88°47'48" East along the said North line a distance of 35.20 feet; thence North 01°23'49" East, a distance of 1255.13 feet to a point on a curve; thence along the arc of a 369.00 foot radius curve to the left, through a central angle of 05°54'07", an arc distance of 38.01 feet, (the chord bears North 66°30'01" West, 37.99 feet) to a point on the West line of Section 12, which point is the point of beginning.

Parcel III:

A tract of land situated in the Northwest one-quarter of Section 12, Township 3 South, Range 1 West of the Willamette Meridian, in the City of Wilsonville, County of Clackamas and State of Oregon, said tract being more particularly described as follows:

Commencing at the Northwest corner of said section 12; thence along the North line of said Section 12, South 88°47'08" East 537.24 feet to the true point of beginning of the tract to be described; thence continuing along the North line of said Section 12, South 88°47'08" East 272.05 feet to a point of non-tangent curvature: thence along the arc of a 630.00 foot radius curve to the left through a central angle of 08°27'13" an arc distance of 92.95 feet (the chord of which bears South 7°15'36" East 92.87 feet) to a point of non-tangency; thence South 01°23'49" West 1268.29 feet to a point on the North line of Wiedeman Road; thence North 88°47'49" West along the North line of said Weideman Road a distance of 864.46 feet, more or less, to the Southeast corner of the tract of land conveyed to Ralph H. Elligsen. et ux, by Deed recorded August 27, 1984, Recorder's Fee No. 84-029670, Clackamas County Records; thence North 01°23'49" East 1255.13 feet on the East line of said Elligsen Tract to a

EXHIBIT "A"
(Land Description)
(continued)

point on the Southerly boundary of Parkway Avenue (Realignment) which is described in the Dedication Deed to the City of Wilsonville recorded January 21, 1986, Recorder's Fee No, 86-002523, Clackamas County Records; thence tracing the Southerly boundary of Parkway Avenue (Realignment) the following courses and distances: along the arc of a 369.00 foot radius curve to the right, through a central angle of 03°32'18" an arc distance of 22.79 feet (the chord of which bears South 61°46'47" East 22.78 feet) to a point of reverse curvature; thence along the arc of a 431.00 foot radius curve to the left, through a central angle of 68°18'52", an arc distance of 513.89 feet (the chord of which bears North 85°49'56" East 483.99 feet) to a point on the North line of said section 12 and the true point of beginning.

EXCEPTING THEREFROM that portion conveyed to the City of Wilsonville for a public right-of-way in deed recorded February 27, 2014 as Document No. 2014-008922, Clackamas County Records.

Parcel IV:

A tract of land situated in the Southwest one-quarter of Section 1, Township 3 South, Range 1 West of the Willamette Meridian, in the City of Wilsonville, County of Washington and State of Oregon, said tract being more particularly described as follows:

Commencing at the Southwest corner of said Section 1; thence along the South line of said Section 1, South 88°47'08" East 537.24 feet to a point on the Easterly boundary of Parkway Avenue (Realignment) which is described as Parcel A in a Dedication Deed to the City of Wilsonville recorded January 21, 1986, in Recorder's Fee No. 86-003023, Washington County Records and the true point of beginning of the tract to be described; thence tracing the Easterly boundary of said Parcel A the following courses and distances: along the arc of a 431.00 foot radius curve to the left, through a central angle of 12°01'47", an arc distance of 90.49 feet (the chord of which bears North 45°39'37" East 90.33 feet) to a point of reverse curvature; thence along the arc of a 40.00 foot radius curve to the right, through a central angle of 81°27'10", an arc distance of 56.87 feet (the chord of which bears North 80°22'18" East 52.20 feet) to a point of tangency; thence South 58°54'06" East 41.21 feet to a point of curvature; thence leaving a boundary of said Parcel A and running along the arc of a 630.00 foot radius curve to the left, through a central angle of 12°07'54" an arc distance of 133.39 feet (the chord of which bears South 64°58'03" East 133.15 feet) to the South line of said Section 1; thence tracing the South line of said Section 1, North 88°47'08" West 272.05 feet to the true point of beginning.

EXCEPTING THEREFROM that portion conveyed to the City of Wilsonville for a public right-of-way in deed recorded February 27, 2014 as Document No. 2014-011205, Washington County Records.

EXHIBIT "B"
(Tax Account and Map)

APN/Parcel ID(s) 00805043, 00805604, 01406678 and R2004187 as well as Tax/Map ID(s) 31W12 01100, 31W12 00401, 31W12 00402 and 3S1010001510

EXHIBIT "C"
(Vesting)

Sysco Portland, Inc., a Delaware corporation, also shown of record as Sysco/Continental Food Services of Portland, Inc., a Delaware corporation

EXHIBIT "D"
(Liens and Encumbrances)

1. As disclosed by the assessment and tax roll, the premises herein were once specially assessed for farmland, forestland or other special assessment status and later disqualified. Per ORS 308A.700 to 308A.733, additional taxes were imposed and remain as potential additional tax liability for the property. A check with the Assessor's office will be necessary to determine the effect and continuation of the additional tax liability.

   Additional Tax Liability Amount: $46,937.15

   Account No.: 00805043
   Map No.: 31W12 01100
   Affects: Parcel I

2. As disclosed by the assessment and tax roll, the premises herein were once specially assessed for farmland, forestland or other special assessment status and later disqualified. Per ORS 308A.700 to 308A.733, additional taxes were imposed and remain as potential additional tax liability for the property. A check with the Assessor's office will be necessary to determine the effect and continuation of the additional tax liability.

   Additional Tax Liability Amount: $1,481.24

   Account No.: 00805604
   Map No.: 31W12 00401
   Affects: Parcel II

3. City Liens, if any, in favor of the City of Wilsonville.

4. Rights of the public to any portion of the Land lying within Streets, Roads and Highways.

5. Limited access to and from the Land as set forth in Deed shown below, which provides that there shall be no right of easement or right of access to, from or across the State Highway other than as expressly provided for in said Deed:

   Recording Date: December 31, 1951
   Recording No.: Book 452, Page 44
   Affects: The Westerly portion of Parcel I

6. Limited access to and from the Land as set forth in Deed shown below, which provides that there shall be no right of easement or right of access to, from or across the State Highway other than as expressly provided for in said Deed:

   Recording Date: December 31, 1951
   Recording No.: Book 452, Page 46
   Affects: The Westerly portion of Parcel I

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

7. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	The United States of America
Purpose:	Transmission line
Recording Date:	June 14, 1955
Recording No:	Book 496, Page 694
Affects:	The Southerly portion of Parcels I, II and III

8. Limited access provisions contained in Deed to the State of Oregon, by and through its State Highway Commission, which provides that no right or easement of right of access to, from or across the State Highway other than expressly therein provided for shall attach to the abutting property,

Filed:	March 19, 1970
Circuit Court No.:	30-925
Recorded:	April 22, 1970
Recorder's Fee No.:	70-007483
Affects:	The Westerly portion of Parcel I

9. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	The City of Wilsonville
Purpose:	Sewer lines
Recording Date:	February 26, 1973
Recording No:	73-005592
Affects:	The Westerly 10 feet of Parcel I

10. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date:	November 25, 1981
Recording No:	81-040610
Affects:	Parcel I

11. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date:	November 25, 1981
Recording No:	81-040611
Affects:	Parcel III

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

Amendment(s)/Modification(s) of said covenants, conditions and restrictions

Recording Date: November 25, 1981
Recording No: 81-040612

12. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: November 25, 1981
Recording No: 81-039585 (Washington County)
Affects: Parcel IV

Amendment(s)/Modification(s) of said covenants, conditions and restrictions

Recording Date: November 25, 1981
Recording No: 81-039586 (Washington County)

13. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

Entitled: Warranty Deed
Purpose: Utilities
Recording Date: August 27, 1984
Recording No: 84-029670
Affects: The Northerly 15 feet of Parcel II

14. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: The City of Wilsonville
Purpose: Utilities
Recording Date: August 27, 1984
Recording No: 84-029682
Affects: The Northerly 15 feet of Parcels I and II

15. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: City of Wilsonville
Purpose: Utility
Recording Date: January 21, 1986
Recording No: 86-002523
Affects: Parcel III

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

16. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	City of Wilsonville
Purpose:	Utility
Recording Date:	January 21, 1986
Recording No:	86-003023 (Washington County)
Affects:	Parcel IV

17. Put-Call Agreement

Recording Date:	July 20, 1989
Recording No.:	89-031247

Affects: Parcel III

Amendment(s)/Modification(s) of said agreement

Recording Date:	April 4, 1990
Recording No:	90-015088

18. Put-Call Agreement

Recording Date:	July 20, 1989
Recording No.:	89-032929 (Washington County)

Affects: Parcel IV

19. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Burns-Western
Purpose:	Sewer
Recording Date:	August 22, 1989
Recording No:	89-036480
Affects:	Parcel III

20. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Burns-Western
Purpose:	Sewer
Recording Date:	April 4, 1990
Recording No:	90-015089
Affects:	Parcel III

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

21. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: October 3, 1991
Recording No: 91-043694
Affects: Parcel III

Amendment(s)/Modification(s) of said covenants, conditions and restrictions

Recording Date: October 10, 2002
Recording No: 2002-097120

22. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: City of Wilsonville
Purpose: Pipeline
Recording Date: November 27, 1992
Recording No: 92-075776
Affects: Parcel III

23. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Cranston Diversified Industries, Inc.
Purpose: Emergency Vehicle Access
Recording Date: November 18, 1997
Recording No: 97-090763
Affects: Affects: Parcel III

24. Stormwater Maintenance Covenant and Access Easement

Executed by: Sysco Food Services of Portland, Inc., and the City of Wilsonville
Recording Date: March 24, 2009
Recording No.: 2009-019028
Affects: Parcel III

25. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: City of Wilsonville
Purpose: Sidewalk and public utilities
Recording Date: March 24, 2009
Recording No: 2009-019029
Affects: Parcel III

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

26. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	City of Wilsonville
Purpose:	Underground pipelines
Recording Date:	March 24, 2009
Recording No:	2009-019030
Affects:	Parcel III

27. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	Portland General Electric Company
Purpose:	Underground communication line
Recording Date:	October 21, 2010
Recording No:	2010-066637
Affects:	Parcel III

28. Any rights, interests, or claims which may exist or arise by reason of the following matters disclosed by survey,

Job No.:	5438
Dated:	March 15, 2018
Last Revised:	March 23, 2018
Prepared by:	Weddle Surveying Inc.
Matters shown:	

A) Potential Encroachment sewer line approximately 2' East of Easement Document No.: 73-005592

Affects: Parcel I

29. An unrecorded lease with certain terms, covenants, conditions and provisions set forth therein as disclosed by

Clackamas County Assessor Tax Account No.: P0006836

Lessor:	Sysco Portland, Inc., a Delaware corporation
Lessee:	Raymond Leasing Corporation
Affects:	Parcel III

30. An unrecorded lease with certain terms, covenants, conditions and provisions set forth therein as disclosed by

Clackamas County Assessor Tax Account No.: P0012719

Lessor:	Sysco Portland, Inc., a Delaware corporation
Lessee:	Chep USA
Affects:	Parcel III

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

31. An unrecorded lease with certain terms, covenants, conditions and provisions set forth therein as disclosed by

Clackamas County Assessor Tax Account No.: P0013945
Lessor: Sysco Portland, Inc., a Delaware corporation
Lessee: WW Grainger Inc.
Affects: Parcel III

32. Please be advised that our search did not disclose any open Deeds of Trust of record.

33. Existing leases and tenancies, if any, and any interests that may appear upon examination of such leases.

34. Personal property taxes, if any.

End of Liens & Encumbrance

NOTES:

2023-2024 Taxes:

Note: Clackamas County property taxes for the fiscal year shown below are paid in full.

Fiscal Year: 2023-2024
Amount: $13,882.96
Levy Code: 003-023
Account No.: 00805043
Map No.: 31W12 01100
Affects: Parcel I

Note: Clackamas County property taxes for the fiscal year shown below are paid in full.

Fiscal Year: 2023-2024
Amount: $430.43
Levy Code: 003-023
Account No.: 00805604
Map No.: 31W12 00401
Affects: Parcel II

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

Note: Clackamas County property taxes for the fiscal year shown below are paid in full.

Fiscal Year:	2023-2024
Amount:	$659,863.32
Levy Code:	003-023
Account No.:	01406678
Map No.:	31W12 00402
Affects:	Parcel III

Note: Clackamas County property taxes for the fiscal year shown below are paid in full.

Fiscal Year:	2023-2024
Amount:	$50,078.04
Levy Code:	003-023
Account No.:	05024205
Map No.:	31W12 00402M1
Affects:	Parcel III - Machinery and Equipment

Note: Clackamas County property taxes for the fiscal year shown below are paid in full.

Fiscal Year:	2023-2024
Amount:	$70,403.33
Levy Code:	003-023
Account No.:	P2098237
Map No.:	31W12 00402
Affects:	Parcel III - Business Personal Property

Note: Washington County property taxes for the fiscal year shown below are paid in full.

Fiscal Year:	2023-2024
Amount:	$893.41
Levy Code:	101.03
Account No.:	R2004187
Map No.:	3S1010001510
Affects:	Parcel IV

Boundary Deeds:

Deed No.:	99-048542
County:	Clackamas
Map No.:	31W12 00400
Owner:	Par Five, L.L.C., an Oregon limited liability company
Address:	PAR FIVE, LLC c/o Steven Klein, Trammell Crow 930 SW Gemini Drive Beaverton, Oregon 97008-7123

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

Deed No.: 2000-043056
County: Clackamas
Map No.: 31W12 00404
Owner: ARGYLE CAPITAL LLC, an Oregon limited liability company
Address: Mr. Stephen M. Gross
Argyle Capital LLC
Suite 475
4800 S.W. Meadows Road
Lake Oswego, Oregon 97035-3283

Deed No.: 90-015087
County: Clackamas
Map No.: 31W12 00403
Owner: SYSCO/Continental Food Services of Portland, Inc., a Delaware corporation
Address: SYSCO/Continental Food Services of Portland, Inc.
c/o Christopher L. Reive, Esq.
Bogle & Gates
222 S.W. Columbia Street
Portland, Oregon 97201

Deed No.: 99-113516
County: Clackamas
Map No.: 31W12 00406
Owner: D. Thompson Properties LLC, an Oregon limited liability company
Address: D. Thompson Properties LLC
10360 N. Vancouver Way
Portland, Oregon 97217

Deed No.: 2021-106613
County: Clackamas
Map No.: 31W12 00511
Owner: SKB-Parkworks, LLC, a Delaware limited liability company, an undivided 6.29% interest
Address: SKB-Parkworks, LLC
c/o ScanlanKemperBard Companies, LLC
222 SW Columbia Street, Suite 700
Portland, Oregon 97201

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

Deed No.: 2021-106614
County: Clackamas
Map No.: 31W12 00511
Owner: SKB-Parkworks, LLC, a Delaware limited liability company, an undivided 24.35% interest; Terrell and Associates Parkworks, LLC, a Delaware limited liability company, an undivided 12.28% interest; Patrick Valencia Parkworks, LLC, a Delaware limited liability company, an undivided 26.43% interest; Oak Tree KCMDT TIC Parkworks, LLC, a Delaware limited liability company, an undivided 13.40% interest; Peachland Parkworks, LLC, a Delaware limited liability company, an undivided 6.14% interest; NSK Properties II Parkworks, LLC, a Delaware limited liability company, an undivided 2.73% interest; RLR MD Parkworks, LLC, a Delaware limited liability company, an undivided 8.38% interest
Address: SKB-Parkworks, LLC
c/o ScanlanKemperBard Companies, LLC
222 SW Columbia Street, Suite 700
Portland, Oregon 97201

Deed No.: 2019-037132
County: Clackamas
Map No.: 31W12 00512
Owner: Parkway Woods, LLC, an Oregon limited liability company
Address: Parkway Woods, LLC
c/o Bill Naito Company
2701 NW Vaughn Street, Suite 323
Portland, Oregon 97210

Deed No.: 2000-052679
County: Washington
Map No.: 3S102DD 00100
Owner: ARGYLE CAPITAL LLC, an Oregon limited liability company
Address: Mr. Stephen M. Gross
Argyle Capital LLC
Suite 475
4800 S.W. Meadows Road
Lake Oswego, Oregon 97035-3283

Deed No.: 2000-052679
County: Washington
Map No.: 3S102DD 00200
Owner: ARGYLE CAPITAL LLC, an Oregon limited liability company
Address: Mr. Stephen M. Gross
Argyle Capital LLC
Suite 475
4800 S.W. Meadows Road
Lake Oswego, Oregon 97035-3283

EXHIBIT "D"
(Liens and Encumbrances)
(continued)

Deed No.:	2010-097914
County:	Washington
Map No.:	3S1010 001900
Owner:	26000 Parkway LLC, an Oregon limited liability company
Address:	26000 Parkway LLC 10 Greely Club Trail Henderson, NV 89052

Misc.

Clackamas County Plat: Partition Plat No. 1993-133
Clackamas County Plat: Partition Plat No. 2018-109

Washington County Plat: Argyle Square
Washington County Plat: Partition Plat No. 1991-082

Fidelity National Title Company of Oregon
Public Record Report for New Subdivision or Land Partition
Order No. 45142211804

DEFINITIONS, CONDITIONS AND STIPULATIONS

1. **Definitions.** The following terms have the stated meaning when used in this report:
   (a) "Customer": The person or persons named or shown as the addressee of this report.
   (b) "Effective Date": The effective date stated in this report.
   (c) "Land": The land specifically described in this report and improvements affixed thereto which by law constitute real property.
   (d) "Public Records": Those records which by the laws of the state of Oregon impart constructive notice of matters relating to the Land.
2. **Liability of Company.**
   (a) This is not a commitment to issue title insurance and does not constitute a policy of title insurance.
   (b) The liability of the Company for errors or omissions in this public record report is limited to the amount of the charge paid by the Customer, provided, however, that the Company has no liability in the event of no actual loss to the Customer.
   (c) No costs (including without limitation attorney fees and other expenses) of defense, or prosecution of any action, is afforded to the Customer.
   (d) In any event, the Company assumes no liability for loss or damage by reason of the following:
      (1) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records.
      (2) Any facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
      (3) Easements, liens or encumbrances, or claims thereof, which are not shown by the Public Records.
      (4) Discrepancies, encroachments, shortage in area, conflicts in boundary lines or any other facts which a survey would disclose.
      (5) (i) Unpatented mining claims; (ii) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (iii) water rights or claims or title to water.
      (6) Any right, title, interest, estate or easement in land beyond the lines of the area specifically described or referred to in this report, or in abutting streets, roads, avenues, alleys, lanes, ways or waterways.
      (7) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
      (8) Any governmental police power not excluded by 2(d)(7) above, except to the extent that notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
      (9) Defects, liens, encumbrances, adverse claims or other matters created, suffered, assumed, agreed to or actually known by the Customer.
3. **Report Entire Contract.** Any right or action or right of action that the Customer may have or may bring against the Company arising out of the subject matter of this report must be based on the provisions of this report. No provision or condition of this report can be waived or changed except by a writing signed by an authorized officer of the Company. By accepting this form report, the Customer acknowledges and agrees that the Customer has elected to utilize this form of public record report and accepts the limitation of liability of the Company as set forth herein.
4. **Charge.** The charge for this report does not include supplemental reports, updates or other additional services of the Company.

LIMITATIONS OF LIABILITY

"CUSTOMER" REFERS TO THE RECIPIENT OF THIS REPORT.

CUSTOMER EXPRESSLY AGREES AND ACKNOWLEDGES THAT IT IS EXTREMELY DIFFICULT, IF NOT IMPOSSIBLE, TO DETERMINE THE EXTENT OF LOSS WHICH COULD ARISE FROM ERRORS OR OMISSIONS IN, OR THE COMPANY'S NEGLIGENCE IN PRODUCING, THE REQUESTED REPORT, HEREIN "THE REPORT." CUSTOMER RECOGNIZES THAT THE FEE CHARGED IS NOMINAL IN RELATION TO THE POTENTIAL LIABILITY WHICH COULD ARISE FROM SUCH ERRORS OR OMISSIONS OR NEGLIGENCE. THEREFORE, CUSTOMER UNDERSTANDS THAT THE COMPANY IS NOT WILLING TO PROCEED IN THE PREPARATION AND ISSUANCE OF THE REPORT UNLESS THE COMPANY'S LIABILITY IS STRICTLY LIMITED. CUSTOMER AGREES WITH THE PROPRIETY OF SUCH LIMITATION AND AGREES TO BE BOUND BY ITS TERMS

THE LIMITATIONS ARE AS FOLLOWS AND THE LIMITATIONS WILL SURVIVE THE CONTRACT:

ONLY MATTERS IDENTIFIED IN THIS REPORT AS THE SUBJECT OF THE REPORT ARE WITHIN ITS SCOPE. ALL OTHER MATTERS ARE OUTSIDE THE SCOPE OF THE REPORT.

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STORM DRAINAGE REPORT

FOR

SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN

DATE: MARCH 10, 2026

PREPARED FOR:
SYSCO PORTLAND, INC.
26250 SW PARKWAY CENTER DRIVE,
WILSONVILLE, OR 97070
281-584-5999

PREPARED BY:
STANDRIDGE INC.
703 BROADWAY STREET, SUITE 610
VANCOUVER, WASHINGTON 98660
SDI PROJECT SYS001

STANDRIDGE INC
PLANNING | ENGINEERING | SURVEYING

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STANDRIDGE INC

1.0 PROJECT OVERVIEW AND APPLICABILITY

1.1 Project Description

Sysco Portland, Inc. proposes to expand the existing Sysco Wilsonville warehouse facility through redevelopment of adjacent properties through a lot line adjustment involving Tax Lots 31W12 01100, 00401, and 00402. The site is located at 26250 SW Parkway Center Drive in Wilsonville, Oregon and is generally bounded by SW Parkway Center Drive and SW Burns Way to the north, SW Parkway Avenue to the west, unimproved Weidemann Road to the south, and Planned Development Industrial zoned parcels to the east.

The lot line adjustment reconfigures the existing parcels to support the planned warehouse expansion and associated site improvements while maintaining the existing development on the primary Sysco site. Following the adjustment, the parcels will be approximately 155,385 square feet for Tax Lot 01100, 699,318 square feet for Tax Lot 00401, and 1,739,350 square feet for Tax Lot 00402. The lot line adjustment also modifies the boundary of adjacent Tax Lot 31W12 00403 to accommodate the reconfiguration of the development parcels. No development is proposed on Tax Lot 00403 as part of this project; therefore, the lots is excluded from the stormwater analysis presented in this report.

The project includes expansion of the existing warehouse building, construction of additional truck operational areas, internal circulation improvements, utility extensions, stormwater management facilities, and relocation of the existing north–south drainage channel commonly referred to as the Sysco Ditch along the western portion of the site.

The proposed development will connect to the existing Sysco facility located on Tax Lot 00402..

The stormwater analysis and facility sizing presented in this report focus on the proposed development areas and associated impervious surfaces while maintaining the existing drainage patterns and stormwater infrastructure serving the previously developed portions of the site.

1.2 Applicability

The proposed development includes construction of new impervious surfaces associated with building expansion, truck operational areas, circulation improvements, and associated site infrastructure. As a result, the project is subject to the City of Wilsonville Stormwater and Surface Water Design and Construction Standards (2015), Section 3, which establishes requirements for stormwater management, water quality treatment, and flow control for development activities.

Stormwater facilities for the project have been designed to provide water quality treatment and flow control for the new and modified impervious surfaces associated with the proposed development. Facility sizing and hydrologic analysis were performed using the WES Stormwater Management Sizing Tool which is accepted by the City of Wilsonville for demonstrating compliance with water quality and flow duration requirements.

Existing development located on Tax Lot 31W12 00402 was constructed under previous approvals and includes buildings, pavement areas, and stormwater infrastructure that may not conform to current stormwater standards. These existing improvements are considered legally established and are not proposed to be redeveloped as part of this project. Accordingly, the stormwater analysis presented in this

report focuses on the proposed development areas and new impervious surfaces associated with the project, while maintaining existing drainage patterns and connections serving the previously developed portions of the site.

Stormwater management facilities proposed for the project consist of stormwater planters and detention ponds designed to provide the required water quality treatment and flow control consistent with the City standards.

1.3 Vicinity Map

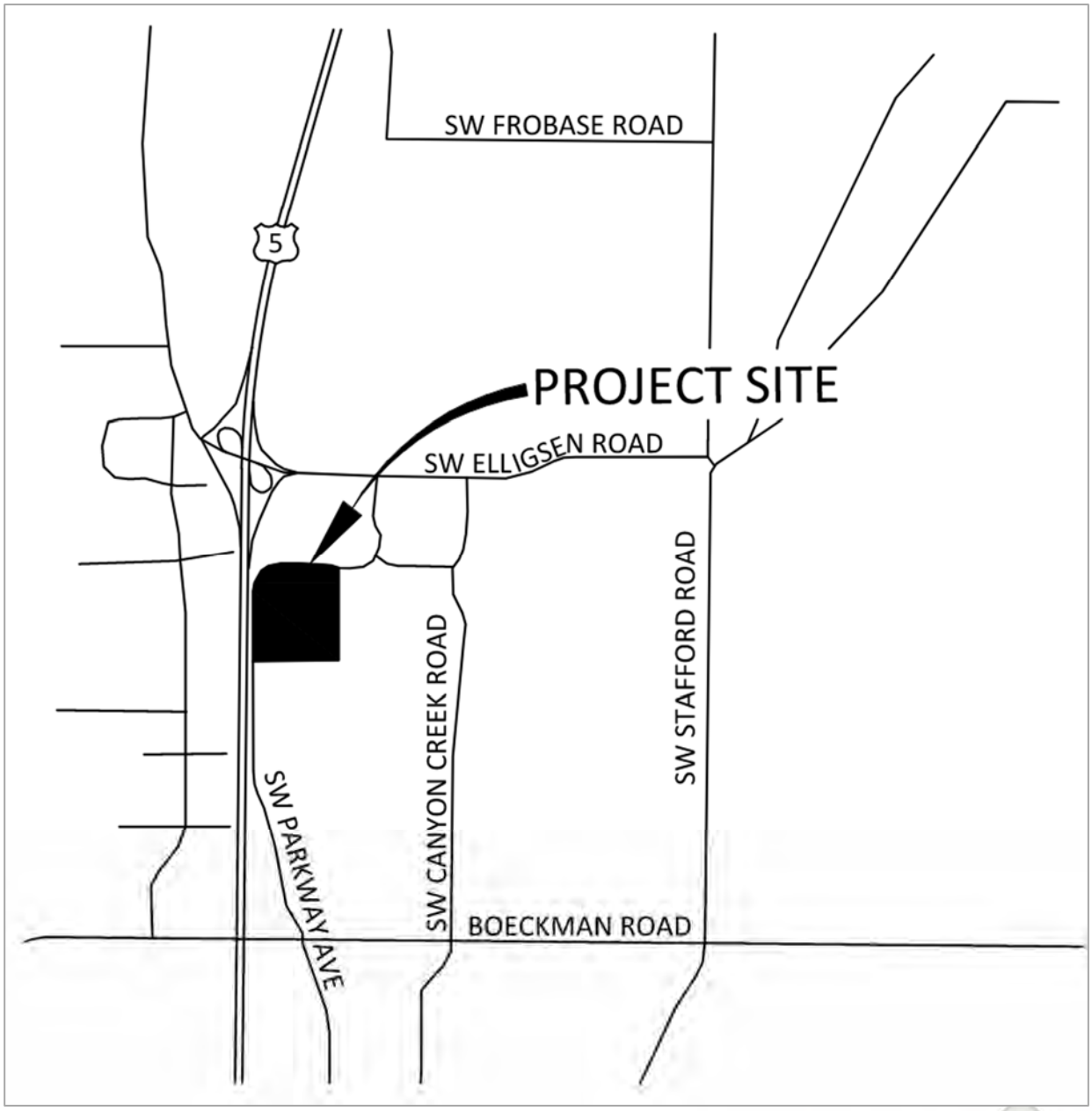


Figure 1: Vicinity Map for proposed project

2.0 EXISTING CONDITIONS

2.1 Site Description

The project site consists of the existing Sysco warehouse facility and adjacent properties located at 26250 SW Parkway Center Drive in Wilsonville, Oregon. The existing Sysco facility occupies Tax Lot 31W12 00402 and includes warehouse buildings, loading areas, circulation drives, and associated paved areas. Adjacent parcels to the west and south, currently identified as Tax Lots 31W12 00401 and 01100, are largely undeveloped and consist primarily of open field and vegetated areas.

Access to the existing facility is currently provided from SW Parkway Center Drive and SW Burns Way.

The existing Sysco facility was constructed under previous approvals and includes buildings, paved operational areas, and stormwater infrastructure that serve the existing development. These improvements will largely remain in place as part of the proposed project.

Adjacent properties surrounding the project site include a mix of industrial, commercial, transportation, and public right-of-way ownership. Properties to the north across SW Parkway Center Drive are developed with regional commercial uses. The Interstate-5 corridor and associated transportation infrastructure are located west of the site. Industrial and warehouse development occupies properties east and south of the project area. Public right-of-way corridors including SW Parkway Center Drive, SW Parkway Avenue, SW Burns Way, and Weidemann Road are under public ownership.

2.2 Topography

The site has relatively gentle slopes, averaging approximately five percent across the property. Existing grades generally slope from the northeastern portion of the site toward the southwest. A local high point occurs near the north-central portion of the property, which is approximately twenty-five feet higher than the lowest elevations located near the southwestern corner of the site.

Surface drainage generally follows the natural topography and is conveyed through three primary subbasins. Runoff from these basins ultimately drains to existing drainage features located along the northern, southern, and western portions of the site.

2.3 Land Cover, Land Use, and Zoning

The existing Sysco facility occupies the eastern portion of the project area and includes warehouse buildings, loading areas, truck operational areas, internal circulation drives, and associated paved surfaces. These improvements represent the primary impervious surfaces within the existing Sysco facility located east of the proposed project area.

Adjacent parcels to the west and south of the existing facility are largely undeveloped and consist primarily of open grassed areas with scattered vegetation and limited tree cover. Portions of the site include previously disturbed areas associated with past development activity and utility corridors. Vegetation on the undeveloped parcels is generally limited to groundcover and grasses with a small treed area located near the northeastern portion of the site.

The project site is located within an area planned for industrial development in the City of Wilsonville. Surrounding properties are primarily zoned for industrial and commercial uses. The existing Sysco facility to the east operates within the Planned Development Industrial (PDI) zoning designation.

Properties to the north across SW Parkway Center Drive are zoned Planned Development Commercial (PDC) and include regional commercial uses such as retail and fuel service facilities. West of the site are major transportation facilities including SW Parkway Avenue and the Interstate-5 corridor.

The subject parcels are proposed to be rezoned from Future Development Agricultural–Holding (FDA-H) to Planned Development Industrial – Regionally Significant Industrial Area (PDI-RSIA) as part of the overall development application. This zoning designation is intended to accommodate regionally significant industrial operations located near major transportation corridors and freight routes.

The surrounding area is characterized by established industrial and commercial development within the Interstate-5 corridor, with land uses including warehousing, distribution facilities, retail development, and transportation infrastructure. Industrial land uses are consistent with the planned zoning designation and the long-term land use designation identified in the City of Wilsonville Comprehensive Plan.

2.4 Off-Site Drainage to the Property

A basin map showing the existing drainage basins within and surrounding the project site is included in Appendix J – Existing Drainage Basins. The project site receives off-site drainage from developed commercial areas located north of SW Parkway Center Drive. Runoff from these areas is collected within a system of public and private storm pipes and detention facilities and conveyed south across SW Parkway Center Drive.

After crossing SW Parkway Center Drive, these off-site flows discharge into the existing Sysco Ditch located along the western portion of the project site. The ditch functions as a regional conveyance facility, carrying both off-site and on-site runoff south toward the downstream drainage system located along the southern boundary of the property.

The upstream drainage area contributing flow to the Sysco Ditch through this crossing totals approximately 43.1 acres of developed commercial property. This area includes Tax Lots 3S1010002200, 3S102DD00300, 3S1010001507, 3S1010001508, 3S1010002000, 3S1010001900, and 3S102DD00100.

The proposed development maintains conveyance of this upstream drainage through the site. Off-site runoff will continue to be routed through the relocated drainage corridor and will not be directed through the proposed on-site stormwater treatment facilities.

Upstream drainage patterns were evaluated based on available mapping and field observation. No existing upstream drainage or erosion issues affecting the proposed development were observed.

2.5 Natural and Constructed Channels

Drainage within the project area is conveyed through a combination of constructed drainage channels and stormwater conveyance infrastructure. The primary drainage feature within the site is a constructed channel commonly referred to as the Sysco Ditch, which runs generally north to south along the western portion of the existing Sysco property.

The Sysco Ditch conveys stormwater runoff from upstream developed areas north of SW Parkway Center Drive in addition to runoff generated within the project site. The ditch receives flows conveyed through storm pipe crossings under SW Parkway Center Drive and continues south along the western edge of the site where it ultimately connects to the downstream drainage system along the southern boundary of the property.

The existing ditch is characterized by a trapezoidal to irregular V-shaped cross section with approximate depths of several feet and side slopes formed through past grading and erosion. Vegetation within the channel corridor consists primarily of grasses and opportunistic vegetation typical of maintained drainage facilities.

A second constructed drainage feature is located along the southern boundary of the site and is commonly referred to as the Southern Ditch or Wiedemann Ditch. This ditch conveys runoff eastward along the southern edge of the property and connects to downstream drainage infrastructure south of the site.

Both the Sysco Ditch and the Wiedemann Ditch currently function as stormwater conveyance facilities for the surrounding drainage basin and carry both on-site and off-site runoff through the project area.

2.6 Soils and Infiltration Characteristics

Soils within the project area were reviewed using the Natural Resources Conservation Service (NRCS) Web Soil Survey and available geotechnical information prepared for the site. The site is primarily mapped as Aloha Silt Loam, Amity Silt Loam, Woodburn Silt Loam, and Huberly Silt Loam. These soils are generally classified within Hydrologic Soil Groups C and D and are characterized by relatively low infiltration capacity.

A geotechnical investigation performed for the project indicates that infiltration is not recommended due to very low measured infiltration rates and relatively shallow groundwater conditions. Groundwater was encountered during subsurface exploration at depths ranging from approximately seven to ten and one-half feet below ground surface.

Based on these soil and groundwater conditions, infiltration-based stormwater management facilities are not proposed for the project. Stormwater management will instead be provided using filtration-based stormwater planters and detention ponds designed to meet City of Wilsonville stormwater management requirements.

A geotechnical report by NV5 dated June 14, 2023 is included in Appendix F.

Location	Depth (feet BGS)	Soil Type at Test Depth	Measured Infiltration Rate (inches per hour)	Fines Content[1] (percent)
TP-1	13.5	CLAY with sand (decomposed basalt)	~0	71
TP-2	8	CLAY, minor sand	~0	89

2.7 Existing Drainage Basins and Points of Discharge

Existing drainage within and adjacent to the project site has been delineated into several subbasins based on existing topography, roadway drainage infrastructure, and the constructed ditch system located along the western and southern portions of the site. A map showing the existing drainage basins is provided in Appendix J.

Runoff from the existing Sysco facility is collected through a combination of roof drainage systems, paved surface runoff, catch basins, and storm pipes that route flows toward the western portion of the site. These flows ultimately discharge to the existing Sysco Ditch.

The undeveloped portions of the site located west and south of the existing facility primarily drain through overland flow toward the ditch system located along the western and southern property boundaries. These drainage features convey runoff south toward downstream drainage infrastructure located along Weidemann Road.

Off-site drainage from developed commercial areas north of SW Parkway Center Drive is conveyed through an existing storm pipe crossing under SW Parkway Center Drive and discharges into the Sysco Ditch along the western portion of the project site. These flows combine with runoff generated within the project site and continue south through the ditch system.

The primary existing discharge point for runoff from the project area is the Southern Ditch located along the southern boundary of the site. This drainage feature conveys flows eastward and ultimately connects to downstream storm drainage infrastructure south of the property.

2.8 Receiving Waters

Stormwater runoff from the project site is conveyed through three on-site drainage basins that discharge to the surrounding public stormwater conveyance systems.

Basin 1 drains the eastern and central portions of the site. Runoff from this basin is conveyed to the existing drainage ditch that runs generally north to south through the project area. Flows in this ditch are routed south and ultimately enter the downstream public stormwater system.

Basin 2 drains the northern portion of the site adjacent to SW Parkway Center Drive. Runoff from this area is conveyed toward the north-northwest and enters the public storm drainage system within SW Parkway Center Drive.

Basin 3 drains the western portion of the site and conveys runoff toward the southwest corner of the property where flows enter the adjacent stormwater conveyance system.

Runoff from all three basins is ultimately conveyed through the regional stormwater infrastructure and passes beneath Interstate-5 through existing stormwater crossings. Downstream of Interstate-5, these flows discharge to Coffee Lake Creek.

Coffee Lake Creek flows south and ultimately discharges to the Willamette River. Coffee Lake Creek therefore functions as the primary receiving water for runoff generated from the project site and surrounding drainage areas.

Stormwater generated by the proposed development will be treated and detained on-site prior to discharge to the existing stormwater conveyance systems. Off-site runoff entering the site will bypass treatment facilities and will be conveyed through the site under existing conditions.

2.9 Site Constraints and Considerations

Several existing site conditions influence the design of the proposed stormwater management system.

The project site contains an existing drainage ditch that runs generally north to south through the property and conveys both on-site and off-site runoff toward downstream stormwater infrastructure. This ditch currently functions as a regional conveyance feature for upstream drainage areas and must be maintained to allow continued passage of off-site flows through the site.

The site is also characterized by soils with relatively low infiltration capacity. Available soil mapping and geotechnical information indicate that the site is primarily composed of silt loam soils classified within Hydrologic Soil Groups C and D. These soils typically exhibit slow infiltration rates and limit the feasibility of infiltration-based stormwater management facilities.

In addition, shallow groundwater conditions have been observed in portions of the site. These groundwater conditions further limit the use of infiltration facilities and support the use of filtration and detention-based stormwater management systems.

The proposed stormwater management system utilizes stormwater planters and detention ponds to provide water quality treatment and flow control while maintaining the overall drainage patterns across the site. Off-site drainage entering the project area will continue to be conveyed through the site via the relocated drainage channel constructed as part of the project's wetland mitigation improvements.

The stormwater management approach has been developed to maintain existing drainage pathways while meeting the stormwater treatment and flow control requirements of the City of Wilsonville Stormwater and Surface Water Design and Construction Standards.

Site constraints include wetlands and constructed drainage features identified within the project area. These resources were evaluated as part of the Significant Resource Impact Report (SRIR) prepared by Pacific Habitat Services, Inc., included as Appendix E. The SRIR identified Wetland A, Wetland B, Wetland C, and an excavated drainage channel identified as Ditch 1 within or adjacent to the project site. These features were delineated in accordance with current Oregon Department of State Lands and U.S. Army Corps of Engineers wetland delineation methodology.

Impacts to Wetland A associated with the proposed development and the relocation of the constructed drainage channel are addressed in the SRIR and associated mitigation plans. The site design is coordinated with the proposed wetland relocation and mitigation strategy.

The project site is not located within a mapped FEMA 100-year floodplain.

2.10 Existing Impervious Area

Existing impervious surfaces within the combined property are associated with the existing Sysco distribution facility and include building roofs and paved operational areas used for truck maneuvering, loading, and site circulation. These developed areas are located primarily on the eastern portion of the contiguous property outside the proposed project area and connect to SW Parkway Center Drive through existing internal circulation routes.

No existing impervious surfaces are located within the proposed project area. The project area currently consists entirely of undeveloped land including grassed areas, disturbed soils, and limited vegetated areas that function as pervious surfaces allowing rainfall to infiltrate or flow as shallow overland runoff toward the site drainage system.

For hydrologic analysis purposes, the project area is divided into three existing drainage basins. These basins include Basin 1 (22.85 acres), Basin 2 (2.96 acres), and Basin 3 (9.86 acres). Under existing conditions, all three basins consist entirely of pervious surfaces.

2.11 Existing Stormwater Infrastructure

Each basin is served by existing public stormwater infrastructure consisting of a combination of public storm pipes, culverts, and drainage ditches that convey runoff through the surrounding stormwater system. Refer to the downstream analysis for additional information regarding the downstream conveyance systems.

The existing Sysco campus located to the east contains an independent underground storm drainage network that serves the developed facility. This system is not proposed to be modified as part of the project, with the exception of intercepting the existing discharge that currently flows to the ditch proposed to be removed.

3.0 PROPOSED CONDITIONS

3.1 Proposed Site Development

The proposed project includes expansion of the existing Sysco distribution facility onto the currently undeveloped property located west of the existing campus. Development within the project area will include construction of additional warehouse building area, interior truck operational areas, internal circulation drives, utility extensions, and stormwater management facilities necessary to support the expanded distribution operations.

The proposed site layout extends the existing Sysco campus westward while maintaining operational connectivity with the existing developed facility located to the east. Truck circulation and maneuvering areas are located primarily within the interior portions of the site and support loading and distribution activities associated with the warehouse facility. These areas are designed as truck operational areas consistent with the industrial use of the site.

Development of the project area will convert currently undeveloped pervious land into industrial operational areas including buildings and paved surfaces. The proposed drainage basins and stormwater management facilities are designed to closely match existing basin discharge characteristics while directing runoff toward the proposed stormwater treatment and detention facilities and the downstream conveyance systems.

As part of the proposed development, the existing drainage ditch that currently traverses the project area will be relocated to accommodate the proposed site layout and associated wetland mitigation improvements. The relocated drainage channel will maintain conveyance of both on-site and off-site runoff through the project area and will connect to the downstream stormwater system consistent with existing drainage patterns.

3.2 Proposed Impervious Area

The proposed development will introduce new impervious surfaces within the project area associated with the warehouse building expansion, interior truck operational areas, internal circulation drives, parking pavement, and associated sidewalks and paved operational areas necessary to support the expanded distribution facility.

Under proposed conditions, portions of the currently undeveloped pervious areas within the project area will be converted to impervious surfaces associated with buildings and paved operational areas. The

proposed drainage design maintains the existing basin boundaries while converting portions of each basin from pervious to impervious surfaces associated with the proposed development.

Existing and proposed impervious areas within the three drainage basins are summarized in Table 3-1.

Table 3-1 Existing and Proposed Basin Impervious Summary

Basin	Existing Pervious (SF)	Existing Impervious (SF)	Existing Total Area (SF)	Proposed Pervious (SF)	Proposed Impervious (SF)	Proposed Total Area (SF)
Basin 1	995,226	0	995,226	295,313	698,166	993,479
Basin 2	129,024	0	129,024	74,403	52,123	126,526
Basin 3	455,854	0	455,854	165,869	263,566	460,099
Total	1,580,104	0	1,580,104	535,585	1,013,855	1,580,104

Impervious areas for the proposed development were delineated based on the proposed site plans and basin layout and form the basis for the developed conditions hydrologic modeling described in Section 4.0 of this report.

3.3 Proposed Drainage Basins

The proposed development maintains the existing drainage basin boundaries within the project area. The site continues to drain through three primary basins identified as Basin 1, Basin 2, and Basin 3, consistent with the existing conditions described previously.

Site grading and stormwater infrastructure are designed to convey runoff from each basin to the proposed stormwater treatment and detention facilities prior to discharge to the downstream conveyance system. Basin boundaries and drainage patterns are shown on the Proposed Basin Map included with the project plans. See Appendix K.

3.4 Stormwater Management Approach

Stormwater management for the proposed development is designed to provide water quality treatment and flow control in accordance with the City of Wilsonville Stormwater and Surface Water Design and Construction Standards.

Runoff from new impervious surfaces within each basin will be collected and conveyed to stormwater planters and ponds distributed throughout the site. These facilities provide both water quality treatment and flow control prior to discharge to the downstream conveyance system.

The facilities are designed to regulate discharge rates so that post-development basin flows closely match existing basin discharge characteristics.

4.0 HYDROLOGIC ANALYSIS

4.1 Hydrologic Modeling Assumptions

Hydrologic analysis for the project was performed using the WES Stormwater Management Sizing Tool in accordance with the City of Wilsonville Stormwater and Surface Water Design and Construction Standards. Supporting calculations and model output from the WES sizing tool are included in the appendix L.

4.2 Existing Conditions Hydrology

For modeling purposes, all basin areas were represented as grass cover with Soil Type C within the WES Stormwater Management Sizing Tool.

4.3 Proposed Conditions Hydrology

For modeling purposes, developed surfaces within the project area were represented using the Conventional Concrete surface type within the WES Stormwater Management Sizing Tool.

4.4 Downstream Analysis

A quantitative downstream conveyance analysis was performed to evaluate the capacity of the downstream stormwater system receiving runoff from the project site. Supporting analysis is included in the appendices and demonstrates that the proposed development can convey the 25-year design storm and does not create downstream conveyance issues. See Appendix M.

5.0 STORMWATER FACILITY DESIGN

5.1 Water Quality Treatment and Flow Control

Stormwater management for the proposed development includes stormwater ponds and stormwater planters that provide water quality treatment and flow control in accordance with the City of Wilsonville Stormwater and Surface Water Design and Construction Standards. Facility sizing was performed using the WES Stormwater Management Sizing Tool.

Table 5-1 summarizes the stormwater facilities serving each contributing basin.

Table 5-1 Stormwater Facility Summary

Contributing Basin	Facility	Source	LID	Size (SF)
Basin 1A	Pond 1A	Onsite/Private	Yes	13,176
Basin 1B	Pond 1B	Onsite/Private	Yes	22,533
Basin 2	Planter 2	Onsite/Private	Yes	4,346
Basin 3A	Pond 3	Onsite/Private	Yes	12,821

Contributing Basin	Facility	Source	LID	Size (SF)
Basin 3B	Planter 3	Offsite/Public	Yes	1,870

5.2 Stormwater Conveyance

Runoff from each contributing basin will be conveyed to the corresponding pond or planter through a combination of surface grading and the site storm drainage network. Conveyance includes storm pipes, culverts, and drainage channels as required to route flows to the stormwater facilities and then to the downstream stormwater system.

The proposed conveyance design routes runoff from the interior operational areas to the treatment and flow control facilities while maintaining overall drainage patterns through the site, including continued conveyance of off-site runoff through the relocated drainage channel constructed as part of the project's wetland mitigation improvements.

5.3 100-Year Storm Design and Overflow Routing

Stormwater ponds and planters will be designed with sufficient overflow capacity to safely pass the 100-year storm event without failure of the facilities. Overflow structures and conveyance features will be configured to route exceedance flows through the site and to the downstream conveyance system in a controlled manner.

The site will be graded so that 100-year storm overflow is directed away from buildings, loading areas, and other critical site improvements, and so that finished floor elevations and adjacent structures are protected from 100-year flooding.

6.0 SOURCE CONTROL

6.1 Source Control Measures

Source control measures will be implemented in accordance with Section 301.12 of the City of Wilsonville Stormwater and Surface Water Design and Construction Standards to minimize the potential for pollutants to enter the stormwater system.

Loading docks are located within covered dock areas. Dock seals installed at the loading doors limit precipitation from entering the loading areas and reduce the potential for stormwater contact with loading activities.

Solid waste will be managed using self-contained enclosed compactor units located within trash enclosure areas. These compactors are designed to prevent exposure of waste materials and liquids to stormwater.

Site grading directs stormwater runoff away from loading docks and operational areas prior to collection in the site stormwater system.

7.0 OPERATIONS AND MAINTENANCE

7.1 Stormwater Facility Maintenance

Stormwater management facilities constructed as part of this project will be privately maintained by the property owner. Operation and maintenance activities will include periodic inspection of stormwater planters, ponds, inlets, outlet structures, conveyance piping, and associated infrastructure to ensure proper system performance.

Inspection and maintenance activities will be documented through periodic maintenance logs maintained by the property owner. A formal stormwater operations and maintenance plan is provided in Appendix N and will be implemented following construction in accordance with City of Wilsonville requirements for privately maintained stormwater facilities.

PREPARED BY:

STANDRIDGE
PLANNING | ENGINEERING | SURVEYING
M 703 Broadway St, Suite 610
Vancouver, WA 98660
O 360.597.9240 F 888.750.4981
W W W . S T A N D R I D G E I N C . C O M

EXISTING BASIN MAP

SYSCO EXPANSION
26250 SW PARKWAY CENTER DR, WILSONVILLE, OR 97070

PROJECT NO.:	SYS001
DESIGN BY:	JMB
REVIEWED BY:	LKS
DATE:	03/06/2026

SHEET

EXISTING BASINS

SCALE: 1" = 150'
SHEET SIZE: 11x17

0 150 300

P:\SYS001-SYSCO Wilsonville\5 Planning\3 Reports and Calculations\2026-01-21-Basin maps\2026-01-27-ExistinBasinMap.dwg Mar 06, 2026 - 4:31pm

PROPOSED BASIN 2
37,818 SF (PARKING PAVEMENT)
5,929 SF (PUBLIC SW)
8,376 SF (PRIVATE SW)
4,346 SF (STORM PLANTERS)
70,057 SF (LANDSCAPING)
TOTAL 126,526 SF (2.90 AC)

PROPOSED BASIN 3A
116,619 SF (BUILDING ROOF)
40,774 SF (PARKING PAVEMENT)
17,724 SF (PRIVATE SIDEWALK)
12,821 SF (POND AREA)
177,515 SF (LANDSCAPING)
TOTAL 365,453 SF (8.39 AC)

PROPOSED BASIN 3B
26,378 SF (PUBLIC PAVEMENT)
7,132 SF (PUBLIC SIDEWALK)
7,837 SF (PRIVATE SIDEWALK)
1,870 SF (STORM PLANTERS)
51,429 SF (LANDSCAPING)
TOTAL 94,646 SF (2.17 AC)

PROPOSED BASIN 1A
85,860 SF (BUILDING ROOF)
141,441 SF (PARKING PAVEMENT)
13,176 SF (POND AREA)
23,799 SF (LANDSCAPING)
TOTAL 264,260 SF (6.07 AC)

PROPOSED BASIN 1B
83,395 SF (BUILDING ROOF)
387,470 SF (PARKING PAVEMENT)
22,533 SF (POND AREA)
235,840 SF (LANDSCAPING)
TOTAL 729,219 SF (16.74 AC)

PLANTER 2
POND 3
PLANTER 3
POND 1A
POND 1B
STM
15"SD
N

PREPARED BY:
STANDRIDGE
PLANNING | ENGINEERING | SURVEYING
M 703 Broadway St, Suite 610
Vancouver, WA 98660
O 360.597.9240 F 888.750.4981
WWW.STANDRIDGEINC.COM

PROPOSED BASIN MAP

SYSCO EXPANSION
26250 SW PARKWAY CENTER DR, WILSONVILLE, OR 97070

PROJECT NO.: SYS001
DESIGN BY: JMB
REVIEWED BY: LKS
DATE: 03/06/2026

SHEET

PROPOSED BASINS

SCALE: 1" =150'
SHEET SIZE: 11x17

0 150 300

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	SYSCO - Basin 1A
Project Type	Commercial
Location	
Stormwater Management Area	240478
Project Applicant	Sysco Wilsonville
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 1-Impervious	227,302	Grass	ConventionalConcrete	C	Basin 1-Pond

LID Facility Sizing Details

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
Basin 1-Pond	FCWQT	Lined	6.00	13,176.0	3	56,852.8	42,933.0	Yes

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.

Simple Pond Geometry Configuration

Pond ID: Basin 1-Pond
Design: FlowControlAndTreatment

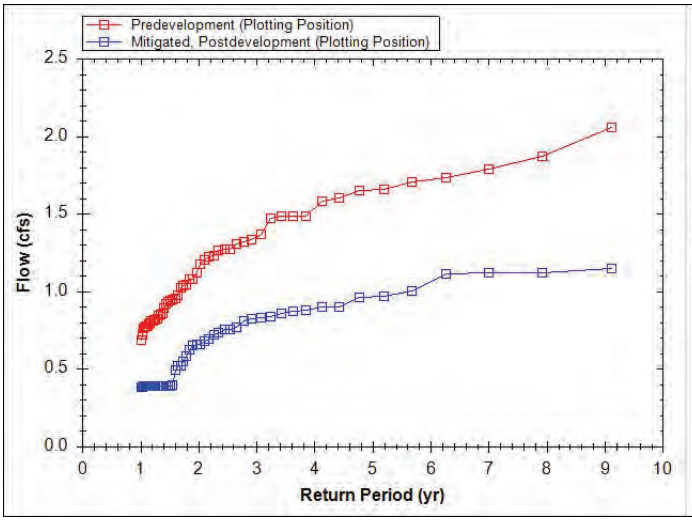
Shape Curve

Depth (ft)	Area (sq ft)
6.0	13,176.0

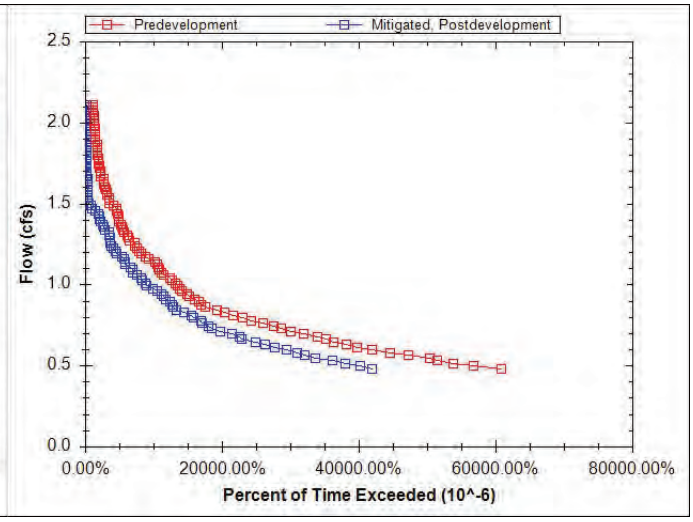
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	2.7
Upper Orifice Invert(ft)	4.0
Upper Orifice Dia (in)	6.7
Overflow Weir Invert(ft)	5.0
Overflow Weir Length (ft)	6.3

Flow Frequency Chart



Flow Duration Chart



WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	SYSCO - Basin 1B
Project Type	Commercial
Location	
Stormwater Management Area	493398
Project Applicant	Sysco Wilsonville
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 1-Impervious	470,865	Grass	ConventionalConcrete	C	Basin 1B-Pond

LID Facility Sizing Details

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
Basin 1B-Pond	FCWQT	Lined	6.00	22,533.0	3	105,366.0	78,036.6	Yes

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.

Simple Pond Geometry Configuration

Pond ID: Basin 1B-Pond
Design: FlowControlAndTreatment

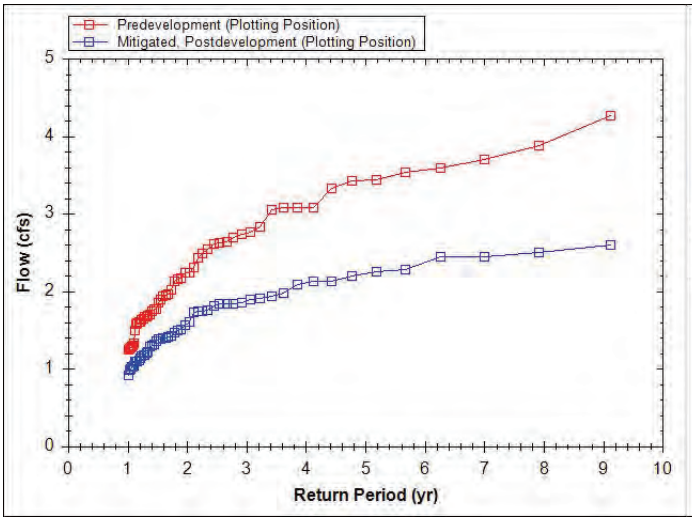
Shape Curve

Depth (ft)	Area (sq ft)
6.0	22,533.0

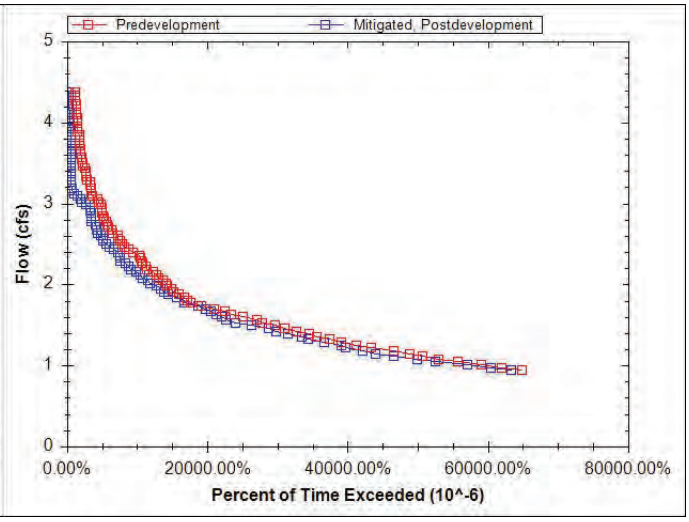
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	3.8
Upper Orifice Invert(ft)	4.0
Upper Orifice Dia (in)	9.7
Overflow Weir Invert(ft)	5.0
Overflow Weir Length (ft)	6.3

Flow Frequency Chart



Flow Duration Chart



WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	SYSCO - Basin 2
Project Type	Commercial
Location	
Stormwater Management Area	56469
Project Applicant	Sysco Wilsonville
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 2	52,123	Grass	ConventionalConcrete	C	BMP

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	3,648.6	4,346.0	2.2

Pond Sizing Details

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

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

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

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

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	SYSCO - Basin 3A
Project Type	Commercial
Location	
Stormwater Management Area	187938
Project Applicant	Sysco Wilsonville
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 3A Impervious	175,117	Grass	ConventionalConcrete	C	Basin 3A - Pond

LID Facility Sizing Details

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
Basin 3A - Pond	FCWQT	Lined	6.00	12,821.0	3	55,058.8	41,626.8	Yes

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.

Simple Pond Geometry Configuration

Pond ID: Basin 3A - Pond
Design: FlowControlAndTreatment

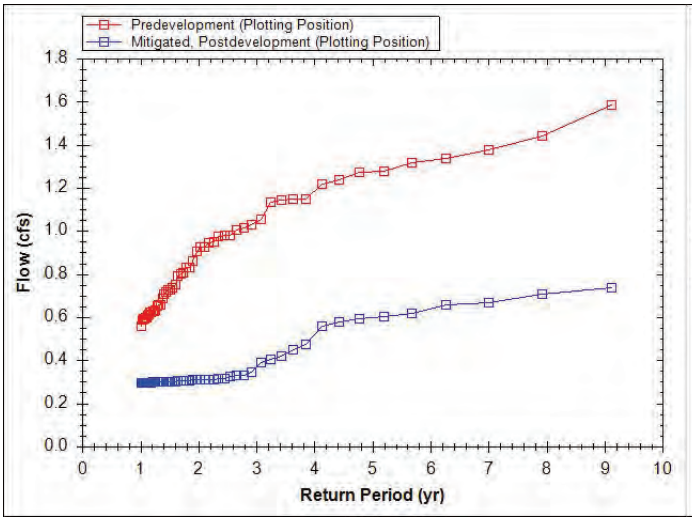
Shape Curve

Depth (ft)	Area (sq ft)
6.0	12,821.0

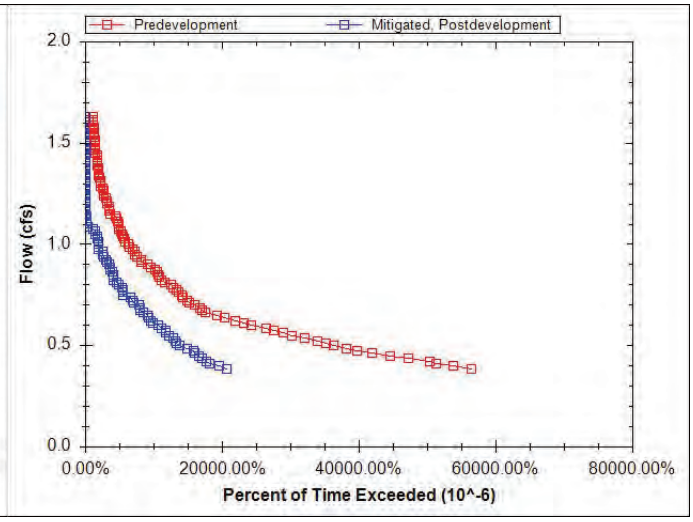
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	2.4
Upper Orifice Invert(ft)	4.0
Upper Orifice Dia (in)	5.8
Overflow Weir Invert(ft)	5.0
Overflow Weir Length (ft)	6.3

Flow Frequency Chart



Flow Duration Chart



WES BMP Sizing Report

Project Information

Project Name	SYSCO - Basin 3B
Project Type	Commercial
Location	
Stormwater Management Area	28138
Project Applicant	Sysco Wilsonville
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Basin 3B - Public Road Widening	26,378	Grass	ConventionalConcrete	C	BMP

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	1,846.5	1,870.0	1.5

Pond Sizing Details

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

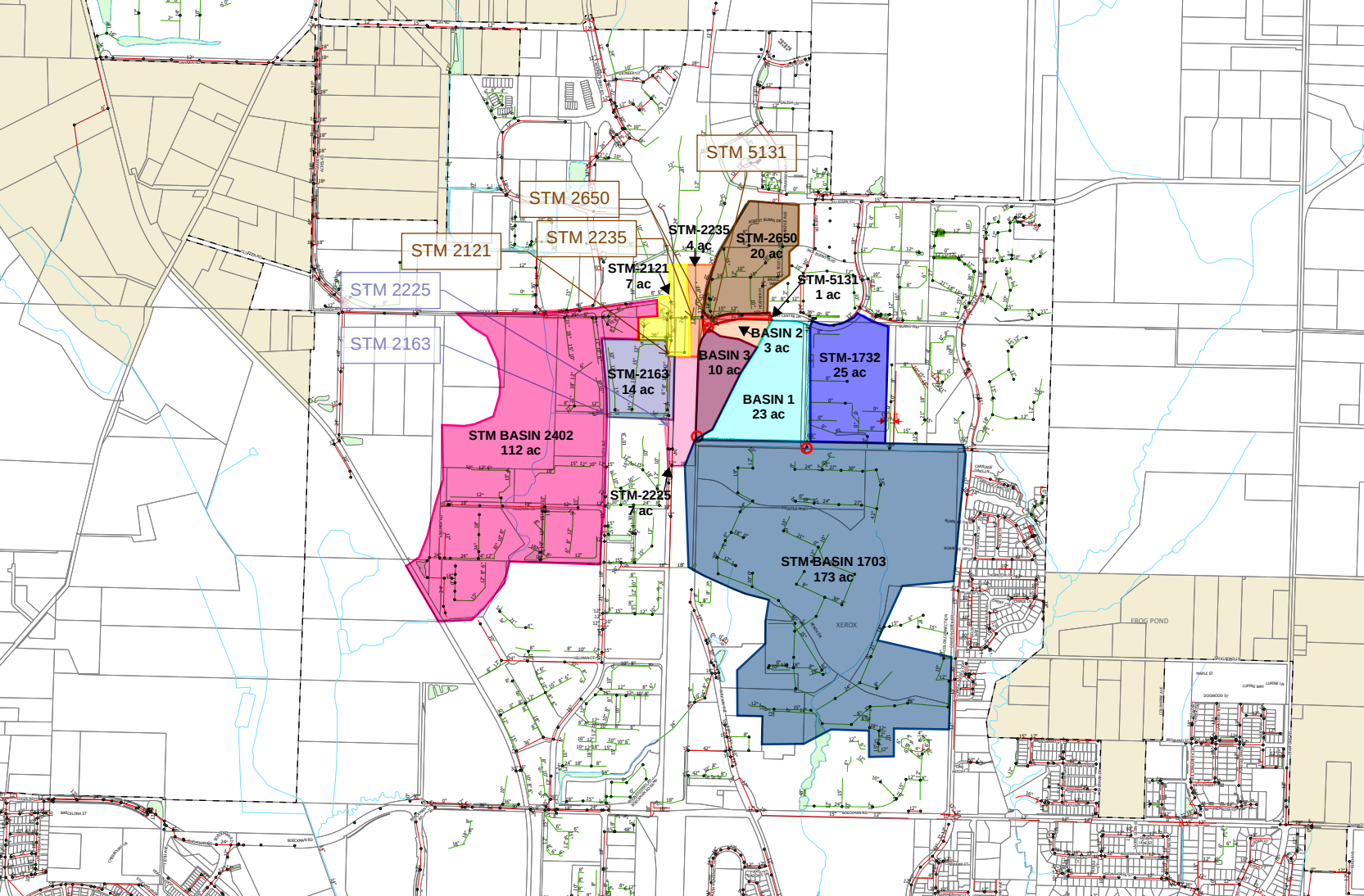
2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

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.

																Design Storm:		**25**	YR	
Sysco																Storm Duration:		24	HRS	
STORMWATER CONVEYANCE CALCULATIONS																Precipitation:		**3.90**	IN	
* This spreadsheet is based on King County SBUH method.																Manning's "n"		0.011		
	Incremental (acres)			INC.	**Cumulative (Acres)**			CN	CN	TIME	Q	PIPE	SLOPE	Qf	Q/Qf	Depth	Depth/	V	LENGTH	INC.
	Total	**Imperv.**	**Pervious**	%	**Total**	**Imperv.**	**Pervious**	PER.	IMP.	(MIN)	(CFS)	Dia.				(in)	Dia.	(fps)		TIME
LINE	**Area**	**Area**	**Area**	IMP.	**Area**	**Area**	**Area**					(IN)	(FT/FT)	(CFS)	(%)				(FT)	(MIN)
Proposed Basin 1	23.00	18.40	4.60	80%	23.00	18.40	4.60	84	98	5.0	**21.62**	**42**	0.0030	65.30	0.33	**16.7**	0.40	6.08	94	0.3
STM-1732 (to be upsized)	25.00	20.00	5.00	80%	48.00	38.40	5.00	84	98	5.0	**42.30**	**42**	0.0030	65.30	0.65	**24.7**	0.59	7.20	94	0.2
STM-BASIN-1703	171.87	85.94	85.94	50%	219.87	124.34	85.94	84	98	5.0	**179.76**	**Wetland**								
Proposed Basin 2	3.00	2.40	0.60	80%	3.00	2.40	0.60	84	98	5.0	**2.82**	**30**	0.0050	34.37	0.08	**5.8**	0.19	4.22	50	0.2
STM-2650	20.00	16.00	4.00	80%	23.00	18.40	4.60	84	98	5.0	**21.62**	**33**	0.0025	31.45	0.69	**20.1**	0.61	5.70	135	0.4
STM-5131	1.00	0.80	0.20	80%	24.00	19.20	4.80	84	98	5.6	**22.02**	**33**	0.0034	36.65	0.60	**18.5**	0.56	6.44	76	0.2
STM-2235	4.00	3.20	0.80	80%	4.00	3.20	0.80	84	98	5.0	**3.76**	**24**	0.0223	40.03	0.09	**5.0**	0.21	7.99	226	0.5
STM-2121	7.00	5.60	1.40	80%	35.00	28.00	7.00	84	98	5.7	**32.02**	**42**	0.0075	103.11	0.31	**16.1**	0.38	9.44	246	0.4
Proposed Basin 3	10.00	8.00	2.00	80%	10.00	8.00	2.00	84	98	5.0	**9.40**	**24**	0.0050	18.96	0.50	**12.0**	0.50	6.01	50	0.1
STM-2225	7.00	5.60	1.40	80%	17.00	13.60	1.40	84	98	5.0	**14.75**	**24**	0.0036	16.18	0.91	**18.0**	0.75	5.82	357	1.0
STM-2163	14.00	11.20	2.80	80%	31.00	24.80	2.80	84	98	5.0	**27.05**	**54**	0.0008	64.32	0.42	**24.5**	0.45	3.86	105	0.5
STM-BASIN-2402	112.00	56.00	56.00	50%	143.00	80.80	56.00	84	98	5.0	**116.91**	**Wetland**								

All pipes have capacity


STM 5131
STM 2650
STM 2235
STM 2121
STM 2225
STM 2163
STM-2235
4 ac
STM-2650
20 ac
STM-2121
7 ac
STM-5131
1 ac
BASIN 2
3 ac
BASIN 3
10 ac
STM-1732
25 ac
STM-2163
14 ac
BASIN 1
23 ac
STM BASIN 2402
112 ac
STM-2225
7 ac
STM BASIN 1703
173 ac
XEROX
FROG POND

OPERATION AND MAINTENANCE (O&M) – DRAFT

Inspection Summary:

Inspect the site yearly or more frequently if desired. Refer to the plans and reports used in permitting. In general, look for the following issues:

1) General condition of vegetative area(s) and growing medium, predominant plant species, distribution, and success rate (where applicable).
2) Sediment condition and depth in forebay (or other pretreatment structure), treatment facility, bench planting zones, and other sediment-removal components.
3) Water elevations and other observations (sheen, smell, etc.).
4) Condition of the inlet, outlet, and overflow structures and devices, diversion structures, trash-removal devices, risers, spillway, embankments, and remaining storage capacity.
5) Unscheduled maintenance needs.
6) Components that do not meet the performance criteria and require immediate maintenance.
7) Common problem areas, solutions, and general observations.
8) Aesthetic conditions.

SAFETY NOTE: Only allow qualified personnel to perform inspections and maintenance work. Install temporary barriers or signage if necessary to protect the public. Ensure easy access is available and all safety equipment and PPE are present for staff.

Inspection Frequency:

Yearly reports documenting inspection and maintenance activities shall be conducted, recorded and submitted to the City of Wilsonville Natural Resources Program to a standard acceptable to the City.

Long-Term Maintenance Schedule after the Warranty Period:

Schedule inspections in early spring/ later winter and develop a plan to remove and replace dead plants during the growing season. Inventory plans every year after planting for records and to maintain the appropriate density and species of plants over the years. Record all maintenance performed and function issues observed. Refer to previous inspections and if a pattern of failures, plant death, or erosion is noticed, contact the engineer or city for assistance and potential redesign.

Planters, Swales and Channels:

When inspecting planters, swales and channels ensure that overflows are cleared of debris to allow for unrestricted flow. Monitor planting for health and replace any dead plants with appropriate plants for dry/wet conditions. If any cracking or deterioration of structures (inlets, outlets, risers, catch basins, area drains, manholes, or pipes) is observed, replace the damaged part. If flooding or mounding up of water in the ground near any of the facilities is observed, check the facility liners for perforations and repair as needed. If flooding does occur, contact the engineer of record or city for inspection and redesign if required. Ensure facilities have a minimum of 12-in of rock storage and 18-in of growing material is

maintained in all facilities. If any erosion is observed, replace lost soil, replace any lost plantings and analyze the flow pattern and disperse any concentrated flows that may be entering the facility. Do not use the facilities to dispose of waste, chemicals, or other non-storm runoff water sources. Note if smell, mosquitoes or other nuisances or evidence of stagnation are observed and address stagnation of water. During the establishment period, remove undesired vegetation with minimal (or preferably no) use of toxic herbicides and pesticides at least three times in year 1, and once or twice in the summer of year 2, unless otherwise approved by the City's authorized representative. Outside of the first 2 years, do not use fertilizers, pesticides or herbicides unless absolutely necessary. Replace mulch annually or more frequently is required and irrigate, if necessary, especially in drought conditions. Remove sediment when facility function is hindered or when 50% of the depth is filled. Test sediment for pollutants like heavy metals, nutrients and biological contaminants. If high levels of contamination are noted, perform an analysis of the site to determine the source and create a plan to remedy it, retaining professional assistance if needed. Dispose of all toxic material through legal means.

Detention Pond and Overflow Device:

When inspecting ponds, follow the same guidelines as recorded above. Pay special attention to the flow control structure and open it to observe any breaks, clogs, sediment buildup, or flooding and repair, clear, or replace as needed. Inspect the downstream discharge and ensure it is functioning and no washouts, erosion, toxic discharges or damage to the environment are present.

Catch Basins and Pipe Conveyance:

When inspecting the pond, follow the same guidelines as recorded above. If any parking lot ponding is observed, check for blockages. If the catch basin is clear, the underground pipe may need to be cleared by a professional. Ensure any proprietary treatment catch basins are maintained to the standards described by the manufacturer.

Department of Energy
Bonneville Power Administration
2715 Tepper Lane NE
Keizer, OR 97303

December 17, 2024

In reply refer to: TERR

BPA Case No.: 20240236
Tract No(s).: S-OC-91-A-154
Line Name(s): Big Eddy-Oregon City (Operating as Big Eddy-Chemawa No. 1)
John Day-Keller No.1 (Operating as Ostrander-Pearl No. 1)
ADNO(s): 7205 & 7257
Location: Str. No(s).: 91/4-92/1
20/4-20/6

LAND USE AGREEMENT

Consent to Use of BPA's Easement Area

This Land Use Agreement ("Agreement") is entered into by and between the United States of America, Department of Energy, Bonneville Power Administration ("BPA") and Sysco Portland, Inc. ("Holder").

BPA holds easement rights ("BPA Easement") over the following described property ("BPA Easement Area"):

> That part of the N1/2NW1/4 of Section 12 and that part of the NE1/4NE1/4 of Section 11, Township 3 South, Range 1 West, Willamette Meridian, Clackamas County, State of Oregon, as shown on the attached segment of BPA Drawing No. 83491, marked as Exhibit A.

Holder has requested BPA's permission to use portions of the real property subject to the BPA Easement Area for the approximate location of an asphalt truck parking and storm water facilities including a detention pond, swale, mitigation, landscaping and underground conveyance storm-only pipe. ("Holder's Facility").

Subject to the terms and conditions set forth in this Agreement, BPA consents to Holder's use of the BPA Easement Area for the purpose proposed by Holder, and concurs that such use will not interfere with the current operation and maintenance of BPA's transmission facilities, if constructed in the manner and at the location shown on Exhibit A, attached hereto and made a part hereof.

In consideration of BPA's concurrence, Holder agrees to the following:

1. This Agreement does not grant any right, privilege, or interest in land, and does not modify, change, or otherwise alter the rights BPA acquired by deed. Loss of the privileges granted by this Agreement is not compensable to Holder.

2. Holder is responsible for obtaining from the underlying landowner ("Landowner"), by good and sufficient legal instrument, all rights, interests and privileges for land use necessary and incident to the ownership and maintenance of Holder's Facility.

3. There may be other uses of the property located within the same area as Holder's Facility. This Agreement is subject to such superior rights.

4. This Agreement is valid only if Holder's Facility is constructed, operated, and maintained in conformance with the terms of this Agreement and all attached Exhibits. Relocations, changes or upgrades require BPA's prior written approval. Failure to obtain the written approval of BPA prior to making alterations to Holder's Facility shall result in the termination of this Agreement.

5. Holder acknowledges and agrees that Holder's use of the property is subordinate to BPA's easement rights. BPA reserves the right to trim or remove trees, brush or shrubs or to remove any other encroachment within the BPA Easement Area which might interfere with the operation, maintenance, construction, removal or relocation of BPA's facilities. Holder agrees to alter, relocate or remove Holder's Facility, at no cost to BPA, to correct an interference with BPA's easement rights or to accommodate future modifications of BPA's facilities.

6. Holder agrees to abide by and comply with all applicable Federal, State and local laws and regulations, including, but not limited to building and safety codes, rules issued by utility commissions, the National Electric Safety Code, entities that regulate Holder, and all applicable environmental regulations.

7. Induced voltages and currents may occur on structures or other items constructed or placed under or near high voltage transmission lines. BPA has no duty to inspect Holder's Facility or to warn of hazards. Holder shall have the continuing responsibility for the protection of personnel and equipment in the design, construction, operation and maintenance of Holder's Facility.

8. Holder shall notify BPA at least ten (10) business days prior to commencing installation of Holder's Facility. Contact: Darin Smith, phone: 503-304-5906 or by email: dxsmith@bpa.gov.

9. This Agreement is entered into with the express understanding that it is not assignable or transferable to other parties without the prior written consent of BPA.

10. In the event that BPA determines that the portion of Sysco's project located within the BPA Easement Area (i) interferes with BPA's need for expansion and/or with regulatory demands, (ii) creates an electrical safety hazard and/or (iii) violates the terms of this Agreement (each, an "Interference"), BPA shall deliver to Sysco written notice of such Interference (the "Notice"), and shall advise Sysco as to a means to cure the Interference, if any. In the event the Interference cannot be cured by Sysco, or if Sysco fails to cure the Interference within 30 days of receipt of the Notice, BPA may terminate this Agreement upon 14 days' written notice ("Notice of Termination"). Sysco shall, within 30 days of receiving such Notice of Termination, and at Sysco's sole expense, remove the offending element identified in subsection (i), (ii) and/or (iii) above. If Sysco fails to do as required, BPA may remove the offending element identified in subsection (i), (ii) and/or (iii) above at Sysco's expense.

11. A copy of this Agreement shall be physically located at Holder's project site during construction activities. Holder's employees, contractors and representatives shall adhere to all conditions and requirements listed herein.

12. Additional terms and conditions specific to Holder's Facility may be included as part of this Agreement as Exhibit B, attached hereto and made a part hereof.

13. Holder agrees to assume risk of loss, damage, or injury which may result from Holder's use of the BPA Easement Area, except for such loss, damage, or injury for which BPA may be responsible under the provisions of the Federal Tort Claims Act, 62 Stat. 982, as amended.

14. Any damage to BPA's property caused by or resulting from Holder's use of the BPA Easement Area may be repaired by BPA, and the actual cost of such repair shall be charged against and be paid by Holder.

15. Holder's contact information:

NAME: Sysco Portland, Inc.
ADDRESS: 26250 SW Parkway Center Drive
Wilsonville, OR 97070

PHONE: Brandon Levy
EMAIL: brandon.levy@sysco.com

Holder agrees to notify BPA in writing of any changes to the above listed contact information.

This Agreement becomes effective upon the signature of all parties.

Brandon Levy

Brandon Levy

1/6/2025

Date

Sysco Corporation
Sr Director Global Real Estate

Title (if applicable)

THIS AGREEMENT IS HEREBY AUTHORIZED:

DARIN SMITH

Digitally signed by DARIN SMITH
Date: 2025.01.06 14:05:49 -08'00'

Darin Smith
Realty Specialist
Bonneville Power Administration

Date

NOTE: Execution in Counterparts; Electronic Signature; Electronic Transmittal. This Land Use Agreement may be executed in counterparts, each of which will be deemed an original, but all of which constitute one and the same instrument. Electronic or digital signatures shall be deemed original signatures for purposes of this Land Use Agreement. Said counterparts may also be transmitted by one Party to the other by facsimile or electronic mail.

BPA seeks help maintaining the integrity of the electrical transmission system. Please report any vandalism or theft to the BPA Crime Witness program at 1-800-437-2744. Cash rewards of up to $25,000 will be paid should information lead to the arrest and conviction of persons committing a crime.

If you have any questions or concerns, please notify a BPA Realty Office. You may contact Darin Smith ("BPA Representative") by telephone at 503-304-5906 or send written correspondence to the address listed at the top of this Agreement.

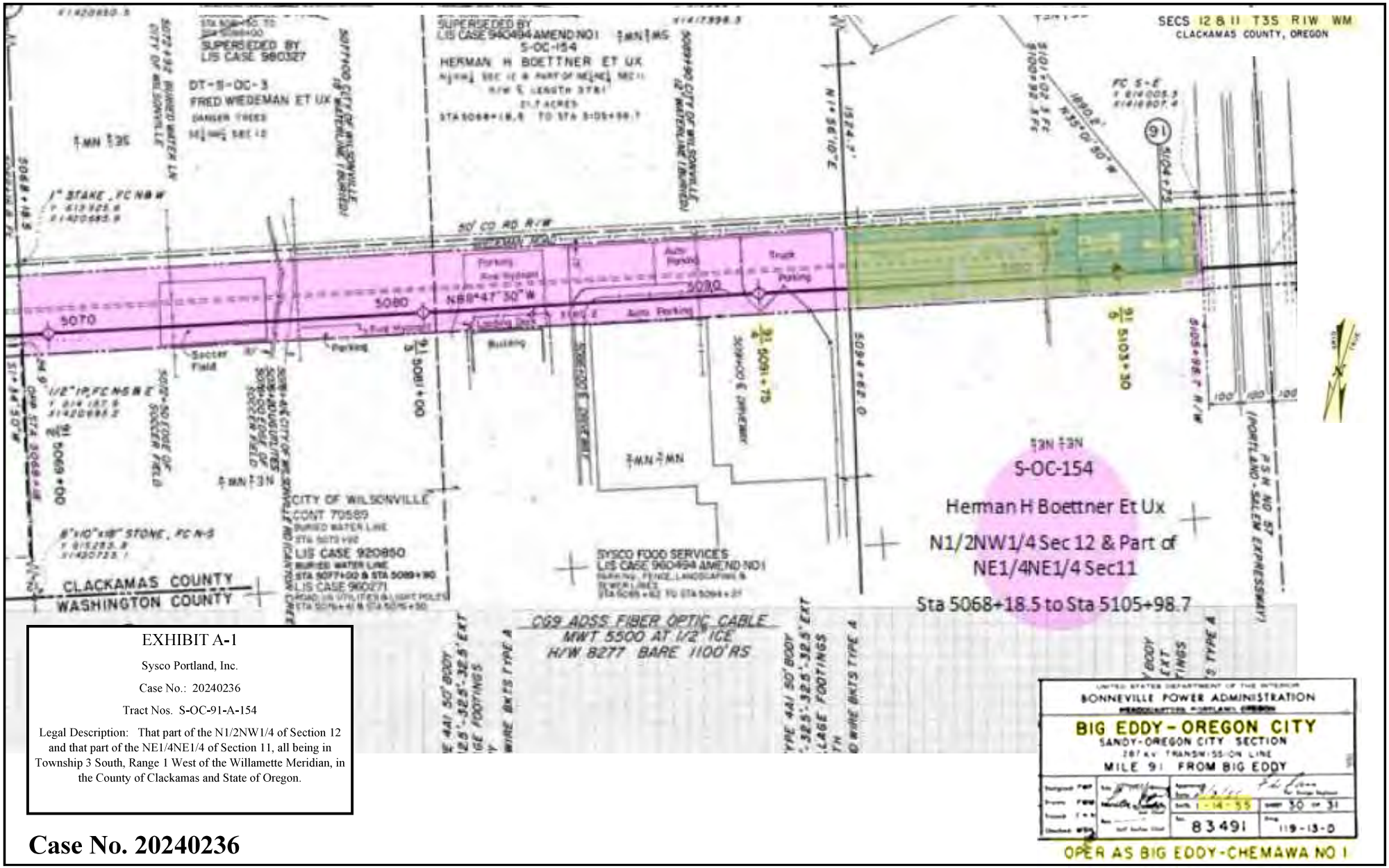


EXHIBIT A-1

Sysco Portland, Inc.

Case No.: 20240236

Tract Nos. S-OC-91-A-154

Legal Description: That part of the N1/2NW1/4 of Section 12 and that part of the NE1/4NE1/4 of Section 11, all being in Township 3 South, Range 1 West of the Willamette Meridian, in the County of Clackamas and State of Oregon.

Case No. 20240236

EXHIBIT B
ADDITIONAL TERMS AND CONDITIONS

1. All uses of the right-of-way shall meet local/state/federal/national codes.
2. All uses, driveway, parking area, pipelines, retention ponds and well/pump house shall maintain a minimum horizontal clearance of **50** feet to the point where steel lattice tower legs, steel poles, concrete poles and concrete foundations enter the earth. A horizontal clearance of **25** feet to the point where wood poles and guy anchors enter the earth shall also be maintained, except as approved by BPA and shown on Exhibit(s).
3. Holder shall not obstruct access to BPA's Easement Area or transmission line system. BPA personnel and/or its contractors must have access all times.
4. Construction equipment shall maintain a minimum distance of **20** between the equipment and transmission line conductors at all times. Do not measure this with measuring tape, pole or other physical means. If there is the possibility that any equipment can encroach on this distance, then a safety watcher will be required.
5. BPA right-of-way and access roads shall be returned to their original condition following construction. No grade changes to facilitate construction or disposal of overburden shall be allowed. Any damage to BPA property resulting from the proposed right-of-way or access road use shall be repaired at the applicant's expense.
6. Holder shall not store flammable materials or refuel vehicles or equipment on BPA's Easement Area.
7. Notice: Nuisance shocks may occur on BPA's Easement Area. Grounding metal objects helps to reduce the level of shock. It is suggested that road building/construction equipment be grounded with a drag chain.

DRIVEWAY (asphalt)

8. The driveway shall be for private use only
9. BPA shall have the right to use the driveway for access to its structures, both to and along its transmission line, for maintenance purposes.
10. The driveway, parking area and pipeline shall be designed and built to withstand HL-93 loading for BPA's heavy vehicles.

PARKING AREA

11. The detailed drawings for the parking area shall indicate both proposed finish elevations as well as existing ground elevations.
12. Holder is required to provide an approach off each side of the road, wide enough to turn into BPA's access road. Each approach must be a minimum of 16-feet wide access road on the right-of-way.

PIPELINES

13. The pipeline is approved at the location shown on the enclosed plan.
14. Bury and maintain the pipeline to a depth of **36** inches or comply with applicable NESC, national, state, and/or local standards, whichever is greater.

15. Mark the location of the underground pipeline with permanent signs and maintain such signs where they enter and leave BPA's Easement Area, and at any angle points within BPA's Easement Area.

VEGETATION

16. All vegetation related land use requests shall be referred to the district NRS (Natural Resource Specialist). The district NRS shall review and determine the requirements and/or limitations of vegetation frown on BPA's right-of-way in the area of questions.
17. Landscape, low growing vegetation, and shrubs, should NOT exceed **8** feet in height. Only how growing shrubs shall be allowed. Any vegetation planed that can grow over this height limitation will be removed and controlled.

WELL/PUMP HOUSE

18. The pump house is considered a minor structure and is permitted within the right-of-way, so long as it less than **1000** cubic feet.
19. Any underground utilities such as water pipelines or electric service to the pump, should also be a part of this permit process. If these utilities are present, please attached an addendum to this permit with a drawing, showing the location of the utilities.
20. In order to maintain a 100 foot radius no herbicide spray zone, the district Natural Resource Specialist (NRS) and/or TLM shall agree not to spray this area before a permit is approved.

FIRE CODE / LAND USE / BUILDING REVIEW APPLICATION

Tualatin Valley Fire & Rescue

North Operating Center
11945 SW 70th Avenue
Tigard, OR 97223
Phone: 503-649-8577

South Operating Center
8445 SW Elligsen Rd
Wilsonville, OR 97070
Phone: 503-649-8577

REV 6-30-20

Project Information

Applicant Name: Sysco Corporation

Address: 1390 Enclave Parkway, Houston TX 77077

Phone: 360.907.4529

Email: hallie@standridgeinc.com

Site Address: 26120 SW Parkway Avenue

City: Wilsonville

Map & Tax Lot #: Map: 31W12 Tax Lot: 1100, 401 and 402

Business Name: Sysco Corporation

Land Use/Building Jurisdiction: City of Wilsonville

Land Use/ Building Permit #

Choose from: Beaverton, Tigard, Newberg, Tualatin, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County, Multnomah County, Yamhill County

Project Description

Permit/Review Type (check one):

- ■ Land Use / Building Review - Service Provider Permit
- ☐ Emergency Radio Responder Coverage Install/Test
- ☐ LPG Tank (Greater than 2,000 gallons)
- ☐ Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)
  - * Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.
- ☐ Explosives Blasting (Blasting plan is required)
- ☐ Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)
- ☐ Tents or Temporary Membrane Structures (in excess of 10,000 square feet)
- ☐ Temporary Haunted House or similar
- ☐ OLCC Cannabis Extraction License Review
- ☐ Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2026-0028

Permit Type: SPP - Wilsonville

Submittal Date: 2/18/2026

Assigned To: McGladrey

Due Date: 2/27/2026

Fees Due: N/A

Fees Paid: 0

Approval/Inspection Conditions

(For Fire Marshal's Office Use Only)

This section is for application approval only

Alex McGladrey — 2/27/2026

Fire Marshal or Designee — Date

Conditions:

A final TVF&R inspection is required for this project.

See Attached Conditions: ☒ Yes ☐ No

Site Inspection Required: ☒ Yes ☐ No

This section used when site inspection is required

Inspection Comments:

Final TVFR Approval Signature & Emp ID — Date

LEGEND	
	FIRE ACCESS LANE
	RED PAINTED CURB
R44.58' R36.25' R20.00'	FIRE TRUCK TURNING RADIUS
	AERIAL ACCESS LOCATION

GENERAL NOTES:

1. FIRE LANE CURB PAINT MAINTENANCE IS THE RESPONSIBILITY OF THE PROPERTY OWNER.
2. FIRE ACCESS ROADWAY CURBS SHALL BE PAINTED RED AND STENCILED WITH "NO PARKING FIRE LANE". LETTERING SHALL HAVE A STROKE OF NOT LESS THAN ONE INCH WIDE BY THREE AND A HALF INCHES HIGH. LETTERING SHALL BE PLACED AT A MINIMUM INTERVAL OF 20' AND AT CHANGES IN DIRECTION ON THE VERTICAL FACE.
3. FIRE ACCESS ROADS LOCATED ONSITE ARE TO BE DESIGNED TO SUPPORT AN APPARATUS WEIGHING 75,000 LBS GROSS VEHICLE WEIGHT.
4. EACH FDC SHALL BE CLEARLY LABELED WITH THE BUILDING NUMBER AND ADDRESS OF THE BUILDING IT SERVES.
5. FIRE FLOW WAS TESTED AND HYDRANT 1103 SHOWN TO HAVE 1,813 GMP AVAILBLE IN 2019. THIS IS CONSISTENT WITH OTHER HYDRANTS IN THE AREA.
6. ANY PROPOSED FIRE HYDRANT AT RISK OF BEING HIT BY VEHICLES SHALL BE PROTECTED WITH BOLLARDS PER TVWD STANDARDS.
7. PROPOSED BUILDINGS ARE TYPE II-B CONSTRUCTION WITH SPRINKLERS. MERRC AND FIRE ALARM DETERMINATION WILL BE DEFERRED. BUILDING WILL INSTALL A DAS SYSTEM (OR OTHER APPROVED SYSTEM).
8. BUILDING 3 WILL BE EQUIPPED WITH AN AUTOMATIC FIRE SPRINKLERED SYSTEM PER TUALATIN VALLEY FIRE AND RESCUE.

TVF&R
Tualatin Valley Fire & Rescue

APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

Deputy Fire Marshal II

TVF&R Permit # 2026-0028

Note: A TVF&R final inspection is required for this project.

STANDRIDGE
PLANNING | ENGINEERING | SURVEYING
WWW.STANDRIDGEINC.COM

PROJECT:
SYSCO WILSONVILLE RE-ZONE AND FACILITY EXPANSION MASTER PLAN
WILSONVILLE, OR

PREPARED FOR:
SYSCO PORTLAND, INC.
PHONE: 281.584.5999
ADDRESS: 26250 SW PARKWAY CENTER DR
WILSONVILLE, OR 97070

STAMP
REGISTERED PROFESSIONAL ENGINEER
76,742
OREGON
MARCH 3, 2015
LAURA KENDALL STANDRIDGE
EXPIRES 06-30-26

REV.	DATE	DESCRIPTION

NAME
FIRE ACCESS SITE PLAN

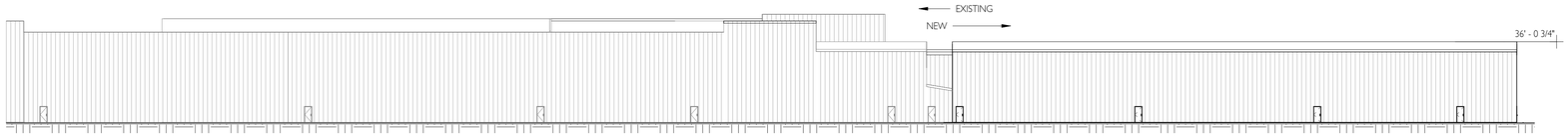
PROJECT NO.: SYS001
DESIGN BY: MJW
REVIEWED BY: ----
DATE: 04-10-2025

SHEET
FS-1

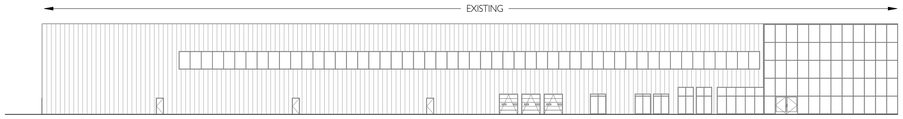
SCALE: 1" = 80'
SHEET SIZE: 22x24
0 80 160

N

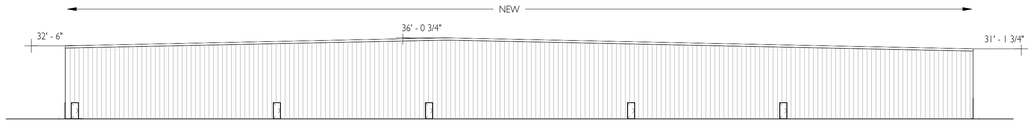
P:\SYS001-SYSCO Wilsonville\5 Planning\Drawings\TVF&R\2026-02-26 SYS001-Fire.dwg Feb 26, 2026 - 4:09pm



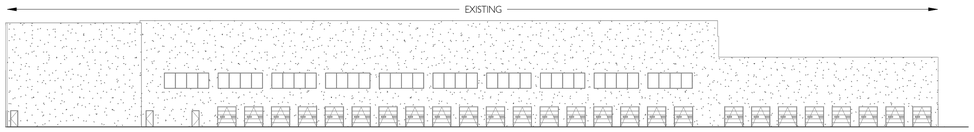
1 A2.1 NORTH ELEVATION
1/32" = 1'-0"



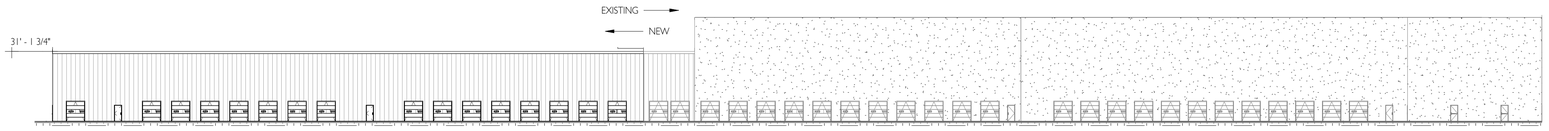
4 A2.1 NORTH CONT
1/32" = 1'-0"



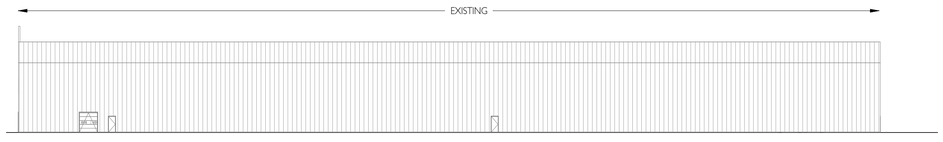
2 A2.1 WEST ELEVATION
1/32" = 1'-0"



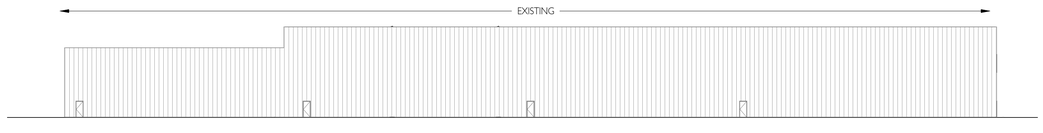
5 A2.1 WEST CONT
1/32" = 1'-0"



3 A2.1 SOUTH ELEVATION
1/32" = 1'-0"



6 A2.1 SOUTH CONT
1/32" = 1'-0"



7 A2.1 EAST ELEVATION
1/32" = 1'-0"

8 A2.1 EAST CONT
1/32" = 1'-0"

KEYNOTES

ELEVATION MATERIAL LEGEND

HATCH	TAG	MATERIAL TYPE	MANUFACTURER	PRODUCT LINE	COLOR	NOTES
	IMP	INSULATED METAL PANEL	---	---	--	
	CONC	CONCRETE TILT PANEL				

Tualatin Valley Fire & Rescue

APPROVED PLANS

APPROVAL OF PLANS IS NOT AN APPROVAL OF OMISSIONS OR OVERSIGHTS.

Deputy Fire Marshal II

TVF&R Permit # 2026-0028

PRELIMINARY PLAN ONLY- NOT FOR CONSTRUCTION

ISSUE DATE

CIDA
ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
15895 SW 72ND AVE SUITE 200
PORTLAND, OREGON 97224
TEL: 503.226.1285
FAX: 503.226.1670
WWW.CIDAINC.COM

SYSCO WILSONVILLE

26120 SW PARKWAY AVE
WILSONVILLE, OR 97070

ELEVATIONS

A2.1

#240068.01

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5/6/2024 5:10:59 PM

REPUBLIC SERVICES

March 3, 2026

Hallie Stalcup
Standridge Inc.

Re: Sysco Project
26250 SW Parkway Center Dr.
Wilsonville, OR 97070

Dear Hallie,

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

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

We have received your updated design plan dated 2/27/2026, showing revisions to the site ingress/egress locations and truck traffic patterns. This design change will have no negative impact on our ability to provide service to the waste receptacles previously approved in the original design plan and service provider letter dated 5/28/2024.

Service levels are available as follows:

Trash –	6 days per week
Recycle –	5 days per week
Food Waste –	5 days per week
Glass –	1 day per week

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

Sincerely,

Kelly Herrod
Operations Supervisor
Republic Services Inc.

Building

Noctura Series

LED Wall Mount Luminaires

Rev. Date: V20 12/22/2025

Product Description

The Noctura® LED Wall Mount luminaire minimizes cost of ownership with easy installation, high performance and quality backed by a Cree Lighting 5-year limited warranty. The Noctura Series has a coordinated style across area, flood and wall mount luminaires to provide a consistent daytime appearance across a building site or campus. The rugged yet lightweight aluminum housing and mounting box are designed for easy installation of a variety of junction box styles (4" square, 3" and 4" octagonal, single gang (vertical or horizontal mounts). Luminaires (3L) allow for through-wired or conduit entry from the top, sides and rear. Luminaires (7L) allow for through-wired or conduit entry from the top, bottom, sides and rear.

Applications: Ideal for both retrofit and new installation: building facade, security and general lighting applications.

Performance Summary

Initial Delivered Lumens: Up to 6,750 lumens

Efficacy: Up to 147 LPW

CRI: Minimum 70 CRI

CCT: 3000K, 4000K, 5000K

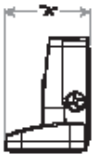
Limited Warranty†: 5 years for luminaire/ up to 5 years for Synapse® accessory/ 1 year for photocell accessory and replacement parts

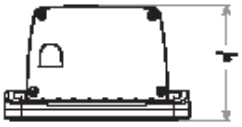
† See https://www.creelighting.com/resources/warranties/ for warranty terms

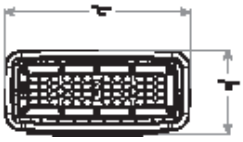
Accessories

Field-Installed
Field-Installed Button Photocell JL-423CZ - UL (120-277V) Voltage only **Synapse® SimplySnap 10V Interface** DIM10-220F - 120V-277V - Requires other Synapse components to complete system - Refer to DIM10-220F spec sheet for details

7L







Lumen Package	Weight	Dim "A"	Dim "B"	Dim "C"	Dim "D"
3L	3.0 lbs. (1.4kg)	4.0" (102mm)	5.4" (136mm)	8.7" (220mm)	3.9" (100mm)
7L	4.6 lbs. (2.1kg)	6.5" (165mm)	5.4" (136mm)	9.8" (250mm)	6.4" (163mm)

Ordering Information**

Example: NTW-A-WM-T3-3L-50K-UL-BZ

Luminaire								
Family	**Series**	**Mounting**	**Optic**	**Lumen Package***	**CCT**	**Voltage**	**Finish**	**Options**
Small Housings								
Available 3L Product Combinations								
NTW	A	WM	T3 - Type III	3L	50K	UH - 347-480V	BZ - Bronze	
NTW	A	WM	T3 - Type III	3L	30K	UL - 120-277V	CS - Camaro Silver	P - Button Photocell
Available 7L Product Combinations								
NTW	A	WM	T3 - Type III	7L	50K	UH - 347-480V	BZ - Bronze	

* Lumen Package codes identify approximate light output only. Actual lumen output levels may vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values

**Note: Limited product availability. Consult factory for availability

Website: creelighting.com

US: (800) 236-6800 **Canada:** (800) 473-1234

CREE LIGHTING®

Product Specifications

CONSTRUCTION & MATERIALS

- Luminaire housing is rugged die cast aluminum with integral, LED driver compartment is specifically designed for LED applications with advanced LED thermal management and driver
- Luminaire mounting box designed for easy installation of a variety of junction box styles: 4" square, 3" and 4" octagonal, single gang, vertical or horizontal mounts
- Luminaire can also be direct mounted to a wall and surface wired
- Direct mount to junction box with knockouts and grommet on back
- Luminaires (3L) allow for through-wired or conduit entry from the top, sides and rear
- Luminaires (7L) allow for through-wired or conduit entry from the top, bottom, sides and rear
- Housing includes a knockout for field installed button type photocontrol (by others)
- Housing and mounting accessories finished in bronze or camaro silver polyester powder coat paint, 2.5 mil nominal thickness
- **Weight:** 3L-3.0 lbs. (1.4kg); 7L-4.6 lbs. (2.1kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Controls by others
- **10V Source Current:** 0.20 mA
- **Operating Temperature Range:** -30˚C - +40˚C (-22˚F - +104˚F)
- Snap connectors make wiring quick and simple

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed (UL1598)
- Suitable for wet locations
- Designed for downlight applications only
- Meets NEMA C82.77 standards
- Drivers and LEDs are UL Recognized in accordance with UL8750
- Enclosure meets IP65 requirements per IEC 60529
- Certified to ANSI C136.31-2018, 3G vibration standards
- ANSI C136.2 10kV/5kA surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- RoHS compliant. Consult factory for additional details
- ⚠ **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*

Lumen Package	System Watts 120-480V	Total Current (A)					
		120V	208V	240V	277V	347V	480V
3L	24	0.24	0.14	0.12	0.10	0.08	0.06
7L	46	N/A	N/A	N/A	N/A	0.16	0.12

* Electrical data at 25˚C (77˚F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/-10%

Noctura Series Ambient Adjusted Lumen Maintenance[1]

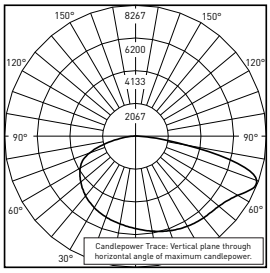
Ambient	Initial LMF	25K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Estimated[3] LMF	100K hr Estimated[3] LMF
5˚C (41˚F)	1.04	0.98	0.92	0.87	0.82
10˚C (50˚F)	1.03	.097	0.91	0.86	0.81
15˚C (59˚F)	1.02	0.96	0.91	0.85	0.80
20˚C (68˚F)	1.01	0.95	0.90	0.84	0.79
25˚C (77˚F)	1.00	0.94	0.89	0.83	0.79
30˚C (86˚F)	0.99	0.93	0.88	0.83	0.78
35˚C (95˚F)	0.98	0.93	0.87	0.82	0.77
40˚C (104˚F)	0.97	0.92	0.86	0.81	0.76

[1] Lumen maintenance values at 25˚C (77˚F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.
[3] Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

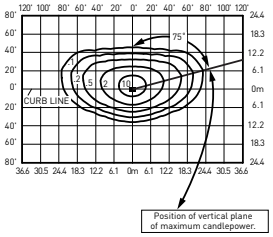
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://creelighting.com/products/outdoor/wall-mount/noctura-wall

T3



Ningbo TengLi Testing Co. Test Report #:
STD190155NB-BK
NTW-A-WM-T3-23L-30K-UL-**
Initial Delivered Lumens: 21,664



NTW-A-WM-T3-23L-40K-UL-BZ
Mounting Height: 15' (4.6m) A.F.G.
Initial Delivered Lumens: 22,600
Initial FC at grade

Type III Medium Distribution			
Lumen Package	Initial Delivered Lumens*	BUG Ratings** Per TM 15 20	Efficacy (LPW)
3L	3,250 (3000K)/ 3,370 (5000K)	B1 U0 G1	140
7L	6,750 (5000K)	B2 U0 G1	147

* Initial delivered lumens at 25˚C (77˚F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Replacement Parts

Driver Replacement Kits		
NTW-A-DVRKT		**UL**
Product	**Lumen Package***	**Voltage***
NTW-A-DVRKT	**1L** 1,600 lumens **3L** 3,500 lumens **7L** 7,000 lumens **11L** 11,000 lumens **23L** 23,000 lumens	**UL** Universal 120-277V

* Consult factory for 17L lumen package or UH (347-480V).

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Website: creelighting.com
US: (800) 236-6800 **Canada:** (800) 473-1234

CREE LIGHTING®

Parking Areas

OSQ Series

OSQ® LED Area/Flood Luminaire featuring Patented NanoComfort® Technology – Version C

Rev. Date: V17 08/13/2025

Product Description

The OSQ® Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. Medium is suitable upgrade for HID applications up to 400 Watts. Large is suitable upgrade for HID applications up to 1000 Watts. Extra Large is suitable upgrade for HID applications up to multiple 1000 Watts.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, pickleball courts, high-mast and internal roadways

Performance Summary

Utilizes Patented NanoComfort® Technology

Utilizes Cree TrueWhite® Technology on 5000K Luminaires

Assembled in the USA by Cree Lighting from US and imported parts

Initial Delivered Lumens: 4,000 - 85,000

Efficacy: Up to 171 LPW

Input Power: 13 - 499W

CRI: Minimum 70 CRI (3000K, 4000K & 5700K); 90 CRI (5000K); 50 CRI (1900K)

CCT: 1900K, 3000K, 4000K, 5000K, 5700K

Limited Warranty†: 10 years for luminaire; 10 years for Colorfast DeltaGuard® finish; 5 years for BML sensor; up to 5 years for Synapse® accessories; 1 year for luminaire accessories and replacement kits

† See https://www.creelighting.com/resources/warranties/ for warranty terms. For Synapse accessories, consult Synapse spec sheets for details on warranty terms.

Ordering Information+

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Mount:** OSQ-ML-C-AA-BK + **Luminaire:** OSQM-C-4L-30K7-2M-UL-NM-BK

Mount (Luminaire must be ordered separately)*

OSQ-

Medium/Large Mounts
- **OSQ-ML-C-AA** Adjustable Arm
- **OSQ-ML-C-DA** Direct Arm
- **OSQ-MLX-C-OU** Universal Direct Arm w/Adjustable Bolt Spacing
- **OSQ-MLX-C-HU** Universal Direct Arm w/4-Bolt Drill Pattern (matches existing THE EDGE® High Output Luminaires w/ EHO-UNV Mount)**
- **OSQ-ML-C-TM** Trunnion Mount

Extra Large Mounts
- **OSQ-X-C-AA** Adjustable Arm
- **OSQ-X-C-DA** Direct Arm
- **OSQ-MLX-C-OU** Universal Direct Arm w/Adjustable Bolt Spacing
- **OSQ-MLX-C-HU** Universal Direct Arm w/4-Bolt Drill Pattern (matches existing THE EDGE® High Output Luminaires w/EHO-UNV mount)**

Color Options: **SV** Silver, **BZ** Bronze, **BK** Black, **WH** White

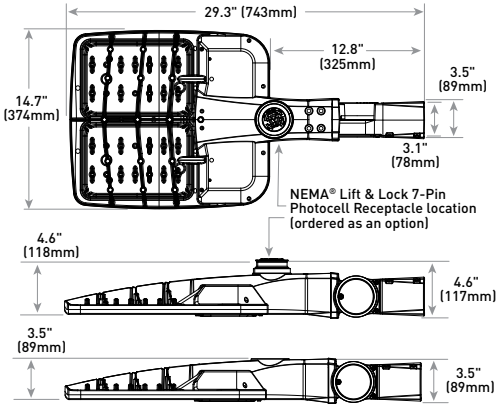
+ Please refer to page 30 for DarkSky Compliant Ordering Information table.
* Reference fixture mounting drill pattern, EPA, and pole configuration suitability data beginning on page 13.
** Not for use with THE EDGE® High Output luminaires w/DM Mount.

Luminaire (Mount must be ordered separately)

OSQ		C								
Family	**Size**	**Series**	**Lumen Package†**	**CCT/CRI**	**Optic**	**Voltage**	**Mounting**	**Finish**	**Controls***	**Options**
OSQ	**M** Medium **L** Large **X** Extra Large	C	**Medium** **4L** 4,000 Lumens **6L** 6,000 Lumens **9L** 9,000 Lumens **11L** 11,000 Lumens **16L** 16,000 Lumens **Large** **22L** 22,000 Lumens **30L** 30,000 Lumens **40L** 40,000 Lumens **Extra Large** **50L** 50,000 Lumens **65L** 65,000 Lumens **75L** 75,000 Lumens **85L** 85,000 Lumens	**19K5** 1900K, 50 CRI - Available only with 16L, 30L & 65L lumen packages **30K7** 3000K, 70 CRI **40K7** 4000K, 70 CRI **50K7** 5000K, 90 CRI **57K7** 5700K, 70 CRI	**2M** Type II Mid **2B**** Type II Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **3M** Type III Mid **3B**** Type III Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **4M** Type IV Mid **4B**** Type IV Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **5L** Type V Long **5M** Type V Mid **5N** Type V Narrow **AF** Automotive FrontlineOptic™ **AB**** Automotive Frontline Optic™ w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **33** NEMA® 3x3 **44** NEMA® 4x4 **55** NEMA® 5x5 **66** NEMA® 6x6 **75** NEMA® 7x5	**UL** Universal 120-277V **UH** Universal 347-480V - Not available with 4L, 40L, 75L or 85L lumen packages **UE** Universal 277-480V - Available only with 40L, 75L and 85L lumen packages when ordered with 0-10V dimming, BML, NS/NS2, Q9 Field Adjustable or X8 Locked Lumen controls - Available only with 16L-40L lumen packages when ordered with DLI or Z1 controls	**NM** No Mount - Must specify mount from table above - Mount ships separately	**BK** Black **BZ** Bronze **SV** Silver **WH** White	**BML** **Bluetooth® Technology Enabled Multi-Level Sensor** - Utilizes a multifunction sensor - Refer to BML spec sheet for details - 20-40' sensor lens installed on luminaire; 8-20' sensor lens and aisle shroud included - Intended for downlight applications at 0° tilt - Not available with other controls or Synapse TL7-HVG accessory **DLI** **DALI® Compatible** - Utilizes DALI 2® and D4i® driver that dims to 10% - Available only with 6L-40L lumen packages (UL) and 16L-40L lumen packages (UE) - Not available with other controls **NS** **Network Sensor, 20-40' Mounting Height** **NS2** **Network Sensor, 10-30' Mounting Height** - Utilizes a multifunction sensor - Refer to PML/NS spec sheet for details - Intended for downlight applications at 0° tilt - NS for use only with OSQL & OSQX - NS2 for use only with OSQM & OSQL - Not for use with other controls - Requires TL7-HVG Synapse Control Accessory (see page 2) and either N or R option - XA-SENSREM Hand-held Remote Accessory (see page 2) required only for changing sensitivity or time delay settings. Dimming changes handled through the TL7-HVG **Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 Field Adjustable Output** - Must select Q9, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 - Offers full range adjustability - Refer to pages 16-27 for power and lumen values - Not available with other controls or Synapse TL7-HVG accessory **X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output** - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - Not available with other controls - X1 option not available with the following lumen package/voltage offerings: 9L/UL, 16L/UL, 16L/UH, 30L/UL, 30L/UH, 65L/UL, 65L/UH - X2 option not available 9L/UL lumen package/voltage - Lumen output is permanently locked to the setting selected - Refer to pages 16-27 for power and lumen values **Z1 Zhaga® Book 18 Socket, bottom of luminaire** - Utilizes DALI 2® or D4i® driver that dims to 10% - Includes cap. Zhaga sensor is available as an accessory (see Accessory table on page 2) or by others - Intended for downlight applications at 0° tilt - Available only with 6L-40L lumen packages (UL) and 16L-40L lumen packages (UE) - Not available with other controls	**20KV** **20kV/10kA Surge Suppression** - Replaces standard 10kV/5kA surge protection - Not available with NS/NS2 options **F** **Fuse** - Compatible with 120V, 277V or 347V (phase to neutral) - Consult factory if fusing is required for 208V, 240V or 480V (phase to phase) - When code dictates fusing, use time delay fuse **N** **Utility Label and NEMA® Lift & Lock 7-Pin Photocell Receptacle** - External utility label per ANSI C136.15-2020 - 7-pin receptacle per ANSI C136.41 - Available only with OSQM & OSQL luminaires - Intended for downlight applications with maximum 45° tilt - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others **R** **NEMA® Lift & Lock 7-Pin Photocell Receptacle** - 7-pin receptacle per ANSI C136.41 - Intended for downlight applications with maximum 45° tilt - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others - Refer to page 2 for compatible Synapse control offerings **RL** **Rotate Left** - LED and optic are rotated to the left - Refer to RR/RL configuration diagram on page 28 for optic directionality - May be used with factory-installed backlight shield optics (2B, 3B, 4B, AB) - Not for use with 5L, 5M, 5N, 33, 44, 55, 66 or 75 optics **RR** **Rotate Right** - LED and optic are rotated to the right - Refer to RR/RL configuration diagram on page 28 for optic directionality - May be used with factory-installed backlight shield optics (2B, 3B, 4B, AB) - Not for use with 5L, 5M, 5N, 33, 44, 55, 66 or 75 optics

+ Please refer to page 30 for DarkSky Compliant Ordering Information table.
† Lumen Package codes identify approximate light output only. Actual lumen output levels vary by CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.
* Luminaire comes standard with 0-10V dimming.
** Factory-installed backlight shields are integral to luminaire optic and may not be removed in the field. For field-install backlight control, please refer to the External Backlight Shields in the accessory table on page 2.

OSQM - AA Mount



Luminaire	Weight
OSQM	19.3 lbs. (8.8kg)

Note: For OSQL, OSQX and additional mounts, refer to drawings beginning on page 28.

Cree TrueWhite® Technology

Website: creelighting.com
US: (800) 236-6800 **Canada:** (800) 473-1234

Product Specifications

CREE LIGHTING NANOCOMFORT® TECHNOLOGY

Cree Lighting's NanoComfort® Technology ends the trade-offs in outdoor lighting by providing superior glare reduction and visual comfort in high-efficiency illumination delivered precisely where it is needed. The basic building block of NanoComfort® Technology is a compact 4x4 array of LEDs. Each of the 16 LEDs in a module is in contact with its own acrylic polymer lens to capture and precisely direct light. With NanoComfort® Technology, the acrylic optics are cut and sculpted into facets that relieve the glare and harshness while improving visual comfort – all while retaining superb efficacy and control.

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high-performance heat sink
- Acrylic optic w/clear tempered glass lens
- Some versions are provided with full circuit board, but not fully populated with LEDs or optics to scale back lumen package. Refer to page 29 for details
- Direct arm mounts feature a convenient interlocking mounting method. Mounting adaptor is rugged die cast aluminum and mounts to 3" (76mm) or larger square or round pole. Refer to page 15 for fixture mounting drill patterns
- OSQ-ML-C-DA secures with two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- OSQ-X-C-DA secures with two 7/16-14 UNC bolts spaced on 2" (51mm) centers
- OSQ-MLX-C-OU features adjustable bolt spacing ranging from 2" - 5" on-center and secures with two 3/8-16 UNC bolts
- OSQ-MLX-C-HU utilizes a four-bolt drill pattern specifically designed for use with poles previously drilled for THE EDGE® High Output luminaires with EHO-UNV mount. Four 5/16-18 UNC bolts secure the luminaire to the pole. This mount is not compatible with THE EDGE® High Output luminaires with DM mount
- Adjustable arm mount adapters are rugged die cast aluminum
- OSQ-ML-C-AA mounts to a horizontal or vertical 2" (51mm) IP, 2.375" (60mm) O.D. tenon and can be adjusted 180° in 2.5° increments
- OSQ-X-C-AA mounts to a horizontal or vertical 2" (51mm) IP, 2.375-2.50" (60-64mm) O.D. steel tenon and can be adjusted 180° in 5.0° increments. **NOTE: Tenon length must be a minimum of 3.75" (95mm), and tenon must be steel**
- Trunnion mount is constructed of A500 and A1011 steel and is adjustable from 0-180° in 15° degree increments. Trunnion mount secures to surface with (1) 3/4" bolt or (2) 1/2" or 3/8" bolts
- Luminaires include 15" (381mm) 18/5 cord exiting the luminaire
- Designed for uplight and downlight applications. Uplight orientation not suitable for use with N or R options
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available

Weight

Mount	Housing Size		
	Medium	Large	Extra Large
DA	19.7 lbs. (8.9kg)	28.8 lbs. (13.1kg)	45.8 lbs. (20.8kg)
OU	20.6 lbs. (9.4kg)	29.7 lbs. (13.5kg)	45.7 lbs. (20.8kg)
HU	20.3 lbs. (9.2kg)	29.4 lbs. (13.3kg)	45.4 lbs. (20.6kg)
AA	19.3 lbs. (8.8kg)	28.4 lbs. (12.9kg)	48.6 lbs. (22.0kg)
TM	23.2 lbs. (10.5kg)	32.3 lbs. (14.7kg)	N/A

For BML sensor add 0.1 lbs. (45g), and for NEMA receptacle, add 0.3 lbs. (136g).

- Includes QR code on the inside of the driver cover which provides access to: Online installation instructions, Luminaire information (Part number, Serial number, Build date, and Warranty end date), and Warranty claim submission form
- Duplicate 1" and 2" QR code labels are included. 1" labels can be affixed inside pole bases, next to fixtures, on site plans, or in maintenance records. 2" labels can be scanned from the ground when placed at an appropriate height

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V, 277-480V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard; 20kV/10kA surge suppression protection optional
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Dims to 10%. Controls by others
- 0-10V dimming per ANSI C137.1-2019 (8-Volt or 9-Volt per power level/options selected)
- Refer to Dimming spec sheet for details
- **Maximum 10V Source Current:** 1.8mA
- **Operating Temperature Range:** -40°C - +40°C (-40°F - +104°F)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed (UL1598)
- Suitable for wet locations
- Meets NEMA C82.77 standards
- Drivers and LEDs are UL certified in accordance with UL8750
- Requires minimum 90ºC supply conductors
- Luminaire meets requirements of IP66 per IEC 60529 when ordered without N or R options
- Certified to ANSI C136.31-2018, 3G bridge and overpass vibration standards
- ANSI C136.2 10kV/5kA (standard) and 20kV/10kA (optional) surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Lens meets IK07 requirements per IEC 60068-2
- Assembled in the USA by Cree Lighting from US and imported parts
- Some configurations meet requirements of BAA and/or BABA. Consult factory when needed for a project: www.creelighting.com/BAA-BABA
- RoHS compliant. Consult factory for additional details
- DarkSky Approved when ordered with 19K and 30K CCTs and direct arm mount only. Please refer to page 30 for DarkSky Compliant Ordering Information and https://darksky.org/what-we-do/darksky-approved/products-companies/#!/~/search/keyword=cree for most current information
- DLC and DLC Premium qualified SKUs available. Exceptions apply when 2B, 3B, 4B & AB optics or 19K5 CCT is selected. Please refer to https://qpl.designlights.org/solid-state-lighting for most current information
- DLC Luna qualified when ordered with 4L-40L lumen packages with direct arm mount and 30K7 CCT. Please refer to https://qpl.designlights.org/solid-state-lighting for most current information
- ⚠ **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Product Specifications

SYNAPSE® SIMPLYSNAP INTELLIGENT CONTROL

The Synapse SimplySNAP platform is a highly intuitive connected lighting solution featuring zone dimming, motion sensing, and daylight harvesting with utility-grade power monitoring and support of up to 1000 nodes per gateway. The system features a reliable and robust self-healing mesh network with a browser-based interface that runs on smartphones, tablets, and PCs. The Twist-Lock Lighting Controller (TL7-HVG) and Site Controller (SS450-002) take the OSQ Series to a new performance plateau, providing extreme energy productivity, code compliance and a better light experience.

Synapse Wireless Control Accessories

Twist-Lock Lighting Controller
TL7-HVG
- Suitable for 120-480V (UL, UE and UH) voltages
- Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle
- Not for use with BML or Q options
- Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire
- Refer to TL7-HVG spec sheet for details

SimplySNAP Central Base Station
CBSSW-450-002
- Includes On-Site Controller (SS450-002) and 5-button switch
- Indoor and Outdoor rated
- Refer to CBSSW-450-002 spec sheet for details

Synapse Wireless Sensor
WSN-DPM
- Motion and light sensor
- Control multiple zones
- Refer to WSN-DPM spec sheet for details

SimplySNAP On-Site Controller
SS450-002
- Verizon® LTE-enabled
- Designed for indoor applications
- Refer to SS450-002 spec sheet for details

Building Management System (BMS) Gateway
BMS-GW-002
- Required for BACnet integration
- Refer to BMS-GW-002 spec sheet for details

Outdoor Antennas
(Optional, for increased range, 8dB gain)
KIT-ANT420SM
- Kit includes antenna, 20' cable and bracket

KIT-ANT360
- Kit includes antenna, 30' cable and bracket

KIT-ANT600
- Kit includes antenna, 50' cable and bracket
- Refer to Outdoor antenna spec sheet for details

Electrical Data*

Lumen Package	System Watts 120-480V	Utility Label Wattage	Total Current (A)					
			120V	208V	240V	277V	347V	480V
4L**	26	30	0.21	0.12	0.11	0.09	N/A	N/A
6L	37	40	0.31	0.18	0.15	0.13	0.11	0.08
9L	55	60	0.46	0.27	0.23	0.20	0.16	0.12
11L	68	70	0.57	0.33	0.28	0.25	0.20	0.14
16L	97	100	0.81	0.47	0.40	0.35	0.28	0.20
22L	131	130	1.09	0.63	0.55	0.47	0.38	0.27
30L	175	180	1.46	0.84	0.73	0.63	0.50	0.36
40L	236	240	1.96	1.13	0.98	0.85	0.68	0.49
50L	297	N/A	2.48	1.43	1.24	1.07	0.86	0.62
65L	384	N/A	3.20	1.85	1.60	1.39	1.11	0.80
75L	447	N/A	3.73	2.15	1.86	1.61	1.29	0.93
85L	499	N/A	4.16	2.40	2.08	1.80	1.44	1.04

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V, 277-480V or 347-480V+/-10%.
** Available with UL voltage only.

OSQ-C Series Ambient Adjusted Lumen Maintenance[1]

Ambient	CRI/CCT	Initial LMF	25K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Reported[2] LMF	100K hr Reported[2] LMF
5°C (41°F)	19K5	1.02	0.96	0.91	0.86	0.82
	30K7/40K7/50K9/57K7	1.02	0.99	0.93	0.88	0.83
10°C (50°F)	19K5	1.01	0.96	0.91	0.86	0.81
	30K7/40K7/50K9/57K7	1.02	0.98	0.93	0.87	0.82
15°C (59°F)	19K5	1.01	0.95	0.90	0.86	0.81
	30K7/40K7/50K9/57K7	1.01	0.98	0.92	0.87	0.82
20°C (68°F)	19K5	1.00	0.95	0.90	0.85	0.81
	30K7/40K7/50K9/57K7	1.01	0.97	0.92	0.86	0.81
25°C (77°F)	19K5	1.00	0.95	0.90	0.85	0.80
	30K7/40K7/50K9/57K7	1.00	0.97	0.91	0.86	0.81

[1] Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

Accessories

Field-Installed

External Backlight Shield
OSQ-M-C-BLSF (Medium)
OSQ-L-C-BLSF (Large)
OSQ-X-C-BLSF (Extra Large)
- Not for use with rotated optics
- Provides 1 mounting height backlight cutoff
- 18 ga. steel construction w/black finish

Bird Spikes
OSQ-M-C-BRDSPK (Medium)
OSQ-L-C-BRDSPK (Large)
OSQ-X-C-BRDSPK (Extra Large)
- Includes bird spikes (three rows for M/L; four rows for X) and screws to attach to housing

Shorting Cap
XA-XSLSHRT

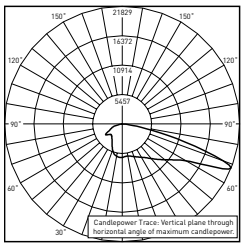
Hand-Held Remote
XA-SENSREM
- Required only for changing sensitivity or time delay with the NS or NS2 options, a minimum of one hand-held remote is required

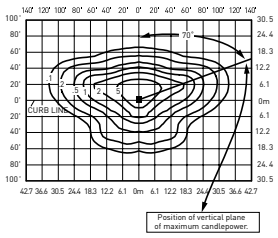
Sensor for Zhaga® Socket (Round Detection Area)
Z2S
- For use only with luminaires with Z1 option
- Refer to Zhaga Sensor spec sheet for details

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://creelighting.com/products/outdoor/area/osq-series

2M





RESTL Test Report #: PL17910-001A
Configured
OSQL-C-xxL-30K7-2M-UL-xx-xx-xx
Initial Delivered Lumens: 27,400

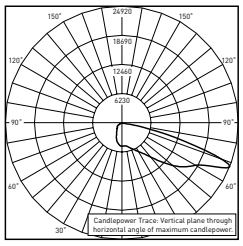
OSQL-C-30L-30K7-2M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 27,400
Initial FC at grade

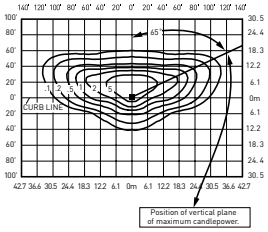
Type II Mid Distribution

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,650	B1 U0 G1	3,800	B1 U0 G1	2,810	B1 U0 G1	3,800	B1 U0 G1
6L	N/A	N/A	5,475	B1 U0 G1	5,700	B1 U0 G1	4,220	B1 U0 G1	5,700	B1 U0 G1
9L	N/A	N/A	8,225	B2 U0 G2	8,550	B2 U0 G2	6,325	B2 U0 G2	8,550	B2 U0 G2
11L	N/A	N/A	10,025	B2 U0 G2	10,450	B2 U0 G2	7,750	B2 U0 G2	10,450	B2 U0 G2
16L	12,000	B2 U0 G2	14,650	B3 U0 G3	15,200	B3 U0 G3	11,275	B2 U0 G2	15,200	B3 U0 G3
22L	N/A	N/A	20,100	B3 U0 G3	20,900	B3 U0 G3	15,500	B3 U0 G3	20,900	B3 U0 G3
30L	22,500	B3 U0 G3	27,400	B3 U0 G3	28,500	B3 U0 G3	21,100	B3 U0 G3	28,500	B3 U0 G3
40L	N/A	N/A	36,500	B4 U0 G4	38,000	B4 U0 G4	28,100	B3 U0 G3	38,000	B4 U0 G4
50L	N/A	N/A	45,600	B4 U0 G4	47,500	B4 U0 G4	35,200	B4 U0 G4	47,500	B4 U0 G4
65L	48,500	B4 U0 G4	59,300	B4 U0 G5	61,800	B4 U0 G5	45,700	B4 U0 G4	61,800	B4 U0 G5
75L	N/A	N/A	68,400	B5 U0 G5	71,300	B5 U0 G5	52,800	B4 U0 G4	71,300	B5 U0 G5
85L	N/A	N/A	77,600	B5 U0 G5	80,800	B5 U0 G5	59,800	B4 U0 G5	80,800	B5 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

2B





RESTL Test Report #: PL17977-001A
OSQL-C-40L-30K7-2B-UL-xx-xx-xx
Initial Delivered Lumens: 25,560

OSQL-C-40L-30K7-2B-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 25,100
Initial FC at grade

Type II Mid w/BLS Distribution (factory-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,510	B1 U0 G1	2,620	B1 U0 G1	1,940	B0 U0 G1	2,620	B1 U0 G1
6L	N/A	N/A	3,760	B1 U0 G1	3,920	B1 U0 G1	2,900	B1 U0 G1	3,920	B1 U0 G1
9L	N/A	N/A	5,650	B1 U0 G1	5,875	B1 U0 G1	4,350	B1 U0 G1	5,875	B1 U0 G1
11L	N/A	N/A	6,900	B1 U0 G1	7,200	B1 U0 G2	5,325	B1 U0 G1	7,200	B1 U0 G2
16L	8,250	B1 U0 G2	10,075	B1 U0 G2	10,450	B2 U0 G2	7,750	B1 U0 G2	10,450	B2 U0 G2
22L	N/A	N/A	13,800	B2 U0 G2	14,375	B2 U0 G2	10,650	B2 U0 G2	14,375	B2 U0 G2
30L	15,500	B2 U0 G2	18,800	B2 U0 G2	19,600	B2 U0 G3	14,525	B2 U0 G2	19,600	B2 U0 G3
40L	N/A	N/A	25,100	B3 U0 G3	26,200	B3 U0 G3	19,400	B2 U0 G2	26,200	B3 U0 G3
50L	N/A	N/A	31,400	B3 U0 G4	32,700	B3 U0 G4	24,200	B3 U0 G3	32,700	B3 U0 G4
65L	33,400	B3 U0 G4	40,800	B3 U0 G4	42,500	B3 U0 G4	31,500	B3 U0 G4	42,500	B3 U0 G4
75L	N/A	N/A	47,100	B3 U0 G5	49,000	B3 U0 G5	36,300	B3 U0 G4	49,000	B3 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Photometry

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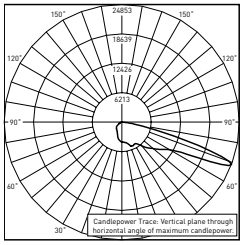
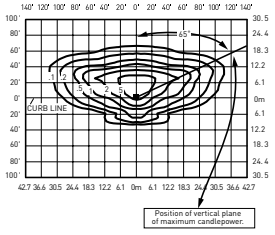
2M W/OSQ-*-C-BLSF





RESTL Test Report#: PL17978-001B
OSQL-C-40L-30K7-2M-UL-xx-xx-xx w/ OSQ-L-C-BLSF
Initial Delivered Lumens: 21,978

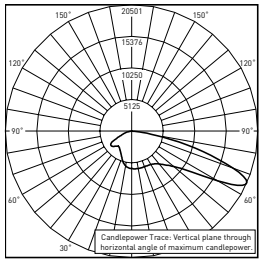
OSQL-C-40L-30K7-2M-UL w/OSQ-L-C-BLSF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 21,000
Initial FC at grade

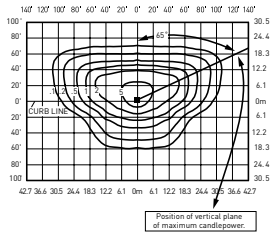
Type II Mid Distribution w/OSQ-*-C-BLSF (field-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,100	B0 U0 G1	2,180	B0 U0 G1	1,610	B0 U0 G1	2,180	B0 U0 G1
6L	N/A	N/A	3,140	B1 U0 G1	3,270	B1 U0 G1	2,420	B1 U0 G1	3,270	B1 U0 G1
9L	N/A	N/A	4,720	B1 U0 G1	4,910	B1 U0 G1	3,630	B1 U0 G1	4,910	B1 U0 G1
11L	N/A	N/A	5,750	B1 U0 G1	6,000	B1 U0 G1	4,450	B1 U0 G1	6,000	B1 U0 G1
16L	6,900	B1 U0 G2	8,400	B1 U0 G2	8,725	B1 U0 G2	6,475	B1 U0 G2	8,725	B1 U0 G2
22L	N/A	N/A	11,550	B2 U0 G2	12,000	B2 U0 G2	8,900	B1 U0 G2	12,000	B2 U0 G2
30L	12,925	B2 U0 G2	15,700	B2 U0 G3	16,400	B2 U0 G3	12,100	B2 U0 G2	16,400	B2 U0 G3
40L	N/A	N/A	21,000	B3 U0 G3	21,800	B3 U0 G3	16,100	B2 U0 G3	21,800	B3 U0 G3
50L	N/A	N/A	26,200	B3 U0 G4	27,300	B3 U0 G4	20,200	B3 U0 G3	27,300	B3 U0 G4
65L	27,800	B3 U0 G4	34,000	B3 U0 G4	35,500	B3 U0 G4	26,200	B3 U0 G4	35,500	B3 U0 G4
75L	N/A	N/A	39,300	B3 U0 G4	40,900	B3 U0 G4	30,300	B3 U0 G4	40,900	B3 U0 G4
85L	N/A	N/A	44,500	B3 U0 G5	46,400	B3 U0 G5	34,300	B3 U0 G4	46,400	B3 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

3M





RESTL Test Report #: PL17882-001A
Configured
OSQL-C-xxL-30K7-3M-UL-xx-xx-xx
Initial Delivered Lumens: 27,400

OSQL-C-30L-30K7-3M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 27,400
Initial FC at grade

Type III Mid Distribution

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,650	B1 U0 G1	3,800	B1 U0 G1	2,810	B1 U0 G1	3,800	B1 U0 G1
6L	N/A	N/A	5,475	B1 U0 G1	5,700	B1 U0 G1	4,220	B1 U0 G1	5,700	B1 U0 G1
9L	N/A	N/A	8,225	B2 U0 G2	8,550	B2 U0 G2	6,325	B1 U0 G1	8,550	B2 U0 G2
11L	N/A	N/A	10,025	B2 U0 G2	10,450	B2 U0 G2	7,750	B2 U0 G2	10,450	B2 U0 G2
16L	12,000	B2 U0 G2	14,650	B3 U0 G3	15,200	B3 U0 G3	11,275	B2 U0 G2	15,200	B3 U0 G3
22L	N/A	N/A	20,100	B3 U0 G3	20,900	B3 U0 G3	15,500	B3 U0 G3	20,900	B3 U0 G3
30L	22,500	B3 U0 G3	27,400	B3 U0 G4	28,500	B3 U0 G4	21,100	B3 U0 G3	28,500	B3 U0 G4
40L	N/A	N/A	36,500	B4 U0 G4	38,000	B4 U0 G4	28,100	B3 U0 G4	38,000	B4 U0 G4
50L	N/A	N/A	45,600	B4 U0 G5	47,500	B4 U0 G5	35,200	B3 U0 G4	47,500	B4 U0 G5
65L	48,500	B4 U0 G5	59,300	B4 U0 G5	61,800	B4 U0 G5	45,700	B4 U0 G5	61,800	B4 U0 G5
75L	N/A	N/A	68,400	B4 U0 G5	71,300	B5 U0 G5	52,800	B4 U0 G5	71,300	B5 U0 G5
85L	N/A	N/A	77,600	B5 U0 G5	80,800	B5 U0 G5	59,800	B4 U0 G5	80,800	B5 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
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Photometry

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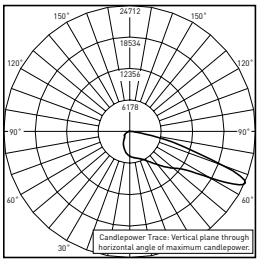
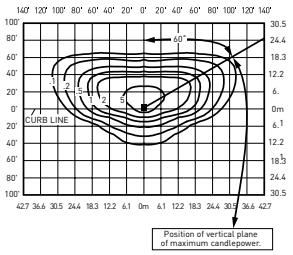
3B





RESTL Test Report #: PL17975-001A
OSQL-C-40L-30K7-3B-UL-xx-xx-xx
Initial Delivered Lumens: 25,199

OSQL-C-40L-30K7-3B-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 25,100
Initial FC at grade

Type III Mid w/BLS Distribution (factory-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,510	B1 U0 G1	2,620	B1 U0 G1	1,940	B0 U0 G1	2,620	B1 U0 G1
6L	N/A	N/A	3,760	B1 U0 G1	3,920	B1 U0 G1	2,900	B1 U0 G1	3,920	B1 U0 G1
9L	N/A	N/A	5,650	B1 U0 G1	5,875	B1 U0 G2	4,350	B1 U0 G1	5,875	B1 U0 G2
11L	N/A	N/A	6,900	B1 U0 G2	7,200	B1 U0 G2	5,325	B1 U0 G1	7,200	B1 U0 G2
16L	8,250	B1 U0 G2	10,075	B1 U0 G2	10,450	B2 U0 G2	7,750	B1 U0 G2	10,450	B2 U0 G2
22L	N/A	N/A	13,800	B2 U0 G2	14,375	B2 U0 G2	10,650	B2 U0 G2	14,375	B2 U0 G2
30L	15,500	B2 U0 G2	18,800	B2 U0 G3	19,600	B2 U0 G3	14,525	B2 U0 G2	19,600	B2 U0 G3
40L	N/A	N/A	25,100	B3 U0 G4	26,200	B3 U0 G4	19,400	B2 U0 G3	26,200	B3 U0 G4
50L	N/A	N/A	31,400	B3 U0 G4	32,700	B3 U0 G4	24,200	B3 U0 G3	32,700	B3 U0 G4
65L	33,400	B3 U0 G4	40,800	B3 U0 G5	42,500	B3 U0 G5	31,500	B3 U0 G4	42,500	B3 U0 G5
75L	N/A	N/A	47,100	B3 U0 G5	49,000	B3 U0 G5	36,300	B3 U0 G4	49,000	B3 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
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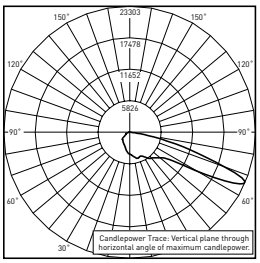
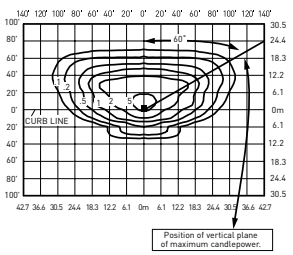
3M W/OSQ-*-C-BLSF





RESTL Test Report#: PL17976-001A
OSQL-C-40L-30K7-3M-UL-xx-xx-xx w/ OSQ-L-C-BLSF
Initial Delivered Lumens: 22,081

OSQL-C-40L-30K7-3M-UL w/OSQ-L-C-BLSF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 21,000
Initial FC at grade

Type III Mid Distribution w/OSQ-*-C-BLSF (field-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,100	B0 U0 G1	2,180	B0 U0 G1	1,610	B0 U0 G1	2,180	B0 U0 G1
6L	N/A	N/A	3,140	B1 U0 G1	3,270	B1 U0 G1	2,420	B1 U0 G1	3,270	B1 U0 G1
9L	N/A	N/A	4,720	B1 U0 G1	4,910	B1 U0 G1	3,630	B1 U0 G1	4,910	B1 U0 G1
11L	N/A	N/A	5,750	B1 U0 G2	6,000	B1 U0 G2	4,450	B1 U0 G1	6,000	B1 U0 G2
16L	6,900	B1 U0 G2	8,400	B1 U0 G2	8,725	B1 U0 G2	6,475	B1 U0 G2	8,725	B1 U0 G2
22L	N/A	N/A	11,550	B2 U0 G2	12,000	B2 U0 G2	8,900	B1 U0 G2	12,000	B2 U0 G2
30L	12,925	B2 U0 G2	15,700	B2 U0 G3	16,400	B2 U0 G3	12,100	B2 U0 G2	16,400	B2 U0 G3
40L	N/A	N/A	21,000	B2 U0 G3	21,800	B3 U0 G3	16,100	B2 U0 G3	21,800	B3 U0 G3
50L	N/A	N/A	26,200	B3 U0 G4	27,300	B3 U0 G4	20,200	B2 U0 G3	27,300	B3 U0 G4
65L	27,800	B3 U0 G4	34,000	B3 U0 G4	35,500	B3 U0 G5	26,200	B3 U0 G4	35,500	B3 U0 G5
75L	N/A	N/A	39,300	B3 U0 G5	40,900	B3 U0 G5	30,300	B3 U0 G4	40,900	B3 U0 G5
85L	N/A	N/A	44,500	B3 U0 G5	46,400	B3 U0 G5	34,300	B3 U0 G4	46,400	B3 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Photometry

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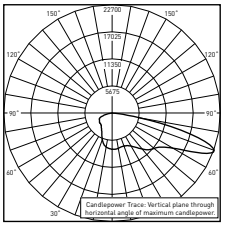
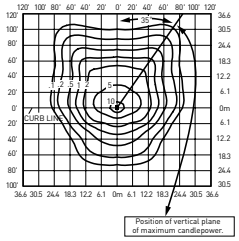
https://creelighting.com/products/outdoor/area/osq-series

4M





RESTL Test Report #: PL18130-001A
Configured
OSQL-C-xxL-40K7-4M-UL-xx-xx-xx
Initial Delivered Lumens: 38,000

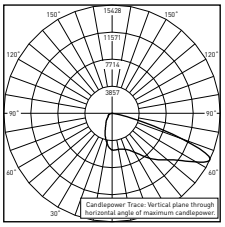
OSQL-C-40L-40K7-4M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 38,000
Initial FC at grade

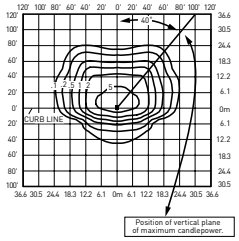
Type IV Mid Distribution

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,650	B1 U0 G1	3,800	B1 U0 G1	2,810	B1 U0 G1	3,800	B1 U0 G1
6L	N/A	N/A	5,475	B1 U0 G1	5,700	B1 U0 G1	4,220	B1 U0 G1	5,700	B1 U0 G1
9L	N/A	N/A	8,225	B2 U0 G2	8,550	B2 U0 G2	6,325	B1 U0 G1	8,550	B2 U0 G2
11L	N/A	N/A	10,025	B2 U0 G2	10,450	B2 U0 G2	7,750	B2 U0 G2	10,450	B2 U0 G2
16L	12,000	B2 U0 G2	14,650	B3 U0 G2	15,200	B3 U0 G2	11,275	B2 U0 G2	15,200	B3 U0 G2
22L	N/A	N/A	20,100	B3 U0 G3	20,900	B3 U0 G3	15,500	B3 U0 G2	20,900	B3 U0 G3
30L	22,500	B3 U0 G3	27,400	B3 U0 G4	28,500	B3 U0 G4	21,100	B3 U0 G3	28,500	B3 U0 G4
40L	N/A	N/A	36,500	B4 U0 G4	38,000	B4 U0 G4	28,100	B3 U0 G4	38,000	B4 U0 G4
50L	N/A	N/A	45,600	B4 U0 G5	47,500	B4 U0 G5	35,200	B4 U0 G4	47,500	B4 U0 G5
65L	48,500	B4 U0 G5	59,300	B5 U0 G5	61,800	B5 U0 G5	45,700	B4 U0 G5	61,800	B5 U0 G5
75L	N/A	N/A	68,400	B5 U0 G5	71,300	B5 U0 G5	52,800	B4 U0 G5	71,300	B5 U0 G5
85L	N/A	N/A	77,600	B5 U0 G5	80,800	B5 U0 G5	59,800	B5 U0 G5	80,800	B5 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

4B





RESTL Test Report #: PL18145-001A
Configured
OSQL-C-xxL-40K7-4B-UL-xx-xx-xx
Initial Delivered Lumens: 24,000

OSQL-C-40L-40K7-4B-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 24,000
Initial FC at grade

Type IV Mid w/BLS Distribution (factory-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,300	B1 U0 G0	2,400	B1 U0 G0	1,770	B0 U0 G0	2,400	B1 U0 G0
6L	N/A	N/A	3,440	B1 U0 G1	3,590	B1 U0 G1	2,660	B1 U0 G0	3,590	B1 U0 G1
9L	N/A	N/A	5,175	B1 U0 G1	5,400	B1 U0 G1	3,980	B1 U0 G1	5,400	B1 U0 G1
11L	N/A	N/A	6,325	B1 U0 G1	6,600	B1 U0 G1	4,880	B1 U0 G1	6,600	B1 U0 G1
16L	7,550	B1 U0 G1	9,225	B2 U0 G2	9,575	B2 U0 G2	7,100	B1 U0 G1	9,575	B2 U0 G2
22L	N/A	N/A	12,625	B2 U0 G2	13,175	B2 U0 G2	9,750	B2 U0 G2	13,175	B2 U0 G2
30L	14,175	B2 U0 G2	17,200	B3 U0 G2	18,000	B3 U0 G2	13,300	B2 U0 G2	18,000	B3 U0 G2
40L	N/A	N/A	23,000	B3 U0 G3	24,000	B3 U0 G3	17,700	B3 U0 G2	24,000	B3 U0 G3
50L	N/A	N/A	28,700	B3 U0 G3	29,900	B3 U0 G3	22,200	B3 U0 G3	29,900	B3 U0 G3
65L	30,600	B3 U0 G3	37,400	B3 U0 G4	38,900	B3 U0 G4	28,800	B3 U0 G3	38,900	B3 U0 G4
75L	N/A	N/A	43,100	B4 U0 G4	44,900	B4 U0 G4	33,200	B3 U0 G4	44,900	B4 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Photometry

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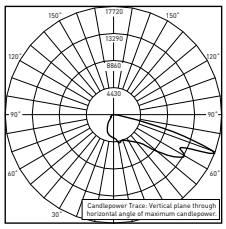
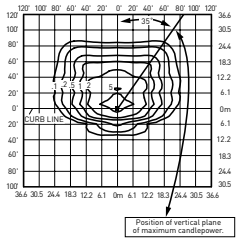
4M W/OSQ-*-C-BLSF



RESTL Test Report #: PL18146-001A Configured OSQL-C-xxL-40K7-4M-UL-xx-xx-xx w/ OSQ-L-C-BLSF
Initial Delivered Lumens: 21,800

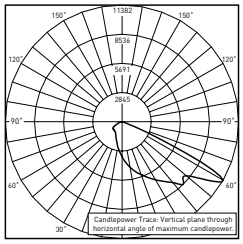


OSQL-C-40L-40K7-4M-UL w/OSQ-L-C-BLSF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 21,800
Initial FC at grade

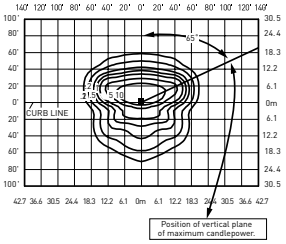
Type IV Mid Distribution w/OSQ-*-C-BLSF (field-installed)										
Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,100	B1 U0 G1	2,180	B1 U0 G1	1,610	B0 U0 G1	2,180	B1 U0 G1
6L	N/A	N/A	3,140	B1 U0 G1	3,270	B1 U0 G1	2,420	B1 U0 G1	3,270	B1 U0 G1
9L	N/A	N/A	4,720	B1 U0 G1	4,910	B1 U0 G1	3,630	B1 U0 G1	4,910	B1 U0 G1
11L	N/A	N/A	5,750	B1 U0 G2	6,000	B1 U0 G2	4,450	B1 U0 G1	6,000	B1 U0 G2
16L	6,900	B1 U0 G2	8,400	B1 U0 G2	8,725	B2 U0 G2	6,475	B1 U0 G2	8,725	B2 U0 G2
22L	N/A	N/A	11,550	B2 U0 G2	12,000	B2 U0 G2	8,900	B2 U0 G2	12,000	B2 U0 G2
30L	12,925	B2 U0 G2	15,700	B2 U0 G3	16,400	B2 U0 G3	12,100	B2 U0 G2	16,400	B2 U0 G3
40L	N/A	N/A	21,000	B3 U0 G3	21,800	B3 U0 G3	16,100	B2 U0 G3	21,800	B3 U0 G3
50L	N/A	N/A	26,200	B3 U0 G4	27,300	B3 U0 G4	20,200	B3 U0 G3	27,300	B3 U0 G4
65L	27,800	B3 U0 G4	34,000	B3 U0 G4	35,500	B3 U0 G4	26,200	B3 U0 G4	35,500	B3 U0 G4
75L	N/A	N/A	39,300	B3 U0 G5	40,900	B3 U0 G5	30,300	B3 U0 G4	40,900	B3 U0 G5
85L	N/A	N/A	44,500	B4 U0 G5	46,400	B4 U0 G5	34,300	B3 U0 G4	46,400	B4 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

AF



RESTL Test Report #: PL18039-001A
OSQM-C-16L-50K9-AF-UL-xx-xx-xx
Initial Delivered Lumens: 12,361



OSQL-C-40L-40K7-AF-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 38,000
Initial FC at grade

Automotive FrontLineOptic™ Distribution										
Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,650	B1 U0 G1	3,800	B1 U0 G1	2,810	B1 U0 G0	3,800	B1 U0 G1
6L	N/A	N/A	5,475	B1 U0 G1	5,700	B1 U0 G1	4,220	B1 U0 G1	5,700	B1 U0 G1
9L	N/A	N/A	8,225	B1 U0 G1	8,550	B1 U0 G1	6,325	B1 U0 G1	8,550	B1 U0 G1
11L	N/A	N/A	10,025	B2 U0 G1	10,450	B2 U0 G1	7,750	B1 U0 G1	10,450	B2 U0 G1
16L	12,000	B2 U0 G1	14,650	B2 U0 G2	15,200	B2 U0 G2	11,275	B2 U0 G1	15,200	B2 U0 G2
22L	N/A	N/A	20,100	B3 U0 G2	20,900	B3 U0 G2	15,500	B2 U0 G2	20,900	B3 U0 G2
30L	22,500	B3 U0 G2	27,400	B3 U0 G3	28,500	B3 U0 G3	21,100	B3 U0 G2	28,500	B3 U0 G3
40L	N/A	N/A	36,500	B3 U0 G3	38,000	B3 U0 G3	28,100	B3 U0 G3	38,000	B3 U0 G3
50L	N/A	N/A	45,600	B4 U0 G3	47,500	B4 U0 G3	35,200	B3 U0 G3	47,500	B4 U0 G3
65L	48,500	B4 U0 G3	59,300	B4 U0 G3	61,800	B4 U0 G3	45,700	B4 U0 G3	61,800	B4 U0 G3
75L	N/A	N/A	68,400	B4 U0 G4	71,300	B4 U0 G4	52,800	B4 U0 G3	71,300	B4 U0 G4
85L	N/A	N/A	77,600	B4 U0 G4	80,800	B5 U0 G4	59,800	B4 U0 G3	80,800	B5 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
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Photometry

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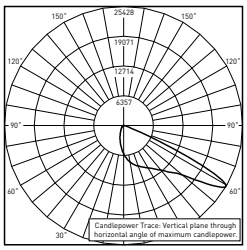
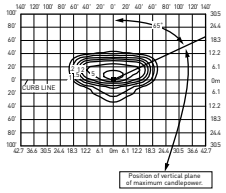
AB





RESTL Test Report #: PL18107-001A
Configured
OSQL-C-30L-xxL-AB-UL-xx-xx-xx
Initial Delivered Lumens: 19,600

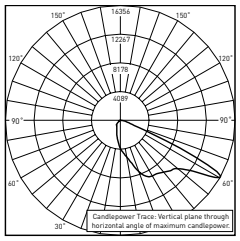
OSQL-C-30L-40K7-AB-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 19,600
Initial FC at grade

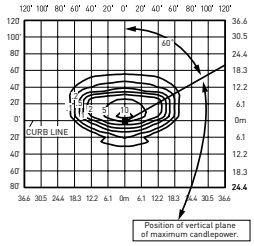
Automotive FrontLineOptic™ w/BLS Distribution (factory-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,510	B0 U0 G0	2,620	B0 U0 G0	1,940	B0 U0 G0	2,620	B0 U0 G0
6L	N/A	N/A	3,760	B1 U0 G0	3,920	B1 U0 G0	2,900	B1 U0 G0	3,920	B1 U0 G0
9L	N/A	N/A	5,650	B1 U0 G0	5,875	B1 U0 G0	4,350	B1 U0 G0	5,875	B1 U0 G0
11L	N/A	N/A	6,900	B1 U0 G1	7,200	B1 U0 G1	5,325	B1 U0 G0	7,200	B1 U0 G1
16L	8,250	B1 U0 G1	10,075	B1 U0 G1	10,450	B1 U0 G1	7,750	B1 U0 G1	10,450	B1 U0 G1
22L	N/A	N/A	13,800	B2 U0 G1	14,375	B2 U0 G1	10,650	B1 U0 G1	14,375	B2 U0 G1
30L	15,500	B2 U0 G1	18,800	B2 U0 G2	19,600	B2 U0 G2	14,525	B2 U0 G1	19,600	B2 U0 G2
40L	N/A	N/A	25,100	B3 U0 G2	26,200	B3 U0 G2	19,400	B2 U0 G2	26,200	B3 U0 G2
50L	N/A	N/A	31,400	B3 U0 G2	32,700	B3 U0 G2	24,200	B3 U0 G2	32,700	B3 U0 G2
65L	33,400	B3 U0 G2	40,800	B3 U0 G2	42,500	B3 U0 G2	31,500	B3 U0 G2	42,500	B3 U0 G2
75L	N/A	N/A	47,100	B3 U0 G3	49,000	B3 U0 G3	36,300	B3 U0 G2	49,000	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

AF W/OSQ-*-C-BLSF





RESTL Test Report #: PL18108-001A
Configured
OSQL-C-xxL-40K7-AF-UL-xx-xx-xx w/OSQ-L-C-BLSF
Initial Delivered Lumens: 16,400

OSQL-C-30L-40K7-AF-UL w/OSQ-L-C-BLSF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 16,400
Initial FC at grade

Automotive FrontLineOptic™ w/OSQ-*-C-BLSF (field-installed)

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,100	B0 U0 G1	2,180	B0 U0 G1	1,610	B0 U0 G1	2,180	B0 U0 G1
6L	N/A	N/A	3,140	B1 U0 G1	3,270	B1 U0 G1	2,420	B0 U0 G1	3,270	B1 U0 G1
9L	N/A	N/A	4,720	B1 U0 G1	4,910	B1 U0 G1	3,630	B1 U0 G1	4,910	B1 U0 G1
11L	N/A	N/A	5,750	B1 U0 G1	6,000	B1 U0 G1	4,450	B1 U0 G1	6,000	B1 U0 G1
16L	6,900	B1 U0 G1	8,400	B1 U0 G1	8,725	B1 U0 G1	6,475	B1 U0 G1	8,725	B1 U0 G1
22L	N/A	N/A	11,550	B1 U0 G1	12,000	B1 U0 G1	8,900	B1 U0 G1	12,000	B1 U0 G1
30L	12,925	B2 U0 G1	15,700	B2 U0 G2	16,400	B2 U0 G2	12,100	B1 U0 G1	16,400	B2 U0 G2
40L	N/A	N/A	21,000	B2 U0 G2	21,800	B2 U0 G2	16,100	B2 U0 G2	21,800	B2 U0 G2
50L	N/A	N/A	26,200	B3 U0 G2	27,300	B3 U0 G2	20,200	B2 U0 G2	27,300	B3 U0 G2
65L	27,800	B3 U0 G2	34,000	B3 U0 G2	35,500	B3 U0 G3	26,200	B3 U0 G2	35,500	B3 U0 G3
75L	N/A	N/A	39,300	B3 U0 G3	40,900	B3 U0 G3	30,300	B3 U0 G2	40,900	B3 U0 G3
85L	N/A	N/A	44,500	B3 U0 G3	46,400	B3 U0 G3	34,300	B3 U0 G2	46,400	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Photometry

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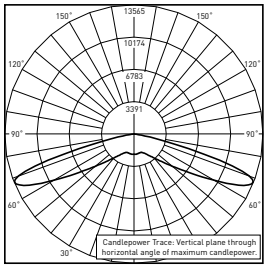
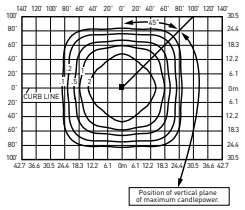
5L





RESTL Test Report #: PL18074-001A Configured
OSQL-C-xxL-40K7-5L-UL-xx-xx-xx
Initial Delivered Lumens: 30,000

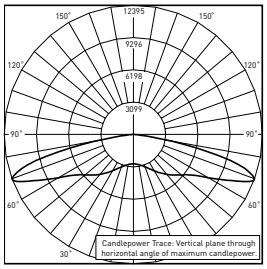
OSQL-C-30L-40K7-5L-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 30,000
Initial FC at grade

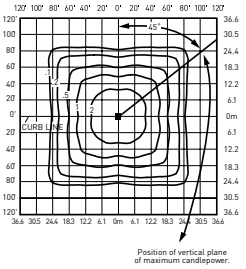
Type V Long Distribution

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,840	B2 U0 G1	4,000	B3 U0 G1	2,960	B2 U0 G1	4,000	B3 U0 G1
6L	N/A	N/A	5,750	B3 U0 G1	6,000	B3 U0 G1	4,440	B3 U0 G1	6,000	B3 U0 G1
9L	N/A	N/A	8,650	B3 U0 G2	9,000	B3 U0 G2	6,650	B3 U0 G1	9,000	B3 U0 G2
11L	N/A	N/A	10,550	B4 U0 G2	11,000	B4 U0 G2	8,150	B3 U0 G2	11,000	B4 U0 G2
16L	12,625	B4 U0 G2	15,400	B4 U0 G2	16,000	B4 U0 G2	11,850	B4 U0 G2	16,000	B4 U0 G2
22L	N/A	N/A	21,100	B5 U0 G3	22,000	B5 U0 G3	16,300	B4 U0 G2	22,000	B5 U0 G3
30L	23,700	B5 U0 G3	28,800	B5 U0 G3	30,000	B5 U0 G4	22,200	B5 U0 G3	30,000	B5 U0 G4
40L	N/A	N/A	38,400	B5 U0 G4	40,000	B5 U0 G4	29,600	B5 U0 G3	40,000	B5 U0 G4
50L	N/A	N/A	48,000	B5 U0 G5	50,000	B5 U0 G5	37,000	B5 U0 G3	50,000	B5 U0 G5
65L	51,000	B5 U0 G5	62,400	B5 U0 G5	65,000	B5 U0 G5	48,100	B5 U0 G5	65,000	B5 U0 G5
75L	N/A	N/A	72,000	B5 U0 G5	75,000	B5 U0 G5	55,500	B5 U0 G5	75,000	B5 U0 G5
85L	N/A	N/A	81,600	B5 U0 G5	85,000	B5 U0 G5	62,900	B5 U0 G5	85,000	B5 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

5M





RESTL Test Report #: PL17909-001A
Configured
OSQL-C-xxL-30K7-5M-UL-xx-xx-xx
Initial Delivered Lumens: 28,800

OSQL-C-30L-30K7-5M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 28,800
Initial FC at grade

Type V Mid Distribution

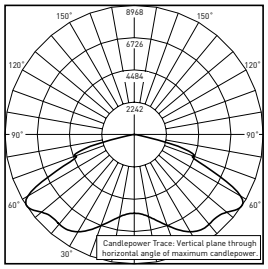
Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,840	B2 U0 G1	4,000	B2 U0 G1	2,960	B2 U0 G1	4,000	B2 U0 G1
6L	N/A	N/A	5,750	B3 U0 G1	6,000	B3 U0 G1	4,440	B2 U0 G1	6,000	B3 U0 G1
9L	N/A	N/A	8,650	B3 U0 G2	9,000	B3 U0 G2	6,650	B3 U0 G1	9,000	B3 U0 G2
11L	N/A	N/A	10,550	B3 U0 G2	11,000	B3 U0 G2	8,150	B3 U0 G1	11,000	B3 U0 G2
16L	12,625	B4 U0 G2	15,400	B4 U0 G2	16,000	B4 U0 G2	11,850	B4 U0 G2	16,000	B4 U0 G2
22L	N/A	N/A	21,100	B4 U0 G2	22,000	B4 U0 G2	16,300	B4 U0 G2	22,000	B4 U0 G2
30L	23,700	B5 U0 G3	28,800	B5 U0 G3	30,000	B5 U0 G3	22,200	B4 U0 G2	30,000	B5 U0 G3
40L	N/A	N/A	38,400	B5 U0 G4	40,000	B5 U0 G4	29,600	B5 U0 G3	40,000	B5 U0 G4
50L	N/A	N/A	48,000	B5 U0 G4	50,000	B5 U0 G4	37,000	B5 U0 G4	50,000	B5 U0 G4
65L	51,000	B5 U0 G4	62,400	B5 U0 G5	65,000	B5 U0 G5	48,100	B5 U0 G4	65,000	B5 U0 G5
75L	N/A	N/A	72,000	B5 U0 G5	75,000	B5 U0 G5	55,500	B5 U0 G4	75,000	B5 U0 G5
85L	N/A	N/A	81,600	B5 U0 G5	85,000	B5 U0 G5	62,900	B5 U0 G5	85,000	B5 U0 G5

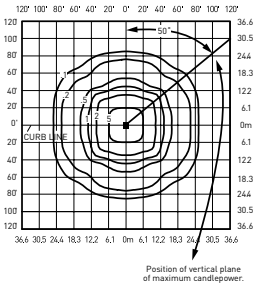
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://creelighting.com/products/outdoor/area/osq-series

5N





RESTL Test Report #: PL17911-001A
Configured
OSQL-C-xxL-30K7-5N-UL-xx-xx-xx
Initial Delivered Lumens: 28,800

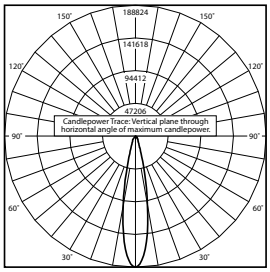
OSQL-C-30L-30K7-5N-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 28,800
Initial FC at grade

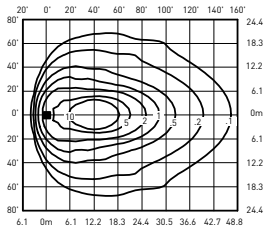
Type V Narrow Distribution

Lumen Package	1900K (50 CRI)		3000K (70 CRI)		4000K (70 CRI)		5000K (90 CRI)		5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,840	B2 U0 G0	4,000	B2 U0 G0	2,960	B1 U0 G0	4,000	B2 U0 G0
6L	N/A	N/A	5,750	B2 U0 G1	6,000	B2 U0 G1	4,440	B2 U0 G0	6,000	B2 U0 G1
9L	N/A	N/A	8,650	B3 U0 G1	9,000	B3 U0 G1	6,650	B2 U0 G1	9,000	B3 U0 G1
11L	N/A	N/A	10,550	B3 U0 G1	11,000	B3 U0 G1	8,150	B2 U0 G1	11,000	B3 U0 G1
16L	12,625	B3 U0 G1	15,400	B3 U0 G2	16,000	B3 U0 G2	11,850	B3 U0 G1	16,000	B3 U0 G2
22L	N/A	N/A	21,100	B4 U0 G2	22,000	B4 U0 G2	16,300	B3 U0 G2	22,000	B4 U0 G2
30L	23,700	B4 U0 G2	28,800	B4 U0 G2	30,000	B4 U0 G2	22,200	B4 U0 G2	30,000	B4 U0 G2
40L	N/A	N/A	38,400	B5 U0 G2	40,000	B5 U0 G2	29,600	B4 U0 G2	40,000	B5 U0 G2
50L	N/A	N/A	48,000	B5 U0 G3	50,000	B5 U0 G3	37,000	B5 U0 G2	50,000	B5 U0 G3
65L	51,000	B5 U0 G3	62,400	B5 U0 G4	65,000	B5 U0 G4	48,100	B5 U0 G3	65,000	B5 U0 G4
75L	N/A	N/A	72,000	B5 U0 G4	75,000	B5 U0 G4	55,500	B5 U0 G3	75,000	B5 U0 G4
85L	N/A	N/A	81,600	B5 U0 G4	85,000	B5 U0 G4	62,900	B5 U0 G4	85,000	B5 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt

33





RESTL Test Report #: PL17450-001A
OSQL-C-40L-30K7-33-UL-xx-xx-xx
Initial Delivered Lumens: 36,102

OSQL-C-40L-40K7-33-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 40,000
Initial FC at grade

NEMA® 3x3 Distribution

Lumen Package	1900K (50 CRI)	3000K (70 CRI)	4000K (70 CRI)	5000K (90 CRI)	5700K (70 CRI)
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
4L	N/A	3,840	4,000	2,960	4,000
6L	N/A	5,750	6,000	4,440	6,000
9L	N/A	8,650	9,000	6,650	9,000
11L	N/A	10,550	11,000	8,150	11,000
16L	12,625	15,400	16,000	11,850	16,000
22L	N/A	21,100	22,000	16,300	22,000
30L	23,700	28,800	30,000	22,200	30,000
40L	N/A	38,400	40,000	29,600	40,000
50L	N/A	48,000	50,000	37,000	50,000
65L	51,000	62,400	65,000	48,100	65,000
75L	N/A	72,000	75,000	55,500	75,000
85L	N/A	81,600	85,000	62,900	85,000

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://creelighting.com/products/outdoor/area/osq-series

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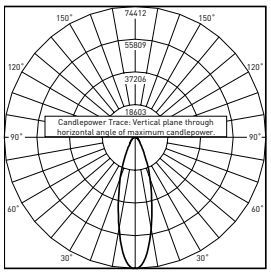
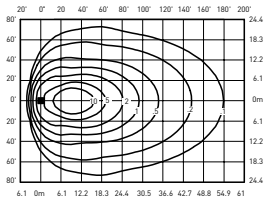


RESTL Test Report #: PL17748-001A
OSQL-C-40L-30K7-44-UL-xx-xx-xx
Initial Delivered Lumens: 35,349



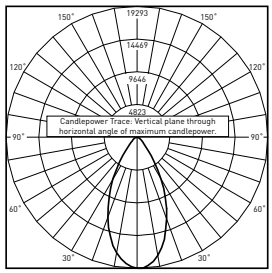
OSQL-C-40L-40K7-44-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 40,000
Initial FC at grade

NEMA® 4x4 Distribution

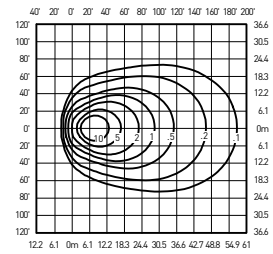
Lumen Package	1900K (50 CRI)	3000K (70 CRI)	4000K (70 CRI)	5000K (90 CRI)	5700K (70 CRI)
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
4L	N/A	3,840	4,000	2,960	4,000
6L	N/A	5,750	6,000	4,440	6,000
9L	N/A	8,650	9,000	6,650	9,000
11L	N/A	10,550	11,000	8,150	11,000
16L	12,625	15,400	16,000	11,850	16,000
22L	N/A	21,100	22,000	16,300	22,000
30L	23,700	28,800	30,000	22,200	30,000
40L	N/A	38,400	40,000	29,600	40,000
50L	N/A	48,000	50,000	37,000	50,000
65L	51,000	62,400	65,000	48,100	65,000
75L	N/A	72,000	75,000	55,500	75,000
85L	N/A	81,600	85,000	62,900	85,000

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

55



RESTL Test Report #: PL17771-001A
OSQL-C-40L-30K7-55-UL-xx-xx-xx
Initial Delivered Lumens: 37,424



OSQL-C-40L-40K7-55-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 40,000
Initial FC at grade

NEMA® 5x5 Distribution

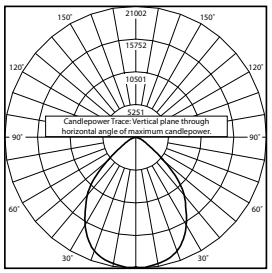
Lumen Package	1900K (50 CRI)	3000K (70 CRI)	4000K (70 CRI)	5000K (90 CRI)	5700K (70 CRI)
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
4L	N/A	3,840	4,000	2,960	4,000
6L	N/A	5,750	6,000	4,440	6,000
9L	N/A	8,650	9,000	6,650	9,000
11L	N/A	10,550	11,000	8,150	11,000
16L	12,625	15,400	16,000	11,850	16,000
22L	N/A	21,100	22,000	16,300	22,000
30L	23,700	28,800	30,000	22,200	30,000
40L	N/A	38,400	40,000	29,600	40,000
50L	N/A	48,000	50,000	37,000	50,000
65L	51,000	62,400	65,000	48,100	65,000
75L	N/A	72,000	75,000	55,500	75,000
85L	N/A	81,600	85,000	62,900	85,000

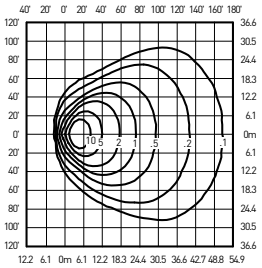
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://creelighting.com/products/outdoor/area/osq-series

66





RESTL Test Report #: PL17439-001A
OSQL-C-40L-30K7-66-UL-xx-xx-xx
Initial Delivered Lumens: 37,525

OSQL-C-40L-40K7-66-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 40,000
Initial FC at grade

NEMA® 6x6 Distribution					
Lumen Package	1900K (50 CRI)	3000K (70 CRI)	4000K (70 CRI)	5000K (90 CRI)	5700K (70 CRI)
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
4L	N/A	3,840	4,000	2,960	4,000
6L	N/A	5,750	6,000	4,440	6,000
9L	N/A	8,650	9,000	6,650	9,000
11L	N/A	10,550	11,000	8,150	11,000
16L	12,625	15,400	16,000	11,850	16,000
22L	N/A	21,100	22,000	16,300	22,000
30L	23,700	28,800	30,000	22,200	30,000
40L	N/A	38,400	40,000	29,600	40,000
50L	N/A	48,000	50,000	37,000	50,000
65L	51,000	62,400	65,000	48,100	65,000
75L	N/A	72,000	75,000	55,500	75,000
85L	N/A	81,600	85,000	62,900	85,000

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

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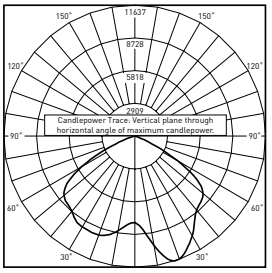
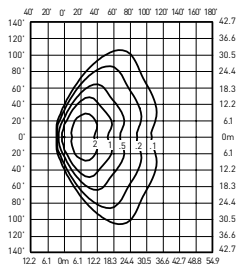




RESTL Test Report #: PL17921-001A
OSQM-C-16L-40K7-75-UL-xx-xx-xx
Initial Delivered Lumens: 16,933

OSQL-C-16L-40K7-75-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 16,000
Initial FC at grade

NEMA® 7x5 Distribution					
Lumen Package	1900K (50 CRI)	3000K (70 CRI)	4000K (70 CRI)	5000K (90 CRI)	5700K (70 CRI)
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
4L	N/A	3,840	4,000	2,960	4,000
6L	N/A	5,750	6,000	4,440	6,000
9L	N/A	8,650	9,000	6,650	9,000
11L	N/A	10,550	11,000	8,150	11,000
16L	12,625	15,400	16,000	11,850	16,000
22L	N/A	21,100	22,000	16,300	22,000
30L	23,700	28,800	30,000	22,200	30,000
40L	N/A	38,400	40,000	29,600	40,000
50L	N/A	48,000	50,000	37,000	50,000
65L	51,000	62,400	65,000	48,100	65,000
75L	N/A	72,000	75,000	55,500	75,000
85L	N/A	81,600	85,000	62,900	85,000

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

Luminaire EPA

Adjustable Arm Mount – OSQ-ML-C-AA Weight: Medium - 19.3 lbs. (8.8kg); Large - 28.4 lbs. (12.9kg); **OSQ-X-C-AA** Weight: Extra Large - 48.6 lbs. (22kg)								
Luminaire	Single	2 @ 180˚	2 @ 90˚	3 @ 90˚	3 @ 120˚	3 @ 180˚	4 @ 180˚	4 @ 90˚
	Tenon Configuration (0˚-90˚ Tilt); If used with Cree Lighting tenons, please add tenon EPA with Luminaire EPA							
	PB-1A*; PT-1+; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180)+; PT-2(180)+; PW-2A3**	PB-2A*; PB-2R2.375; PD-2A4(90)+; PT-2(90)+; PW-2A3**	PB-3A*; PB-3R2.375; PD-3A4(90)+; PT-3(90)+	PB-3A*; PB-3R2.375; PT-3(120)+	PB-3A*; PB-3R2.375	PB-4A*(180); PB-4R2.375	PB-4A*(90); PB-4R2.375; PD-4A4(90)+; PT-4(90)+
	0˚ Tilt							
OSQM	0.69	1.38	1.11	1.80	2.01	1.38	1.73	2.22
OSQL	0.78	1.55	1.30	2.07	2.33	1.55	1.94	2.60
OSQX	0.98	1.95	1.65	2.63	2.97	1.95	2.44	3.31
	45˚ Tilt							
OSQM	1.41	2.81	2.10	3.50	4.23	4.22	5.63	4.19
OSQL	2.62	5.23	3.39	6.01	6.91	7.85	10.46	6.79
OSQX	4.35	8.70	5.33	9.68	9.65	13.05	17.40	10.66
	90˚ Tilt* **							
OSQM	1.89	3.79	2.58	4.48	5.56	5.68	7.57	5.17
OSQL	3.52	7.03	4.29	7.81	9.14	10.55	14.07	8.59
OSQX	5.84	11.68	6.82	12.66	12.78	17.52	23.36	13.63

* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation
** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")
*** PD-2A4(90), PT-2(90), PD-3A4(90), PT-3(90), PD-4A4(90), PT-4(90) are not compatible with 90 degree tilt
+ PT & PD aluminum tenons are not suitable for use with OSQX luminaires.

Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*(180)	2.22
PB-4A*(90)	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None
XA-TMDA8	0.19

* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation
** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

Tenons and Brackets‡ (must specify color)

Square Internal Mount Vertical Tenons (Steel)
- Mounts to 3-6" (76-152mm) square aluminum or steel poles

PB-1A* – Single
PB-2A* – 180˚ Twin
PB-3A* – 180˚ Triple
PB-4A*(90) – 90˚ Quad
PB-4A*(180) – 180˚ Quad

Square Internal Mount Horizontal Tenons (Aluminum)
- Mounts to 4" (102mm) square aluminum or steel poles
- Not for use with OSQX luminaires

PD-2A4(90) – 90˚ Twin
PD-2A4(180) – 180˚ Twin
PD-3A4(90) – 90˚ Triple
PD-4A4(90) – 90˚ Quad

Wall Mount Brackets
- Mounts to wall or roof

WM-2 – Horizontal for OSQ-ML-C-AA or OSQ-X-C-AA mounts
WM-4 – L-Shape for OSQ-ML-C-AA or OSQ-X-C-AA mounts
WM-DM – Plate for OSQ-ML-C-DA mount

Direct Arm Pole Adapter Bracket
- Mounts to 3-6" (76-152mm) round or square aluminum or steel poles
- May be used with OSQX luminaires in 1.5G applications only

XA-TMDA8

Round External Mount Vertical Tenons (Steel)
- Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons

PB-2R2.375 – Twin
PB-3R2.375 – Triple
PB-4R2.375 – Quad

Round External Mount Horizontal Tenons (Aluminum)
- Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons
- Mounts to square pole with PB-1A* tenon
- Not for use with OSQX luminaires

PT-1 – Single (Vertical)
PT-2(90) – 90˚ Twin
PT-2(180) – 180˚ Twin
PT-3(90) – 90˚ Triple
PT-3(120) – 120˚ Triple
PT-4(90) – 90˚ Quad

Mid-Pole Bracket
- Mounts to square pole

PW-1A3** – Single
PW-2A3** – Double

Ground Mount Post
- For ground-mounted flood luminaires

PGM-1 - for OSQ-ML-C-AA or OSQ-X-C-AA mounts

‡ Refer to the Bracket and Tenons spec sheet for more details
* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation
** Specify pole size: (3) for 3", (4) for 4", (5) for 5", or (6) for 6"

Luminaire EPA

Direct Arm Mount – OSQ-ML-C-DA Weight: Medium - 19.7 lbs. (8.9kg); Large - 28.8 lbs. (13.1kg); **OSQ-X-C-DA** Weight: Extra Large - 45.8 lbs. (20.8kg)						
Luminaire	Single	2 @ 180˚	2 @ 90˚	3 @ 90˚	3 @ 120˚	4 @ 90˚
OSQM	0.63	1.26	0.98	1.61	1.79	1.97
OSQL	0.72	1.45	1.24	1.97	2.23	2.49
OSQX	0.91	1.83	1.52	2.43	2.74	3.04

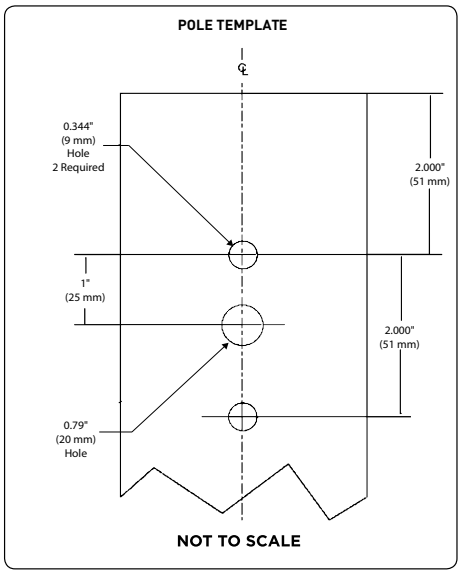
Universal Direct Arm Mount w/Adjustable Bolt Spacing – OSQ-MLX-C-OU Weight: Medium - 20.6 lbs. (9.4kg); Large - 29.7 lbs. (13.5kg); Extra Large - 45.7 lbs. (20.8kg) **Universal Direct Arm Mount w/Four-Bolt Drill Pattern for THE EDGE® High Output Luminaire w/EHO-UNV Mount – OSQ-MLX-C-HU** Weight: Medium - 20.3 lbs. (9.2kg); Large - 29.4 lbs. (13.3kg); Extra Large - 45.4 lbs. (20.6kg)						
Luminaire	Single	2 @ 180˚	2 @ 90˚	3 @ 90˚	3 @ 120˚	4 @ 90˚
OSQM-C	0.73	1.45	1.19	1.91	1.98	2.38
OSQL-C	0.82	1.65	1.39	2.21	2.29	2.77
OSQX-C	0.95	1.89	1.60	2.55	2.61	3.21

Direct Mount/Universal Direct Mount Configurations (DA/OU/HU Mounts)

Compatibility with Direct Mount Brackets					
Size	2 @ 90˚	2 @ 180˚	3 @ 90˚	3 @ 120˚	4 @ 90˚
3" Square					
Medium/Large	✓	✓	✓	N/A	✓
Extra Large	N/A	✓	N/A	N/A	N/A
3" Round					
Medium/Large	N/A	✓	N/A	✓	N/A
Extra Large	N/A	N/A	N/A	N/A	N/A
4" Square					
Medium/Large	✓	✓	✓	N/A	✓
Extra Large	✓	✓	✓	N/A	✓
4" Round					
Medium/Large	✓	✓	✓	✓	✓
Extra Large	✓	✓	✓	✓	✓
5" Square					
Medium/Large	✓	✓	✓	N/A	✓
Extra Large	✓	✓	✓	N/A	✓
5" Round					
Medium/Large	✓	✓	✓	✓	✓
Extra Large	✓	✓	✓	✓	✓
6" + Square					
Medium/Large	✓	✓	✓	N/A	✓
Extra Large	✓	✓	✓	N/A	✓
6" + Round					
Medium/Large	✓	✓	✓	✓	✓
Extra Large	✓	✓	✓	✓	✓

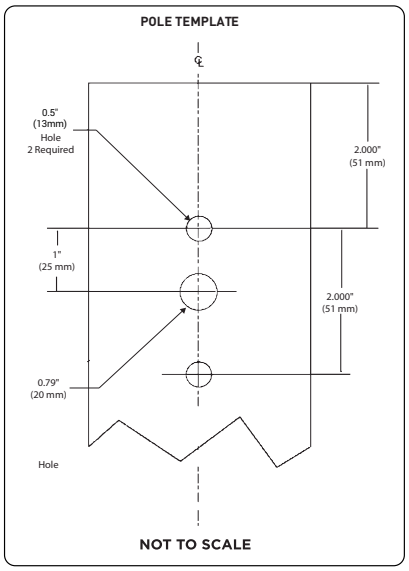
Fixture Mounting Drill Pattern for OSQ-ML-C-DA Mount

Note: When using with Cree Lighting poles, order the BLANK (LPI Poles) or C (SSS/SRS Poles) Fixture Mounting Drill Pattern.



Fixture Mounting Drill Pattern for OSQ-X-C-DA

Note: When using with Cree Lighting poles, order the Q Fixture Mounting Drill Pattern.

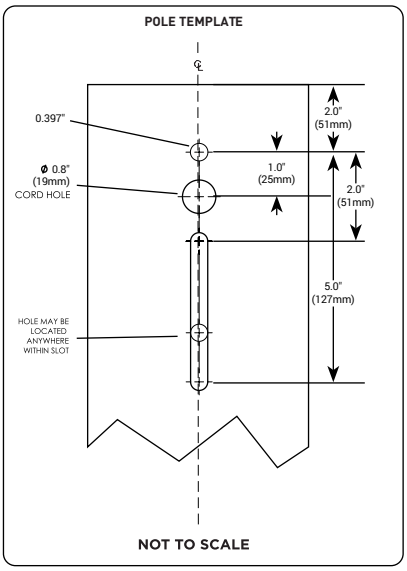


Luminaire EPA

Trunnion Mount – OSQ-ML-C-TM Weight: Medium - 23.2 lbs. (10.5kg); Large - 32.3 lbs. (14.7kg)	
Single	
Medium	**Large**
0˚ Tilt	
0.69	0.78
45˚ Tilt	
1.41	2.62
90˚ Tilt	
1.89	3.52

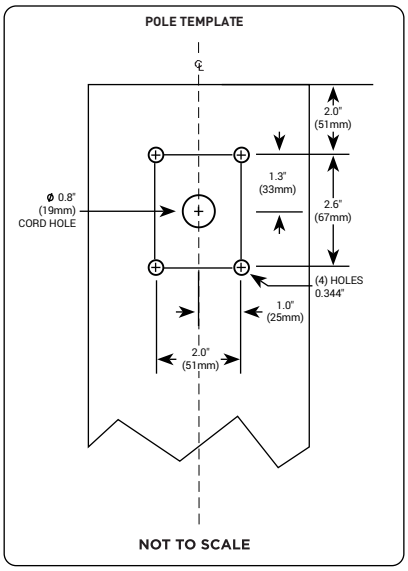
Fixture Mounting Drill Pattern for OSQ-MLX-C-OU Mount

Note: When using with Cree Lighting poles, order the Q Fixture Mounting Drill Pattern.



Fixture Mounting Drill Pattern for OSQ-MLX-C-HU Mount

Note: For use with poles with the existing 4-bolt drill pattern shown below.



Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 4L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-277V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	26	3,650	3,840	2,510	2,300	2,100	30	4000 L	4000 L	3000 L	2000 L
	40K (70 CRI)		3,800	4,000	2,620	2,400	2,180		4000 L	4000 L	3000 L	2000 L
	50K (90 CRI)		2,810	2,960	1,940	1,770	1,610		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,800	4,000	2,620	2,400	2,180		4000 L	4000 L	3000 L	2000 L
Q8/X8	30K (70 CRI)	24	3,480	3,660	2,390	2,190	2,000	20	3000 L	4000 L	2000 L	2000 L
	40K (70 CRI)		3,630	3,820	2,500	2,290	2,080		4000 L	4000 L	3000 L	2000 L
	50K (90 CRI)		2,680	2,820	1,840	1,690	1,540		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,630	3,820	2,500	2,290	2,080		4000 L	4000 L	3000 L	2000 L
Q7/X7	30K (70 CRI)	23	3,340	3,510	2,300	2,100	1,920	20	3000 L	4000 L	2000 L	2000 L
	40K (70 CRI)		3,480	3,660	2,390	2,190	2,000		3000 L	4000 L	2000 L	2000 L
	50K (90 CRI)		2,580	2,710	1,770	1,620	1,480		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,480	3,660	2,390	2,190	2,000		3000 L	4000 L	2000 L	2000 L
Q6/X6	30K (70 CRI)	22	3,220	3,390	2,220	2,030	1,850	20	3000 L	3000 L	2000 L	2000 L
	40K (70 CRI)		3,360	3,540	2,310	2,120	1,930		3000 L	4000 L	2000 L	2000 L
	50K (90 CRI)		2,490	2,620	1,710	1,570	1,430		2000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,360	3,540	2,310	2,120	1,930		3000 L	4000 L	2000 L	2000 L
Q5/X5	30K (70 CRI)	20	2,950	3,100	2,030	1,860	1,690	20	3000 L	3000 L	2000 L	2000 L
	40K (70 CRI)		3,070	3,230	2,110	1,930	1,760		3000 L	3000 L	2000 L	2000 L
	50K (90 CRI)		2,270	2,390	1,560	1,430	1,300		2000 L	2000 L	2000 L	1000 L
	57K (70 CRI)		3,070	3,230	2,110	1,930	1,760		3000 L	3000 L	2000 L	2000 L
Q4/X4	30K (70 CRI)	18	2,680	2,820	1,840	1,690	1,540	20	3000 L	3000 L	2000 L	2000 L
	40K (70 CRI)		2,790	2,940	1,920	1,760	1,600		3000 L	3000 L	2000 L	2000 L
	50K (90 CRI)		2,060	2,170	1,420	1,300	1,180		2000 L	2000 L	1000 L	1000 L
	57K (70 CRI)		2,790	2,940	1,920	1,760	1,600		3000 L	3000 L	2000 L	2000 L
Q3/X3	30K (70 CRI)	16	2,470	2,600	1,700	1,560	1,420	20	2000 L	3000 L	2000 L	2000 L
	40K (70 CRI)		2,580	2,710	1,770	1,620	1,480		3000 L	3000 L	2000 L	2000 L
	50K (90 CRI)		1,910	2,010	1,310	1,200	1,100		2000 L	2000 L	1000 L	1000 L
	57K (70 CRI)		2,580	2,710	1,770	1,620	1,480		3000 L	3000 L	2000 L	2000 L
Q2/X2	30K (70 CRI)	15	2,220	2,340	1,530	1,400	1,270	20	2000 L	2000 L	2000 L	1000 L
	40K (70 CRI)		2,320	2,440	1,600	1,460	1,330		2000 L	2000 L	2000 L	1000 L
	50K (90 CRI)		1,720	1,810	1,180	1,080	990		2000 L	2000 L	1000 L	1000 L
	57K (70 CRI)		2,320	2,440	1,600	1,460	1,330		2000 L	2000 L	2000 L	1000 L
Q1/X1	30K (70 CRI)	13	1,970	2,070	1,350	1,240	1,130	10	2000 L	2000 L	1000 L	1000 L
	40K (70 CRI)		2,050	2,160	1,410	1,290	1,180		2000 L	2000 L	1000 L	1000 L
	50K (90 CRI)		1,520	1,600	1,050	960	870		2000 L	2000 L	1000 L	1000 L
	57K (70 CRI)		2,050	2,160	1,410	1,290	1,180		2000 L	2000 L	1000 L	1000 L

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 6L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/ External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	37	5,475	5,750	3,760	3,440	3,140	40	5000 L	6000 L	4000 L	3000 L
	40K (70 CRI)		5,700	6,000	3,920	3,590	3,270		6000 L	6000 L	4000 L	4000 L
	50K (90 CRI)		4,220	4,440	2,900	2,660	2,420		4000 L	4000 L	3000 L	3000 L
	57K (70 CRI)		5,700	6,000	3,920	3,590	3,270		6000 L	6000 L	4000 L	4000 L
Q8/X8	30K (70 CRI)	36	5,200	5,475	3,580	3,280	2,980	40	5000 L	5000 L	4000 L	3000 L
	40K (70 CRI)		5,450	5,725	3,740	3,430	3,130		5000 L	6000 L	4000 L	3000 L
	50K (90 CRI)		4,030	4,240	2,770	2,540	2,310		4000 L	4000 L	3000 L	3000 L
	57K (70 CRI)		5,450	5,725	3,740	3,430	3,130		5000 L	6000 L	4000 L	3000 L
Q7/X7	30K (70 CRI)	34	4,990	5,250	3,430	3,140	2,860	30	5000 L	5000 L	3000 L	3000 L
	40K (70 CRI)		5,200	5,475	3,580	3,280	2,980		5000 L	5000 L	4000 L	3000 L
	50K (90 CRI)		3,860	4,060	2,650	2,430	2,220		4000 L	4000 L	3000 L	2000 L
	57K (70 CRI)		5,200	5,475	3,580	3,280	2,980		5000 L	5000 L	4000 L	3000 L
Q6/X6	30K (70 CRI)	32	4,820	5,075	3,320	3,040	2,770	30	5000 L	5000 L	3000 L	3000 L
	40K (70 CRI)		5,050	5,300	3,470	3,170	2,900		5000 L	5000 L	3000 L	3000 L
	50K (90 CRI)		3,730	3,920	2,560	2,350	2,140		4000 L	4000 L	3000 L	2000 L
	57K (70 CRI)		5,050	5,300	3,470	3,170	2,900		5000 L	5000 L	3000 L	3000 L
Q5/X5	30K (70 CRI)	29	4,420	4,650	3,040	2,780	2,540	30	4000 L	5000 L	3000 L	3000 L
	40K (70 CRI)		4,610	4,850	3,170	2,900	2,650		5000 L	5000 L	3000 L	3000 L
	50K (90 CRI)		3,410	3,590	2,350	2,150	1,960		3000 L	4000 L	2000 L	2000 L
	57K (70 CRI)		4,610	4,850	3,170	2,900	2,650		5000 L	5000 L	3000 L	3000 L
Q4/X4	30K (70 CRI)	27	4,010	4,220	2,760	2,530	2,300	30	4000 L	4000 L	3000 L	3000 L
	40K (70 CRI)		4,180	4,400	2,880	2,640	2,400		4000 L	4000 L	3000 L	3000 L
	50K (90 CRI)		3,100	3,260	2,130	1,950	1,780		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		4,180	4,400	2,880	2,640	2,400		4000 L	4000 L	3000 L	3000 L
Q3/X3	30K (70 CRI)	24	3,710	3,900	2,550	2,340	2,130	20	4000 L	4000 L	3000 L	2000 L
	40K (70 CRI)		3,870	4,070	2,660	2,440	2,220		4000 L	4000 L	3000 L	2000 L
	50K (90 CRI)		2,860	3,010	1,970	1,800	1,640		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,870	4,070	2,660	2,440	2,220		4000 L	4000 L	3000 L	2000 L
Q2/X2	30K (70 CRI)	21	3,340	3,510	2,300	2,100	1,920	20	3000 L	4000 L	2000 L	2000 L
	40K (70 CRI)		3,480	3,660	2,390	2,190	2,000		3000 L	4000 L	2000 L	2000 L
	50K (90 CRI)		2,580	2,710	1,770	1,620	1,480		3000 L	3000 L	2000 L	2000 L
	57K (70 CRI)		3,480	3,660	2,390	2,190	2,000		3000 L	4000 L	2000 L	2000 L
Q1/X1	30K (70 CRI)	19	2,950	3,100	2,030	1,860	1,690	20	3000 L	3000 L	2000 L	2000 L
	40K (70 CRI)		3,070	3,230	2,110	1,930	1,760		3000 L	3000 L	2000 L	2000 L
	50K (90 CRI)		2,270	2,390	1,560	1,430	1,300		2000 L	2000 L	2000 L	1000 L
	57K (70 CRI)		3,070	3,230	2,110	1,930	1,760		3000 L	3000 L	2000 L	2000 L

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 9L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/ External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	55	8,225	8,650	5,650	5,175	4,720	60	8000 L	9000 L	6000 L	5000 L
	40K (70 CRI)		8,550	9,000	5,875	5,400	4,910		9000 L	9000 L	6000 L	5000 L
	50K (90 CRI)		6,325	6,650	4,350	3,980	3,630		6000 L	7000 L	4000 L	4000 L
	57K (70 CRI)		8,550	9,000	5,875	5,400	4,910		9000 L	9000 L	6000 L	5000 L
Q8/X8	30K (70 CRI)	53	7,850	8,250	5,400	4,940	4,510	50	8000 L	8000 L	5000 L	5000 L
	40K (70 CRI)		8,150	8,575	5,600	5,125	4,680		8000 L	9000 L	6000 L	5000 L
	50K (90 CRI)		6,025	6,350	4,150	3,800	3,460		6000 L	6000 L	4000 L	4000 L
	57K (70 CRI)		8,150	8,575	5,600	5,125	4,680		8000 L	9000 L	6000 L	5000 L
Q7/X7	30K (70 CRI)	50	7,500	7,900	5,175	4,730	4,310	50	8000 L	8000 L	5000 L	5000 L
	40K (70 CRI)		7,825	8,225	5,375	4,930	4,490		8000 L	8000 L	5000 L	5000 L
	50K (90 CRI)		5,775	6,075	3,970	3,640	3,310		6000 L	6000 L	4000 L	4000 L
	57K (70 CRI)		7,825	8,225	5,375	4,930	4,490		8000 L	8000 L	5000 L	5000 L
Q6/X6	30K (70 CRI)	48	7,275	7,650	5,000	4,580	4,180	50	7000 L	8000 L	5000 L	5000 L
	40K (70 CRI)		7,550	7,950	5,200	4,760	4,330		8000 L	8000 L	5000 L	5000 L
	50K (90 CRI)		5,575	5,875	3,840	3,520	3,200		6000 L	6000 L	4000 L	4000 L
	57K (70 CRI)		7,550	7,950	5,200	4,760	4,330		8000 L	8000 L	5000 L	5000 L
Q5/X5	30K (70 CRI)	43	6,650	7,000	4,580	4,190	3,820	40	7000 L	7000 L	5000 L	4000 L
	40K (70 CRI)		6,925	7,275	4,760	4,360	3,980		7000 L	7000 L	5000 L	4000 L
	50K (90 CRI)		5,100	5,375	3,510	3,220	2,930		5000 L	5000 L	4000 L	3000 L
	57K (70 CRI)		6,925	7,275	4,760	4,360	3,980		7000 L	7000 L	5000 L	4000 L
Q4/X4	30K (70 CRI)	40	6,025	6,350	4,150	3,800	3,460	40	6000 L	6000 L	4000 L	4000 L
	40K (70 CRI)		6,275	6,600	4,320	3,950	3,600		6000 L	7000 L	4000 L	4000 L
	50K (90 CRI)		4,640	4,880	3,190	2,920	2,660		5000 L	5000 L	3000 L	3000 L
	57K (70 CRI)		6,275	6,600	4,320	3,950	3,600		6000 L	7000 L	4000 L	4000 L
Q3/X3	30K (70 CRI)	36	5,575	5,875	3,840	3,520	3,200	40	6000 L	6000 L	4000 L	4000 L
	40K (70 CRI)		5,800	6,100	3,990	3,650	3,330		6000 L	6000 L	4000 L	4000 L
	50K (90 CRI)		4,290	4,510	2,950	2,700	2,460		4000 L	5000 L	3000 L	3000 L
	57K (70 CRI)		5,800	6,100	3,990	3,650	3,330		6000 L	6000 L	4000 L	4000 L
Q2/X2*	30K (70 CRI)	32	5,025	5,275	3,450	3,160	2,880	30	5000 L	5000 L	3000 L	3000 L
	40K (70 CRI)		5,225	5,500	3,600	3,290	3,000		5000 L	6000 L	4000 L	3000 L
	50K (90 CRI)		3,860	4,060	2,650	2,430	2,220		4000 L	4000 L	3000 L	2000 L
	57K (70 CRI)		5,225	5,500	3,600	3,290	3,000		5000 L	6000 L	4000 L	3000 L
Q1/X1*	30K (70 CRI)	29	4,430	4,660	3,050	2,790	2,540	30	4000 L	5000 L	3000 L	3000 L
	40K (70 CRI)		4,610	4,850	3,170	2,900	2,650		5000 L	5000 L	3000 L	3000 L
	50K (90 CRI)		3,400	3,580	2,340	2,140	1,950		3000 L	4000 L	2000 L	2000 L
	57K (70 CRI)		4,610	4,850	3,170	2,900	2,650		5000 L	5000 L	3000 L	3000 L

* X2 and X1 options not available with 9L lumen package with UL voltage.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 11L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	68	10,025	10,550	6,900	6,325	5,750	70	10000 L	11000 L	7000 L	6000 L
	40K (70 CRI)		10,450	11,000	7,200	6,600	6,000		10000 L	11000 L	7000 L	7000 L
	50K (90 CRI)		7,750	8,150	5,325	4,880	4,450		8000 L	8000 L	5000 L	5000 L
	57K (70 CRI)		10,450	11,000	7,200	6,600	5,750		10000 L	11000 L	7000 L	7000 L
Q8/X8	30K (70 CRI)	65	9,575	10,075	6,600	6,025	5,500	70	10000 L	10000 L	7000 L	6000 L
	40K (70 CRI)		9,975	10,500	6,875	6,300	5,725		10000 L	11000 L	7000 L	6000 L
	50K (90 CRI)		7,400	7,775	5,075	4,660	4,250		7000 L	8000 L	5000 L	5000 L
	57K (70 CRI)		9,975	10,500	6,875	6,300	5,725		10000 L	11000 L	7000 L	6000 L
Q7/X7	30K (70 CRI)	62	9,175	9,650	6,300	5,775	5,275	60	9000 L	10000 L	6000 L	6000 L
	40K (70 CRI)		9,550	10,050	6,575	6,025	5,475		10000 L	10000 L	7000 L	6000 L
	50K (90 CRI)		7,075	7,450	4,870	4,460	4,060		7000 L	7000 L	5000 L	4000 L
	57K (70 CRI)		9,550	10,050	6,575	6,025	5,475		10000 L	10000 L	7000 L	6000 L
Q6/X6	30K (70 CRI)	59	8,875	9,325	6,100	5,575	5,100	60	9000 L	9000 L	6000 L	6000 L
	40K (70 CRI)		9,250	9,725	6,350	5,825	5,300		9000 L	10000 L	6000 L	6000 L
	50K (90 CRI)		6,850	7,200	4,710	4,310	3,930		7000 L	7000 L	5000 L	4000 L
	57K (70 CRI)		9,250	9,725	6,350	5,825	5,300		9000 L	10000 L	6000 L	6000 L
Q5/X5	30K (70 CRI)	53	8,100	8,525	5,575	5,100	4,650	50	8000 L	9000 L	6000 L	5000 L
	40K (70 CRI)		8,450	8,900	5,825	5,325	4,850		8000 L	9000 L	6000 L	5000 L
	50K (90 CRI)		6,250	6,575	4,300	3,940	3,590		6000 L	7000 L	4000 L	4000 L
	57K (70 CRI)		8,450	8,900	5,825	5,325	4,850		8000 L	9000 L	6000 L	5000 L
Q4/X4	30K (70 CRI)	49	7,375	7,750	5,075	4,640	4,230	50	7000 L	8000 L	5000 L	5000 L
	40K (70 CRI)		7,675	8,075	5,275	4,840	4,410		8000 L	8000 L	5000 L	5000 L
	50K (90 CRI)		5,675	5,975	3,910	3,580	3,260		6000 L	6000 L	4000 L	4000 L
	57K (70 CRI)		7,675	8,075	5,275	4,840	4,410		8000 L	8000 L	5000 L	5000 L
Q3/X3	30K (70 CRI)	44	6,800	7,150	4,680	4,280	3,900	40	7000 L	7000 L	5000 L	4000 L
	40K (70 CRI)		7,075	7,450	4,870	4,460	4,060		7000 L	7000 L	5000 L	4000 L
	50K (90 CRI)		5,250	5,525	3,610	3,310	3,010		5000 L	6000 L	4000 L	3000 L
	57K (70 CRI)		7,075	7,450	4,870	4,460	4,060		7000 L	7000 L	5000 L	4000 L
Q2/X2	30K (70 CRI)	39	6,100	6,425	4,200	3,850	3,500	40	6000 L	6000 L	4000 L	4000 L
	40K (70 CRI)		6,375	6,700	4,380	4,010	3,660		6000 L	7000 L	4000 L	4000 L
	50K (90 CRI)		4,720	4,970	3,250	2,980	2,710		5000 L	5000 L	3000 L	3000 L
	57K (70 CRI)		6,375	6,700	4,380	4,010	3,660		6000 L	7000 L	4000 L	4000 L
Q1/X1	30K (70 CRI)	35	5,400	5,675	3,710	3,400	3,100	40	5000 L	6000 L	4000 L	3000 L
	40K (70 CRI)		5,625	5,925	3,870	3,550	3,230		6000 L	6000 L	4000 L	4000 L
	50K (90 CRI)		4,170	4,390	2,870	2,630	2,390		4000 L	4000 L	3000 L	3000 L
	57K (70 CRI)		5,625	5,925	3,870	3,550	3,230		6000 L	6000 L	4000 L	4000 L

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 16L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/ External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	19K (50 CRI)	97	12,000	12,625	8,250	7,550	6,900	100	12000 L	13000 L	8000 L	8000 L
	30K (70 CRI)		14,650	15,400	10,075	9,225	8,400		15000 L	15000 L	10000 L	9000 L
	40K (70 CRI)		15,200	16,000	10,450	9,575	8,725		15000 L	16000 L	10000 L	10000 L
	50K (90 CRI)		11,275	11,850	7,750	7,100	6,475		11000 L	12000 L	8000 L	7000 L
	57K (70 CRI)		15,200	16,000	10,450	9,575	8,725		15000 L	16000 L	10000 L	10000 L
Q8/X8	19K (50 CRI)	93	11,450	12,050	7,875	7,225	6,575	90	11000 L	12000 L	8000 L	7000 L
	30K (70 CRI)		13,975	14,700	9,600	8,800	8,025		14000 L	15000 L	10000 L	9000 L
	40K (70 CRI)		14,550	15,300	10,000	9,175	8,350		15000 L	15000 L	10000 L	9000 L
	50K (90 CRI)		10,750	11,300	7,400	6,775	6,175		11000 L	11000 L	7000 L	7000 L
	57K (70 CRI)		14,550	15,300	10,000	9,175	8,350		15000 L	15000 L	10000 L	9000 L
Q7/X7	19K (50 CRI)	87	10,975	11,550	7,550	6,925	6,300	90	11000 L	12000 L	8000 L	7000 L
	30K (70 CRI)		13,375	14,075	9,200	8,425	7,675		13000 L	14000 L	9000 L	8000 L
	40K (70 CRI)		13,900	14,625	9,575	8,750	7,975		14000 L	15000 L	10000 L	9000 L
	50K (90 CRI)		10,300	10,825	7,075	6,475	5,900		10000 L	11000 L	7000 L	6000 L
	57K (70 CRI)		13,900	14,625	9,575	8,750	7,975		14000 L	15000 L	10000 L	9000 L
Q6/X6	19K (50 CRI)	84	10,600	11,150	7,300	6,675	6,075	80	11000 L	11000 L	7000 L	7000 L
	30K (70 CRI)		12,950	13,625	8,900	8,150	7,425		13000 L	14000 L	9000 L	8000 L
	40K (70 CRI)		13,450	14,150	9,250	8,475	7,725		13000 L	14000 L	9000 L	8000 L
	50K (90 CRI)		9,950	10,475	6,850	6,275	5,700		10000 L	10000 L	7000 L	6000 L
	57K (70 CRI)		13,450	14,150	9,250	8,475	7,725		13000 L	14000 L	9000 L	8000 L
Q5/X5	19K (50 CRI)	76	9,700	10,200	6,675	6,100	5,575	80	10000 L	10000 L	7000 L	6000 L
	30K (70 CRI)		11,825	12,450	8,150	7,450	6,800		12000 L	12000 L	8000 L	7000 L
	40K (70 CRI)		12,275	12,925	8,450	7,750	7,050		12000 L	13000 L	8000 L	8000 L
	50K (90 CRI)		9,100	9,575	6,250	5,725	5,225		9000 L	10000 L	6000 L	6000 L
	57K (70 CRI)		12,275	12,925	8,450	7,750	7,050		12000 L	13000 L	8000 L	8000 L
Q4/X4	19K (50 CRI)	70	8,800	9,250	6,050	5,550	5,050	70	9000 L	9000 L	6000 L	6000 L
	30K (70 CRI)		10,750	11,300	7,400	6,775	6,175		11000 L	11000 L	7000 L	7000 L
	40K (70 CRI)		11,175	11,750	7,675	7,025	6,425		11000 L	12000 L	8000 L	7000 L
	50K (90 CRI)		8,275	8,700	5,700	5,200	4,750		8000 L	9000 L	6000 L	5000 L
	57K (70 CRI)		11,175	11,750	7,675	7,025	6,425		11000 L	12000 L	8000 L	7000 L
Q3/X3	19K (50 CRI)	62	8,125	8,550	5,600	5,125	4,660	60	8000 L	9000 L	6000 L	5000 L
	30K (70 CRI)		9,925	10,450	6,825	6,250	5,700		10000 L	10000 L	7000 L	6000 L
	40K (70 CRI)		10,325	10,850	7,100	6,500	5,925		10000 L	11000 L	7000 L	7000 L
	50K (90 CRI)		7,625	8,025	5,250	4,810	4,380		8000 L	8000 L	5000 L	5000 L
	57K (70 CRI)		10,325	10,850	7,100	6,500	5,925		10000 L	11000 L	7000 L	7000 L
Q2/X2	19K (50 CRI)	55	7,325	7,700	5,050	4,620	4,200	60	7000 L	8000 L	5000 L	5000 L
	30K (70 CRI)		8,925	9,400	6,150	5,625	5,125		9000 L	9000 L	6000 L	6000 L
	40K (70 CRI)		9,275	9,750	6,375	5,850	5,325		9000 L	10000 L	6000 L	6000 L
	50K (90 CRI)		6,875	7,225	4,720	4,330	3,950		7000 L	7000 L	5000 L	4000 L
	57K (70 CRI)		9,275	9,750	6,375	5,850	5,325		9000 L	10000 L	6000 L	6000 L
Q1*	19K (50 CRI)	50	6,475	6,800	4,450	4,080	3,720	50	6000 L	7000 L	4000 L	4000 L
	30K (70 CRI)		7,900	8,300	5,425	4,970	4,530		8000 L	8000 L	5000 L	5000 L
	40K (70 CRI)		8,200	8,625	5,650	5,175	4,710		8000 L	9000 L	6000 L	5000 L
	50K (90 CRI)		6,050	6,375	4,170	3,820	3,470		6000 L	6000 L	4000 L	4000 L
	57K (70 CRI)		8,200	8,625	5,650	5,175	4,710		8000 L	9000 L	6000 L	5000 L

* X1 option not available with 16L lumen package.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 22L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-in-stalled BLS)	2M, 3M, 4M, AF w/External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	131	20,100	21,100	13,800	12,625	11,550	130	20000 L	21000 L	14000 L	13000 L
	40K (70 CRI)		20,900	22,000	14,375	13,175	12,000		21000 L	22000 L	14000 L	13000 L
	50K (90 CRI)		15,500	16,300	10,650	9,750	8,900		16000 L	16000 L	11000 L	10000 L
	57K (70 CRI)		20,900	22,000	14,375	13,175	12,000		21000 L	22000 L	14000 L	13000 L
Q8/X8	30K (70 CRI)	126	19,100	20,100	13,150	12,050	10,975	130	19000 L	20000 L	13000 L	12000 L
	40K (70 CRI)		20,000	21,000	13,725	12,575	11,475		20000 L	21000 L	14000 L	13000 L
	50K (90 CRI)		14,825	15,600	10,200	9,350	8,500		15000 L	16000 L	10000 L	9000 L
	57K (70 CRI)		20,000	21,000	13,725	12,575	11,475		20000 L	21000 L	14000 L	13000 L
Q7/X7	30K (70 CRI)	119	18,300	19,300	12,625	11,550	10,500	120	18000 L	19000 L	13000 L	12000 L
	40K (70 CRI)		19,100	20,100	13,150	12,050	10,975		19000 L	20000 L	13000 L	12000 L
	50K (90 CRI)		14,175	14,900	9,750	8,925	8,125		14000 L	15000 L	10000 L	9000 L
	57K (70 CRI)		19,100	20,100	13,150	12,050	10,975		19000 L	20000 L	13000 L	12000 L
Q6/X6	30K (70 CRI)	114	17,800	18,700	12,225	11,200	10,225	110	18000 L	19000 L	12000 L	11000 L
	40K (70 CRI)		18,400	19,400	12,675	11,625	10,550		18000 L	19000 L	13000 L	12000 L
	50K (90 CRI)		13,700	14,400	9,425	8,625	7,875		14000 L	14000 L	9000 L	9000 L
	57K (70 CRI)		18,400	19,400	12,675	11,625	10,550		18000 L	19000 L	13000 L	12000 L
Q5/X5	30K (70 CRI)	103	16,200	17,000	11,125	10,175	9,300	100	16000 L	17000 L	11000 L	10000 L
	40K (70 CRI)		16,900	17,800	11,650	10,650	9,700		17000 L	18000 L	12000 L	11000 L
	50K (90 CRI)		12,525	13,175	8,625	7,900	7,200		13000 L	13000 L	9000 L	8000 L
	57K (70 CRI)		16,900	17,800	11,650	10,650	9,700		17000 L	18000 L	12000 L	11000 L
Q4/X4	30K (70 CRI)	95	14,725	15,500	10,125	9,275	8,450	100	15000 L	16000 L	10000 L	9000 L
	40K (70 CRI)		15,300	16,100	10,525	9,650	8,775		15000 L	16000 L	11000 L	10000 L
	50K (90 CRI)		11,375	11,975	7,825	7,175	6,525		11000 L	12000 L	8000 L	7000 L
	57K (70 CRI)		15,300	16,100	10,525	9,650	8,775		15000 L	16000 L	11000 L	10000 L
Q3/X3	30K (70 CRI)	84	13,600	14,300	9,350	8,575	7,800	80	14000 L	14000 L	9000 L	9000 L
	40K (70 CRI)		14,175	14,925	9,750	8,950	8,125		14000 L	15000 L	10000 L	9000 L
	50K (90 CRI)		10,500	11,050	7,225	6,625	6,025		11000 L	11000 L	7000 L	7000 L
	57K (70 CRI)		14,175	14,925	9,750	8,950	8,125		14000 L	15000 L	10000 L	9000 L
Q2/X2	30K (70 CRI)	75	12,250	12,875	8,425	7,700	7,025	80	12000 L	13000 L	8000 L	8000 L
	40K (70 CRI)		12,750	13,425	8,775	8,050	7,325		13000 L	13000 L	9000 L	8000 L
	50K (90 CRI)		9,450	9,950	6,500	5,950	5,425		9000 L	10000 L	7000 L	6000 L
	57K (70 CRI)		12,750	13,425	8,775	8,050	7,325		13000 L	13000 L	9000 L	8000 L
Q1/X1	30K (70 CRI)	68	10,825	11,375	7,450	6,825	6,225	70	11000 L	11000 L	7000 L	7000 L
	40K (70 CRI)		11,275	11,850	7,750	7,100	6,475		11000 L	12000 L	8000 L	7000 L
	50K (90 CRI)		8,350	8,775	5,750	5,250	4,790		8000 L	9000 L	6000 L	5000 L
	57K (70 CRI)		11,275	11,850	7,750	7,100	6,475		11000 L	12000 L	8000 L	7000 L

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (</= 24,000 lumens rounded to nearest 1000 lumens, > 24,001 lumens rounded to the nearest 2000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 30L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/ External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	19K (50 CRI)	175	22,500	23,700	15,500	14,175	12,925	180	23000 L	24000L	16000L	14000L
	30K (70 CRI)		27,400	28,800	18,800	17,200	15,700		28000 L	28000 L	19000 L	17000 L
	40K (70 CRI)		28,500	30,000	19,600	18,000	16,400		28000 L	30000 L	20000 L	18000 L
	50K (90 CRI)		21,100	22,200	14,525	13,300	12,100		21000 L	22000 L	15000 L	13000 L
	57K (70 CRI)		28,500	30,000	19,600	18,000	16,400		28000 L	30000 L	20000 L	18000 L
Q8/X8	19K (50 CRI)	168	21,475	22,600	14,775	13,525	12,325	170	21000 L	23000L	15000L	14000L
	30K (70 CRI)		26,100	27,500	18,000	16,500	14,975		26000 L	28000 L	18000 L	17000 L
	40K (70 CRI)		27,200	28,600	18,700	17,100	15,600		28000 L	28000 L	19000 L	17000 L
	50K (90 CRI)		20,200	21,200	13,850	12,700	11,600		20000 L	21000 L	14000 L	13000 L
	57K (70 CRI)		27,200	28,600	18,700	17,100	15,600		28000 L	28000 L	19000 L	17000 L
Q7/X7	19K (50 CRI)	158	20,575	21,600	14,150	12,975	11,800	160	21000 L	22000L	14000L	13000L
	30K (70 CRI)		25,000	26,300	17,200	15,800	14,350		26000 L	26000 L	17000 L	16000 L
	40K (70 CRI)		26,000	27,400	17,900	16,400	14,925		26000 L	28000 L	18000 L	16000 L
	50K (90 CRI)		19,300	20,300	13,275	12,150	11,075		19000 L	20000 L	13000 L	12000 L
	57K (70 CRI)		26,000	27,400	17,900	16,400	14,925		26000 L	28000 L	18000 L	16000 L
Q6/X6	19K (50 CRI)	152	19,900	20,900	13,700	12,550	11,425	150	20000 L	21000L	14000L	13000L
	30K (70 CRI)		24,200	25,500	16,700	15,300	13,900		24000 L	26000 L	17000 L	15000 L
	40K (70 CRI)		25,200	26,500	17,300	15,900	14,475		26000 L	26000 L	17000 L	16000 L
	50K (90 CRI)		18,600	19,600	12,825	11,750	10,675		19000 L	20000 L	13000 L	12000 L
	57K (70 CRI)		25,200	26,500	17,300	15,900	14,475		26000 L	26000 L	17000 L	16000 L
Q5/X5	19K (50 CRI)	137	18,175	19,100	12,500	11,450	10,425	140	18000 L	19000L	13000L	11000L
	30K (70 CRI)		22,100	23,300	15,200	13,950	12,675		22000 L	23000 L	15000 L	14000 L
	40K (70 CRI)		23,000	24,200	15,800	14,500	13,200		23000 L	24000 L	16000 L	15000 L
	50K (90 CRI)		17,000	17,900	11,700	10,725	9,750		17000 L	18000 L	12000 L	11000 L
	57K (70 CRI)		23,000	24,200	15,800	14,500	13,200		23000 L	24000 L	16000 L	15000 L
Q4/X4	19K (50 CRI)	126	16,525	17,400	11,375	10,400	9,475	130	17000 L	17000L	11000L	10000L
	30K (70 CRI)		20,100	21,100	13,800	12,625	11,550		20000 L	21000 L	14000 L	13000 L
	40K (70 CRI)		20,900	22,000	14,375	13,175	12,000		21000 L	22000 L	14000 L	13000 L
	50K (90 CRI)		15,500	16,300	10,650	9,750	8,900		16000 L	16000 L	11000 L	10000 L
	57K (70 CRI)		20,900	22,000	14,375	13,175	12,000		21000 L	22000 L	14000 L	13000 L
Q3/X3	19K (50 CRI)	113	15,250	16,000	10,500	9,600	8,750	110	15000 L	16000L	11000L	10000L
	30K (70 CRI)		18,500	19,500	12,750	11,675	10,625		19000 L	20000 L	13000 L	12000 L
	40K (70 CRI)		19,300	20,300	13,275	12,150	11,075		19000 L	20000 L	13000 L	12000 L
	50K (90 CRI)		14,350	15,100	9,875	9,050	8,225		14000 L	15000 L	10000 L	9000 L
	57K (70 CRI)		19,300	20,300	13,275	12,150	11,075		19000 L	20000 L	13000 L	12000 L
Q2/X2	19K (50 CRI)	100	13,725	14,450	9,450	8,650	7,875	100	14000 L	14000L	9000L	9000L
	30K (70 CRI)		16,700	17,600	11,500	10,550	9,575		17000 L	18000 L	12000 L	11000 L
	40K (70 CRI)		17,400	18,300	11,975	10,950	10,000		17000 L	18000 L	12000 L	11000 L
	50K (90 CRI)		12,875	13,550	8,850	8,125	7,400		13000 L	14000 L	9000 L	8000 L
	57K (70 CRI)		17,400	18,300	11,975	10,950	10,000		17000 L	18000 L	12000 L	11000 L
Q1*	19K (50 CRI)	90	12,125	12,750	8,350	7,650	6,950	90	12000 L	13000L	8000L	8000L
	30K (70 CRI)		14,725	15,500	10,125	9,275	8,450		15000 L	16000 L	10000 L	9000 L
	40K (70 CRI)		15,400	16,200	10,600	9,700	8,850		15000 L	16000 L	11000 L	10000 L
	50K (90 CRI)		11,375	11,975	7,825	7,175	6,525		11000 L	12000 L	8000 L	7000 L
	57K (70 CRI)		15,400	16,200	10,600	9,700	8,850		15000 L	16000 L	11000 L	10000 L

* X1 option not available with 30L lumen package.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings. When ordered with the N option, the luminaire will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (</= 24,000 lumens rounded to nearest 1000 lumens, > 24,001 lumens rounded to the nearest 2000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others). When ordered with the N option, the luminaire will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected.

Q & X Option Power & Lumen Data – 40L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values					Utility Label Wattage	Utility Label Lumens			
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS		2M, 3M, 4M, AF w/ and w/o External BLS	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)
Q9 (Full Power)	30K (70 CRI)	236	36,500	38,400	25,100	23,000	21,000	240	36000 L	38000 L	26000 L	23000 L
	40K (70 CRI)		38,000	40,000	26,200	24,000	21,800		38000 L	40000 L	26000 L	24000 L
	50K (90 CRI)		28,100	29,600	19,400	17,700	16,100		28000 L	30000 L	19000 L	18000 L
	57K (70 CRI)		38,000	40,000	26,200	24,000	21,800		38000 L	40000 L	26000 L	24000 L
Q8/X8	30K (70 CRI)	221	34,800	36,600	23,900	21,900	20,000	220	34000 L	36000 L	24000 L	22000 L
	40K (70 CRI)		36,300	38,200	25,000	22,900	20,800		36000 L	38000 L	26000 L	23000 L
	50K (90 CRI)		26,800	28,200	18,400	16,900	15,400		26000 L	28000 L	18000 L	17000 L
	57K (70 CRI)		36,300	38,200	25,000	22,900	20,800		36000 L	38000 L	26000 L	23000 L
Q7/X7	30K (70 CRI)	212	33,400	35,100	23,000	21,000	19,200	210	34000 L	36000 L	23000 L	21000 L
	40K (70 CRI)		34,800	36,600	23,900	21,900	20,000		34000 L	36000 L	24000 L	22000 L
	50K (90 CRI)		25,800	27,100	17,700	16,200	14,800		26000 L	28000 L	18000 L	16000 L
	57K (70 CRI)		34,800	36,600	23,900	21,900	20,000		34000 L	36000 L	24000 L	22000 L
Q6/X6	30K (70 CRI)	203	32,200	33,900	22,200	20,300	18,500	200	32000 L	34000 L	22000 L	20000 L
	40K (70 CRI)		33,600	35,400	23,100	21,200	19,300		34000 L	36000 L	23000 L	21000 L
	50K (90 CRI)		24,900	26,200	17,100	15,700	14,300		24000 L	26000 L	17000 L	16000 L
	57K (70 CRI)		33,600	35,400	23,100	21,200	19,300		34000 L	36000 L	23000 L	21000 L
Q5/X5	30K (70 CRI)	184	29,500	31,000	20,300	18,600	16,900	180	30000 L	32000 L	20000 L	19000 L
	40K (70 CRI)		30,700	32,300	21,100	19,300	17,600		30000 L	32000 L	21000 L	19000 L
	50K (90 CRI)		22,700	23,900	15,600	14,325	13,025		23000 L	24000 L	16000 L	14000 L
	57K (70 CRI)		30,700	32,300	21,100	19,300	17,600		30000 L	32000 L	21000 L	19000 L
Q4/X4	30K (70 CRI)	167	26,800	28,200	18,400	16,900	15,400	170	26000 L	28000 L	18000 L	17000 L
	40K (70 CRI)		27,900	29,400	19,200	17,600	16,000		28000 L	30000 L	19000 L	18000 L
	50K (90 CRI)		20,600	21,700	14,200	13,000	11,825		21000 L	22000 L	14000 L	13000 L
	57K (70 CRI)		27,900	29,400	19,200	17,600	16,000		28000 L	30000 L	19000 L	18000 L
Q3/X3	30K (70 CRI)	151	24,700	26,000	17,000	15,600	14,175	150	24000 L	26000 L	17000 L	16000 L
	40K (70 CRI)		25,800	27,100	17,700	16,200	14,800		26000 L	28000 L	18000 L	16000 L
	50K (90 CRI)		19,100	20,100	13,150	12,050	10,975		19000 L	20000 L	13000 L	12000 L
	57K (70 CRI)		25,800	27,100	17,700	16,200	14,800		26000 L	28000 L	18000 L	16000 L
Q2/X2	30K (70 CRI)	135	22,200	23,400	15,300	14,025	12,750	140	22000 L	23000 L	15000 L	14000 L
	40K (70 CRI)		23,200	24,400	16,000	14,625	13,325		23000 L	24000 L	16000 L	15000 L
	50K (90 CRI)		17,200	18,100	11,825	10,850	9,875		17000 L	18000 L	12000 L	11000 L
	57K (70 CRI)		23,200	24,400	16,000	14,625	13,325		23000 L	24000 L	16000 L	15000 L
Q1/X1	30K (70 CRI)	116	19,700	20,700	13,525	12,400	11,300	120	20000 L	21000 L	14000 L	12000 L
	40K (70 CRI)		20,500	21,600	14,125	12,925	11,775		21000 L	22000 L	14000 L	13000 L
	50K (90 CRI)		15,200	16,000	10,450	9,575	8,725		15000 L	16000 L	10000 L	10000 L
	57K (70 CRI)		20,500	21,600	14,125	12,925	11,775		21000 L	22000 L	14000 L	13000 L

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 50L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values				
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS
Q9 (Full Power)	30K (70 CRI)	297	45,600	48,000	31,400	28,700	26,200
	40K (70 CRI)		47,500	50,000	32,700	29,900	27,300
	50K (90 CRI)		35,200	37,000	24,200	22,200	20,200
	57K (70 CRI)		47,500	50,000	32,700	29,900	27,300
Q8/X8	30K (70 CRI)	285	43,500	45,800	29,900	27,400	25,000
	40K (70 CRI)		45,300	47,700	31,200	28,600	26,000
	50K (90 CRI)		33,600	35,300	23,100	21,100	19,300
	57K (70 CRI)		45,300	47,700	31,200	28,600	26,000
Q7/X7	30K (70 CRI)	269	41,700	43,900	28,700	26,300	23,900
	40K (70 CRI)		43,400	45,700	29,900	27,400	24,900
	50K (90 CRI)		32,100	33,800	22,100	20,200	18,400
	57K (70 CRI)		43,400	45,700	29,900	27,400	24,900
Q6/X6	30K (70 CRI)	258	40,300	42,400	27,700	25,400	23,100
	40K (70 CRI)		42,000	44,200	28,900	26,500	24,100
	50K (90 CRI)		31,100	32,700	21,400	19,600	17,900
	57K (70 CRI)		42,000	44,200	28,900	26,500	24,100
Q5/X5	30K (70 CRI)	233	36,900	38,800	25,400	23,200	21,200
	40K (70 CRI)		38,400	40,400	26,400	24,200	22,000
	50K (90 CRI)		28,400	29,900	19,600	17,900	16,300
	57K (70 CRI)		38,400	40,400	26,400	24,200	22,000
Q4/X4	30K (70 CRI)	215	33,500	35,200	23,000	21,100	19,200
	40K (70 CRI)		34,900	36,700	24,000	22,000	20,000
	50K (90 CRI)		25,900	27,200	17,800	16,300	14,875
	57K (70 CRI)		34,900	36,700	24,000	22,000	20,000
Q3/X3	30K (70 CRI)	191	30,900	32,500	21,300	19,500	17,700
	40K (70 CRI)		32,200	33,900	22,200	20,300	18,500
	50K (90 CRI)		23,900	25,100	16,400	15,000	13,725
	57K (70 CRI)		32,200	33,900	22,200	20,300	18,500
Q2/X2	30K (70 CRI)	170	27,900	29,300	19,200	17,500	16,000
	40K (70 CRI)		29,000	30,500	19,900	18,300	16,600
	50K (90 CRI)		21,500	22,600	14,775	13,525	12,350
	57K (70 CRI)		29,000	30,500	19,900	18,300	16,600
Q1/X1	30K (70 CRI)	153	24,600	25,900	16,900	15,500	14,125
	40K (70 CRI)		25,700	27,000	17,700	16,200	14,750
	50K (90 CRI)		18,900	19,900	13,000	11,925	10,850
	57K (70 CRI)		25,700	27,000	17,700	16,200	14,750

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 65L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values				
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS
Q9 (Full Power)	19K (50 CRI)	384	48,500	51,000	33,400	30,600	27,800
	30K (70 CRI)		59,300	62,400	40,800	37,400	34,000
	40K (70 CRI)		61,800	65,000	42,500	38,900	35,500
	50K (90 CRI)		45,700	48,100	31,500	28,800	26,200
	57K (70 CRI)		61,800	65,000	42,500	38,900	35,500
Q8/X8	19K (50 CRI)	368	46,275	48,700	31,800	29,200	26,600
	30K (70 CRI)		56,600	59,500	38,900	35,600	32,500
	40K (70 CRI)		58,900	62,000	40,500	37,100	33,800
	50K (90 CRI)		43,600	45,900	30,000	27,500	25,000
	57K (70 CRI)		58,900	62,000	40,500	37,100	33,800
Q7/X7	19K (50 CRI)	347	44,325	46,600	30,500	27,900	25,400
	30K (70 CRI)		54,200	57,000	37,300	34,100	31,100
	40K (70 CRI)		56,500	59,400	38,800	35,600	32,400
	50K (90 CRI)		41,800	44,000	28,800	26,400	24,000
	57K (70 CRI)		56,500	59,400	38,800	35,600	32,400
Q6/X6	19K (50 CRI)	333	42,875	45,100	29,500	27,000	24,600
	30K (70 CRI)		52,500	55,200	36,100	33,100	30,100
	40K (70 CRI)		54,700	57,500	37,600	34,400	31,400
	50K (90 CRI)		40,400	42,500	27,800	25,500	23,200
	57K (70 CRI)		54,700	57,500	37,600	34,400	31,400
Q5/X5	19K (50 CRI)	301	39,200	41,200	27,000	24,700	22,500
	30K (70 CRI)		47,900	50,400	33,000	30,200	27,500
	40K (70 CRI)		49,900	52,500	34,300	31,400	28,600
	50K (90 CRI)		37,000	38,900	25,400	23,300	21,200
	57K (70 CRI)		49,900	52,500	34,300	31,400	28,600
Q4/X4	19K (50 CRI)	277	35,600	37,500	24,500	22,400	20,400
	30K (70 CRI)		43,500	45,800	29,900	27,400	25,000
	40K (70 CRI)		45,300	47,700	31,200	28,600	26,000
	50K (90 CRI)		33,600	35,300	23,100	21,100	19,300
	57K (70 CRI)		45,300	47,700	31,200	28,600	26,000
Q3/X3	19K (50 CRI)	247	32,875	34,600	22,600	20,700	18,900
	30K (70 CRI)		40,200	42,300	27,700	25,300	23,100
	40K (70 CRI)		41,900	44,100	28,800	26,400	24,100
	50K (90 CRI)		31,000	32,600	21,300	19,500	17,800
	57K (70 CRI)		41,900	44,100	28,800	26,400	24,100
Q2/X2	19K (50 CRI)	220	29,575	31,100	20,300	18,600	17,000
	30K (70 CRI)		36,200	38,100	24,900	22,800	20,800
	40K (70 CRI)		37,700	39,700	26,000	23,800	21,600
	50K (90 CRI)		27,900	29,300	19,200	17,500	16,000
	57K (70 CRI)		37,700	39,700	26,000	23,800	21,600
Q1*	19K (50 CRI)	198	26,150	27,500	18,000	16,500	15,000
	30K (70 CRI)		31,900	33,600	22,000	20,100	18,300
	40K (70 CRI)		33,300	35,000	22,900	21,000	19,100
	50K (90 CRI)		24,600	25,900	16,900	15,500	14,125
	57K (70 CRI)		33,300	35,000	22,900	21,000	19,100

* X1 option not available with 65L lumen package.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 75L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values				
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS
Q9 (Full Power)	30K (70 CRI)	447	68,400	72,000	47,100	43,100	39,300
	40K (70 CRI)		71,300	75,000	49,000	44,900	40,900
	50K (90 CRI)		52,800	55,500	36,300	33,200	30,300
	57K (70 CRI)		71,300	75,000	49,000	44,900	40,900
Q8/X8	30K (70 CRI)	420	65,300	68,700	44,900	41,100	37,500
	40K (70 CRI)		68,100	71,600	46,800	42,900	39,100
	50K (90 CRI)		50,300	52,900	34,600	31,700	28,900
	57K (70 CRI)		68,100	71,600	46,800	42,900	39,100
Q7/X7	30K (70 CRI)	402	62,500	65,800	43,000	39,400	35,900
	40K (70 CRI)		65,200	68,600	44,900	41,100	37,400
	50K (90 CRI)		48,200	50,700	33,200	30,400	27,700
	57K (70 CRI)		65,200	68,600	44,900	41,100	37,400
Q6/X6	30K (70 CRI)	386	60,500	63,600	41,600	38,100	34,700
	40K (70 CRI)		63,000	66,300	43,400	39,700	36,200
	50K (90 CRI)		46,700	49,100	32,100	29,400	26,800
	57K (70 CRI)		63,000	66,300	43,400	39,700	36,200
Q5/X5	30K (70 CRI)	349	55,300	58,200	38,100	34,900	31,700
	40K (70 CRI)		57,600	60,600	39,600	36,300	33,100
	50K (90 CRI)		42,600	44,800	29,300	26,800	24,500
	57K (70 CRI)		57,600	60,600	39,600	36,300	33,100
Q4/X4	30K (70 CRI)	317	50,200	52,800	34,500	31,600	28,800
	40K (70 CRI)		52,400	55,100	36,000	33,000	30,100
	50K (90 CRI)		38,700	40,700	26,600	24,400	22,200
	57K (70 CRI)		52,400	55,100	36,000	33,000	30,100
Q3/X3	30K (70 CRI)	286	46,400	48,800	31,900	29,200	26,600
	40K (70 CRI)		48,400	50,900	33,300	30,500	27,800
	50K (90 CRI)		35,700	37,600	24,600	22,500	20,500
	57K (70 CRI)		48,400	50,900	33,300	30,500	27,800
Q2/X2	30K (70 CRI)	256	41,700	43,900	28,700	26,300	23,900
	40K (70 CRI)		43,500	45,800	29,900	27,400	25,000
	50K (90 CRI)		32,200	33,900	22,200	20,300	18,500
	57K (70 CRI)		43,500	45,800	29,900	27,400	25,000
Q1/X1	30K (70 CRI)	220	36,900	38,800	25,400	23,200	21,200
	40K (70 CRI)		38,400	40,400	26,400	24,200	22,000
	50K (90 CRI)		28,400	29,900	19,600	17,900	16,300
	57K (70 CRI)		38,400	40,400	26,400	24,200	22,000

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

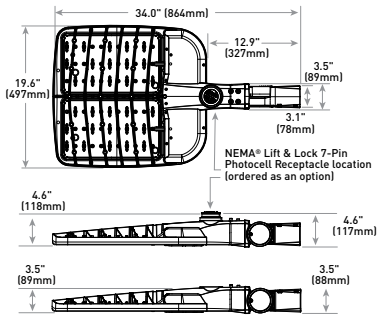
Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 85L Lumen Package

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values				
			2M, 3M, 4M, AF	5L, 5M, 5N, 33, 44, 55, 66, 75	2B, 3B, AB (factory-installed BLS)	4B (factory-installed BLS)	2M, 3M, 4M, AF w/External BLS
Q9 (Full Power)	30K (70 CRI)	499	77,600	81,600	N/A	N/A	44,500
	40K (70 CRI)		80,800	85,000	N/A	N/A	46,400
	50K (90 CRI)		59,800	62,900	N/A	N/A	34,300
	57K (70 CRI)		80,800	85,000	N/A	N/A	46,400
Q8/X8	30K (70 CRI)	468	74,000	77,800	N/A	N/A	42,500
	40K (70 CRI)		77,100	81,100	N/A	N/A	44,300
	50K (90 CRI)		57,000	60,000	N/A	N/A	32,700
	57K (70 CRI)		77,100	81,100	N/A	N/A	44,300
Q7/X7	30K (70 CRI)	449	70,900	74,600	N/A	N/A	40,700
	40K (70 CRI)		73,900	77,700	N/A	N/A	42,400
	50K (90 CRI)		54,700	57,500	N/A	N/A	31,400
	57K (70 CRI)		73,900	77,700	N/A	N/A	42,400
Q6/X6	30K (70 CRI)	431	68,500	72,100	N/A	N/A	39,300
	40K (70 CRI)		71,400	75,100	N/A	N/A	41,000
	50K (90 CRI)		52,900	55,600	N/A	N/A	30,400
	57K (70 CRI)		71,400	75,100	N/A	N/A	41,000
Q5/X5	30K (70 CRI)	389	62,600	65,900	N/A	N/A	35,900
	40K (70 CRI)		65,300	68,700	N/A	N/A	37,500
	50K (90 CRI)		48,300	50,800	N/A	N/A	27,700
	57K (70 CRI)		65,300	68,700	N/A	N/A	37,500
Q4/X4	30K (70 CRI)	353	56,900	59,900	N/A	N/A	32,700
	40K (70 CRI)		59,300	62,400	N/A	N/A	34,000
	50K (90 CRI)		43,900	46,200	N/A	N/A	25,200
	57K (70 CRI)		59,300	62,400	N/A	N/A	34,000
Q3/X3	30K (70 CRI)	319	52,600	55,300	N/A	N/A	30,200
	40K (70 CRI)		54,800	57,600	N/A	N/A	31,500
	50K (90 CRI)		40,500	42,600	N/A	N/A	23,200
	57K (70 CRI)		54,800	57,600	N/A	N/A	31,500
Q2/X2	30K (70 CRI)	285	47,300	49,800	N/A	N/A	27,200
	40K (70 CRI)		49,300	51,900	N/A	N/A	28,300
	50K (90 CRI)		36,500	38,400	N/A	N/A	21,000
	57K (70 CRI)		49,300	51,900	N/A	N/A	28,300
Q1/X1	30K (70 CRI)	246	41,800	44,000	N/A	N/A	24,000
	40K (70 CRI)		43,500	45,800	N/A	N/A	25,000
	50K (90 CRI)		32,200	33,900	N/A	N/A	18,500
	57K (70 CRI)		43,500	45,800	N/A	N/A	25,000

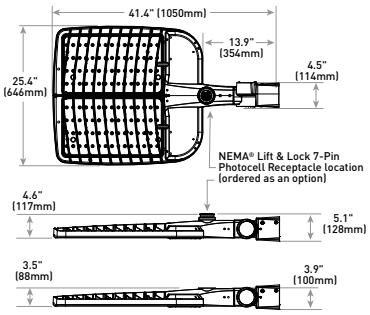
OSQL - AA Mount



Luminaire	Weight
OSQL	28.4 lbs. (12.9kg)

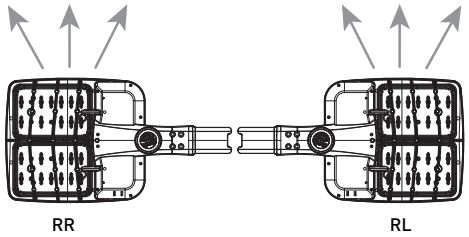
Note: For OSQM w/AA mount, refer to drawing on page 1.

OSQX - AA Mount



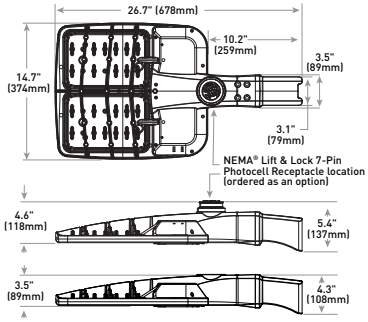
Luminaire	Weight
OSQX	48.6 lbs. (22.0kg)

RR/RL Configuration



OSQM - DA Mount

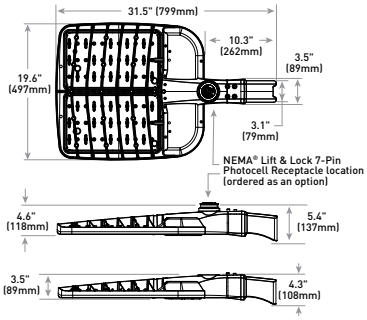
OSQM - DA Mount



Luminaire	Weight
OSQM	19.7 lbs. (8.9kg)

Note: Refer to page 15 for fixture mounting drill pattern.

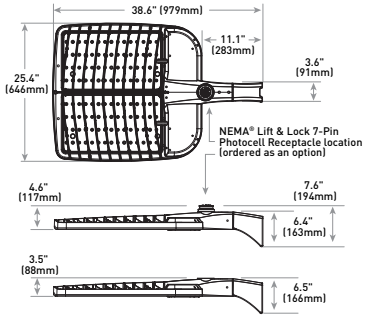
OSQL - DA Mount



Luminaire	Weight
OSQL	28.8 lbs. (13.1kg)

Note: Refer to page 15 for fixture mounting drill pattern.

OSQX - DA Mount

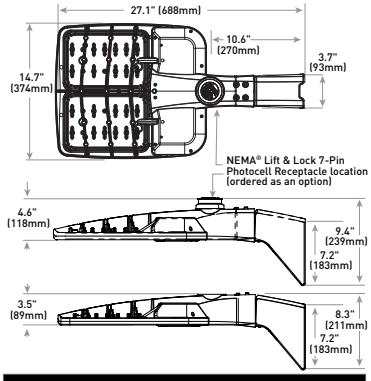


Luminaire	Weight
OSQX	45.8 lbs. (20.8kg)

Note: Refer to page 15 for fixture mounting drill pattern.

OU Mount

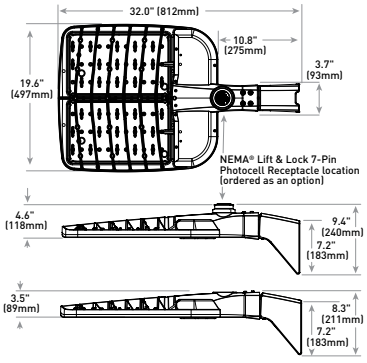
OSQM - OU Mount



Luminaire	Weight
OSQM	20.6 lbs. (9.4kg)

Note: Refer to page 15 for fixture mounting drill pattern.

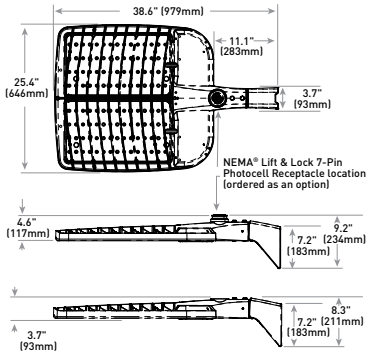
OSQL - OU Mount



Luminaire	Weight
OSQL	29.7 lbs. (13.5kg)

Note: Refer to page 15 for fixture mounting drill pattern.

OSQX - OU Mount

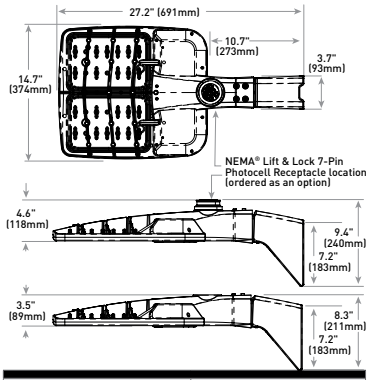


Luminaire	Weight
OSQX	45.7 lbs. (20.8kg)

Note: Refer to page 15 for fixture mounting drill pattern.

HU Mount

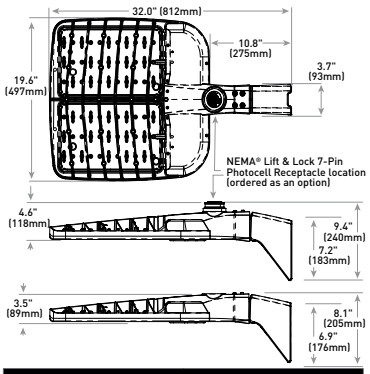
OSQM - HU Mount



Luminaire	Weight
OSQM	20.3 lbs. (9.2kg)

Note: Refer to page 15 for fixture mounting drill pattern.

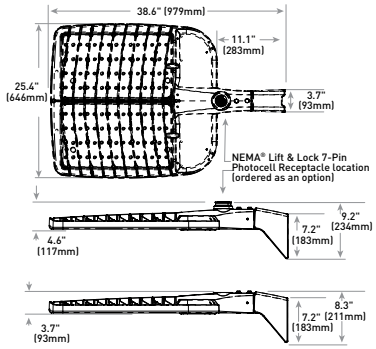
OSQL - HU Mount



Luminaire	Weight
OSQL	29.4 lbs. (13.3kg)

Note: Refer to page 15 for fixture mounting drill pattern.

OSQX-HU Mount

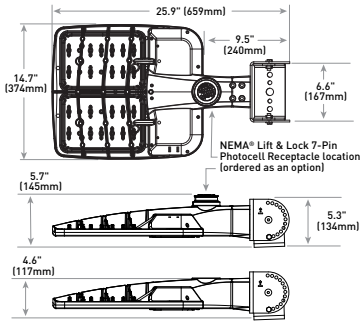


Luminaire	Weight
OSQX	45.4 lbs. (20.6kg)

Note: Refer to page 15 for fixture mounting drill pattern.

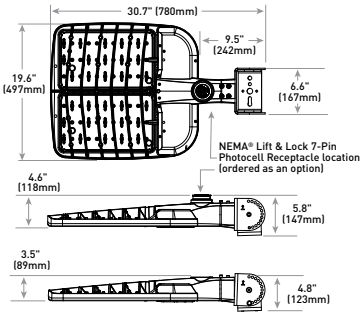
OSQM - Trunnion Mount

OSQM - Trunnion Mount



Luminaire	Weight
OSQM	23.2 lbs. (10.5kg)

OSQL - Trunnion Mount



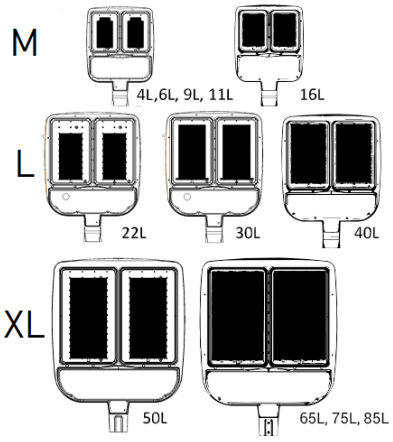
Luminaire	Weight
OSQL	32.3 lbs. (14.7kg)

LIGHT ENGINE POPULATION PER LUMEN PACKAGE

EFFECTIVE: 05/15/25

NOTE: Some versions are provided with full circuit board, but not fully populated with LEDs or optics to scale back lumen package.

The areas blacked out in the image below show the illuminated area.

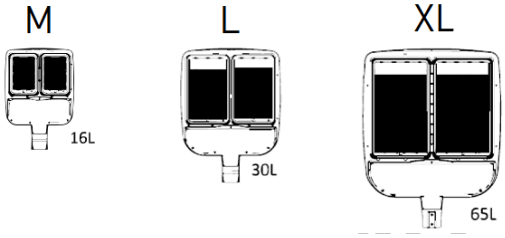


LIGHT ENGINE POPULATION PER LUMEN PACKAGE - 19K5

EFFECTIVE 02/28/2025

NOTE: Some versions are provided with full circuit board, but not fully populated with LEDs or optics to scale back lumen package.

The areas blacked out in the image below show the illuminated area.



Replacement Parts

Replacement Kits

DA Mounting Hardware Kit
OSQ-ML-C-DA-HRDWRBG
- For use only with OSQM and OSQL luminaires with DA mount
- Includes (2) Bolts, (1) Foam Gasket, and (1) Backing Plate

Driver Replacement Kits

OSQ-C-DVRKT

Product	Lumen Package		Voltage	Controls
OSQ-C-DVRKT	**4L** 4,000 Lumens **6L** 6,000 Lumens **9L** 9,000 Lumens **11L** 11,000 Lumens **16L** 16,000 Lumens **22L** 22,000 Lumens	**30L** 30,000 Lumens **40L** 40,000 Lumens **50L** 50,000 Lumens **65L** 65,000 Lumens **75L** 75,000 Lumens **85L** 85,000 Lumens	**UL** Universal 120-277V **UH** Universal 347-480V - Not available with 4L, 40L, 75L or 85L lumen packages **UE** Universal 277-480V - Available with only 40L, 75L and 85L lumen packages when ordered with 0-10V dimming, BML, NS/NS2, Q9 Field Adjustable or X8 Locked Lumen controls - Available with only 16L-40L lumen packages when ordered with DLI or Z1 controls	**BLANK** - For use with no controls (standard 0-10V dimming) - For use with BML, NS and NS2 controls (sensors not included) - For use with Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 controls (field adjustable output module not included) **DLI DALI® Compatible** - For use with luminaires with DLI or Z1 controls - Available only with 6L-40L lumen packages (UL) and 16L-40L lumen packages (UE) - Not available with other controls **X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output** - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - X1 option not available with the following lumen package/voltage offerings: 9L/UL, 16L/UL, 16L/UH, 30L/UL, 30L/UH, 65L/UL, 65L/UH - X2 option not available 9L/UL lumen package/voltage - Lumen output is permanently locked to the setting selected

DarkSky Compliant Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: Mount: OSQ-ML-C-DA-BK + Luminaire: OSQM-C-4L-30K7-2M-UL-NM-BK

Mount (Luminaire must be ordered separately)*

OSQ-

Medium/Large Mounts **OSQ-ML-C-DA** Direct Arm **OSQ-MLX-C-OU** Universal Direct Arm w/Adjustable Bolt Spacing **OSQ-MLX-C-HU** Universal Direct Arm w/4-Bolt Drill Pattern (matches existing THE EDGE® High Output Luminaires w/ EHO-UNV Mount)**	**Extra Large Mounts** **OSQ-X-C-DA** Direct Arm **OSQ-MLX-C-OU** Universal Direct Arm w/Adjustable Bolt Spacing **OSQ-MLX-C-HU** Universal Direct Arm w/4-Bolt Drill Pattern (matches existing THE EDGE® High Output Luminaires w/EHO-UNV mount)**	**Color Options:** **SV** Silver, **BZ** Bronze, **BK** Black, **WH** White

* Reference fixture mounting drill pattern, EPA, and pole configuration suitability data beginning on page 13.
** Not for use with THE EDGE® High Output luminaires w/DM Mount.

Luminaire (Mount must be ordered separately)

OSQ **C**

Family	Size	Series	Lumen Package†	CCT/CRI	Optic	Voltage	Mounting	Finish	Controls*	Options
OSQ	**M** Medium **L** Large **X** Extra Large	**C**	**Medium** **4L** 4,000 Lumens **6L** 6,000 Lumens **9L** 9,000 Lumens **11L** 11,000 Lumens **16L** 16,000 Lumens **Large** **22L** 22,000 Lumens **30L** 30,000 Lumens **40L** 40,000 Lumens **Extra Large** **50L** 50,000 Lumens **65L** 65,000 Lumens **75L** 75,000 Lumens **85L** 85,000 Lumens	**19K5** 1900K, 50 CRI - Available only with 16L, 30L & 65L lumen packages **30K7** 3000K, 70 CRI	**2M** Type II Mid **2B**** Type II Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **3M** Type III Mid **3B**** Type III Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **4M** Type IV Mid **4B**** Type IV Mid w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L **5L** Type V Long **5M** Type V Mid **5N** Type V Narrow **AF** Automotive FrontlineOptic™ **AB**** Automotive Frontline Optic™ w/Factory-Installed Backlight Shield - Available with all lumen packages except 85L	**UL** Universal 120-277V **UH** Universal 347-480V - Not available with 4L, 40L, 75L or 85L lumen packages **UE** Universal 277-480V - Available only with 40L, 75L and 85L lumen packages when ordered with 0-10V dimming, BML, NS/NS2, Q9 Field Adjustable or X8 Locked Lumen controls - Available only with 16L-40L lumen packages when ordered with DLI or Z1 controls	**NM** No Mount - Must specify mount from table above - Mount ships separately	**BK** Black **BZ** Bronze **SV** Silver **WH** White	**BML** **Bluetooth® Technology Enabled Multi-Level Sensor** - Utilizes a multifunction sensor - Refer to BML spec sheet for details - 20-40' sensor lens installed on luminaire; 8-20' sensor lens and aisle shroud included - Intended for downlight applications at 0° tilt - Not available with other controls or Synapse TL7-HVG accessory **DLI** **DALI® Compatible** - Utilizes DALI 2® and D4i® driver that dims to 10% - Available only with 6L-40L lumen packages (UL) and 16L-40L lumen packages (UE) - Not available with other controls **NS** **Network Sensor, 20-40' Mounting Height** **NS2** **Network Sensor, 10-30' Mounting Height** - Utilizes a multifunction sensor - Refer to PML/NS spec sheet for details - Intended for downlight applications at 0° tilt - NS for use only with OSQL & OSQX - NS2 for use only with OSQM & OSQL - Not for use with other controls - Requires TL7-HVG Synapse Control Accessory (see page 2) and either N or R option - XA-SENSREM Hand-held Remote Accessory (see page 2) required only for changing sensitivity or time delay settings. Dimming changes handled through the TL7-HVG **Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 Field Adjustable Output** - Must select Q9, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 - Offers full range adjustability - Refer to pages 16-27 for power and lumen values - Not available with other controls or Synapse TL7-HVG accessory **X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output** - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - Not available with other controls - X1 option not available with the following lumen package/voltage offerings: 9L/UL, 16L/UL, 16L/UH, 30L/UL, 30L/UH, 65L/UL, 65L/UH - X2 option not available 9L/UL lumen package/voltage - Lumen output is permanently locked to the setting selected - Refer to pages 16-27 for power and lumen values **Z1 Zhaga® Book 18 Socket, bottom of luminaire** - Utilizes DALI 2® or D4i® driver that dims to 10% - Includes cap. Zhaga sensor is available as an accessory (see Accessory table on page 2) or by others - Intended for downlight applications at 0° tilt - Available only with 6L-40L lumen packages (UL) and 16L-40L lumen packages (UE) - Not available with other controls	**20KV** **20kV/10kA Surge Suppression** - Replaces standard 10kV/5kA surge protection - Not available with NS/NS2 options **F** **Fuse** - Compatible with 120V, 277V or 347V (phase to neutral) - Consult factory if fusing is required for 208V, 240V or 480V (phase to phase) - When code dictates fusing, use time delay fuse **N** **Utility Label and NEMA® Lift & Lock 7-Pin Photocell Receptacle** - External utility label per ANSI C136.15-2020 - 7-pin receptacle per ANSI C136.41 - Available only with OSQM & OSQL luminaires - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others **R** **NEMA® Lift & Lock 7-Pin Photocell Receptacle** - 7-pin receptacle per ANSI C136.41 - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others - Refer to page 2 for compatible Synapse control offerings **RL** **Rotate Left** - LED and optic are rotated to the left - Refer to RR/RL configuration diagram on page 28 for optic directionality - May be used with factory-installed backlight shield optics (2B, 3B, 4B, AB) - Not for use with 5L, 5M, 5N, 33, 44, 55, 66 or 75 optics **RR** **Rotate Right** - LED and optic are rotated to the right - Refer to RR/RL configuration diagram on page 28 for optic directionality - May be used with factory-installed backlight shield optics (2B, 3B, 4B, AB) - Not for use with 5L, 5M, 5N, 33, 44, 55, 66 or 75 optics

† Lumen Package codes identify approximate light output only. Actual lumen output levels vary by CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.
* Luminaire comes standard with 0-10V dimming.
** Factory-installed backlight shields are integral to luminaire optic and may not be removed in the field. For field-install backlight control, please refer to the External Backlight Shields in the accessory table on page 2.

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Website: creelighting.com
US: (800) 236-6800 **Canada:** (800) 473-1234

CREE LIGHTING®

Street light

Guideway® Series

Guideway® LED Street Luminaire featuring Patented NanoComfort® Technology – Small, Medium & Large

Rev. Date: V10 04/07/2025

Product Description

The new Guideway® family of roadway lighting is a game-changing solution designed from the ground up, offering a fresh start that brings levels of performance and visual comfort previously out of reach. The Guideway® Series fundamentally shifts expectations of the standard streetlight – how it performs, its standard features, and most significantly, the degree of visual comfort it provides. With Cree Lighting's new NanoComfort® Technology, the Guideway Series hits the comfort sweet spot without the prohibitive price tag, providing demonstrably better comfort and performance for the money.
Applications: Residential roads, collector roads, multi-lane freeways, express ways, major roads, parking lots, and general area spaces

Performance Summary

Utilizes Patented NanoComfort® Technology

Assembled in the USA by Cree Lighting from US and imported parts

Initial Delivered Lumens: 2,980 - 31,900

Efficacy: Up to 168 LPW

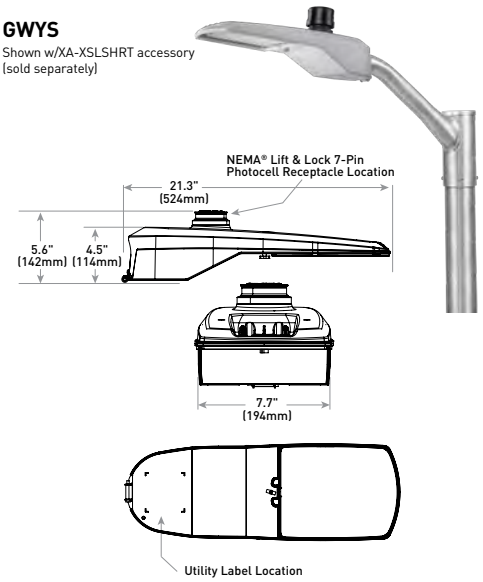
CRI: Minimum 70 CRI (2700K, 3000K, 4000K, 5700K); 80 CRI (2200K); 50 CRI (1900K)

CCT: 1900K, 2200K, 2700K, 3000K, 4000K, 5700K

Limited Warranty†: 5 years standard for luminaire and finish; optional 10 years for luminaire and finish; 1 year for luminaire accessories

†See https://www.creelighting.com/resources/warranties/ for warranty terms.

GWYS
Shown w/XA-XSLSHRT accessory (sold separately)



Luminaire	Weight
GWYS	8.2 lbs. (3.7kg)

GWYM/GWYL Luminaire - See page 18 for photos & dimensions.
Note: For SL voltage, deduct 1.0 lb. (0.5kg).

Ordering Information

Example: GWYS-A-4L-30K7-2M-UL-GY

Luminaire									
GWY		A							
Family	Size	Series	Lumen Package*	CCT/CRI	Optic	Voltage	Finish	Controls	Options
GWY	**S** Small **M** Medium **L** Large	A	**Small** **4L** 4,000 Lumens **6L** 6,000 Lumens **8L** 8,000 Lumens **Medium** **10L** 10,000 Lumens **13L** 13,000 Lumens **17L** 17,000 Lumens **Large** **20L** 20,000 Lumens **25L** 25,000 Lumens **32L** 32,000 Lumens	**19K5** 1900K, 50 CRI - Available with all lumen packages except 4L **22K8** 2200K, 80 CRI **27K7** 2700K, 70 CRI **30K7** 3000K, 70 CRI **40K7** 4000K, 70 CRI **57K7** 5700K, 70 CRI	**2M**** Type II Mid **2N**** Type II Narrow **3M**** Type III Mid **4M**** Type IV Mid **5M** Type V Mid	**UL** Universal 120-277V **UH** Universal 347-480V - Available only with 6L-32L lumen packages **SL** Solar Compatible - Available only with 4L-13L lumen packages - Does not include NEMA 7-Pin receptacle or utility wattage label - Not available with U option	**BK** Black **BZ** Bronze **GY** Grey **WH** White	**DLI DALI Compatible** - Available with all lumen packages except 4L & 17L - Available only with UL voltage - Not available with Q controls - Not available with U or X options **Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 Field Adjustable Output** - Must select Q9, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 - 6L lumen package is available only with Q9-Q3 settings - Offers full range adjustability - Refer to pages 9-17 for power and lumen values - Available only with UL or UH voltages - Not available with DLI controls - Not available with X options	**20KV 20kV/10kA Surge Suppression** - Replaces standard 10kV/5kA surge protection **4B 4-Bolt Mounting** - Available only with medium and large luminaires **U No NEMA Receptacle** - Standard ANSI C136.41 compatible 7-pin receptacle is removed - Standard external wattage label per ANSI C136.15-2020 remains - Not available with SL option **W10 10-Year Limited Luminaire/Finish Warranty** - Replaces standard 5-year limited warranty for luminaire and finish **X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output** - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - 6L lumen package is available only with X8-X3 settings - Available only with UL or UH voltages - Not available with DLI or Q controls - Lumen output is permanently locked to the setting selected - Refer to pages 9-17 for power and lumen values

* Lumen Package codes identify approximate light output only. Actual lumen output levels vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.
** Available with Backlight Shield when ordered with field installed accessory (see table on page 2).

Website: creelighting.com
US: (800) 236-6800 **Canada:** (800) 473-1234

CREE LIGHTING

Product Specifications

CREE LIGHTING NANOCOMFORT® TECHNOLOGY

Cree Lighting's NanoComfort® Technology ends the trade-offs in outdoor lighting by providing superior glare reduction and visual comfort in high-efficiency illumination delivered precisely where it is needed. The basic building block of NanoComfort® Technology is a compact 4x4 array of LEDs. Each of the 16 LEDs in a module is in contact with its own acrylic polymer lens to capture and precisely direct light. With NanoComfort® Technology, the acrylic optics are cut and sculpted into facets that relieve the glare and harshness while improving visual comfort – all while retaining superb efficacy and control.

CONSTRUCTION & MATERIALS

- Die cast aluminum (413) housing w/18 ga. steel door
- Acrylic optic w/clear tempered glass lens
- Some versions are provided with full circuit board, but not fully populated with LEDs or optics to scale back lumen package
- Tool-less entry
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" (203mm) in length) and is adjustable +/- 5˚ to allow for fixture leveling (includes two axis T-level to aid in leveling)
- Luminaire secures with two 410 stainless steel mounting bolts; optional four bolt mounting available for medium and large luminaires
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable black, bronze or grey powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion
- Comes standard with 7-pin NEMA® Lift & Lock Photocell Receptacle per ANSI C136.41, and Utility Label per ANSI C136.15-2020. 0-10V dim leads factory connected to 7-Pin Requires photocell or shorting cap (by others). Luminaire is available without 7-Pin NEMA® Lift & Lock Photocell Receptacle when ordered with U option. **Note:** Luminaires with SL voltage do not include a NEMA® Photocell Receptacle or utility label.

Luminaire	Weight	Adder for Shielding	
		BLS /FLS	CLS
GWYS	8.2 lbs. (3.7kg)	1.2 lbs. (0.6kg)	2.4 lbs. (1.1kg)
GWYM	12.2 lbs. (5.5kg)	1.8 lbs. (0.8kg)	2.9 lbs. (1.3kg)
GWYL	18.2 lbs. (8.3kg)	3.2 lbs. (1.4kg)	4.4 lbs. (2.0kg)

Note: For bird spikes, add 0.4 lbs. (0.2kg).

- Includes QR code on the interior sidewall of the housing next to the UL label which provides access to: Online installation instructions, Luminaire information (Part number, Serial number, Build date, and Warranty end date), and Warranty claim submission form
- Duplicate 1" and 2" QR code labels are included. 1" labels can be affixed inside pole bases, next to fixtures, on site plans, or in maintenance records. 2" labels can be scanned from the ground when placed at an appropriate height

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard; 20kV/10kA surge suppression protection optional
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Dims to 10% through the NEMA receptacle. Controls by others
- 0-10V dimming per ANSI C137.1-2019 (8-Volt per power level/options selected)
- Refer to Dimming spec sheet for details
- **Maximum 10V Source Current:** 1mA
- Luminaires with DLI option are DALI-2 compatible per IEC 62386
- **Operating Temperature Range:** -40˚C - +50˚C (-40˚F - + 122˚F)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed (UL1598)
- Suitable for wet locations
- Meets ANSI C82.77-10-2020 standards
- Drivers and LEDs are UL certified in accordance with UL8750
- Requires minimum 75˚C supply conductors
- Optics meet the requirements of IP66 per IEC 60529
- Lens meets IK08 requirements per IEC 60068-2
- Certified to ANSI C136.31-2018, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- ANSI C136.2 10kV/5kA (standard) and 20kV/10kA (optional) surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Assembled in the USA by Cree Lighting from US and imported parts
- Some configurations meet requirements of BAA and/or BABA. Consult factory when needed for a project: www.creelighting.com/BAA-BABA
- RoHS compliant. Consult factory for additional details
- DarkSky Approved when ordered with 19K5, 22K8, 27K7 or 30K7 CCTs. Please refer to https://darksky.org/what-we-do/darksky-approved/products-companies/#!/~/search/keyword=cree
- DLC Premium qualified except when ordered with 19K5. Please refer to https://qpl.designlights.org/solid-state-lighting for most current information
- DLC Luna qualified when ordered with 4L-8L lumen packages with 22K8, 27K7 and 30K7 CCT/CRIs. Please refer to https://qpl.designlights.org/solid-state-lighting for most current information
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*

Lumen Package	System Watts 120-480V**	Utility Wattage Label	Total Current (A)					
			120V	208V	240V	277V	347V	480V
4L	26	30	0.22	0.13	0.11	0.09	N/A	N/A
6L	38	40	0.32	0.18	0.16	0.14	0.11	0.08
8L	50	50	0.42	0.24	0.21	0.18	0.14	0.10
10L	63	60	0.53	0.30	0.26	0.23	0.18	0.13
13L	81	80	0.68	0.39	0.34	0.29	0.23	0.17
17L	104	100	0.87	0.50	0.43	0.38	0.30	0.22
20L	119	120	0.99	0.57	0.50	0.43	0.34	0.25
25L	148	150	1.23	0.71	0.62	0.53	0.43	0.31
32L	190	190	1.58	0.91	0.79	0.69	0.55	0.40

* Electrical data at 25˚C (77˚F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%.
** 4L is available with 120-277V only.

Electrical Data (SOLAR)

Lumen Package	Max. Voltage (VDC)	Max. Amperage (A)
4L	48	0.500
6L	72	0.512
8L	72	0.640
10L	84	0.692
13L	108	0.700

Guideway® Series Ambient Adjusted Lumen Maintenance[1]

Ambient	Lumen Package	CCT/CRI	Initial LMF	36K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Reported[2] LMF	100K hr Reported[2] LMF
5˚C (41˚F)	6L-32L	19K5	1.02	0.94	0.91	0.86	0.82
	4L-6L	All Except 19K5	1.02	0.98	0.97	0.94	0.92
	8L-32L		1.02	0.96	0.93	0.88	0.83
10˚C (50˚F)	6L-32L	19K5	1.01	0.94	0.91	0.86	0.81
	4L-6L	All Except 19K5	1.02	0.98	0.96	0.94	0.91
	8L-32L		1.02	0.96	0.93	0.87	0.82
15˚C (59˚F)	6L-32L	19K5	1.01	0.93	0.90	0.86	0.81
	4L-6L	All Except 19K5	1.01	0.97	0.96	0.93	0.91
	8L-32L		1.01	0.95	0.92	0.87	0.82
20˚C (68˚F)	6L-32L	19K5	1.00	0.93	0.90	0.85	0.81
	4L-6L	All Except 19K5	1.01	0.96	0.95	0.93	0.90
	8L-32L		1.01	0.95	0.92	0.86	0.81
25˚C (77˚F)	6L-32L	19K5	1.00	0.92	0.90	0.85	0.80
	4L-6L	All Except 19K5	1.00	0.96	0.94	0.92	0.90
	8L-32L		1.00	0.94	0.91	0.86	0.81

[1] Lumen maintenance values at 25˚C (77˚F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

Accessories

Field-Installed

Backlight Control Shields

GWY-BLSS
(for use with small lumen packages only)

GWY-BLSM
(for use with medium lumen packages only)

GWY-BLSL
(for use with large lumen packages only)
- Provides 1 mounting height backlight cutoff
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.54 (2M, 2N, 3M, 4M). Refer to initial delivered lumen tables on pages 3-6 and 9-17.

Shorting Cap

XA-XSLSHRT

Cul-De-Sac Shields

GWY-CLSS
(for use with small lumen packages only)

GWY-CLSM
(for use with medium lumen packages only)

GWY-CLSL
(for use with large lumen packages only)
- Provides backlight and sidelight control
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.64 (2M, 2N, 3M); 0.72 (4M)

Front Light Shields

GWY-FLSS
(for use with small lumen packages only)

GWY-FLSM
(for use with medium lumen packages only)

GWY-FLSL
(for use with large lumen packages only)
- Provides front light control
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.42 (2M, 2N, 3M, 4M)

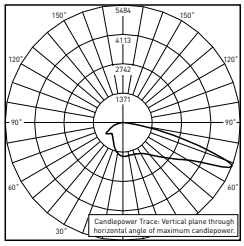
Bird Spikes

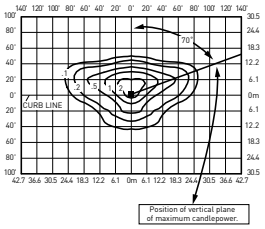
GWY-BRDSPK
- For use with all luminaire sizes
- Includes (2) brackets, (2) 2' sections of bird spikes and mounting hardware for a single luminaire

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://www.creelighting.com/products/outdoor/street-and-roadway/guideway-series/

2M





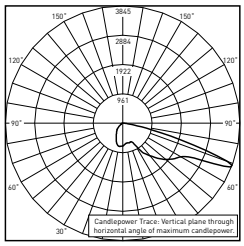
RESTL TEST REPORT PL17822-001A
GWYS-A-8L-30K7-2M-UL-xx-xx-xx
Initial Delivered Lumens: 7,044

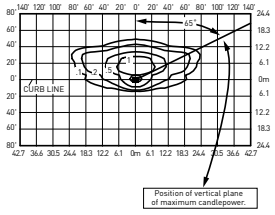
GWYS-A-8L-30K7-2M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 7,225
Initial FC at grade

Type II Mid Distribution

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,980	B1 U0 G1	3,610	B1 U0 G1	3,750	B1 U0 G1
6L	5,250	B1 U0 G1	4,470	B1 U0 G1	5,400	B1 U0 G1	5,625	B1 U0 G1
8L	6,150	B1 U0 G1	5,950	B1 U0 G1	7,225	B2 U0 G2	7,500	B2 U0 G2
10L	7,750	B2 U0 G2	7,700	B2 U0 G2	9,325	B2 U0 G2	9,700	B2 U0 G2
13L	10,025	B2 U0 G2	10,025	B2 U0 G2	12,125	B2 U0 G2	12,600	B2 U0 G2
17L	12,850	B2 U0 G2	13,100	B2 U0 G2	15,900	B3 U0 G3	16,500	B3 U0 G3
20L	15,600	B3 U0 G3	15,400	B3 U0 G3	18,600	B3 U0 G3	19,300	B3 U0 G3
25L	19,300	B3 U0 G3	19,200	B3 U0 G3	23,200	B3 U0 G3	24,200	B3 U0 G3
32L	24,200	B3 U0 G3	24,600	B3 U0 G3	29,800	B3 U0 G3	30,900	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.





RESTL TEST REPORT PL17993-001A
GWYS-A-8L-30K7-2M-UL-xx-xx-xx
w-GWY-BLSS
Initial Delivered Lumens: 3,773

GWYS-A-8L-30K7-2M-UL w/GWY-BLSS
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 3,860
Initial FC at grade

Type II Mid Distribution w/BLS

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	1,600	B0 U0 G1	1,930	B1 U0 G1	2,010	B1 U0 G1
6L	2,810	B1 U0 G1	2,390	B1 U0 G1	2,900	B1 U0 G1	3,010	B1 U0 G1
8L	3,290	B1 U0 G1	3,190	B1 U0 G1	3,860	B1 U0 G1	4,020	B1 U0 G1
10L	4,150	B1 U0 G1	4,130	B1 U0 G1	5,000	B1 U0 G1	5,200	B1 U0 G1
13L	5,375	B1 U0 G1	5,375	B1 U0 G1	6,500	B1 U0 G1	6,750	B1 U0 G2
17L	6,875	B1 U0 G2	7,025	B1 U0 G2	8,500	B1 U0 G2	8,825	B2 U0 G2
20L	8,325	B1 U0 G2	8,225	B1 U0 G2	9,950	B2 U0 G2	10,350	B2 U0 G2
25L	10,350	B2 U0 G2	10,275	B2 U0 G2	12,450	B2 U0 G2	12,950	B2 U0 G2
32L	12,975	B2 U0 G2	13,175	B2 U0 G2	15,900	B2 U0 G3	16,600	B2 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Photometry

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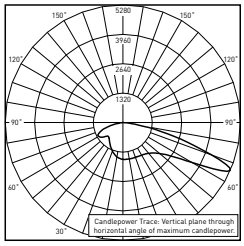
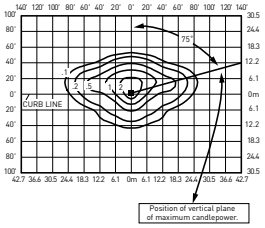
2N





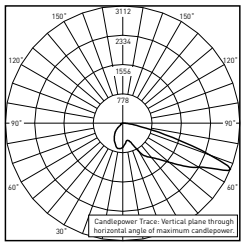
RESTL TEST REPORT PL18104-001A
GWYS-A-8L-40K7-2N-UL-xx-xx-xx
Initial Delivered Lumens: 7,368

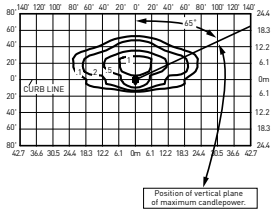
GWYS-A-8L-30K7-2N-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 7,225
Initial FC at grade

Type II Narrow Distribution

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,980	B1 U0 G1	3,610	B1 U0 G1	3,750	B1 U0 G1
6L	5,250	B1 U0 G1	4,470	B1 U0 G1	5,400	B1 U0 G1	5,625	B1 U0 G1
8L	6,150	B2 U0 G2	5,950	B1 U0 G1	7,225	B2 U0 G2	7,500	B2 U0 G2
10L	7,750	B2 U0 G2	7,700	B2 U0 G2	9,325	B2 U0 G2	9,700	B2 U0 G2
13L	10,025	B2 U0 G2	10,025	B2 U0 G2	12,125	B3 U0 G3	12,600	B3 U0 G3
17L	12,850	B3 U0 G3	13,100	B3 U0 G3	15,900	B3 U0 G3	16,500	B3 U0 G3
20L	15,600	B3 U0 G3	15,400	B3 U0 G3	18,600	B3 U0 G3	19,300	B3 U0 G3
25L	19,300	B3 U0 G3	19,200	B3 U0 G3	23,200	B3 U0 G3	24,200	B3 U0 G3
32L	24,200	B3 U0 G3	24,600	B3 U0 G3	29,800	B3 U0 G3	30,900	B4 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.





RESTL TEST REPORT PL18180-001A
GWYS-A-8L-40K7-2N-UL-xx-xx-xx w/ GWY-BLSS
Initial Delivered Lumens: 3,853

GWYS-A-8L-30K7-2N-UL w/GWY-BLSS
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 3,860
Initial FC at grade

Type II Narrow Distribution w/BLS

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	1,600	B0 U1 G1	1,930	B0 U1 G1	2,010	B1 U1 G1
6L	2,810	B1 U1 G1	2,390	B1 U1 G1	2,900	B1 U1 G1	3,010	B1 U1 G1
8L	3,290	B1 U1 G1	3,190	B1 U1 G1	3,860	B1 U1 G1	4,020	B1 U1 G1
10L	4,150	B1 U1 G1	4,130	B1 U1 G1	5,000	B1 U2 G1	5,200	B1 U2 G1
13L	5,375	B1 U2 G1	5,375	B1 U2 G1	6,500	B1 U2 G2	6,750	B1 U2 G2
17L	6,875	B1 U2 G2	7,025	B1 U2 G2	8,500	B1 U2 G2	8,825	B1 U2 G2
20L	8,325	B1 U2 G2	8,225	B1 U2 G2	9,950	B2 U2 G2	10,350	B2 U2 G2
25L	10,350	B2 U2 G2	10,275	B2 U2 G2	12,450	B2 U2 G2	12,950	B2 U2 G2
32L	12,975	B2 U2 G2	13,175	B2 U2 G2	15,900	B2 U2 G3	16,600	B2 U2 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Photometry

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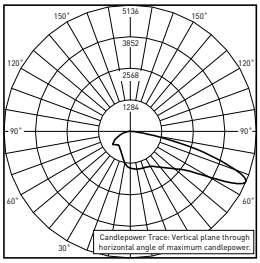
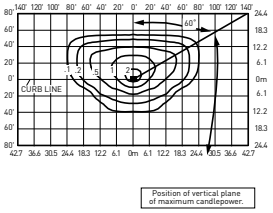
3M





RESTL TEST REPORT PL17820-001A
GWYS-A-8L-30K7-3M-UL-xx-xx-xx
Initial Delivered Lumens: 6,947

GWYS-A-8L-30K7-3M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 7,225
Initial FC at grade

Type III Mid Distribution

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,980	B1 U0 G1	3,610	B1 U0 G1	3,750	B1 U0 G1
6L	5,250	B1 U0 G1	4,470	B1 U0 G1	5,400	B1 U0 G1	5,625	B1 U0 G1
8L	6,150	B1 U0 G1	5,950	B1 U0 G1	7,225	B2 U0 G2	7,500	B2 U0 G2
10L	7,750	B2 U0 G2	7,700	B2 U0 G2	9,325	B2 U0 G2	9,700	B2 U0 G2
13L	10,025	B2 U0 G2	10,025	B2 U0 G2	12,125	B2 U0 G2	12,600	B2 U0 G2
17L	12,850	B2 U0 G2	13,100	B2 U0 G2	15,900	B3 U0 G3	16,500	B3 U0 G3
20L	15,600	B3 U0 G3	15,400	B3 U0 G3	18,600	B3 U0 G3	19,300	B3 U0 G3
25L	19,300	B3 U0 G3	19,200	B3 U0 G3	23,200	B3 U0 G3	24,200	B3 U0 G3
32L	24,200	B3 U0 G3	24,600	B3 U0 G3	29,800	B3 U0 G4	30,900	B3 U0 G4

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
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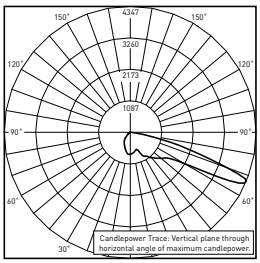

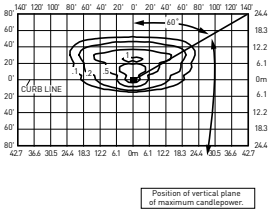

RESTL TEST REPORT PL17899-001A
GWYS-A-8L-30K7-3M-UL-xx-xx-xx w/ GWY-BLSS
Initial Delivered Lumens: 3,764

GWYS-A-8L-30K7-3M-UL w/GWY-BLSS
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 3,860
Initial FC at grade

Type III Mid Distribution w/BLS

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	1,600	B0 U0 G1	1,930	B0 U0 G1	2,010	B0 U0 G1
6L	2,810	B1 U0 G1	2,390	B1 U0 G1	2,900	B1 U0 G1	3,010	B1 U0 G1
8L	3,290	B1 U0 G1	3,190	B1 U0 G1	3,860	B1 U0 G1	4,020	B1 U0 G1
10L	4,150	B1 U0 G1	4,130	B1 U0 G1	5,000	B1 U0 G1	5,200	B1 U0 G1
13L	5,375	B1 U0 G2	5,375	B1 U0 G2	6,500	B1 U0 G2	6,750	B1 U0 G2
17L	6,875	B1 U0 G2	7,025	B1 U0 G2	8,500	B1 U0 G2	8,825	B1 U0 G2
20L	8,325	B1 U0 G2	8,225	B1 U0 G2	9,950	B2 U0 G2	10,350	B2 U0 G2
25L	10,350	B2 U0 G2	10,275	B2 U0 G2	12,450	B2 U0 G2	12,950	B2 U0 G2
32L	12,975	B2 U0 G2	13,175	B2 U0 G2	15,900	B2 U0 G3	16,600	B2 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Photometry

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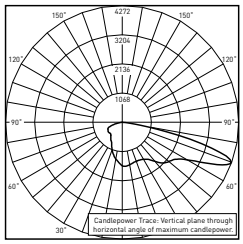
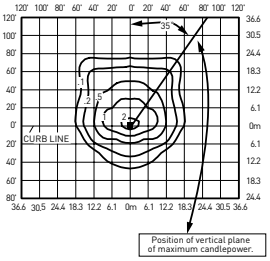
4M





RESTL TEST REPORT PL17823-001A
GWYS-A-8L-30K7-4M-UL-xx-xx-xx
Initial Delivered Lumens: 7,329

GWYS-A-8L-30K7-4M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 7,225
Initial FC at grade

Type IV Mid Distribution

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	2,980	B1 U0 G1	3,610	B1 U0 G1	3,750	B1 U0 G1
6L	5,250	B1 U0 G1	4,470	B1 U0 G1	5,400	B1 U0 G1	5,625	B1 U0 G1
8L	6,150	B1 U0 G1	5,950	B1 U0 G1	7,225	B2 U0 G2	7,500	B2 U0 G2
10L	7,750	B2 U0 G2	7,700	B2 U0 G2	9,325	B2 U0 G2	9,700	B2 U0 G2
13L	10,025	B2 U0 G2	10,025	B2 U0 G2	12,125	B2 U0 G2	12,600	B2 U0 G2
17L	12,850	B2 U0 G2	13,100	B2 U0 G2	15,900	B3 U0 G2	16,500	B3 U0 G3
20L	15,600	B3 U0 G2	15,400	B3 U0 G2	18,600	B3 U0 G3	19,300	B3 U0 G3
25L	19,300	B3 U0 G3	19,200	B3 U0 G3	23,200	B3 U0 G3	24,200	B3 U0 G3
32L	24,200	B3 U0 G3	24,600	B3 U0 G3	29,800	B3 U0 G4	30,900	B3 U0 G4

* Initial delivered lumens at 25˚C (77˚F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
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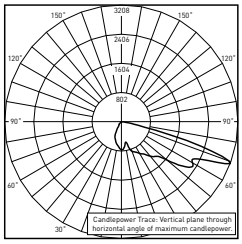

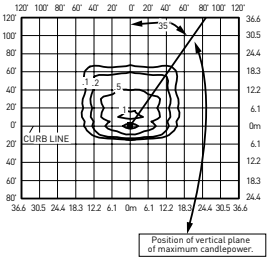

RESTL TEST REPORT PL17994-001A
GWYS-A-8L-30K7-4M-UL-xx-xx-xx
w-GWY-BLSS
Initial Delivered Lumens: 3,907

GWYS-A-8L-30K7-4M-UL w/GWY-BLSS
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 3,860
Initial FC at grade

Type IV Mid Distribution w/BLS

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	1,600	B0 U0 G1	1,930	B0 U0 G1	2,010	B1 U0 G1
6L	2,810	B1 U0 G1	2,390	B1 U0 G1	2,900	B1 U0 G1	3,010	B1 U0 G1
8L	3,290	B1 U0 G1	3,190	B1 U0 G1	3,860	B1 U0 G1	4,020	B1 U0 G1
10L	4,150	B1 U0 G1	4,130	B1 U0 G1	5,000	B1 U0 G1	5,200	B1 U0 G1
13L	5,375	B1 U0 G1	5,375	B1 U0 G1	6,500	B1 U0 G2	6,750	B1 U0 G2
17L	6,875	B1 U0 G2	7,025	B1 U0 G2	8,500	B1 U0 G2	8,825	B2 U0 G2
20L	8,325	B1 U0 G2	8,225	B1 U0 G2	9,950	B2 U0 G2	10,350	B2 U0 G2
25L	10,350	B2 U0 G2	10,275	B2 U0 G2	12,450	B2 U0 G2	12,950	B2 U0 G2
32L	12,975	B2 U0 G2	13,175	B2 U0 G2	15,900	B2 U0 G3	16,600	B2 U0 G3

* Initial delivered lumens at 25˚C (77˚F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
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Photometry

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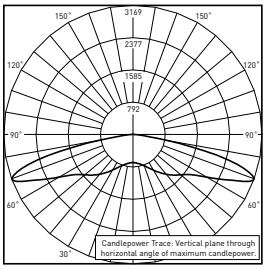
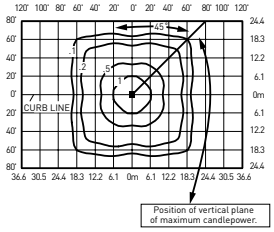
https://www.creelighting.com/products/outdoor/street-and-roadway/guideway-series/

5M



RESTL TEST REPORT PL17825-001A
GWYS-A-8L-30K7-5M-UL-xx-xx-xx
Initial Delivered Lumens: 7,274



GWYS-A-8L-30K7-5M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 7,450
Initial FC at grade

Type V Mid Distribution

Lumen Package	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20
4L	N/A	N/A	3,070	B2 U0 G1	3,720	B2 U0 G1	3,870	B2 U0 G1
6L	5,400	B2 U0 G1	4,610	B2 U0 G1	5,575	B3 U0 G1	5,800	B3 U0 G1
8L	6,325	B3 U0 G1	6,150	B3 U0 G1	7,450	B3 U0 G1	7,725	B3 U0 G1
10L	8,000	B3 U0 G1	7,950	B3 U0 G1	9,625	B3 U0 G2	10,000	B3 U0 G2
13L	10,325	B3 U0 G2	10,325	B3 U0 G2	12,500	B4 U0 G2	13,000	B4 U0 G2
17L	13,250	B4 U0 G2	13,525	B4 U0 G2	16,400	B4 U0 G2	17,000	B4 U0 G2
20L	16,000	B4 U0 G2	15,800	B4 U0 G2	19,200	B4 U0 G2	19,900	B4 U0 G2
25L	19,900	B4 U0 G2	19,800	B4 U0 G2	24,000	B5 U0 G3	24,900	B5 U0 G3
32L	25,000	B5 U0 G3	25,400	B5 U0 G3	30,700	B5 U0 G3	31,900	B5 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf. Valid with no tilt.

Luminaire EPA

Horizontal Tenon Mount – GWYS: 8.2 lbs. (3.7kg); GWY-BLSS Accessory: add 1.2 lbs. (0.6kg); GWYM: 12.2 lbs. (5.5kg); GWY-BLSM Accessory: add 1.8 lbs. (0.8kg); GWYL: 18.2 lbs. (8.3kg); GWY-BLSL Accessory: add 3.2 lbs. (1.4kg)					
Luminaire	Single	2 @ 90˚	2 @ 180˚	3 @ 90˚	4 @ 90˚
	Tenon Configuration (0˚-80˚ Tilt); If used with Cree Lighting tenons, please add tenon EPA with Luminaire EPA				
	PD-1H4; PT-1H	PD-2H4(90); PT-2H(90)	PD-2H4(180); PT-2H(180)	PD-3H4(90); PT-3H(90)	PD-4H4(90); PT-4H(90)
GWYS	0.45	0.72	0.90	1.18	1.45
GWYM	0.53	0.88	1.05	1.41	1.76
GWYL	0.63	1.04	1.25	1.67	2.08

Tenon EPA

Part Number	EPA
PD Series Tenons	0.09
PT Series Tenons	0.10
WM-2L	0.13
XA-TMDA8	0.19

Tenons and Brackets‡ (must specify color)

Square Internal Mount Horizontal Tenons (Aluminum)
- Mounts to 4" (102mm) square aluminum or steel poles
  PD-1H4 – Single
  PD-2H4(90) –90˚ Twin
  PD-2H4(180) –180˚ Twin
  PD-3H4(90) – 90˚ Triple
  PD-4H4(90) –90˚ Quad

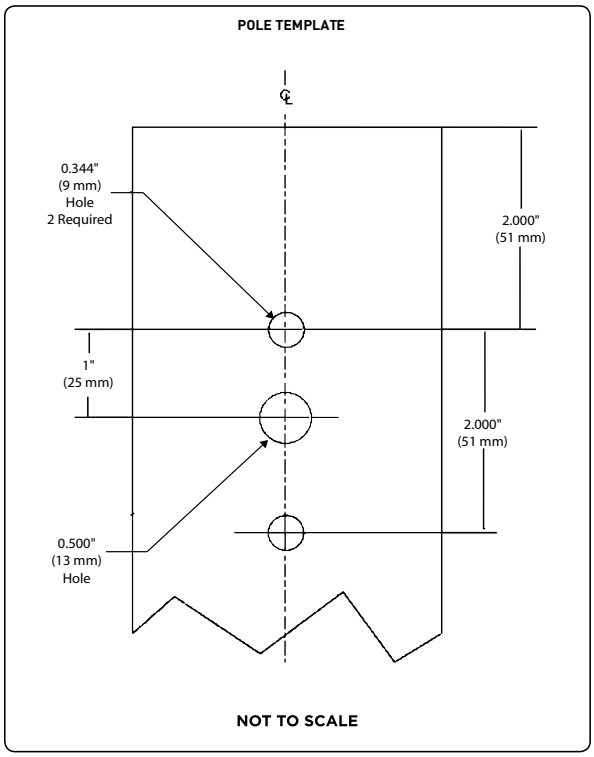
Wall Mount Brackets
- Mounts to wall or roof
  WM-2L –Extended Horizontal

Round External Mount Horizontal Tenons (Aluminum)
- Mounts to 2.375"-3" (60-76mm) O.D. round aluminum or steel poles or tenons
  PT-1H –Single
  PT-2H(90) –90˚ Twin
  PT-2H(180) –180˚ Twin
  PT-3H(90) –90˚ Triple
  PT-4H(90) –90˚ Quad

Direct Arm Pole Adaptor Bracket
- Mounts to 3-6" (76-152mm) round or square aluminum or steel poles
  XA-TMDA8

‡ Refer to the Bracket and Tenons spec sheet for more details.

Fixture Mounting Drill Pattern for XA-TMDA8



Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 4L

Q/X Option Setting	CCT/CRI	System Watts 120-277V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	22K (80 CRI)	26	2,980	3,070	1,600	30	3000 L	3000 L
	27K/30K (70 CRI)		3,610	3,720	1,930		4000 L	4000 L
	40K/57K (70 CRI)		3,750	3,870	2,010		4000 L	4000 L
Q8/X8	22K (80 CRI)	25	2,840	2,930	1,520	30	3000 L	3000 L
	27K/30K (70 CRI)		3,440	3,550	1,840		3000 L	4000 L
	40K/57K (70 CRI)		3,580	3,690	1,920		4000 L	4000 L
Q7/X7	22K (80 CRI)	24	2,720	2,810	1,460	20	3000 L	3000 L
	27K/30K (70 CRI)		3,300	3,400	1,770		3000 L	3000 L
	40K/57K (70 CRI)		3,430	3,530	1,840		3000 L	4000 L
Q6/X6	22K (80 CRI)	23	2,640	2,720	1,410	20	3000 L	3000 L
	27K/30K (70 CRI)		3,190	3,290	1,710		3000 L	3000 L
	40K/57K (70 CRI)		3,310	3,420	1,770		3000 L	3000 L
Q5/X5	22K (80 CRI)	20	2,410	2,480	1,290	20	2000 L	2000 L
	27K/30K (70 CRI)		2,910	3,000	1,560		3000 L	3000 L
	40K/57K (70 CRI)		3,030	3,120	1,620		3000 L	3000 L
Q4/X4	22K (80 CRI)	19	2,190	2,260	1,170	20	2000 L	2000 L
	27K/30K (70 CRI)		2,650	2,730	1,420		3000 L	3000 L
	40K/57K (70 CRI)		2,750	2,840	1,470		3000 L	3000 L
Q3/X3	22K (80 CRI)	17	2,020	2,080	1,080	20	2000 L	2000 L
	27K/30K (70 CRI)		2,450	2,520	1,310		2000 L	3000 L
	40K/57K (70 CRI)		2,540	2,620	1,360		3000 L	3000 L
Q2/X2	22K (80 CRI)	15	1,820	1,870	970	20	2000 L	2000 L
	27K/30K (70 CRI)		2,200	2,270	1,180		2000 L	2000 L
	40K/57K (70 CRI)		2,290	2,360	1,220		2000 L	2000 L
Q1/X1	22K (80 CRI)	13	1,610	1,660	860	10	2000 L	2000 L
	27K/30K (70 CRI)		1,940	2,000	1,040		2000 L	2000 L
	40K/57K (70 CRI)		2,020	2,080	1,080		2000 L	2000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 6L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	38	5,250	5,400	2,810	40	5000 L	5000 L
	22K (80 CRI)		4,470	4,610	2,390		4000 L	5000 L
	27K/30K (70 CRI)		5,400	5,575	2,900		5000 L	6000 L
	40K/57K (70 CRI)		5,625	5,800	3,010		6000 L	6000 L
Q8/X8	19K (50 CRI)	36	5,000	5,150	2,680	40	5000 L	5000 L
	22K (80 CRI)		4,270	4,400	2,280		4000 L	4000 L
	27K/30K (70 CRI)		5,150	5,325	2,760		5000 L	5000 L
	40K/57K (70 CRI)		5,375	5,525	2,870		5000 L	6000 L
Q7/X7	19K (50 CRI)	34	4,790	4,940	2,570	30	5000 L	5000 L
	22K (80 CRI)		4,090	4,210	2,190		4000 L	4000 L
	27K/30K (70 CRI)		4,950	5,100	2,650		5000 L	5000 L
	40K/57K (70 CRI)		5,150	5,300	2,750		5000 L	5000 L
Q6/X6	19K (50 CRI)	33	4,640	4,780	2,480	30	5000 L	5000 L
	22K (80 CRI)		3,950	4,080	2,120		4000 L	4000 L
	27K/30K (70 CRI)		4,780	4,930	2,560		5000 L	5000 L
	40K/57K (70 CRI)		4,970	5,125	2,660		5000 L	5000 L
Q5/X5	19K (50 CRI)	29	4,240	4,370	2,270	30	4000 L	4000 L
	22K (80 CRI)		3,610	3,720	1,930		4000 L	4000 L
	27K/30K (70 CRI)		4,370	4,510	2,340		4000 L	5000 L
	40K/57K (70 CRI)		4,540	4,690	2,430		5000 L	5000 L
Q4/X4	19K (50 CRI)	25	3,850	3,970	2,060	30	4000 L	4000 L
	22K (80 CRI)		3,280	3,380	1,760		3000 L	3000 L
	27K/30K (70 CRI)		3,970	4,090	2,130		4000 L	4000 L
	40K/57K (70 CRI)		4,130	4,260	2,210		4000 L	4000 L
Q3/X3	19K (50 CRI)	21	3,560	3,670	1,900	20	4000 L	4000 L
	22K (80 CRI)		3,030	3,130	1,620		3000 L	3000 L
	27K/30K (70 CRI)		3,670	3,780	1,960		4000 L	4000 L
	40K/57K (70 CRI)		3,810	3,930	2,040		4000 L	4000 L

† Electrical and lumen data at 25°C (77°F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 8L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	50	6,150	6,325	3,290	50	6000 L	6000 L
	22K (80 CRI)		5,950	6,150	3,190		6000 L	6000 L
	27K/30K (70 CRI)		7,225	7,450	3,860		7000 L	7000 L
	40K/57K (70 CRI)		7,500	7,725	4,020		8000 L	8000 L
Q8/X8	19K (50 CRI)	48	5,850	6,050	3,140	50	6000 L	6000 L
	22K (80 CRI)		5,700	5,875	3,050		6000 L	6000 L
	27K/30K (70 CRI)		6,875	7,100	3,690		7000 L	7000 L
	40K/57K (70 CRI)		7,150	7,375	3,830		7000 L	7000 L
Q7/X7	19K (50 CRI)	45	5,625	5,800	3,010	50	6000 L	6000 L
	22K (80 CRI)		5,450	5,625	2,920		5000 L	6000 L
	27K/30K (70 CRI)		6,600	6,800	3,530		7000 L	7000 L
	40K/57K (70 CRI)		6,850	7,075	3,670		7000 L	7000 L
Q6/X6	19K (50 CRI)	43	5,425	5,600	2,910	40	5000 L	6000 L
	22K (80 CRI)		5,275	5,425	2,820		5000 L	5000 L
	27K/30K (70 CRI)		6,375	6,575	3,410		6000 L	7000 L
	40K/57K (70 CRI)		6,625	6,825	3,550		7000 L	7000 L
Q5/X5	19K (50 CRI)	39	4,960	5,125	2,660	40	5000 L	5000 L
	22K (80 CRI)		4,820	4,970	2,580		5000 L	5000 L
	27K/30K (70 CRI)		5,825	6,000	3,120		6000 L	6000 L
	40K/57K (70 CRI)		6,050	6,250	3,240		6000 L	6000 L
Q4/X4	19K (50 CRI)	36	4,510	4,650	2,410	40	5000 L	5000 L
	22K (80 CRI)		4,380	4,510	2,340		4000 L	5000 L
	27K/30K (70 CRI)		5,300	5,450	2,840		5000 L	5000 L
	40K/57K (70 CRI)		5,500	5,675	2,950		6000 L	6000 L
Q3/X3	19K (50 CRI)	32	4,160	4,290	2,230	30	4000 L	4000 L
	22K (80 CRI)		4,040	4,170	2,160		4000 L	4000 L
	27K/30K (70 CRI)		4,890	5,050	2,620		5000 L	5000 L
	40K/57K (70 CRI)		5,075	5,250	2,720		5000 L	5000 L
Q2/X2	19K (50 CRI)	29	3,750	3,860	2,010	30	4000 L	4000 L
	22K (80 CRI)		3,640	3,750	1,950		4000 L	4000 L
	27K/30K (70 CRI)		4,400	4,540	2,360		4000 L	5000 L
	40K/57K (70 CRI)		4,570	4,720	2,450		5000 L	5000 L
Q1/X1	19K (50 CRI)	26	3,310	3,410	1,770	30	3000 L	3000 L
	22K (80 CRI)		3,210	3,310	1,720		3000 L	3000 L
	27K/30K (70 CRI)		3,890	4,010	2,080		4000 L	4000 L
	40K/57K (70 CRI)		4,040	4,170	2,160		4000 L	4000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 10L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	63	7,750	8,000	4,150	60	8000 L	8000 L
	22K (80 CRI)		7,700	7,950	4,130		8000 L	8000 L
	27K/30K (70 CRI)		9,325	9,625	5,000		9000 L	10000 L
	40K/57K (70 CRI)		9,700	10,000	5,200		10000 L	10000 L
Q8/X8	19K (50 CRI)	60	7,400	7,625	3,960	60	7000 L	8000 L
	22K (80 CRI)		7,350	7,575	3,940		7000 L	8000 L
	27K/30K (70 CRI)		8,900	9,175	4,770		9000 L	9000 L
	40K/57K (70 CRI)		9,250	9,550	4,950		9000 L	10000 L
Q7/X7	19K (50 CRI)	57	7,075	7,300	3,790	60	7000 L	7000 L
	22K (80 CRI)		7,050	7,275	3,770		7000 L	7000 L
	27K/30K (70 CRI)		8,525	8,800	4,570		9000 L	9000 L
	40K/57K (70 CRI)		8,875	9,150	4,750		9000 L	9000 L
Q6/X6	19K (50 CRI)	55	6,850	7,075	3,670	60	7000 L	7000 L
	22K (80 CRI)		6,825	7,025	3,650		7000 L	7000 L
	27K/30K (70 CRI)		8,250	8,500	4,420		8000 L	9000 L
	40K/57K (70 CRI)		8,575	8,850	4,590		9000 L	9000 L
Q5/X5	19K (50 CRI)	49	6,275	6,450	3,350	50	6000 L	6000 L
	22K (80 CRI)		6,225	6,425	3,340		6000 L	6000 L
	27K/30K (70 CRI)		7,550	7,775	4,040		8000 L	8000 L
	40K/57K (70 CRI)		7,825	8,075	4,200		8000 L	8000 L
Q4/X4	19K (50 CRI)	45	5,700	5,875	3,050	50	6000 L	6000 L
	22K (80 CRI)		5,650	5,825	3,030		6000 L	6000 L
	27K/30K (70 CRI)		6,850	7,050	3,670		7000 L	7000 L
	40K/57K (70 CRI)		7,125	7,350	3,810		7000 L	7000 L
Q3/X3	19K (50 CRI)	41	5,250	5,425	2,810	40	5000 L	5000 L
	22K (80 CRI)		5,225	5,400	2,800		5000 L	5000 L
	27K/30K (70 CRI)		6,325	6,525	3,390		6000 L	7000 L
	40K/57K (70 CRI)		6,575	6,775	3,520		7000 L	7000 L
Q2/X2	19K (50 CRI)	36	4,730	4,880	2,530	40	5000 L	5000 L
	22K (80 CRI)		4,700	4,850	2,520		5000 L	5000 L
	27K/30K (70 CRI)		5,700	5,875	3,050		6000 L	6000 L
	40K/57K (70 CRI)		5,925	6,100	3,170		6000 L	6000 L
Q1/X1	19K (50 CRI)	32	4,180	4,310	2,240	30	4000 L	4000 L
	22K (80 CRI)		4,160	4,280	2,230		4000 L	4000 L
	27K/30K (70 CRI)		5,025	5,175	2,690		5000 L	5000 L
	40K/57K (70 CRI)		5,225	5,400	2,800		5000 L	5000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 13L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	81	10,025	10,325	5,375	80	10000 L	10000 L
	22K (80 CRI)		10,025	10,325	5,375		10000 L	10000 L
	27K/30K (70 CRI)		12,125	12,500	6,500		12000 L	13000 L
	40K/57K (70 CRI)		12,600	13,000	6,750		13000 L	13000 L
Q8/X8	19K (50 CRI)	78	9,550	9,850	5,125	80	10000 L	10000 L
	22K (80 CRI)		9,550	9,850	5,125		10000 L	10000 L
	27K/30K (70 CRI)		11,575	11,925	6,200		12000 L	12000 L
	40K/57K (70 CRI)		12,025	12,400	6,450		12000 L	12000 L
Q7/X7	19K (50 CRI)	73	9,150	9,450	4,900	70	9000 L	9000 L
	22K (80 CRI)		9,150	9,450	4,910		9000 L	9000 L
	27K/30K (70 CRI)		11,075	11,425	5,925		11000 L	11000 L
	40K/57K (70 CRI)		11,525	11,875	6,175		12000 L	12000 L
Q6/X6	19K (50 CRI)	70	8,850	9,125	4,740	70	9000 L	9000 L
	22K (80 CRI)		8,850	9,125	4,740		9000 L	9000 L
	27K/30K (70 CRI)		10,725	11,050	5,750		11000 L	11000 L
	40K/57K (70 CRI)		11,150	11,500	5,975		11000 L	12000 L
Q5/X5	19K (50 CRI)	64	8,100	8,350	4,330	60	8000 L	8000 L
	22K (80 CRI)		8,100	8,350	4,340		8000 L	8000 L
	27K/30K (70 CRI)		9,800	10,100	5,250		10000 L	10000 L
	40K/57K (70 CRI)		10,175	10,500	5,450		10000 L	11000 L
Q4/X4	19K (50 CRI)	58	7,350	7,575	3,940	60	7000 L	8000 L
	22K (80 CRI)		7,350	7,575	3,940		7000 L	8000 L
	27K/30K (70 CRI)		8,900	9,175	4,770		9000 L	9000 L
	40K/57K (70 CRI)		9,250	9,550	4,960		9000 L	10000 L
Q3/X3	19K (50 CRI)	52	6,800	7,000	3,640	50	7000 L	7000 L
	22K (80 CRI)		6,800	7,000	3,640		7000 L	7000 L
	27K/30K (70 CRI)		8,225	8,475	4,400		8000 L	8000 L
	40K/57K (70 CRI)		8,550	8,825	4,580		9000 L	9000 L
Q2/X2	19K (50 CRI)	46	6,100	6,300	3,270	50	6000 L	6000 L
	22K (80 CRI)		6,125	6,300	3,270		6000 L	6000 L
	27K/30K (70 CRI)		7,400	7,625	3,960		7000 L	8000 L
	40K/57K (70 CRI)		7,700	7,925	4,120		8000 L	8000 L
Q1/X1	19K (50 CRI)	42	5,400	5,575	2,890	40	5000 L	6000 L
	22K (80 CRI)		5,400	5,575	2,890		5000 L	6000 L
	27K/30K (70 CRI)		6,525	6,750	3,500		7000 L	7000 L
	40K/57K (70 CRI)		6,800	7,000	3,640		7000 L	7000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 17L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	104	12,850	13,250	6,875	100	13000 L	13000 L
	22K (80 CRI)		13,100	13,525	7,025		13000 L	14000 L
	27K/30K (70 CRI)		15,900	16,400	8,500		16000 L	16000 L
	40K/57K (70 CRI)		16,500	17,000	8,825		17000 L	17000 L
Q8/X8	19K (50 CRI)	100	12,275	12,650	6,575	100	12000 L	13000 L
	22K (80 CRI)		12,500	12,900	6,700		13000 L	13000 L
	27K/30K (70 CRI)		15,100	15,600	8,100		15000 L	16000 L
	40K/57K (70 CRI)		15,700	16,200	8,425		16000 L	16000 L
Q7/X7	19K (50 CRI)	94	11,750	12,125	6,300	90	12000 L	12000 L
	22K (80 CRI)		11,975	12,350	6,425		12000 L	12000 L
	27K/30K (70 CRI)		14,500	14,950	7,750		15000 L	15000 L
	40K/57K (70 CRI)		15,100	15,500	8,075		15000 L	16000 L
Q6/X6	19K (50 CRI)	90	11,375	11,725	6,075	90	11000 L	12000 L
	22K (80 CRI)		11,575	11,950	6,200		12000 L	12000 L
	27K/30K (70 CRI)		14,025	14,450	7,500		14000 L	14000 L
	40K/57K (70 CRI)		14,575	15,000	7,800		15000 L	15000 L
Q5/X5	19K (50 CRI)	82	10,400	10,725	5,575	80	10000 L	11000 L
	22K (80 CRI)		10,600	10,925	5,675		11000 L	11000 L
	27K/30K (70 CRI)		12,825	13,225	6,850		13000 L	13000 L
	40K/57K (70 CRI)		13,325	13,725	7,125		13000 L	14000 L
Q4/X4	19K (50 CRI)	75	9,450	9,725	5,050	80	9000 L	10000 L
	22K (80 CRI)		9,625	9,925	5,150		10000 L	10000 L
	27K/30K (70 CRI)		11,650	12,000	6,225		12000 L	12000 L
	40K/57K (70 CRI)		12,100	12,475	6,475		12000 L	12000 L
Q3/X3	19K (50 CRI)	67	8,725	9,000	4,670	70	9000 L	9000 L
	22K (80 CRI)		8,875	9,150	4,760		9000 L	9000 L
	27K/30K (70 CRI)		10,750	11,075	5,750		11000 L	11000 L
	40K/57K (70 CRI)		11,175	11,525	5,975		11000 L	12000 L
Q2/X2	19K (50 CRI)	60	7,850	8,100	4,200	60	8000 L	8000 L
	22K (80 CRI)		8,000	8,250	4,280		8000 L	8000 L
	27K/30K (70 CRI)		9,675	9,975	5,175		10000 L	10000 L
	40K/57K (70 CRI)		10,050	10,375	5,375		10000 L	10000 L
Q1/X1	19K (50 CRI)	54	6,925	7,150	3,710	50	7000 L	7000 L
	22K (80 CRI)		7,075	7,275	3,780		7000 L	7000 L
	27K/30K (70 CRI)		8,550	8,825	4,580		9000 L	9000 L
	40K/57K (70 CRI)		8,875	9,150	4,760		9000 L	9000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (rounded to nearest 1000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 20L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	119	15,600	16,000	8,325	120	16000 L	16000 L
	22K (80 CRI)		15,400	15,800	8,225		15000 L	16000 L
	27K/30K (70 CRI)		18,600	19,200	9,950		19000 L	19000 L
	40K/57K (70 CRI)		19,300	19,900	10,350		19000 L	20000 L
Q8/X8	19K (50 CRI)	114	14,850	15,300	7,950	110	15000 L	15000 L
	22K (80 CRI)		14,675	15,100	7,850		15000 L	15000 L
	27K/30K (70 CRI)		17,700	18,300	9,500		18000 L	18000 L
	40K/57K (70 CRI)		18,400	19,000	9,875		18000 L	19000 L
Q7/X7	19K (50 CRI)	108	14,225	14,650	7,625	110	14000 L	15000 L
	22K (80 CRI)		14,050	14,475	7,525		14000 L	14000 L
	27K/30K (70 CRI)		17,000	17,500	9,100		17000 L	18000 L
	40K/57K (70 CRI)		17,700	18,200	9,450		18000 L	18000 L
Q6/X6	19K (50 CRI)	103	13,750	14,175	7,375	100	14000 L	14000 L
	22K (80 CRI)		13,575	14,000	7,275		14000 L	14000 L
	27K/30K (70 CRI)		16,400	17,000	8,800		16000 L	17000 L
	40K/57K (70 CRI)		17,100	17,600	9,150		17000 L	18000 L
Q5/X5	19K (50 CRI)	93	12,575	12,950	6,725	90	13000 L	13000 L
	22K (80 CRI)		12,425	12,800	6,650		12000 L	13000 L
	27K/30K (70 CRI)		15,000	15,500	8,050		15000 L	16000 L
	40K/57K (70 CRI)		15,600	16,100	8,375		16000 L	16000 L
Q4/X4	19K (50 CRI)	86	11,425	11,775	6,125	90	11000 L	12000 L
	22K (80 CRI)		11,275	11,625	6,050		11000 L	12000 L
	27K/30K (70 CRI)		13,650	14,075	7,300		14000 L	14000 L
	40K/57K (70 CRI)		14,200	14,625	7,600		14000 L	15000 L
Q3/X3	19K (50 CRI)	77	10,550	10,875	5,650	80	11000 L	11000 L
	22K (80 CRI)		10,425	10,750	5,575		10000 L	11000 L
	27K/30K (70 CRI)		12,600	13,000	6,750		13000 L	13000 L
	40K/57K (70 CRI)		13,100	13,525	7,025		13000 L	14000 L
Q2/X2	19K (50 CRI)	68	9,500	9,775	5,075	70	10000 L	10000 L
	22K (80 CRI)		9,375	9,675	5,025		9000 L	10000 L
	27K/30K (70 CRI)		11,350	11,700	6,075		11000 L	12000 L
	40K/57K (70 CRI)		11,800	12,150	6,325		12000 L	12000 L
Q1/X1	19K (50 CRI)	61	8,375	8,650	4,490	60	8000 L	9000 L
	22K (80 CRI)		8,275	8,550	4,440		8000 L	9000 L
	27K/30K (70 CRI)		10,025	10,325	5,375		10000 L	10000 L
	40K/57K (70 CRI)		10,425	10,750	5,575		10000 L	11000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (</= 24,000 lumens rounded to nearest 1000 lumens, > 24,001 lumens rounded to the nearest 2000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 25L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	148	19,300	19,900	10,350	150	19000 L	20000 L
	22K (80 CRI)		19,200	19,800	10,275		19000 L	20000 L
	27K/30K (70 CRI)		23,200	24,000	12,450		23000 L	24000 L
	40K/57K (70 CRI)		24,200	24,900	12,950		24000 L	24000 L
Q8/X8	19K (50 CRI)	142	18,400	19,000	9,875	140	18000 L	19000 L
	22K (80 CRI)		18,300	18,900	9,825		18000 L	19000 L
	27K/30K (70 CRI)		22,200	22,900	11,875		22000 L	23000 L
	40K/57K (70 CRI)		23,100	23,800	12,350		23000 L	24000 L
Q7/X7	19K (50 CRI)	134	17,700	18,200	9,450	130	18000 L	18000 L
	22K (80 CRI)		17,600	18,100	9,400		18000 L	18000 L
	27K/30K (70 CRI)		21,200	21,900	11,375		21000 L	22000 L
	40K/57K (70 CRI)		22,100	22,800	11,825		22000 L	23000 L
Q6/X6	19K (50 CRI)	128	17,100	17,600	9,150	130	17000 L	18000 L
	22K (80 CRI)		17,000	17,500	9,100		17000 L	18000 L
	27K/30K (70 CRI)		20,600	21,200	11,000		21000 L	21000 L
	40K/57K (70 CRI)		21,400	22,000	11,450		21000 L	22000 L
Q5/X5	19K (50 CRI)	116	15,600	16,100	8,350	120	16000 L	16000 L
	22K (80 CRI)		15,500	16,000	8,300		16000 L	16000 L
	27K/30K (70 CRI)		18,800	19,400	10,050		19000 L	19000 L
	40K/57K (70 CRI)		19,500	20,100	10,450		20000 L	20000 L
Q4/X4	19K (50 CRI)	107	14,175	14,625	7,600	110	14000 L	15000 L
	22K (80 CRI)		14,100	14,550	7,550		14000 L	15000 L
	27K/30K (70 CRI)		17,100	17,600	9,125		17000 L	18000 L
	40K/57K (70 CRI)		17,700	18,300	9,500		18000 L	18000 L
Q3/X3	19K (50 CRI)	95	13,100	13,500	7,000	100	13000 L	14000 L
	22K (80 CRI)		13,025	13,425	6,975		13000 L	13000 L
	27K/30K (70 CRI)		15,800	16,300	8,450		16000 L	16000 L
	40K/57K (70 CRI)		16,400	16,900	8,775		16000 L	17000 L
Q2/X2	19K (50 CRI)	85	11,775	12,150	6,300	90	12000 L	12000 L
	22K (80 CRI)		11,725	12,075	6,275		12000 L	12000 L
	27K/30K (70 CRI)		14,175	14,625	7,600		14000 L	15000 L
	40K/57K (70 CRI)		14,750	15,200	7,900		15000 L	15000 L
Q1/X1	19K (50 CRI)	76	10,400	10,725	5,575	80	10000 L	11000 L
	22K (80 CRI)		10,350	10,675	5,550		10000 L	11000 L
	27K/30K (70 CRI)		12,525	12,925	6,700		13000 L	13000 L
	40K/57K (70 CRI)		13,025	13,425	6,975		13000 L	13000 L

† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the street and area luminaire within the Guideway Series on this page to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected lumen output, will be fully adjustable between the outputs, and will include an ANSI C136.15-2020 utility label that indicates the wattage (rounded to nearest 10W), the lumen output (</= 24,000 lumens rounded to nearest 1000 lumens, > 24,001 lumens rounded to the nearest 2000 lumens), and the CCT of the luminaire at the selected lumen output. Additional dimming functionality is available when a dimming control (by others) is used in the 7-Pin receptacle.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the Guideway Series street and area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected, and will include a utility label that indicates the wattage, lumen output, and CCT of the setting selected. When this option is selected, the luminaire output is not able to be adjusted in the field except if a dimming control (by others) is used in the 7-Pin receptacle.

Q & X Option Power & Lumen Data – 32L

Q/X Option Setting	CCT/CRI	System Watts 120-480V	Lumen Values			Utility Label		
			2M/2N/3M/4M	5M	2M/2N/3M/4M w/ External BLS	Wattage	2M/2N/3M/4M Lumens	5M Lumens
Q9 (Full Power)	19K (50 CRI)	190	24,200	25,000	12,975	190	24000 L	26000 L
	22K (80 CRI)		24,600	25,400	13,175		24000 L	26000 L
	27K/30K (70 CRI)		29,800	30,700	15,900		30000 L	30000 L
	40K/57K (70 CRI)		30,900	31,900	16,600		30000 L	32000 L
Q8/X8	19K (50 CRI)	182	23,100	23,800	12,375	180	23000 L	24000 L
	22K (80 CRI)		23,500	24,200	12,550		24000 L	24000 L
	27K/30K (70 CRI)		28,400	29,300	15,200		28000 L	30000 L
	40K/57K (70 CRI)		29,500	30,400	15,800		30000 L	30000 L
Q7/X7	19K (50 CRI)	172	22,200	22,800	11,875	170	22000 L	23000 L
	22K (80 CRI)		22,500	23,200	12,025		23000 L	23000 L
	27K/30K (70 CRI)		27,200	28,000	14,575		28000 L	28000 L
	40K/57K (70 CRI)		28,300	29,100	15,100		28000 L	30000 L
Q6/X6	19K (50 CRI)	165	21,400	22,100	11,475	170	21000 L	22000 L
	22K (80 CRI)		21,700	22,400	11,650		22000 L	22000 L
	27K/30K (70 CRI)		26,300	27,100	14,075		26000 L	28000 L
	40K/57K (70 CRI)		27,300	28,200	14,650		28000 L	28000 L
Q5/X5	19K (50 CRI)	149	19,600	20,200	10,500	150	20000 L	20000 L
	22K (80 CRI)		19,900	20,500	10,650		20000 L	21000 L
	27K/30K (70 CRI)		24,000	24,800	12,875		24000 L	24000 L
	40K/57K (70 CRI)		25,000	25,800	13,375		26000 L	26000 L
Q4/X4	19K (50 CRI)	137	17,800	18,300	9,525	140	18000 L	18000 L
	22K (80 CRI)		18,000	18,600	9,675		18000 L	19000 L
	27K/30K (70 CRI)		21,800	22,500	11,700		22000 L	23000 L
	40K/57K (70 CRI)		22,700	23,400	12,150		23000 L	23000 L
Q3/X3	19K (50 CRI)	122	16,400	16,900	8,800	120	16000 L	17000 L
	22K (80 CRI)		16,700	17,200	8,925		17000 L	17000 L
	27K/30K (70 CRI)		20,200	20,800	10,800		20000 L	21000 L
	40K/57K (70 CRI)		21,000	21,600	11,225		21000 L	22000 L
Q2/X2	19K (50 CRI)	109	14,800	15,200	7,925	110	15000 L	15000 L
	22K (80 CRI)		15,000	15,500	8,025		15000 L	16000 L
	27K/30K (70 CRI)		18,200	18,700	9,725		18000 L	19000 L
	40K/57K (70 CRI)		18,900	19,500	10,100		19000 L	20000 L
Q1/X1	19K (50 CRI)	98	13,075	13,475	7,000	100	13000 L	13000 L
	22K (80 CRI)		13,250	13,675	7,100		13000 L	14000 L
	27K/30K (70 CRI)		16,000	16,500	8,600		16000 L	17000 L
	40K/57K (70 CRI)		16,700	17,200	8,925		17000 L	17000 L

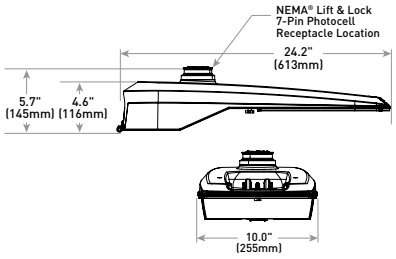
† Electrical and lumen data at 25˚C (77˚F). Actual wattage and lumen output may differ by +/-10% when operating between 120-277V or 347-480V +/-10%.

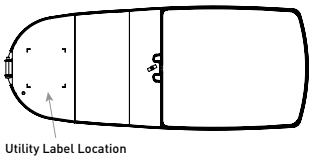
GWYM

Shown w/XA-XSLSHRT accessory (sold separately)

Weight
12.2 lbs. (5.5kg)

Note: For SL voltage, deduct 1.0 lb. (0.5kg).

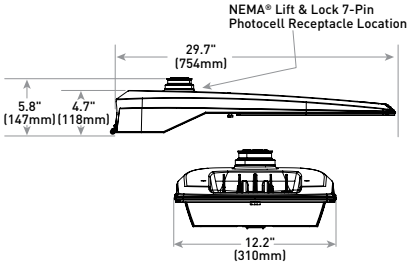


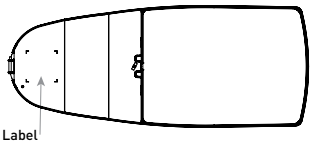


GWYL

Shown w/XA-XSLSHRT accessory (sold separately)

Weight
18.2 lbs. (8.3kg)





Replacement Parts

Driver Replacement Kits				
Product	**Lumen Package**	**Voltage**	**Controls**	**Options**
GWY-A-DVRKT	**4L** 4,000 Lumens **6L** 6,000 Lumens **8L** 8,000 Lumens **10L** 10,000 Lumens **13L** 13,000 Lumens **17L** 17,000 Lumens **20L** 20,000 Lumens **25L** 25,000 Lumens **32L** 32,000 Lumens	**UL** Universal 120-277V **UH** Universal 347-480V - Available only with 6L-32L lumen packages	**BLANK** - For use with no controls (standard 0-10V dimming) - For use with Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 controls (field adjustable output module not included) **DLI DALI Compatible** - For use with luminaires with DLI controls - Available with all lumen packages except 4L & 17L - Available only with UL voltage	**X8/X7/X6/X5/X4/X3/X2/X1** **Locked Lumen Output** - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - 6L lumen package is available only with X8-X3 settings - Not available with DLI controls - Lumen output is permanently locked to the setting selected

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CREE LIGHTING®

COLOR -

SYSCO BLUE - SIGNAGE

DARK BLUE - TO MATCH EXISTING CANOPY

SYSCO WHITE - INSULATED METAL PANEL - COPING & DOORS TO MATCH

MATERIAL -

INSULATED METAL PANEL BY KINGSPAN OR APPROVED

EXAMPLE -

EXAMPLE OF MONUMENT SIGN

EXAMPLE OF BUILDING SIGNAGE

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SYSCO - WILSONVILLE
WILSONVILLE, OR

15895 SW 72ND AVE SUITE 200
PORTLAND, OREGON 97224
TEL: 503.226.1285
FAX: 503.226.1670

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