Frog Pond Terrace Subdivision
(George/Martin Property)

Wilsonville, Oregon

Request for

Annexation

Zone Map Amendment

Stage I Master Plan

Stage II Final Plan

Site Design Review of Open Space

Tentative Subdivision Plat

Type C Tree Removal and Plan

SROZ Map Verification

Prepared for:
West Hills Land Development
3330 NW Yeon Ave, Suite 200
Portland, OR 97210

Prepared By:
Otak, Inc.
808 SW Third Avenue, Suite 800
Portland, OR 97204

May 18, 2022

Project No. 20015.100

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

Planning Division
Development Permit Application

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

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

Pre-Application Meeting Date: September 16, 2021

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

Applicant:
Name: Dan Grimberg
Company: West Hills Land Development
Mailing Address: 3330 NW Yeon St, Ste 200
City, State, Zip: Portland, OR 97210
Phone: 503.789.0358 Fax:
E-mail: dan@westhillsdevelopment.com

Authorized Representative:
Name: Li Alligood, AICP
Company: Otak, Inc.
Mailing Address: 808 SW Third Ave, Ste 800
City, State, Zip: Portland, OR 97204
Phone: 503.415.2384 Fax:
E-mail: li.alligood@otak.com

Property Owner:
Name: Colleen & Douglas George
Company: NA
Mailing Address: 7500 SW Frog Pond Ln
City, State, Zip: Wilsonville, OR 97070
Phone: Fax:
E-mail:

Property Owner's Signature:
Printed Name: Colleen & Douglas George Date: 9-16-21

Applicant's Signature: (if different from Property Owner)
Printed Name: Dan Grimberg Date:

Site Location and Description:
Project Address if Available: 7500 SW Frog Pond Ln Suite/Unit
Project Location:
Tax Map #(s): 31W12D Tax Lot #(s): 2801 County: ☐ Washington ■ Clackamas

Request:
Residential subdivision (Frog Pond Terrace) of 19 lots, two tracts, and associated infrastructure in Frog Pond West.

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	
☐ Request for Special Meeting	☐ Request for Time Extension	☐ Signs	■ Site Design Review
■ SROZ/SRIR Review	☐ Staff Interpretation	■ Stage I Master Plan	■ Stage II Final Plan
■ Type C Tree Removal Plan	☐ Tree Permit (B or C)	☐ Temporary Use	☐ Variance
☐ Villebois SAP	☐ Villebois PDP	☐ Villebois FDP	☐ Other (describe)
■ Zone Map Amendment	■ Waiver(s)	☐ Conditional Use	

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Mailing Address: 808 SW Third Ave, Ste 800
City, State, Zip: Portland, OR 97204
Phone: 503.415.2384 Fax:
E-mail: li.alligood@otak.com

Property Owner:
Name: Donnie Martin
Company: NA
Mailing Address: 7480 SW Frog Pond Ln
City, State, Zip: Wilsonville, OR 97070
Phone: Fax:
E-mail:

Property Owner's Signature:
Printed Name: Donnie Martin Date:

Applicant's Signature: (if different from Property Owner)
Printed Name: Dan Grimberg Date:

Site Location and Description:
Project Address if Available: Unaddressed Suite/Unit
Project Location:
Tax Map #(s): 31W12D Tax Lot #(s): 3500 County: ☐ Washington ■ Clackamas

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Phone: 503.415.2384 Fax:
E-mail: li.alligood@otak.com

Property Owner:
Name: Marchil Investments, LLC: Donnie Martin
Company: NA
Mailing Address: 7480 SW Frog Pond Ln
City, State, Zip: Wilsonville, OR 97070
Phone: Fax:
E-mail:

Property Owner's Signature:
mgr
Printed Name: Donnie Martin Date:

Applicant's Signature: (if different from Property Owner)
Printed Name: Dan Grimberg Date:

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REQUESTS

Annexation, Zone Map Amendment, Stage I Master Plan, Stage II Final Plan, Site Design Review of Open Space, Tentative Subdivision Plat, Type C Tree Removal and Protection Plan, and SROZ Map Verification approvals are requested to develop the Frog Pond Terrace subdivision and associated infrastructure. The Frog Pond Terrace site is comprised of three separate tax lots within the Frog Pond West Master Plan area. See Sheet P2.00.

SITE INFORMATION

SUBJECT SITE:	7500 SW Frog Pond Lane (TLID 31W12D 2801) 7480 SW Frog Pond Lane (TLID 31W12D 2800) No address (TLID 31W12D 3500)
SITE AREA:	10.91 total acres 7500 SW Frog Pond Lane: 2.0 acres 7480 SW Frog Pond Lane: 8.9 acres No address (TLID 31W12D 3500): 0.01 acres
COMPREHENSIVE PLAN :	Proposed: Residential Neighborhood RN
ZONING:	*Current: Clackamas County RRFF5* Proposed: Residential Neighborhood RN

APPLICANT/PROPERTY OWNER

APPLICANT:

West Hills Land Development LLC
3330 NW Yeon Ave, Suite 200
Portland, OR 97210

Contact: Dan Grimberg
503.789.0358
dan@westhillsdevelopment.com

PROPERTY OWNERS:

31W12D 02800
Marchil Investments, LLC
c/o Donnie Martin
7480 SW Frog Pond Lane
Wilsonville, OR 97062

31W12D 02801
Colleen and Douglas George
7500 SW Frog Pond Lane
Wilsonville, OR 97070

31W12D 03500
Donnie Martin
7480 SW Frog Pond Lane
Wilsonville, OR 97062

PROJECT DEVELOPMENT TEAM

APPLICANT'S REPRESENTATIVE/ LAND USE PLANNER:	Otak, Inc. 808 SW Third Avenue, Suite 800 Portland, OR 97204 Contact: Li Alligood, AICP 503.415.2384 li.alligood@otak.com
CIVIL ENGINEER:	Contact: Keith Buisman, PE 503.415.2337 keith.buisman@otak.com
LANDSCAPE ARCHITECT:	Contact: Gabriel Kruse, PLA 503.415.2402 gabriel.kruse@otak.com
SURVEYOR:	Contact: Mike Spelts, PLS 503.415.2321 mike.spelts@otak.com
GEOTECHNICAL ENGINEER:	Hardman Geotechnical Services, Inc. 10110 SW Nimbus Ave, Suite B-5 Portland, OR 97223 Contact: Scott Hardman 503.530.8076 shardman.hgsi@frontier.com
ARBORIST:	Portland Tree Consulting PO Box 19042 Portland, OR 97280 Contact: Peter Torres 503.421.3883 petertorresusa@gmail.com

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Tables

Appendices

Reduced Size Plan Set

Note: All plan sheets are also separately bound in a larger format within the development application submittal.

I. Requests

Annexation, Zone Map Amendment, Stage I Master Plan, Stage II Final Plan, Site Design Review of Open Space, Tentative Subdivision Plat, Type C Tree Removal and Protection Plan, and SROZ Map Verification approvals are requested to develop the Frog Pond Terrace subdivision and associated infrastructure. The Frog Pond Terrace site is comprised of three separate tax lots within the Frog Pond West Master Plan area. See Sheet P2.00.

Annexation approval is required to annex the subject properties into Wilsonville City limits. Annexation of the properties is necessary to allow development and connection to City utilities.

Zone Map Amendment approval is required to apply RN zoning to the site. These properties are currently zoned Clackamas County RRFF 5, which does not allow the development envisioned in the Frog Pond West Master Plan.

Stage I Master Plan and Stage II Final Plan approvals are required because all development of 2 acres or greater in the RN Zone requires approval as a Planned Development, which requires approval of Stage I and Stage II applications. As shown on Sheet P0.00, the Frog Pond Terrace development is just over 10 acres, which exceeds the 2-acre threshold.

Site Design Review approval is required for review of common tracts and landscaping, landscaping in the public right-of-way, and walls.

Tentative Subdivision Plat approval is required to divide the property into 19 lots and two tracts. Land divisions of four lots or more are defined as subdivisions.

Type C Tree Plan approval is required to remove trees on site for the proposed development.

SROZ Map Verification approval is required to verify the mapped SROZ overlay on the site.

II. Project Description

The subject site is located within the Frog Pond West Master Plan area of the City of Wilsonville. It is the applicant's seventh development in Frog Pond West (previous developments are Stafford Meadows, to the southeast; Frog Pond Meadows, to the east; and Frog Pond Ridge, to the east; Frog Pond Estates, to the east; Frog Pond Oaks, to the northeast; and Frog Pond Overlook, to the northeast).

The applicant, West Hills Land Development LLC, proposes to divide the subject site into 19 lots and one tract and develop the public infrastructure required to serve those lots. In addition, the applicant proposes an extension of the Boeckman Creek Trail from the Morgan Farms development to the south along the western edge of the lots adjacent to the creek corridor. A trailhead park is also proposed to provide public access to the trail, consistent with the Frog Pond West Master Plan.

The Frog Pond Terrace development area is approximately 11 acres. A total of 19 detached residential lots are proposed, for intended development with 18 detached residential homes (one lot, proposed Lot 16, has an existing home that will remain).

The development area is adjacent to pending and approved developments in the Frog Pond West area and will extend infrastructure to the north and west to serve the site. Frog Pond Ln improvements are not proposed along the northern site boundary, as this portion of the Frog Pond Ln right-of-way is within the mapped SROZ and does not provide access to the development site. SW Woodbury Loop will be extended north from the southern property line, and the SW Brisband Street right-of-way along the southern site boundary will be widened by 20 ft. to the full 52-ft. right-of-way width. One new public east-west street, Street B, is proposed. Tract A contains a stormwater facility, the Boeckman Creek Trail, the trailhead park, and the delineated SROZ and Impact Area.

III. Comprehensive Plan Policies

A. Urban Growth Management

Response: Annexation of the site is subject to the provisions of the Urban Growth Management chapter of the Comprehensive Plan, specifically Goal 2.1 and Policy 2.2.1.

Policy 2.2.1
The City of Wilsonville shall plan for the eventual urbanization of land within the local planning area, beginning with land within the Urban Growth Boundary.

Implementation Measure 2.2.1.a
Allow annexation when it is consistent with future planned public services and when a need is clearly demonstrated for immediate urban growth.

Response: The Comprehensive Plan states:

> *"Based on Metro's (1981) regional growth allocation statistics, Wilsonville's population was projected to grow to 15,600 by the year 2000. In the same time period, the City's economic growth is expected to generate a total of 14,400 jobs. Those projections proved to be surprisingly accurate. In fact, Wilsonville's population in 2000 approached the 15,600 figure, and the number of jobs exceeded the 14,400 figure."*

The subject site is located within the West Neighborhood of the Frog Pond planning area. The Frog Pond Area Plan was adopted in 2015 and the Frog Pond West Master Plan was adopted in 2017 and provides for single-family residential and institutional uses to meet the needs of Wilsonville's growing population. The Frog Pond Area Plan includes a transportation framework, parks and open space framework, and infrastructure framework to support development within the Frog Pond area and assure adequate public services.

This criterion is met.

Implementation Measure 2.2.1.e
Changes in the City boundary will require adherence to the annexation procedures prescribed by State law and Metro standards. Amendments to the City limits shall be based on consideration of:

1. *Orderly, economic provision of public facilities and services, i.e., primary urban services are available and adequate to serve additional development or improvements are scheduled through the City's approved Capital Improvements Plan.*

Response: The Frog Pond Area Plan includes implementation measures to ensure the orderly and economic provision of public facilities and services for the Frog Pond Area, including Frog Pond West. Site development is proposed with concurrent applications for Stage I and Stage II Master Plans and Preliminary Subdivision, which proposes the extension of public facilities and services to the Frog Pond Terrace site. These proposed services are generally consistent with the Frog Pond Area Plan and Frog Pond West Master Plan, and the City's Finance Plan and Capital Improvements Plan.

This criterion is met.

2. *Availability of sufficient land for the various uses to insure choices in the marketplace for a 3 to 5 year period.*

Response: The inclusion of the Frog Pond area within the UGB and the adoption of the Frog Pond Area Plan demonstrate the need for residential development and public facilities in the Frog Pond Area. Annexation of the subject site will allow development of the uses envisioned by the adopted Frog Pond West Master Plan.

3. *Statewide Planning Goals.*

Response: The Statewide Planning Goals provide direction to local jurisdictions regarding the State's policies on land use. These goals are implemented at the local level through Comprehensive Plans, which are required and reviewed by the Department of Land Conservation and Development (DLCD) for conformance with the Statewide Planning Goals. It is assumed that the City's adopted Comprehensive Plan (which includes the adopted Frog Pond Area Plan and Frog Pond West Master Plan) is in compliance with the Statewide Planning Goals (specifically Goal 2: Land Use Planning), and that compliance with the Wilsonville Comprehensive Plan also demonstrates compliance with the Statewide Planning Goals.

Relevant Statewide Planning Goals include:
- Goal 10: Housing
- Goal 12: Transportation
- Goal 14: Urbanization

Responses to each are addressed below.

Goal 10: Housing
This goal identifies a need for "needed housing," which is defined (for cities having populations larger than 2,500) as attached and detached single-family housing, multiple-family housing, and manufactured homes. Annexation of the subject site into the Wilsonville city limits will provide detached single-family housing, which is defined as "needed housing" and will serve an identified need in the city.

Goal 12: Transportation
This goal identifies the importance of a safe, convenient, and economic transportation system, and requires local jurisdictions to adopt a Transportation System Plan (TSP). The proposed annexation area will comply with the Wilsonville Transportation System Plan, which has been updated to include the Frog Pond West area. Annexation of the subject site will allow for development of the site, including new street connections included in the TSP.

Goal 14: Urbanization
This goal identifies the need for orderly and efficient growth, the need to accommodate housing and employment within the urban growth boundary, and the importance of livable communities. The orderly annexation of this site, which is located within the Frog Pond West area, will provide additional housing within the UGB.

4. Applicable Metro Plans;

Response: The Metro Code contains applicable requirements. Section 3.07 Urban Growth Management Functional Plan (Functional Plan) provides direction to communities within Metro's jurisdiction regarding the region's land use and transportation policies, and Chapter 3.09 Local Government Boundary Changes identifies requirements for annexations.

Wilsonville is located within the jurisdiction of Metro, and its local plans and land use ordinances are subject to review by Metro. It is assumed that the City's adopted Comprehensive Plan (which includes the adopted Frog Pond West Master Plan) complies with the Functional Plan, and that compliance with the Wilsonville Comprehensive Plan also demonstrates compliance with the Functional Plan.

Metro Code 3.07 Urban Growth Management Functional Plan
Applicable Titles of the Functional Plan are addressed below.
Title 1: Housing Capacity
Annexation of the subject site will increase the housing capacity of the city, as described and confirmed through adoption of the Frog Pond West Master Plan.
Title 11: Planning for New Urban Areas
The City of Wilsonville's adopted Frog Pond Area Plan and Frog Pond West Master Plan include a comprehensive overview of future development in the Frog Pond planning area. The proposed annexation will expand the boundaries of the city and allow for orderly development of the Frog Pond West Area.
Metro Code 3.09 Local Government Boundary Changes
3.09.040 Requirements for Petitions

A. A petition for a boundary change must contain the following information:
   1. The jurisdiction of the reviewing entity to act on the petition;
   2. A map and a legal description of the affected territory in the form prescribed by the reviewing entity;
   3. For minor boundary changes, the names and mailing addresses of all persons owning property and all electors within the affected territory as shown in the records of the tax assessor and county clerk; and
   4. For boundary changes under ORS 198.855(3), 198.857, 222.125 or 222.170, statements of consent to the annexation signed by the requisite number of owners or electors.
B. A city, county and Metro may charge a fee to recover its reasonable costs to carry out its duties and responsibilities under this chapter.

Response: The petition included as Appendix A includes the information required by this section.

5. Encouragement of development within the City limits before conversion of urbanizable (UGB) areas.

Response: The subject site is located within the Frog Pond West planning area, which has been the subject of significant local planning efforts. Expansion of the city's UGB to include this area was completed due to a determination that there was inadequate development area within the existing city limits. Annexation of this site will allow development that implements the vision of the Frog Pond West Master Plan.

B. Land Use and Development

Response: The requested zone change to RN is subject to compliance with Comprehensive Plan map designation and applicable goals, policies and objectives as well as compliance with the Land Use and Development chapter of the Comprehensive Plan. The RN zone change is specifically subject to Policy 4.1.4 and implementation measures 4.1.4.b, d, e, q, and x.

Land Use and Development
Policy 4.1.4
The City of Wilsonville shall provide opportunities for a wide range of housing types, sizes, and densities at prices and rent levels to accommodate people who are employed in Wilsonville.

Implementation Measure 4.1.4.b
Plan for and permit a variety of housing types consistent with the objectives and policies set forth under this section of the Comprehensive Plan, while maintaining a reasonable balance between the economics of building and the cost of supplying public services. It is the City's desire to provide a variety of housing types needed to meet a wide range of personal preferences and income levels. The City also recognizes the fact that adequate public facilities and services must be available in order to build and maintain a decent, safe, and healthful living environment.

Response: The proposed zone change to Residential Neighborhood RN implements the adopted Frog Pond West Master Plan and allows for development of single-family detached housing. The proposed development permitted by the zone change will provide adequate public facilities and services to serve the new dwellings.

Implementation Measure 4.1.4.d
Encourage the construction and development of diverse housing types, but maintain a general balance according to housing type and geographic distribution, both presently and in the future. Such housing types may include, but shall not be limited to: Apartments, single-family detached, single-family common wall, manufactured homes, mobile homes, modular homes, and condominiums in various structural forms.

Response: The Frog Pond West Master Plan anticipates single-family detached development in the R7 and R10 areas of the plan area. The proposed zone change implements the adopted Frog Pond West Master Plan and allows for development of single-family detached housing.

Implementation Measure 4.1.4.e
Targets are to be set in order to meet the City's Goals for housing and assure compliance with State and regional standards.

Response: The Frog Pond Area Plan and Frog Pond West Master Plan establish minimum and maximum residential densities for this area in compliance with state and regional standards. The proposed zone change will allow development of the subject site in conformance with those densities.

Implementation Measure 4.1.4.q
The City will continue to allow for mobile homes and manufactured dwellings, subject to development review processes that are similar to those used for other forms of housing. Individual units will continue to be allowed on individual lots, subject to design standards. Mobile home parks and subdivisions shall be subject to the same procedures as other forms of planned developments.

Response: No mobile homes or manufactured dwellings are proposed, but the applicant acknowledges that they are allowed.

Implementation Measure 4.1.4.x
Apartments and mobile homes are to be located to produce an optimum living environment for the occupants and surrounding residential areas. Development criteria includes:

1. *Buffering by means of landscaping, fencing, and distance from conflicting uses.*
2. *Compatibility of design, recognizing the architectural differences between apartment buildings and houses.*
3. *On-site recreation space as well as pedestrian and bicycle access to parks, schools, mass transit stops and convenience shopping.*
4. *The siting of buildings to minimize the visual effects of parking areas and to increase the availability of privacy and natural surveillance for security.*

Response: No apartments or mobile homes are proposed or permitted by the requested zoning.

RESIDENTIAL PLANNING DISTRICTS SHOWN ON THE LAND USE MAP OF THE COMPREHENSIVE PLAN

Response: The Frog Pond West Master Plan and the RN zone identify minimum density targets for the Frog Pond West subdistricts. As shown in Table 1 below and Sheet P10.00, the proposed development will consist of 19 lots: 16 lots in Subdistrict 4 and 3 lots in Subdistrict 7. The applicant is requesting a reduction to the minimum density of Subdistrict 7 through the provisions of Section 4.118. These densities are not specifically addressed in Comprehensive Plan policies.

Table 1. Proposed Residential Units

Land Use Designation	Sub-district	Net Buildable Area (ac)	% of Sub-district	Minimum du	Maximum du	Proposed du	Comment
R-7	4	4.71	18.87	16	20	16	Meets density requirements
R-10	7	1.57	15.90	4	5	3	A waiver to the minimum density has been requested.
Total		***6.29***		***20***	***25***	***19***	

C. Areas of Special Interest

AREA L
This area is located north of Boeckman Road, south of Frog Pond Lane, west of Wilsonville (Stafford) Road, and east of Boeckman Creek. It contains a mixture of rural-residential and small agricultural uses. Eventual redevelopment of the area is expected to be primarily residential. The West Linn – Wilsonville School District and a church have acquired property in the area, causing speculation

that redevelopment with full urban services could occur prior to 2010. In fact, construction of a new church has already commenced at the corner of Boeckman Road and Wilsonville/Stafford Road.

The existing development patterns, and values of the existing homes in the Frog Pond neighborhood are expected to slow the redevelopment process. Most of the landowners in the area have expressed little or no interest in urban density redevelopment. The Metro standard for urbanizing residential land is an average residential density of at least 10 units/acre. Those densities may not appeal to many of the current residents of the area who live in large homes on lots with acreage. In view of the School District's plans to construct a school within the neighborhood, the City must prepare plans to serve the new school and the surrounding area.

Response: The site is located within Area L, now known as the Frog Pond West Plan Area. The Frog Pond West Master Plan was adopted in 2017 and provides land use and infrastructure plans for urban density redevelopment. The proposed zone change to RN implements the provisions of the Frog Pond West Master Plan.

IV. Zoning Regulations

A. Section 4.035. Site Development Permits

[…]

(.04) Site Development Permit Application.

A. An application for a Site Development Permit shall consist of the materials specified as follows, plus any other materials required by this Code.

1. A completed Permit application form, including identification of the project coordinator, or professional design team.

Response: Completed application forms have been submitted.

2. An explanation of intent, stating the nature of the proposed development, reasons for the Permit request, pertinent background information, information required by the development standards and other information specified by the Director as required by other sections of this Code because of the type of development proposal or the area involved or that may have a bearing in determining the action to be taken. As noted in Section 4.014, the applicant bears the burden of proving that the application meets all requirements of this Code.

Response: This narrative includes a description of the nature of the proposed project, reasons for the request, pertinent background information, and responses to applicable criteria.

3. Proof that the property affected by the application is in the exclusive ownership of the applicant, or that the applicant has the consent of all individuals or partners in ownership of the affected property.

Response: This submittal includes application forms signed by the property owners and the applicant, verifying that all owners consent to the application.

4. Legal description of the property affected by the application.

Response: An annexation legal description and a zoning map amendment legal description of the property is included in Appendix A.

5. 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, public facilities and adjacent properties; and except as otherwise specified in this Code, shall be accompanied by the following information,

Response: The exhibits and reports included with this submittal include this information.

6. *Unless specifically waived by the Director, the submittal shall include: ten (10) copies folded to 9" x 12" or (one (1) set of full-sized scaled drawings and nine (9) 8 1/2" x 11" reductions of larger drawings) of the proposed Site Development Plan, including a small scale vicinity map and showing:*
    a. *Streets, private drives, driveways, sidewalks, pedestrian ways, off-street parking, loading areas, garbage and recycling storage areas, power lines and railroad tracks, and shall indicate the 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.*
    b. *The Site Plan shall indicate how utility service , including sanitary sewer, water and storm drainage, are to be provided. The Site Plan shall also show the following off-site features: distances from the subject property to any structures on adjacent properties and the locations and uses of streets, private drives, or driveways on adjacent properties.*
    c. *Location and dimensions of structures, utilization of structures, including activities and the number of living units.*
    d. *Major existing landscaping features including trees to be saved, and existing and proposed contours.*
    e. *Relevant operational data, drawings and/or elevations clearly establishing the scale, character and relationship of buildings, streets, private drives, and open space.*
    f. *Topographic information sufficient to determine direction and percentage of slopes, drainage patterns, and in environmentally sensitive areas, e.g., flood plain, forested areas, steep slopes or adjacent to stream banks, the elevations of all points used to determine contours shall be indicated and said points shall be given to true elevation above mean sea level as determined by the City Engineer. The base data shall be clearly indicated and shall be compatible to City datum if bench marks are not adjacent. The following intervals shall be shown:*
        i. *One (1) foot contours for slopes of up to five percent (5%);*
        ii. *Two (2) foot contours for slopes of from six percent (6%) to twelve percent (12%);*
        iii. *Five (5) foot contours for slopes of from twelve percent (12%) to twenty percent (20%). These slopes shall be clearly identified, and*
        iv. *Ten (10) foot contours for slopes exceeding twenty percent (20%).*
    g. *A tabulation of land area, in square feet, devoted to various uses such as building area (gross and net rentable), parking and paving coverage, landscaped area coverage and average residential density per net acre.*
    h. *An application fee as set by the City Council.*
    i. *If there are trees in the development area, an arborist's report, as required in Section 4.600. This report shall also show the impacts of grading on the trees.*
    j. *A list of all owners of property within 250 feet of the subject property, printed on label format. The list is to be based on the latest available information from the County Assessor.*

Response: A site circulation plan is included as Sheet P8.00; utility plans are included as Sheet P4.00; an existing conditions plan, including contours and trees, is included as Sheets P1.00 and P1.10; topographic information is shown on Sheets P1.0 and P1.10; a tabulation of land area and uses is included in Sheet P2.00; the application fee has been submitted with this application; an arborist report is included as Appendix D; and a list of property owners within 250 ft. of the subject property, in label format, is included with this application.

B. Section 4.113. Standards Applying to Residential Developments in Any Zone

(.01) Open Space

Response: The site is located within the Frog Pond West master plan area, and the provisions of Section 4.127 supersede these standards and are addressed below.

(.02) Building Setbacks

(for Fence Setbacks, see subsection .08). The following provisions apply unless otherwise provided

for by the Code or a legislative master plan. [Section .03 Building Setbacks amended by Ord. 806, /17/2017]

A. For lots over 10,000 square feet:

Response: No lots over 10,000 square feet are proposed. These provisions are not applicable.

B. For lots not exceeding 10,000 square feet:

1. *Minimum front yard setback: Fifteen (15) feet, with open porches allowed to extend to within ten (10) feet of the property line.*
2. *Minimum side yard setback: One story: five (5) feet; Two or more stories: seven (7) feet. In the case of a corner lot, abutting more than one street or tract with a private drive, the side yard on the street side of such lot shall be not less than ten (10) feet.*
3. *In the case of a key lot, the front setback shall equal one-half (1/2) the sum of depth of the required yard on the adjacent corner lot along the street or tract with a private drive upon which the key lot faces and the setback required on the adjacent interior lot.*
4. *No structure shall be erected within the required setback for any future street shown within the City's adopted Transportation Master Plan or Transportation Systems Plan.*
5. *Minimum setback to garage door or carport entry: Twenty (20) feet. Wall above the garage door may project to within fifteen (15) feet of property line, provided that clearance to garage door is maintained. Where access is taken from an alley, garages or carports may be located no less than four (4) feet from the property line adjoining the alley.*
6. *Minimum rear yard setback: One story: fifteen (15) feet. Two or more stories: Twenty (20) feet. Accessory buildings on corner lots must observe the same rear setbacks as the required side yard of the abutting lot. [Section 4.113(.03) amended by Ord. 682, 9/9/10]*

Response: The Frog Pond Terrace site is within the Frog Pond West Master Plan Area the site is subject to the RN zone setback requirements of Section 4.127, which are addressed in the responses to that section.

(.03) Height Guidelines

The Development Review Board may regulate heights as follows:

A. Restrict or regulate the height or building design consistent with adequate provision of fire protection and fire-fighting apparatus height limitations.

B. To provide buffering of low density developments by requiring the placement of buildings more than two (2) stories in height away from the property lines abutting a low density zone.

C. To regulate building height or design to protect scenic vistas of Mt. Hood or the Willamette River from greater encroachments than would occur if developed conventionally.

Response: No low-density developments are adjacent to the site and no scenic vistas of Mt. Hood or the Willamette River have been identified on the site. No height regulation is needed.

(.04) Residential uses for treatment or training

A. Residential Homes, as defined in Section 4.001, shall be permitted in any location where a single-family dwelling is permitted.

B. Residential Facilities, as defined in Section 4.001, shall be permitted in any location where multiple-family dwelling units are permitted.

Response: No residential homes or facilities are proposed. These standards are not applicable.

(.05) Off Street Parking

Off-street parking shall be provided as specified in Section 4.155.

Response: The provisions of Section 4.155 are addressed in Section V of this narrative.

(.06) Signs

Signs shall be governed by the provisions of Sections 4.156.01 – 4.156.11.

Response: The provisions of Sections 4.156.01-11 are addressed in Section V of this narrative.

(.07) Fences

A. The maximum height of a sight-obscuring fence located in the required front yard of a residential development shall not exceed four (4) feet.

B. The maximum height of a sight-obscuring fence located in the side yard of a residential lot shall not exceed four (4) feet forward of the building line and shall not exceed six (6) feet in height in the rear yard, except as approved by the Development Review Board. Except, however, that a fence in the side yard of residential corner lot may be up to six (6) feet in height, unless a greater restriction is imposed by the Development Review Board acting on an application. A fence of up to six (6) feet in height may be constructed with no setback along the side, the rear, and in the front yard of a residential lot adjoining the rear of a corner lot as shown in the attached Figure.

C. Notwithstanding the provisions of Section 4.122(10)(a) and (b), the Development Review Board may require such fencing as shall be deemed necessary to promote and provide traffic safety, noise mitigation, and nuisance abatement, and the compatibility of different uses permitted on adjacent lots of the same zone and on adjacent lots of different zones.

D. Fences in residential zones shall not include barbed wire, razor wire, electrically charged wire, or be constructed of sheathing material such as plywood or flakeboard.

Response: The site is located within Frog Pond West and is subject to these standards. No fences on residential lots are proposed at this time. Fences adjacent to Boeckman Creek will be subject to the policies of the Frog Pond West Concept Plan.

(.08) Corner Vision

Vision clearance shall be provided as specified in Section 4.177, or such additional requirements as specified by the City Engineer.

Response: The provisions of Section 4.177 are addressed in Section V of this narrative.

(.09) Prohibited Uses

A. Uses of structures and land not specifically permitted in the applicable zoning districts.

B. The use of a trailer, travel trailer or mobile coach as a residence, except as specifically permitted in an approved RV park.

C. Outdoor advertising displays, advertising signs, or advertising structures except as provided in Sections 4.156.05, 4.156.07, 4.156.09, and 4.156.10.

Response: No prohibited uses are proposed.

(.10) Accessory Dwelling Units

Accessory Dwelling Units, are permitted subject to standards and requirements of this Subsection. [Amended by Ord. #825, 10/15/18]

Response: No accessory dwelling units are proposed, though future development may include accessory dwelling units. These standards are not applicable.

(.11) Reduced Setback Agreements

The following procedure has been created to allow the owners of contiguous residential properties to reduce the building setbacks that would typically be required between those properties, or to allow for neighbors to voluntary waive the solar access provisions of Section 4.137. Setbacks can be reduced to zero through the procedures outlined in this subsection.[…]

Response: No reduced setbacks are requested through these provisions.

(.12) Bed and Breakfasts

Response: No bed and breakfasts are proposed. These standards are not applicable.

(.13) The Planning Director and Development Review Board shall, in making their determination of compliance in attaching conditions, consider the effects of this action on the availability and cost of needed housing. The provisions of this section shall not be used in such a manner that additional conditions, either singularly or cumulatively, have the effect of unnecessarily increasing the cost of housing or effectively excluding a needed housing type. However, consideration of these factors

shall not prevent the Board or Planning Director from imposing conditions of approval necessary to meet the minimum requirements of the Comprehensive Plan and Code.

Response: This application is for land division to create new lots for single family residential development, which is considered a needed housing type per Statewide Planning Goal 10 and the City's Comprehensive Plan.

C. Section 4.118. Standards Applying in all Planned Development Zones.

(.01) ***Height Guidelines:*** *In "S" overlay zones, the solar access provisions of Section 4.137 shall be used to determine maximum building heights. In cases that are subject to review by the Development Review Board, the Board may further regulate heights as follows: […]*

Response: The subject site is not located within the "S" overlay zone. These standards are not applicable.

(.02) *Underground Utilities shall be governed by Sections 4.300 to 4.320. All utilities above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.*

Response: The provisions of Sections 4.300 to 4.320 are addressed in Section VII of this narrative.

(.03) *Notwithstanding the provisions of Section 4.140 to the contrary, the Development Review Board, in order to implement the purposes and objectives of Section 4.140, and based on findings of fact supported by the record may:*

A. Waive the following typical development standards:

1. *minimum lot area;*
2. *lot width and frontage;*
3. *height and yard requirements;*
4. *lot coverage;*
5. *lot depth;*
6. *street widths;*
7. *sidewalk requirements;*
8. *height of buildings other than signs;*
9. *parking space configuration and drive aisle design;*
10. *minimum number of parking or loading spaces;*
11. *shade tree islands in parking lots, provided that alternative shading is provided;*
12. *fence height;*
13. *architectural design standards;*
14. *transit facilities; and*
15. *On-site pedestrian access and circulation standards; and*
16. *Solar access standards, as provided in section 4.137.*

[Amended by Ord. #719, 6/17/13.]

Response: No waivers to these development standards are requested.

B. The following shall not be waived by the Board, unless there is substantial evidence in the whole record to support a finding that the intent and purpose of the standards will be met in alternative ways:

1. *open space requirements in residential areas;*
2. *minimum density standards of residential zones;*
3. *minimum landscape, buffering, and screening standards;*

[…]

Response: A waiver is requested to the minimum density standard of Subdistrict 7 to allow three (3) lots rather than the minimum of four (4) lots in the subdistrict.

[…]

D. Section 4.124. Standards Applying to all Planned Development Residential Zones.

(.01) Examples of principal uses that are typically permitted:

A. Open Space.
B. Single-Family Dwelling Units.
C. Duplexes. [Added by Ord. #825, 10/15/18]
D. Multiple-Family Dwelling Units. [Amended by Ord. #825, 10/15/18]
E. Public parks, playgrounds, recreational and community buildings and grounds, tennis courts, and similar recreational uses, all of a non-commercial nature, provided that any principal building or public swimming pool shall be located not less than forty-five (45) feet from any other lot.
F. Manufactured homes, subject to the standards of Section 4.115 (Manufactured Housing).

Response: The proposed development includes open space and single-family dwelling units. These uses are permitted uses in the PDR zones.

(.02) Permitted accessory uses to single family and detached dwelling units:

A. Accessory uses, buildings and structures customarily incidental to any of the principal permitted uses listed above and located on the same lot.
B. Living quarters without kitchen facilities for persons employed on the premises or for guests. Such facilities shall not be rented or otherwise used as a separate dwelling unless approved as an accessory dwelling unit or duplex.
C. Accessory dwelling units, subject to the standards of Section 4.113 (.11). [Amended by Ord. #825, 10/15/18]
D. Home occupations.
E. A private garage or parking area.
F. Temporary real estate signs, small announcement or professional signs, and subdivision signs, as provided in the provisions of Sections 4.156.05, 4.156.07, 4.156.09, and 4.156.10. [Amended by Ord. No. 704, 6/18/12]
G. Temporary buildings for uses incidental to construction work, which buildings shall be removed upon completion or abandonment of the construction work.
H. Accessory buildings and uses shall conform to front and side yard setback requirements. If the accessory buildings and uses do not exceed 120 square feet or ten (10) feet in height, and they are detached and located behind the rear-most line of the main buildings, the side and rear yard setbacks may be reduced to three (3) feet.
I. Livestock and farm animals, subject to the provisions of Section 4.162.

Response: No accessory uses to the proposed detached single-family dwelling units are requested at this time. It is possible that future homes may include accessory buildings, which would be reviewed at the time of building permit.

(.03) Permitted accessory uses for duplexes and attached multiple-family dwelling units:

A. Accessory uses, buildings, and structures customarily incidental to any of the aforesaid principal permitted uses, located on the same lot therewith.
B. Home occupations.
C. A private garage or parking area.
D. Temporary buildings for uses incidental to construction work, which buildings shall be removed upon completion or abandonment of the construction work.
E. Accessory buildings and uses shall conform to front and side yard setback requirements. If the accessory buildings and uses do not exceed 120 square feet or ten (10) feet in height, and they are detached and located behind the rear-most line of the main buildings, the side and rear yard setbacks may be reduced to three (3) feet.
F. Livestock and farm animals, subject to the provisions of Section 4.162.

Response: No duplex dwelling units or attached multiple-family dwelling units are proposed.

(.05) Appropriate PDR Zoning Designation and Maximum and Minimum Density based on Comprehensive Plan Density Range District:

Table 1. PDR Zoning Designation and Maximum and Minimum Density based on Comprehensive Plan Density Range District

Zoning Designation	Comprehensive Plan Map Density Range District[a]	Max. Density per Acre[b, c]	Min. Density per Acre[d]
PDR-1	0-1	1	.8
PDR-2	2-3	3	2.4
PDR-3	4-5	5	4
PDR-4	6-7	7.5	6
PDR-5	10-12	12	9.6
PDR-6	16-20	20	16
PDR-7	Over 20	As approved by Zoning Order/Stage 1 Master Plan, at least 25	80% of Max Density

a. Accessory Dwelling Units are not included for calculating density.

b. Middle Housing, besides, townhouses, is not included in calculating maximum density beyond one unit per lot or parcel.

c. For townhouses, the maximum density is the less of: (1) four times the maximum net density listed in Table 1; or (2) net density of 25 units per acre. If applying a maximum density for townhouses of four times the density listed in Table 1, the minimum density remains 80 percent of the maximum density listed in Table 1.

d. For Cottage Clusters, the minimum net density shall be no less than four units per acre.

Response: The Comprehensive Plan Designation of Residential Neighborhood is implemented by the Residential Neighborhood RN zone. The RN zoning district is not included in the table above.

(.06) Unit Count Limitations. Unit count limitations are calculated as follows:

A. Maximum Unit Count. Maximum unit count at build out of Stage I Master Plan area: is calculated by taking the Gross Development Area multiplied by Maximum Density per Acre stated in Table 1 of this Code section, plus any density transferred from SROZ areas pursuant to Subsection 4.139.11 (.02). For example, any number greater than 4 and less than 5 shall be rounded down to 4.

B. Minimum Unit Count. Minimum unit count at build out of Stage I Master Plan area: 80% of maximum unit count described in A. above.

C. If the Stage I Master Plan area is subject to more than one Comprehensive Plan Map Density Range District and Zoning Designation, calculations for areas of differing densities shall be done separately and then summed together, and the final summed number rounded down to the nearest whole number.

Response: This site is located within the Frog Pond West master plan area and is subject to the provisions of Section 4.127. Unit count limitations for the RN zone subdistricts are established in Section 4.127 and are addressed in that section of this narrative. Unit counts for the site were calculated per Appendix C of the Frog Pond West Concept Plan.

(.07) Lot Standards

[…]

Response: This site is located within the Frog Pond West master plan area, and is identified as zone RN, which is implemented by Section 4.127. The standards in that section supersede the standards in this section. Section 4.127 is addressed later in this narrative.

(.08) Adjustments to Ensure Minimum Density is Met.

In development not involving Multi-Family Dwelling Units, if demonstrated by the applicant that it is not physically possible to accommodate the minimum number of units at the required minimum lot size and the minimum open space, the following adjustments, A.-B., shall be made to the minimum extent necessary to enable minimum density to be met. To prioritize the provision of required open space, adjustments to minimum lot size, width, and depth shall be used to the extent allowed, as described in A. below, prior to any adjustment to open space requirements as described in B. below.

A. Adjustments to Minimum Lot Size, Width, and Depth: Reduce minimum lot size of up to 20% of the residential lots, rounded consistent with Subsection (.06) above or one lot for a four-lot subdivision, by up to 20%. For example, the potential adjustment, if determined necessary, for a 100- lot subdivision in the PDR-4 zone would be to reduce 20 lots to as low as 2,400 square feet (a 20% reduction of the 3,000 square foot minimum lot size). Also reduce the minimum lot width and minimum lot depth by up to 20% as necessary to allow the reduction of lot size.

B. Adjustment to Open Space Area: Reduce the amount of open space area required pursuant to Subsection 4.113 (.01). Reduce non-usable open space to the extent possible prior to usable open space required by Subsection 4.113 (.01) C. 3. After any adjustment to open space, all subdivisions with 10 or more units must still include a minimum of one usable, programmed open space of at least 2,000 square feet meeting the requirements of Subsection 4.113 (.01) C. 3. Subdivisions less than 10 units shall require one usable open space of at least 1,000 square feet meeting the same requirements.

Response: No adjustments to these standards are requested to ensure minimum density is met.

(.09) Block and access standards:

1. *Maximum block perimeter in new land divisions: 1,800 feet.*
2. *Maximum spacing between streets or private drives for local access: 530 feet, unless waived by the Development Review Board upon finding that barriers such as railroads, freeways, existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent street extensions meeting this standard. [Amended by Ord. 682, 9/9/10]*
3. *Maximum block length without pedestrian and bicycle crossing: 330 feet, unless waived by the Development Review Board upon finding that barriers such as railroads, freeways, existing buildings, topographic variations, or designated Significant Resource Overlay Zone areas will prevent pedestrian and bicycle facility extensions meeting this standard.*

Response: As shown in Sheet P3.00, streets are located less than 530 ft. apart. Three partial blocks are created by the proposed land division, each less than 600 ft. in perimeter. Future block patterns to the east can meet the maximum block perimeter standards of this section.

Intersection spacing between Street B and the east-west portion of SW Woodbury Loop to the north is approximately 240 ft. and spacing between Street B and Brisband St to the south is approximately 300 ft., less than the maximum spacing of 530 ft. None of the proposed block lengths exceed 330 ft.
These standards are met.

(.10) Signs. *Per the requirements of Sections 4.156.01 through 4.156.11.*
[Amended by Ord. No. 704, 6/18/12]

Response: No signs are currently proposed with this application.

(.11) Parking*. Per the requirements of Section 4.155.*

Response: The standards of 4.155 are addressed in Section V of this narrative.

(.12) Corner Vision Clearance*. Per the requirements of Section 4.177.*
Response: The standards of 4.177 are addressed in Section V of this narrative.

E. Section 4.127. Residential Neighborhood (RN) Zone.

(.01) ***Purpose.*** *The Residential Neighborhood (RN) zone applies to lands within Residential Neighborhood Comprehensive Plan Map designation. The RN zone is a Planned Development zone, subject to applicable Planned Development regulations, except as superseded by this section or in legislative master plans. The purposes of the RN Zone are to:*

A. Implement the Residential Neighborhood policies and implementation measures of the Comprehensive Plan.

B. Implement legislative master plans for areas within the Residential Neighborhood Comprehensive Plan Map designation.

C. Create attractive and connected neighborhoods in Wilsonville.

D. Regulate and coordinate development to result in cohesive neighborhoods that include: walkable and active streets; a variety of housing appropriate to each neighborhood; connected paths and open spaces; parks and other non-residential uses that are focal points for the community; and, connections to and integration with the larger Wilsonville community.

E. Encourage and require quality architectural and community design as defined by the Comprehensive Plan and applicable legislative master plans.

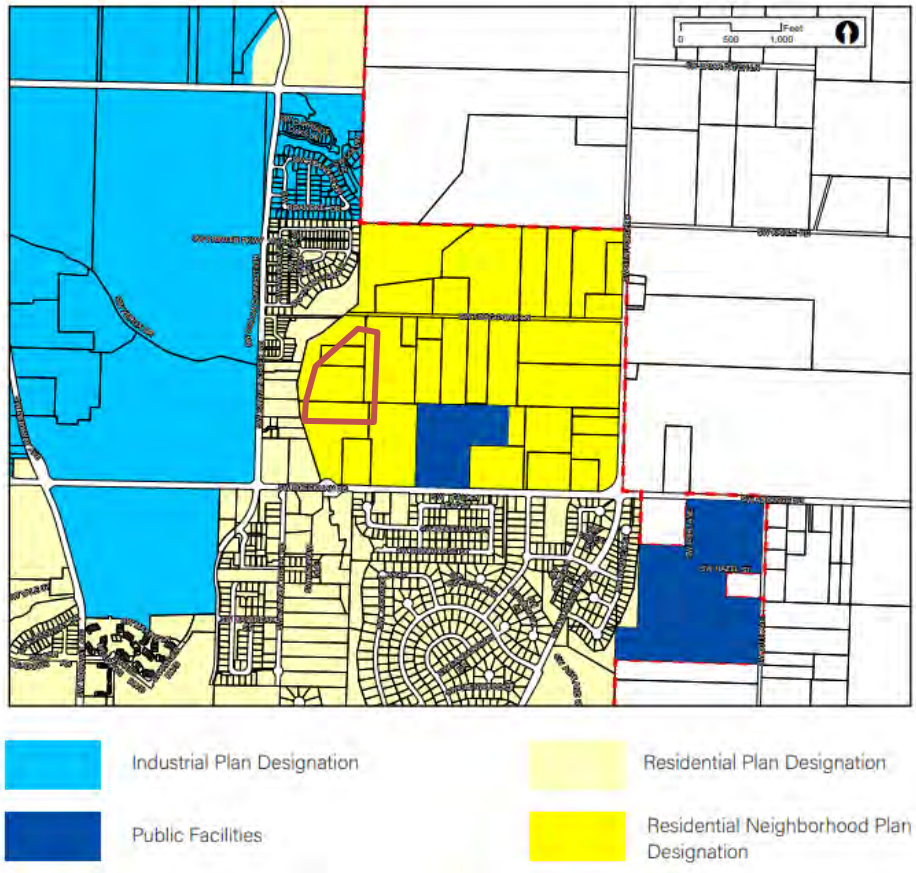
F. Provide transportation choices, including active transportation options.

G. Preserve and enhance natural resources so that they are an asset to the neighborhoods, and there is visual and physical access to nature.

H. Create housing opportunities for a variety of households, including housing types that implement the Wilsonville Equitable Housing Strategic Plan and housing affordability provisions of legislative master plans.

Response: Per Figure 5 of the Frog Pond West Master Plan (below), the Frog Pond Terrace site is located within the RN Comprehensive Plan Map designation and is subject to these provisions and to applicable Planned Development regulations of Section 4.118.

Figure 5. Comprehensive Plan Designations



(.02) Permitted uses:

A. Open Space.
B. Single-Family Dwelling Unit.
C. Townhouses. During initial development in the Frog Pond West Neighborhood, a maximum of two townhouses may be attached, except on corners, a maximum of three townhouses may be attached.
D. Duplex.
E. Multiple-Family Dwelling Units, except when not permitted in a legislative master plan, subject to the density standards of the zone. Multi-family dwelling units are not permitted within the Frog Pond West Master Plan area.
F. Cluster housing. During initial development in the Frog Pond West Neighborhood, only two-unit cluster housing is permitted except on corner lots where three-unit cluster housing is permitted.
G. Multiple-Family Dwelling Units, except when not permitted in a legislative master plan, subject to the density standards of the zone. Multi-family dwelling units are not permitted within the Frog Pond West Master Plan area.
H. Cohousing.
I. Cluster Housing (Frog Pond West Master Plan).
J. Public or private parks, playgrounds, recreational and community buildings and grounds, tennis courts, and similar recreational uses, all of a non-commercial nature, provided that any principal building or public swimming pool shall be located not less than forty-five (45) feet from any other lot.
K. Manufactured homes.

Response: As shown on Sheet P2.00, the proposed development includes 19 detached single-family dwelling units, a pedestrian pathway (the Boeckman Creek Trail), and a public trailhead park. The public pathway and park will be non-commercial in nature.

(.03) Permitted accessory uses to single family dwellings:

A. Accessory uses, buildings and structures customarily incidental to any of the principal permitted uses listed above and located on the same lot.
B. Living quarters without kitchen facilities for persons employed on the premises or for guests. Such facilities shall not be rented or otherwise used as a separate dwelling unless approved as an accessory dwelling unit or duplex.
C. Accessory Dwelling Units, subject to the standards of Section 4.113 (.11).
D. Home occupations.
E. A private garage or parking area.
F. Keeping of not more than two roomers or boarders by a resident family.
G. Temporary buildings for uses incidental to construction work, which buildings shall be removed upon completion or abandonment of the construction work.
H. Accessory buildings and uses shall conform to front and side yard setback requirements. If the accessory buildings and uses do not exceed 120 square feet or ten feet in height, and they are detached and located behind the rear-most line of the main buildings, the side and rear yard setbacks may be reduced to three feet.
I. Livestock and farm animals, subject to the provisions of Section 4.162.

Response: No accessory uses are proposed at this time.

(.04) Uses permitted subject to Conditional Use Permit requirements:

A. Public and semi-public buildings and/or structures essential to the physical and economic welfare of an area, such as fire stations, sub-stations and pump stations.
B. Commercial Recreation, including public or private clubs, lodges or meeting halls, golf courses, driving ranges, tennis clubs, community centers and similar commercial recreational uses. Commercial Recreation will be permitted upon a finding that it is compatible with the surrounding residential uses and promotes the creation of an attractive, healthful, efficient and stable environment for living, shopping or working. All such uses except golf courses and tennis courts shall conform to the requirements of Section 4.124(.04)(D) (Neighborhood Commercial Centers).
C. Churches; public, private and parochial schools; public libraries and public museums.

D. *Neighborhood Commercial Centers limited to the provisions of goods and services primarily for the convenience of and supported by local residents. Neighborhood Commercial Centers are only permitted where designated on an approved legislative master plan.*

Response: No Conditional Uses are proposed.

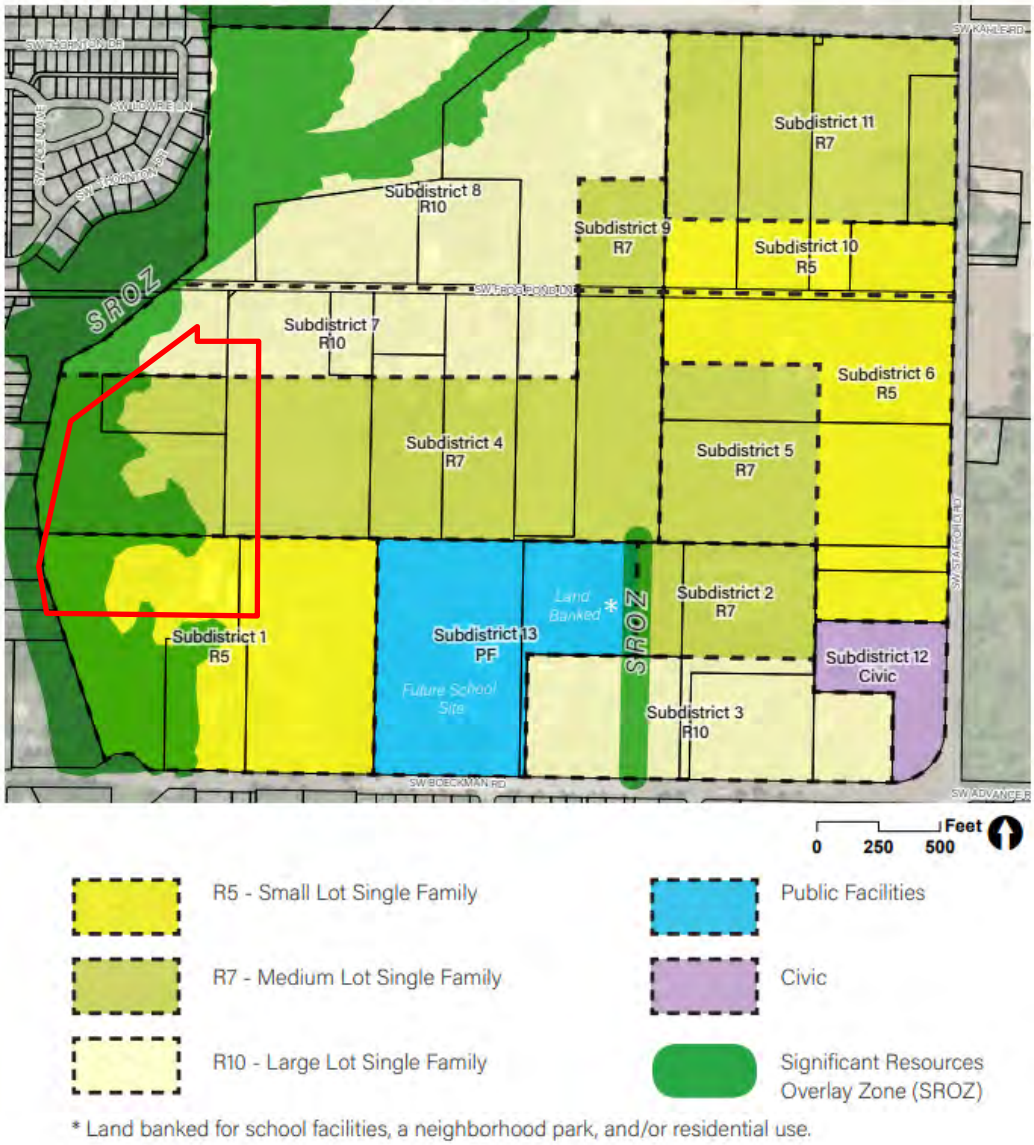
(.05) Residential Neighborhood Zone Sub-districts:

A. RN Zone sub-districts may be established to provide area-specific regulations that implement legislative master plans.

1. For the Frog Pond West Neighborhood, the sub-districts are listed in Table 1 of this code and mapped on Figure 6 of the Frog Pond West Master Plan. The Frog Pond West Master Plan Sub-District Map serves as the official sub-district map for the Frog Pond West Neighborhood.

Response: The Frog Pond Terrace site includes properties within Sub-districts 4 and 7, as shown in Figure 6 of the Frog Pond West Master Plan (below). The site also includes mapped SROZ. A map verification is requested per Section 4.139.

Figure 6. Frog Pond West Land Use and Subdistricts



* Land banked for school facilities, a neighborhood park, and/or residential use.

(.06) Minimum and Maximum Residential Units:

A. The minimum and maximum number of residential units approved shall be consistent with this code and applicable provisions of an approved legislative master plan.

1. For the Frog Pond West Neighborhood, Table 1 in this code and Frog Pond West Master Plan Table 1 establish the minimum and maximum number of residential units for the sub-districts.

2. For parcels or areas that are a portion of a sub-district, the minimum and maximum number of residential units are established by determining the proportional gross acreage and applying that proportion to the minimums and maximums listed in Table 1. The maximum density on a parcel may be increased, up to a maximum of 10% of what would otherwise be permitted, based on an adjustment to an SROZ boundary that is consistent with 4.139.06.

Response: As shown in Table 1 previously, the proposed Frog Pond Terrace development includes 19 lots/dwelling units (3 within Subdistrict 7 and 16 within Subdistrict 4). The proposed density in Subdistrict 4 is one (1) unit below the minimum density of four (4) dwelling untis.

Excerpts of Table 1. Minimum and Maximum Residential Lots by Sub-District in the Frog Pond West Neighborhood			
Area Plan Designation	*Frog Pond West Sub-district*	*Minimum Lots in Sub-district[a,b]*	*Maximum Lots in Sub-district[a,b]*
R-10 Large Lot	*3*	*26*	*32*
	7	*24*	*30*
	8	*43*	*53*
	4	*86*	*107*
	5	*27*	*33*
	9	*10*	*13*
	11	*46*	*58*

a. Each lot must contain at least one dwelling unit but may contain additional units consistent with the allowance for ADUs and middle housing.

b. For townhouses, the combined lots of the townhouse project shall be considered a single lot for the purposes of the minimum and maximum of this table. In no case shall the density of a townhouse project exceed 25 dwelling units per net acre.

c. These metrics apply to infill housing within the Community of Hope Church property, should they choose to develop housing on the site. Housing in the Civic sub-district is subject to the R-7 Medium Lot Single Family regulations

B. The City may allow a reduction in the minimum density for a sub-district when it is demonstrated that the reduction is necessary due to topography, protection of trees, wetlands and other natural resources, constraints posed by existing development, infrastructure needs, provision of non-residential uses and similar physical conditions.

Response: The net Subdistrict 7 area allows for a maximum of 5 lots and a minimum of 4 lots. There are constraints imposed by the proposed street system and the need to provide connectivity to future streets to the east while providing sight lines to Boeckman Creek and a connection to the Boeckman Creek Trail at the point where Woodbury Loop turns south.

In addition, the existing steep slopes and trees above Boeckman Creek and the outer boundary of the SROZ area serve to set the limits of development impacts. In Subdistrict 7, the impact area outside of and adjacent to the SROZ is being utilized for the northern extension of the Boeckman Creek Trail, further constraining the remaining developable area.

In order to achieve three (3) lots in this area, a flag lot has been created to provide frontage for Lot 19, thus achieving the maximum number of lots possible in this portion of the Subdistrict.

(.07) Development Standards Generally

A. Unless otherwise specified by this the regulations in this Residential Development Zone chapter, all development must comply with Section 4.113, Standards Applying to Residential Development in Any Zone.

Response: Compliance with applicable regulations of Section 4.113 is addressed in Section IV of this narrative. Some regulations of 4.127 supersede the regulations of 4.113.

(.08) Lot Development Standards:

A. Lot development shall be consistent with this code and applicable provisions of an approved legislative master plan.

B. Lot Standards Generally. For the Frog Pond West Neighborhood, Table 2 establishes the lot development standards unless superseded or supplemented by other provisions of the Development Code.

C. Lot Standards for Small Lot Sub-districts. The purpose of these standards is to ensure that development in the Small Lot Sub-districts includes varied design that avoids homogenous street frontages, creates active pedestrian street frontages and has open space that is integrated into the development pattern.

Standards. Planned developments in the Small Lot Sub-districts shall include one or more of the following elements on each block:

1. Alleys.
2. Residential main entries grouped around a common green or entry courtyard (e.g. cluster housing).
3. Four or more residential main entries facing a pedestrian connection allowed by an applicable legislative master plan.
4. Garages recessed at least 4 feet from the front façade or 6 feet from the front of a front porch.

Response: Table 2 of this code section establishes the following lot development standards for the Frog Pond West neighborhood. These standards supersede the setback standards of 4.113(.03). Lot dimensional standards are applied at the time of subdivision approval, while site development standards (setbacks, height, etc.) are applied at the time of building permit review. Sheet P2.00 identified the lot area for each proposed lot and illustrates the building envelopes for site and Appendix I provides examples of house plans. The site does not contain Small Lot Sub-Districts.

As shown in Table 2 below, proposed lots 1-18 meet the relevant standards. Lot 19 is a flag lot and will be accessed from an existing 20-ft. access easement to the east of the site.

Table 2. Compliance with Frog Pond West Neighborhood Lot Dimensional Standards

Standard	Required	Proposed	Required	Proposed	Comments
	R-7 Medium Lot		R-10 Large Lot		
Min Lot Size (sq. ft.)	6,000[C]	6,013+	8,000[AB]	8,021+	Meets standards.
Min Lot Depth (ft)	60	60+	60	119+	Meets standards.
Max. Lot Coverage (%)	45%[E]	NA	40%[E]	NA	Will be verified at the time of building permit review.
Min Lot Width[I,J,N](ft)	35	35+	40	55+	Meets standards

Notes:

A Minimum lot size may be reduced to 80% of minimum lot size for any of the following three reasons: (1) where necessary to preserve natural resources (e.g. trees, wetlands) and/or provide active open space, (2) lots designated for cluster housing (Frog Pond West Master Plan), (3) to increase the number of lots up to the maximum number allowed so long as for each lot reduced in size a lot meeting the minimum lot size is designated for development of a duplex or triplex.

B For townhouses the minimum lot size in all sub-districts is 1,500 square feet.

C In R-5 and R-7 sub-districts the minimum lot size for quadplexes and cottage clusters is 7,000 square feet.

[…]

D. Lot Standards Specific to the Frog Pond West Neighborhood.

1. Lots adjacent to Boeckman Road and Stafford Road shall meet the following standards:

a. *Rear or side yards adjacent to Boeckman Road and Stafford Road shall provide a wall and landscaping consistent with the standards in Figure 10 of the Frog Pond West Master Plan.*

Response: The subject site is not adjacent to Boeckman or Stafford Roads. This standard is not applicable.

2. *Lots adjacent to the collector-designated portions of Willow Creek Drive and Frog Pond Lane shall not have driveways accessing lots from these streets, unless no practical alternative exists for access. Lots in Large Lot Sub-districts are exempt from this standard.*

Response: The site abuts the local street-designated portion of Frog Pond Lane west of Willow Creek Drive; therefore, these provisions are not applicable.

(.09) Open Space:

A. Purpose. The purposes of these standards for the Residential Neighborhood Zone are to:
1. *Provide light, air, open space, and useable recreation facilities to occupants of each residential development.*
2. *Retain and incorporate natural resources and trees as part of developments.*
3. *Provide access and connections to trails and adjacent open space areas.*
For Neighborhood Zones which are subject to adopted legislative master plans, the standards work in combination with, and as a supplement to, the park and open space recommendations of those legislative master plans. These standards supersede the Outdoor Recreational Area requirements in WC Section 4.113 (.01) and (02).

B. Within the Frog Pond West Neighborhood, the following standards apply:
1. *Properties within the R-10 Large Lot Single Family sub-districts and R-7 Medium Lot Single Family sub-districts are exempt from the requirements of this section. If the Development Review Board finds, based upon substantial evidence in the record, that there is a need for open space, they may waive this exemption and require open space proportional to the need.*

Response: As shown in Figure 6 of the Frog Pond West Master Plan, the site consists of properties within the R-7 and R-10 sub-districts. Therefore, the subject site is exempt from these open space requirements.

(.10) Block, access and connectivity standards:

A. Purpose. These standards are intended to regulate and guide development to create: a cohesive and connected pattern of streets, pedestrian connections and bicycle routes; safe, direct and convenient routes to schools and other community destinations; and, neighborhoods that support active transportation and Safe Routes to Schools.

B. Blocks, access and connectivity shall comply with adopted legislative master plans.
1. *Within the Frog Pond West Neighborhood, streets shall be consistent with Figure 18, Street Demonstration Plan, in the Frog Pond West Master Plan. The Street Demonstration Plan is intended to be guiding, not binding. Variations from the Street Demonstration Plan may be approved by the Development Review Board, upon finding that one or more of the following justify the variation: barriers such as existing buildings and topography; designated Significant Resource Overlay Zone areas; tree groves, wetlands or other natural resources; existing or planned parks and other active open space that will serve as pedestrian connections for the public; alignment with property lines and ownerships that result in efficient use of land while providing substantially equivalent connectivity for the public; and/or site design that provides substantially equivalent connectivity for the public.*
2. *If a legislative master plan does not provide sufficient guidance for a specific development or situation, the Development Review Board shall use the block and access standards in Section 4.124(.06) as the applicable standards.*

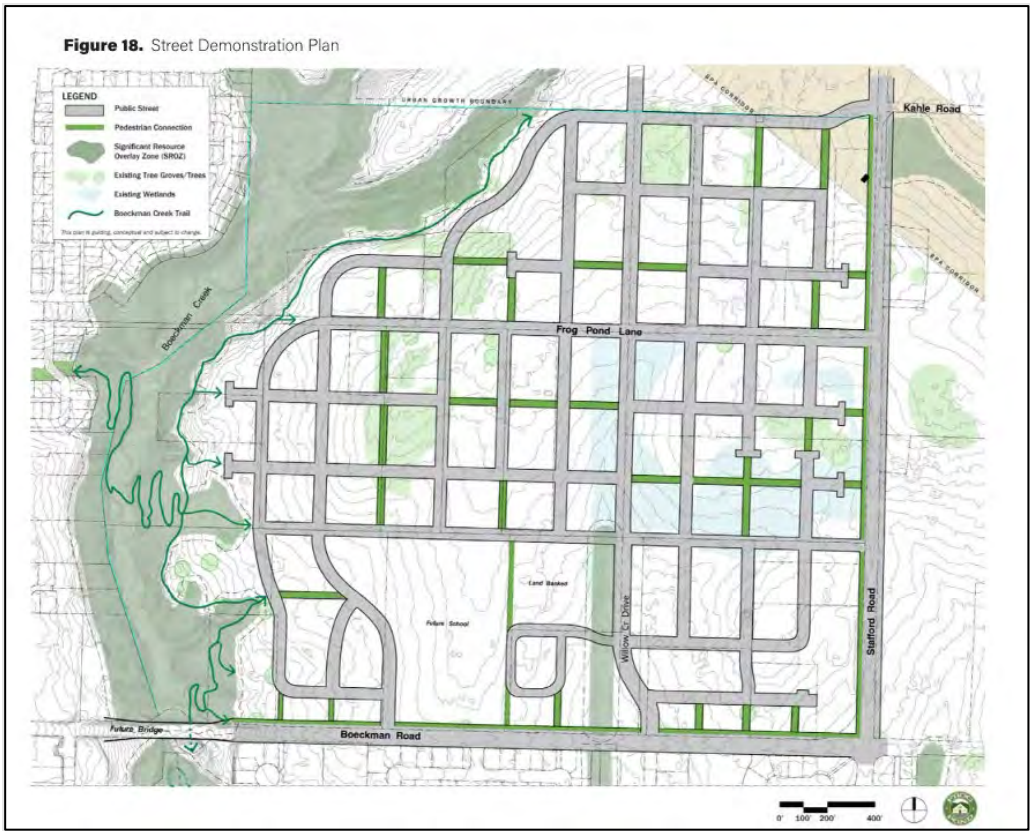
Response: As shown in Figure 18, Street Demonstration Plan (below), public street connections and portions of the Boeckman Creek Trail are planned through the subject site. The Street Demonstration Plan is an illustrative layout of the desired level of connectivity in the Frog Pond West neighborhood and

is intended to be guiding, not binding, allowing for flexibility provided that overall connectivity goals are met. Generally, the street network is a modified grid, except in the vicinity of this site due to the natural resource area. Access to Frog Pond Terrace is provided by east-west local streets (Woodbury Loop and Street B), and SW Woodbury Loop which provides north-south access through the site.

Sheets P3.00 and P8.00 illustrates the proposed blocks, access, and connectivity for Frog Pond Terrace. Brisband St will be widened and will extend along the southern site boundary. Proposed Street B will provide east-west connections to future development to the east. Proposed SW Woodbury Loop will be extended from the Morgan Farms development to the south to provide north-south access through the site. As shown on Sheet P3.00, the Boeckman Creek Trail is proposed along the western edge of the proposed lots and alongside Woodbury Loop, east of Boeckman Creek, and is intended to connect to existing portions of the trail within the Morgan Farms development south of the site and proposed trail connections within the Frog Pond Overlook development north of the site.

The location of Street B is established per Figure 18, which shows an east-west street in this location, terminating west of Woodbury Loop. Figure 18 shows Frog Pond Ln curving to the south and becoming a north-south street adjacent to the subject site. The proposed Frog Pond Overlook development to the northeast includes improvements to Frog Pond Ln to the western site boundary and extension of public utilities to serve sites to the west. Beyond this area, the Frog Pond Ln right-of-way is within mapped SROZ and does not connect to or provide access to proposed development.

Three north-south streets were established by the Morgan Farms development to the south: SW Woodbury Loop; SW Painter Dr; and SW Sherman Dr. SW Woodbury Loop will be extended to the north by the proposed development and curves to the east to connect with a future extension of SW Painter Dr and/or SW Sherman Dr. This street pattern differs from Figure 18 in that Frog Pond Ln terminates at the anticipated future extension of SW Painter Dr rather than continuing west to intersect SW Woodbury Loop. This revised connection point is necessary to respond to the mapped SROZ in the western portion of the site and to avoid impacts while maintaining the modified grid connections anticipated in Figure 18.



The proposed modified grid pattern provides an efficient street connection to SW Frog Pond Lane and SW Stafford Road. The desired extension of Sherman Drive north from Boeckman Road through the Morgan Farm development to Frog Pond Lane replaces the pedestrian connection in that alignment illustrated on the Street Demonstration Plan. The portion of pedestrian connection north of Frog Pond Lane has been shifted farther east in order to make a logical connection with the Boeckman Creek Trail as it runs out of the Frog Pond Vista development before it turns to the west. The offset grid pattern of future north-south streets is occasioned by the need to maintain the desired number of north-south street connections and block spacing between Frog Pond Lane and Brisband Street as shown on the Street Demonstration Plan, while accommodating the approved northern street connection to Frog Pond Lane from the approved Frog Pond Vista development and the desired extension of Sherman Drive north to Frog Pond Lane.

Existing slopes and the presence of the SROZ preclude extending Frog Pond Lane farther to the west in a broad radius as anticipated by the Street Demonstration Plan. Frog Pond Lane is proposed to terminate in an "eyebrow" allowing for a turn to the south that aligns with a future extension of Painter Drive from the Morgan Farm development. The proposed modifications do not require out-of-direction pedestrian or vehicular travel nor do they result in greater distances for pedestrian access to the proposed subdivision from the surrounding future streets than would otherwise be the case if the Street Demonstration Plan were adhered to.

Though not listed as an approval criterion, staff notes that Figure 13 of the Frog Pond West Master Plan is also relevant to proposed development within the Frog Pond West area. This figure illustrates sight lines from the interior of the Frog Pond West neighborhood to Boeckman Creek to the west.

As proposed, the sight lines remain along Frog Pond Ln and Brisband St. Between these two streets, the east-west sight lines have been shortened. As conceptually shown on Figure 13, these two sight lines begin at Willow Creek Drive. The proposed street plan would shorten these sight lines so that they begin at Columbine Street and continue west approximately 1,500 feet to the edge of the Boeckman Creek corridor.

As illustrated in Sheet P11.00, the potential future street and lot layout complies with the Frog Pond West Master Plan and the RN zone. The layout shown accommodates four east-west streets terminating at the Boeckman Creek corridor and five north-south streets extending from Frog Pond Lane to SW Brisband. The westernmost north-south street is truncated short of Frog Pond Lane due to the steepness of the existing slope of the Boeckman creek corridor.

(.011) Signs. *Per the requirements of Sections 4.156.01 through 4.156.11 and applicable provisions from adopted legislative master plans.*

Response: The requirements of Sections 4.156.01 through 4.156.11 are addressed in Section V of this narrative. No signs are proposed as part of this application.

(.012) Parking. *Per the requirements of Section 4.155 and applicable provisions from adopted legislative master plans.*

Response: The requirements of Section 4.155 are addressed in Section V of this narrative. The adopted legislative master plan applicable to this site is the Frog Pond West Master Plan, which has been codified in the zoning ordinance.

(.013) Corner Vision Clearance. *Per the requirements of Section 4.177.*

Response: The requirements of Section 4.177 are addressed in Section V of this narrative.

(.014) Main Entrance Standards

A. Purpose. These standards:

1. Support a physical and visual connection between the living area of the residence and the street;

2. Enhance public safety for residents and visitors and provide opportunities for community interaction;

3. *Ensure that the pedestrian entrance is visible or clearly identifiable from the street by its orientation or articulation; and*
4. *Ensure a connection to the public realm for development on lots fronting both private and public streets by making the pedestrian entrance visible or clearly identifiable from the public street.*

B. *Location. At least one main entrance for each structure must:*
   1. *Be within 12 feet of the longest street-facing front wall of the dwelling unit; and*
   2. *Either:*
      a. *Face the street*
      b. *Be at an angle of up to 45 degrees from the street; or*
      c. *Open onto a porch. The porch must:*
         (i) *Be at least 6 feet deep*
         (ii) *Have at least one entrance facing the street; and*
         (iii) *Be covered with a roof or trellis*

C. *Distance from grade. Main entrances meeting the standards in subsection B., above, must be within four feet of grade. For the purposes of this Subsection, grade is the average grade measured along the foundation of the longest street-facing wall of the dwelling unit.*

Response: The individual dwelling designs will be reviewed at the time of building permit submittal. As shown in Appendix I, all example dwellings will include a main entrance that meets the standards of this section.

(.015) Garage Standards

A. *Purpose. These standards:*
   1. *Ensure that there is a physical and visual connection between the living area of the residence and the street;*
   2. *Ensure that the location and amount of the living area of the residence, as seen from the street, is more prominent than the garage;*
   3. *Prevent garages from obscuring the main entrance from the street and ensure that the main entrance for pedestrians, rather than automobiles, is the prominent entrance;*
   4. *Provide for a pleasant pedestrian environment by preventing garages and vehicle areas from dominating the views of the neighborhood from the sidewalk; and*
   5. *Enhance public safety by preventing garages from blocking views of the street from inside the residence.*

B. *Street-Facing Garage Walls*
   1. *Where these regulations apply. Unless exempted, the regulations of this subsection apply to garages accessory to residential units.*
   2. *Exemptions:*
      a. *Garages on flag lots.*
      b. *Development on lots which slope up or down from the street with an average slope of 20 percent or more.*
   3. *Standards.*
      a. *The length of the garage wall facing the street may be up to 50 percent of the length of the street-facing building façade. For duplexes, this standard applies to the total length of the street-facing façades. For all other lots and structures, the standards apply to the street-facing façade of each unit. For corner lots, this standard applies to only one street side of the lot. For lots less that are less than 50 feet wide at the front lot line, the standard in (b) below applies.*
      b. *For lots less than 50 wide at the front lot line, the following standards apply:*
         (i) *The width of the garage door may be up to 50 percent of the length of the street-facing façade.*
         (ii) *The garage door must be recessed at least 4 feet from the front façade or 6 feet from the front of a front porch.*
         (iii) *The maximum driveway width is 18 feet.*
      a. *Where a dwelling abuts a rear or side alley or a shared driveway, the garage shall orient to the alley or shared drive.*
      b. *Where three or more contiguous garage parking bays are proposed facing the same street, the garage opening closest to a side property line shall be recessed at least two feet behind the adjacent opening(s) to break up the street facing elevation and*

diminish the appearance of the garage from the street. Side-loaded garages, i.e., where the garage openings are turned away from the street, are exempt from this requirement.

c. A garage entry that faces a street may be no closer to the street than the longest street facing wall of the dwelling unit. There must be at least 20 feet between the garage door and the sidewalk. This standard does not apply to garage entries that do not face the street.

Response: As shown on Sheet P2.00, the site design does not include alleys. The individual dwelling designs will be reviewed at the time of building permit submittal. As shown on the plan sheets in Appendix I, all example dwellings will include garages that meet the standards of this section.

(0.16) Residential Design Standards

A. Purpose. These standards:

1. Support consistent quality standards so that each home contributes to the quality and cohesion of the larger neighborhood and community.

2. Support the creation of architecturally varied homes, blocks and neighborhoods, whether a neighborhood develops all at once or one lot at a time, avoiding homogeneous street frontages that detract from the community's appearance.

B. Applicability. These standards apply to all façades facing streets, pedestrian connections, parks, open space tracts, the Boeckman Trail, or elsewhere as required by this Code or the Development Review Board. Exemptions from these standards include: (1) Additions or alterations adding less than 50 percent to the existing floor area of the structure; and, (2) Additions or alterations not facing a street, pedestrian connection, park, or open space tract. […]

Response: Several of the proposed lots face open space tracts and/or the Boeckman Trail .The individual dwelling designs will be reviewed at the time of building permit submittal. The standards of Subsection (0.16) are not applicable at this time.

(0.17) Fences

A. Within Frog Pond West, fences shall comply with standards in 4.113 (.07) except as follows:

1. Columns for the brick wall along Boeckman Road and Stafford Road shall be placed at lot corners where possible.

2. A solid fence taller than 4 feet in height is not permitted within 8 feet of the brick wall along Boeckman Road and Stafford Road, except for fences placed on the side lot line that are perpendicular to the brick wall and end at a column of the brick wall.

3. Height transitions for fences shall occur at fence posts.

Response: The subject site is not adjacent to Boeckman or Stafford Roads. In addition, no fences on residential lots are being proposed at this time.

(0.18) Residential Structures Adjacent to Schools, Parks and Public Open Spaces

A. Purpose. The purpose of these standards is to ensure that development adjacent to schools and parks is designed to enhance those public spaces with quality design that emphasizes active and safe use by people and is not dominated by driveways, fences, garages, and parking.

B. Applicability. These standards apply to development that is adjacent to or faces schools and parks. As used here, the term adjacent includes development that is across a street or pedestrian connection from a school or park.

Response: Lot 4 is adjacent to the proposed trailhead park on the site; Lots , 10,11, and 12 are across the street from the proposed park. Therefore, these standards are applicable to those lots.

C. Development must utilize one or more of the following design elements:

1. Alley loaded garage access.

2. On corner lots, placement of the garage and driveway on the side street that does not face the school, park, or public open space.

3. *Recess of the garage a minimum of four feet from the front façade of the home. A second story above the garage, with windows, is encouraged for this option.*

Response: There are no alleys proposed. Compliance with C.2-3 above regarding garage/driveway placement and design will be reviewed at the time of building permit.

D. Development must be oriented so that the fronts or sides of homes face adjacent schools or parks. Rear yards and rear fences may generally not face the schools or parks, unless approved through the waiver process of 4.118 upon a finding that there is no practicable alternative due to the size, shape or other physical constraint of the subject property.

Response: The side or front of lots adjacent to the trailhead park will be oriented toward the park as indicated in Sheet P2.00. The individual dwelling designs will be reviewed at the time of building permit submittal.

F. Section 4.139. Significant Resource Overlay Zone.

[…]

Section 4.139.02 Where these Regulations Apply

The regulations of this Section apply to the portion of any lot or development site, which is within a Significant Resource Overlay Zone and its associated "Impact Areas". The text provisions of the Significant Resource Overlay Zone ordinance take precedence over the Significant Resource Overlay Zone maps. The Significant Resource Overlay Zone is described by boundary lines shown on the City of Wilsonville Significant Resource Overlay Zone Map. For the purpose of implementing the provisions of this Section, the Wilsonville Significant Resource Overlay Zone Map is used to determine whether a Significant Resource Impact Report (SRIR) is required. Through the development of an SRIR, a more specific determination can be made of possible impacts on the significant resources.

Unless otherwise exempted by these regulations, any development proposed to be located within the Significant Resource Overlay Zone and/or Impact Area must comply with these regulations. Where the provisions of this Section conflict with other provisions of the City of Wilsonville Planning and Land Development Ordinance, the more restrictive shall apply.

[…]

Response: Per the City's SROZ Map and Figure 6 of the Frog Pond West Master Plan, this site contains land that is within the SROZ overlay; therefore, this section applies. The proposed impacts are exempt from the provisions of these regulations per Section 4.139.04.

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: The proposed SROZ and impact area are shown on Figure 7 and Sheet EX 1 of the SRIR report included as Appendix C. As shown, future development on the proposed residential lots may occur within the impact area but will be outside the SROZ and Impact Area.

(.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: No non-exempt development or activity is proposed within the SROZ. Therefore, a Significant Resource Impact Report (SRIR) is not required.

(.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: Proposed development within the SROZ includes a portion of a public park, portions of the Boeckman Creek Trail, portions of a stormwater pond and associated grading, and stormwater outfalls. No prohibited activity is proposed within the SROZ.

(.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:
- *A. Minimize grading, removal of native vegetation, disturbance and removal of native soils, and impervious area;*
- *B. 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;*
- *C. Minimize impacts on wildlife corridors and fish passage, such as by using the practices described in Part (b) of Table NR-2; and*
- *D. Consider using the practices described in Part (c) of Table NR-2.*

Response: The development activities within the SROZ and Impact Areas are designed to minimize grading and removal of vegetation, and limit impervious areas to the required Boeckman Creek trail. The final plans for the development will include conditions imposed by any State or Federal permits. No impacts are proposed to Boeckman Creek or mapped wetlands.

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. [Added by Ord. # 674 11/16/09]
[…]
(.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.
[…]
(.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.
[…]
(.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.
[…]
(.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: The applicant is proposing three exempt activities within the SROZ and impact areas, as shown on EX 1 of the SRIR included as Appendix C:
- Retention of an existing home on Tax Lot 2801. The home is located within the 25-ft. Significant Resource Impact Area and the Area of Limited Conflicting Use. Per (.02) above, this activity is exempt from these regulations.
- A pedestrian path (Boeckman Creek Trail) which is intended to provide access to the natural resource area and will be designed to minimize and repair disturbance to existing native vegetation and slope stability. The location of the trail is identified by the Frog Pond West Concept Plan.

- A stormwater treatment pond and storm outfall, both of which are located (at least partially) within the SROZ. As noted in Page 4 of the SRIR, " Due to the degraded condition of the Impact Area buffer, the placement of the stormwater facility within SROZ will provide a water quality and habitat benefit through planting the facility with native vegetation. Stormwater outfalls within ALCU will consist of riprap flow spreader to protect the riparian area from erosion."

The submittal requirements for this exemption are provided in this application and are consistent with the submittal requirements listed under Section 4.139.06(.01)(B – I), as applicable to the exempt uses and activities. These requirements are addressed further in the responses to that section.

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.

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: This application includes a land division request that will create new lots that either contain or are within 100 feet of the SROZ boundary. Therefore, SROZ map verification is required.

(.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).

(.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: The site is subject to Section 4.139.05(.01) as noted above. Application for SROZ map verification is being submitted concurrently with the other required land use applications.

(.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;

C. The applicant may demonstrate that the subject property was developed lawfully prior to June 7, 2001.

Response: The applicant generally concurs with the accuracy of the SROZ map. It appears that logging occurred in the southeast corner of the subject site after the current SROZ boundary was adopted, while the site was within Clackamas County jurisdiction and prior to the adoption of the Frog Pond West Concept Plan. See Figure 5 of Appendix C for the mapped 2009 SROZ boundary. The 2014 Natural Resources Inventory (NRI) conducted by Pacific Habitat Services does not include this area. The applicant concurs with the accuracy of the 2014 NRI and the 2021 wetland delineation conducted by AKS. The SROZ report included as Appendix C provides additional detail.

[…]

(.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: The application is filed pursuant to this section. The submittal requirements listed under Section 4.139.06(.01)(B-H) are included in the Abbreviated SRIR included as Appendix C.

(.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).

Response: This application is not filed pursuant to this section.

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.

[…]

Response: No non-exempt development is proposed within the SROZ or Impact Area with this development. However, a map verification is required.

(.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:

- *A. A Site Development Permit Application must be submitted in compliance with the Planning and Land Development Ordinance;*
- *B. Outline of any existing features including, but not limited to, structures, decks, areas previously disturbed and existing utility locations*;*
- *C. Location of any wetlands or water bodies on the site and the location of the stream centerline and top-of-bank;*
- *D. Within the area proposed to be disturbed, the location, size and species of all trees that are more than six (6) inches in diameter at breast height (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;*
- *E. The location of the SROZ and Impact Area boundaries*;*
- *F. 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*;*
- *G. A map that delineates the Metro UGMFP Title 3 Water Quality Resource Area boundary (using Metro Title 3 field observed standards)*;*
- *H. Current photos of site conditions shall be provided to supplement the above information*.*
- *I. A narrative describing the possible and probable impacts to natural resources and a plan to mitigate for such impacts*.*

**Indicates information that City Staff may have readily available to assist an applicant.*

Response: As noted above, the applicant requests an exemption for exempt activities per Section 4.139.01, and the submittal requirements of (.01)B-I above are applicable. A Site Development Permit Application is included in this submittal, and the Abbreviated SRIR included as Appendix C includes the information listed in B-I above. Specifically, see Figure 7 and EX 1 of Appendix C.

[…]

(.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;*
- *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;*
- *C. 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;*
- *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;*
- *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;*
- *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;*
- *G. Non-structural fill used within the SROZ area shall primarily consist of natural materials similar to the soil types found on the site;*
- *H. The amount of fill used shall be the minimum required to practically achieve the project purpose;*
- *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; and*
- *J. Appropriate federal and state permits shall be obtained prior to the initiation of any activities regulated by the U.S. Army Corps of Engineers and the Oregon Division of State Lands in any jurisdictional wetlands or water of the United States or State of Oregon, respectively.*

Response: As noted in the SRIR and shown on EX 1, exempt activities are proposed within the area of conflicting use and the impact area. EX 1 also illustrates the location of the enhancement area.

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:

[…]

Response: As noted above, no non-exempt disturbance is proposed within the SROZ or the Impact Area. The SRIR included as Appendix C includes a mitigation plan for the proposed disturbance.

[…]

G. 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.

B. Any site designated for development in the Comprehensive Plan may be developed as a Planned Development, provided that it is zoned "PD." All sites which are greater than two (2) 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: The subject site greater than 2 acres and is designated in the Comprehensive Plan for residential use and Planned Development is required. The proposed development will be developed as a residential Planned Development per the provisions of this section.

(.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.

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: The property included in the proposed PD is the subject of a joint application by the owners of all of the property included.

(.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.

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.

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: The development team includes Keith Buisman, PE; Steve Dixon, PLA; Gabriel Kruse, PLA; and Li Alligood, AICP. Li Alligood has been designated as the applicant's representative and party responsible for conferring with the planning staff.

(.05) Planned Development Permit Process.

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

Response: The subject site exceeds 2 acres in size and is proposed for residential development. This application includes a zoning map amendment to apply the RN zone to the site; Master Plan Stage I application; and Master Plan Stage II application.

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: The requested zoning map amendment is subject to the applicable provisions of the Zoning Sections and 4.197. These provisions are addressed in Sections IV and V of this narrative.

C. Development Review Board 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. When a zone change is necessary, application for such change shall be made simultaneously with an application for preliminary approval to the Board; and
   3. Final (Stage II) review by the Development Review Board
   4. In the case of a zone change and zone boundary amendment, City Council approval is required to authorize a Stage I preliminary plan.

Response: A pre-application conference was held with the Planning Department on September 16, 2021. Concurrent zoning map amendment, Stage I, and Stage II applications (and a number of additional concurrent applications) have been submitted for review by the DRB.

[…]

(.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 submittal includes all the above information.

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.
   2. Topographic information as set forth in Section 4.035
   3. A tabulation of the land area to be devoted to various uses, and a calculation of the average residential density per net acre.
   4. A stage development schedule demonstrating that the developer intends receive Stage II approval within two (2) years of receiving Stage I approval, and to commence construction within two (2) 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.

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.*
6. *If it is proposed that the final development plan will be executed in stages, a schedule thereof shall be provided.*
7. *Statement of anticipated waivers from any of the applicable site development standards.*

Response: A boundary survey including topographic information is included as Sheet P1.10. A tabulation of land area and residential density is included in Sheet P2.00 and Table 1 of this narrative. Stage I and Stage II approvals are being requested concurrently, and a staged development schedule is not proposed.

(.09) Final Approval (Stage Two):

[Note: Outline Number is incorrect.]

A. Unless an extension has been granted by the Development Review Board, within two (2) years after the approval or modified approval of a preliminary development plan (Stage I), the applicant shall file with the City Planning Department a final plan for the entire development or when submission in stages has been authorized pursuant to Section 4.035 for the first unit of the development, a public hearing shall be held on each such application as provided in Section 4.013.

Response: A Stage II application has been submitted concurrent with the Stage I application.

B. After such hearing, the Development Review Board shall determine whether the proposal conforms to the permit criteria set forth in this Code, and shall approve, conditionally approve, or disapprove the application.

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: A Preliminary Utility Plan is included as Sheet P4.00. Preliminary building elevations are included as Appendix H. Preliminary landscaping plans are included as Sheet L2.00. A Preliminary Grading Plan is included as Sheet P5.00. Sign locations and permits will be provided under separate application.

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: A concurrent Site Design Review application has been submitted. Section 4.400 Site Design Review criteria are addressed in Section VIII of this narrative.

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

Response: The recorded Declaration of Protective Covenants, Conditions, Restrictions and Easements for Stafford Meadows is included as Appendix G. Frog Pond Terrace will be annexed into the existing Homeowners Association (HOA).

[…]

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

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

Response: The site is located within the Frog Pond West neighborhood of the Frog Pond planning area. The Frog Pond West Master Plan has been incorporated into the Comprehensive Plan and designates the site for single-family residential development. Consistency with the Comprehensive Plan is addressed in Section III of this narrative. The RN zone is identified as the implementing zone for the Residential Neighborhood RN Comprehensive Plan designation; this zone requires that all development within it be approved as a Planned Development.

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.

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; [Added by Ord. 561, adopted 12/15/03.]

ii. What impact the estimate generated traffic will have on existing level of service including traffic generated by (1) the development itself, (2) all existing developments, (3) Stage II developments approved but not yet built, and (4) all developments that have vested traffic generation rights under section 4.140(.10), through the most probable used intersection(s), including state and county intersections, at the time of peak level of traffic. This analysis shall be conducted for each direction of travel if backup from other intersections will interfere with intersection operations. [Amended by Ord 561, adopted 12/15/03.]

b. The following are exempt from meeting the Level of Service D criteria standard:

i. A planned development or expansion thereof which generates three (3) new p.m. peak hour traffic trips or less;

ii. A planned development or expansion thereof which provides an essential governmental service.

c. Traffic generated by development exempted under this subsection on or after Ordinance No. 463 was enacted shall not be counted in determining levels of service for any future applicant. [Added by Ord 561, adopted 12/15/03.]

d. Exemptions under 'b' of this subsection shall not exempt the development or expansion from payment of system development charges or other applicable regulations. [Added by Ord 561, adopted 12/15/03.]

e. In no case will development be permitted that creates an aggregate level of traffic at LOS "F". ([Added by Ord 561, adopted 12/15/03.]

Response: DKS Associates has determined that a full Traffic Impact Study (TIS) is not necessary to evaluate traffic impacts from the proposed development. The memo is included as Appendix D.

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: The proposal will construct transportation and other needed infrastructure with site development and will dedicate public right-of-way for local streets. Public access will be provided to the Boeckman Creek Trail and trailhead park. The site will be adequately served by existing or immediately planned facilities.

[…]

(.10) Early Vesting of Traffic Generation. […]

Response: No early vesting of traffic generation is requested. This standard is not applicable.

V. General Development Regulations

A. 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.*
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: The site is proposed for single-family residential development lots and will include a network of public sidewalks. In addition to the sidewalk system, the site will provide extend and provide access to the Boeckman Creek Trail, which will be extended along the western edge of the residential lots.

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: Where the proposed Boeckman Creek Trail abuts Woodbury Loop adjacent to proposed Lot 16, it will be separated from the vehicular lane by a curb and planter strip.

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: The proposed Boeckman Creek Trail crosses the driveway of Lot 16. This standard is applicable.

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

Response: The proposed pedestrian pathways will be constructed of concrete, asphalt, brick/masonry pavers, or other durable surface, and will be at least 5 ft. wide. The Boeckman Creek Trail is within the public right-of-way, is 10-15 ft. wide, and will also be paved. This standard is met.

6. *All pathways shall be clearly marked with appropriate standard signs. [Added by Ord. #719, 6/17/13]*

Response: The pedestrian pathways will be signed as required.

B. Section 4.155. General Regulations - Parking, Loading and Bicycle Parking.

[…]
(.02) General Provisions:
[…]

Response: Generally, these provisions apply to multifamily and commercial development, which is not proposed within Frog Pond Terrace. These provisions are not applicable.

(.03) Minimum and Maximum 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.

B. Parking and loading or delivery areas shall be landscaped to minimize the visual dominance of the parking or loading area, as follows: […]

Response: There is no off-street loading required or proposed for the proposed single-family development. These provisions are not applicable.

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 fifty (50) standard spaces., provide one ADA-accessible parking space that is constructed to building code standards, Wilsonville Code 9.000.

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.

E. In all multi-family dwelling developments, there shall be sufficient areas established to provide for parking and storage of motorcycles, mopeds and bicycles. Such areas shall be clearly defined and reserved for the exclusive use of these vehicles.

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

Response: There are no parking areas required or proposed for the proposed single-family development. The required parking spaces will be provided on site and on-street parking spaces are not requested to count toward the minimum standards.

G. Tables 5 shall be used to determine the minimum and maximum parking standards for various land uses. The minimum number of required parking spaces shown on Tables 5 shall be determined by rounding to the nearest whole parking space. For example, a use containing 500 square feet, in an area where the standard is one space for each 400 square feet of floor area, is required to provide one off-street parking space. If the same use contained more than 600 square feet, a second parking space would be required. Structured parking and on-street parking are exempted from the parking maximums in Table 5. [Amended by Ordinance No. 538, 2/21/02.]

Response: Table 5 requires that single units provide one parking space per dwelling unit. There is no maximum number listed. Each single-family dwelling unit will be provided with at least two off-street parking spaces within garages. This standard is met.

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

Response: No electrical vehicle charging stations are proposed at this time.

I. Motorcycle parking:
1. Motorcycle parking may substitute for up to 5 spaces or 5 percent of required automobile parking, whichever is less. For every 4 motorcycle parking spaces provided, the automobile parking requirement is reduced by one space.
2. Each motorcycle space must be at least 4 feet wide and 8 feet deep. Existing parking may be converted to take advantage of this provision. [Amended by Ord. #719, 6/17/13]

Response: No motorcycle parking is proposed.

(.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.[…]

Response: Table 5 states that there is no minimum bicycle parking requirement for detached or attached single-family homes. These provisions are not applicable.

(.05) Minimum Off-Street Loading Requirements: […]

Response: There is no off-street loading requirement for single-family homes. These provisions are not applicable.

(.06) Carpool and Vanpool Parking Requirements: […]

Response: There is no carpool or vanpool parking requirement for single-family homes. These provisions are not applicable.

C. Section 4.156. Sign Code Regulations.

Section 4.156.07. Sign Regulations in Residential Zones.
[…]

Response: No signs are proposed at this time. Future signs will be subject to these regulations.

D. Section 4.167. General Regulations – Access, Ingress and Egress.

(.01) *Each access onto streets or private drives shall be at defined points as approved by the City and shall be consistent with the public's health, safety and general welfare. Such defined points of access shall be approved at the time of issuance of a building permit if not previously determined in the development permit. [Amended by Ord. 682, 9/9/10]*

Response: Proposed driveways will access onto streets and are shown in Sheet P2.00. The final location of these driveways will be confirmed at the time of site development permits.

E. Section 4.169. General Regulations – Double-Frontage Lots.

(.01) *Buildings on double frontage lots (i.e., through lots) and corner lots must meet the front yard setback for principal buildings on both streets or tracts with a private drive. [Amended by Ord. 682,*
9/9/10]

(.02) *Given that double-frontage lots tend to have one end that is regarded as a rear yard by the owner, the Development Review Board may establish special maintenance conditions to apply to such areas. Such conditions may include the requirement that the subject homeowners association, if any, be responsible for the on-going maintenance of the street frontage areas of double-frontage lots.*

Response: No double-frontage lots are proposed.

F. 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: The Frog Pond Terrace development has been designed to deter crime and ensure public safety. Streets and pedestrian connections will be lit for visibility and safety. Homes will generally be oriented toward these streets to provide “eyes on the street.” All dwellings will be addressed per Building and Fire Department requirements to allow identification for emergency response personnel. No parking and loading areas are proposed. Dwellings will have exterior porch lighting, which will complement the streetlights and add to safety and visibility. These standards are met.

G. Section 4.176. Landscaping, Screening, and Buffering.

[…]

(.02) *Landscaping and Screening Standards.*

[…]

C. General Landscaping Standard.

[…]

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 proposed development consists of single-family dwellings, which are generally subject to the General Landscape Standard. Sheet L2.00 provides details of proposed landscaping in these areas.

[…]

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 (2' 6") high along the interior side of the landscaped area (see Figure 23: Low Berm Landscaping). If the berm is less than three (3) 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 (3) 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: The proposed residential development is located adjacent to approved and future residential and public trail/park development. No screening is required or proposed.

[…]

I. Partially Sight-Obscuring Fence Standard.

1. Intent. The Partially Sight-Obscuring Fence Standard is intended to provide a tall, but not totally blocked, visual separation. The standard is applied where a low level of screening is adequate to soften the impact of one use or development on another, and where some visibility between abutting areas is preferred over a total visual screen. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary and where nonresidential uses are involved.

2. Required materials. Partially Sight-Obscuring Fence Standard are to be at least six (6) feet high and at least 50% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials (see Figure 26: Partially Sight-Obscuring Fence).

J. Fully Sight-Obscuring Fence Standard.

1. Intent. The Fully Sight-Obscuring Fence Standard is intended to provide a totally blocked visual separation. The standard is applied where full visual screening is needed to reduce the impact of one use or development on another. It can be applied in conjunction with landscape plantings or applied in areas where landscape plantings are not necessary.

2. Required materials. Fully sight-obscuring fences are to be at least six (6) feet high and 100% sight-obscuring. Fences may be made of wood (other than plywood or particle-board), metal, bricks, masonry or other permanent materials (see Figure 27: Totally Sight-Obscuring Fence).

Response: There is no need for partially or totally blocked visual separation. Sight-obscuring fencing is not provided.

(.03) Landscape Area. *Not less than fifteen percent (15%) of the total lot area, shall be landscaped with vegetative plant materials. The ten percent (10%) parking area landscaping required by section 4.155.03(B)(1) is included in the fifteen percent (15%) total lot landscaping requirement. Landscaping shall be located in at least three separate and distinct areas of the lot, one of which must be in the contiguous frontage area. Planting areas shall be encouraged adjacent to structures. Landscaping shall be used to define, soften or screen the appearance of buildings and off-street parking areas. Materials to be installed shall achieve a balance between various plant forms, textures, and heights. The installation of native plant materials shall be used whenever practicable. (For recommendations refer to the Native Plant List maintained by the City of Wilsonville). [Amended by Ord. # 674 11/16/09]*

Response: At least 15 percent of the total lot area for each single-family dwelling will be landscaped; conformance with this standard will be reviewed at the time of building permit submittal. There are no

parking areas proposed and no parking area landscaping is required. The landscape plan included as Sheet L2.00 illustrates the location and type of landscaping within public rights-of-way and tracts.

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

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

Response: The requirements of 4.137.5 are applicable along the edge of nonresidential zones abutting, or located directly across the street from, residential zones. The proposed development is located within a residential zone and abuts residential zones to the west, north, and east. These standards are not applicable.

***(.05) Sight-Obscuring Fence or Planting.** The use for which a sight-obscuring fence or planting is required shall not begin operation until the fence or planting is erected or in place and approved by the City. A temporary occupancy permit may be issued upon a posting of a bond or other security equal to one hundred ten percent (110%) of the cost of such fence or planting and its installation. (See Sections 4.400 to 4.470 for additional requirements.)*

Response: No sight-obscuring fences or planting are required between the proposed residential use and adjacent uses. This standard is not applicable.

(.06) Plant Materials.

A. Shrubs and Ground Cover. All required ground cover plants and shrubs must be of sufficient size and number to meet these standards within three (3) years of planting. Non-horticultural plastic sheeting or other impermeable surface shall not be placed under mulch. 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 bark dust are not to be used as substitutes for plant areas. [Amended by Ord. # 674 11/16/09]
    1. Shrubs. All shrubs shall be well branched and typical of their type as described in current AAN Standards and shall be equal to or better than 2-gallon containers and 10" to 12" spread.
    2. Ground cover. Shall be equal to or better than the following depending on the type of plant materials used: gallon containers spaced at 4 feet on center minimum, 4" pot spaced 2 feet on center minimum, 2-1/4" pots spaced at 18 inch on center minimum. No bare root planting shall be permitted. Ground cover shall be sufficient to cover at least 80% of the bare soil in required landscape areas within three (3) years of planting. Where wildflower seeds are designated for use as a ground cover, the City may require annual re-seeding as necessary.
    3. Turf or lawn in non-residential developments. Shall not be used to cover more than ten percent (10%) of the landscaped area, unless specifically approved based on a finding that, due to site conditions and availability of water, a larger percentage of turf or lawn area is appropriate. Use of lawn fertilizer shall be discouraged. Irrigation drainage runoff from lawns shall be retained within lawn areas.
    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. [Added by Ord. # 674 11/16/09]

Response: The landscape plan included as Sheets L2.00-L2.10 demonstrates conformance with these requirements.

B. Trees. All trees shall be well-branched and typical of their type as described in current American Association of Nurserymen (AAN) Standards and shall be balled and burlapped. The trees shall be grouped as follows:

1. Primary trees which define, outline or enclose major spaces, such as Oak, Maple, Linden, and Seedless Ash, shall be a minimum of 2" caliper.
2. Secondary trees which define, outline or enclose interior areas, such as Columnar Red Maple, Flowering Pear, Flame Ash, and Honeylocust, shall be a minimum of 1-3/4" to 2" caliper.
3. Accent trees which, are used to add color, variation and accent to architectural features, such as Flowering Pear and Kousa Dogwood, shall be 1-3/4" minimum caliper.
4. Large conifer trees such as Douglas Fir or Deodar Cedar shall be installed at a minimum height of eight (8) feet.
5. Medium-sized conifers such as Shore Pine, Western Red Cedar or Mountain Hemlock shall be installed at a minimum height of five to six (5 to 6) feet.

Response: The landscape plan included as Sheet L2.00 addresses these requirements.

C. Where a proposed development includes buildings larger than twenty-four (24) feet in height or greater than 50,000 square feet in footprint area, the Development Review Board may require larger or more mature plant materials:

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 fifty (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 (10) feet; and
ii. Minimum trunk diameter (caliper) of 2 inches (measured at four and one-half [4 1/2] feet above grade).
b. Evergreen trees: Minimum height of twelve (12) feet.

Response: Some of the proposed residential dwellings will exceed 24 ft. in height but will be far less than 50,000 sq. ft. in footprint area. Requirements for larger or more mature plant materials are not warranted.

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 - 3" minimum caliper
b. Collector streets - 2" minimum caliper.
c. Local streets or residential private access drives - 1-3/4" minimum caliper. [Amended by Ord. 682, 9/9/10]
d. Accent or median tree -1-3/4" minimum caliper.

Response: Proposed streets within the development are classified as Local Streets. As shown in Sheet L2.00, 2-in. caliper balled and burlapped street trees are proposed for all streets within the development, which are larger than required.

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 (Pin Oak), Tilia americana (American Linden).*
b. *Trees under 50 feet mature height: Acer rubrum (Red Sunset Maple), Cornus nuttallii (Native Pacific Dogwood), Gleditsia triacanthos (Honey Locust), Pyrus calleryana 'Bradford' (Bradford Pear), Tilia cordata (Little Leaf Linden), Fraxinus oxycarpa (Flame Ash).*
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.*

[Section 4.176(.06)(D.) amended by Ordinance No. 538, 2/21/02.]

Response: The proposed street trees include a mix of Cladrastis Kentukea (American Yellowwood), Tilia Americana (American Linden), and Tilia Cordota 'Glenleven' (Glenleven Littleleaf Linden). All trees listed here have been chosen from the approved street tree list for the Frog Pond West Master Plan and continue previously established street tree selections.

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.*
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.*
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.*

[Section 4.176(.06)(E.) amended by Ordinance No. 538, 2/21/02.]

Response: As shown on Sheet L2.00, the proposed landscape materials include a mix of native trees, shrubs, and groundcovers. No prohibited plant materials are proposed.

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*

[Amended by Ord. # 674 11/16/09]

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.*
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 (1) growing season of notice.*

Response: As shown on Sheet L1.00 and described in Appendix E, there are 250 trees on the site and 98 trees will be protected on site. Of these, 26 are of sufficient size to provide landscaping tree credits. Per the calculations above and shown in Table 3 below, 91 tree credits are provided by protected trees. Additional protections are outlined in the Tree Plan included as Appendix E.

Table 3. Tree Credits

Count	Tag #	Existing Trunk Diameter (in.)	Number of Tree Credits
1	30007	20	3
2	30053	26	4
3	30076	18	3
4	30482	36	5
5	30497	22	3
6	30513	24	3
7	30516	24	3
8	30517	20	3
9	30518	20	3
10	30519	28	4
11	30520	24	3
12	30535	34	5
13	30536	20	3
14	30537	40	5
15	30600	18	3
16	30711	28	4
17	30712	36	5
18	30713	32	5
19	30721	18	3
20	30729	18	3
21	30735	18	3
22	30776	18	3
23	30782	18	3
24	30798	18	3
25	31491	18	3
26	31493	20	3
Total			***91***

(.07) Installation and Maintenance.

A. Installation. Plant materials shall be installed to current industry standards and shall be properly staked to assure survival. Support devices (guy wires, etc.) shall not be allowed to interfere with normal pedestrian or vehicular movement.

B. Maintenance. Maintenance of landscaped areas is the on-going responsibility of the property owner. Any landscaping installed to meet the requirements of this Code, or any condition of approval established by a City decision-making body acting on an application, shall be continuously maintained in a healthy, vital and acceptable manner. Plants that die are to be replaced in kind, within one growing season, unless appropriate substitute species are approved by the City. Failure to maintain landscaping as required in this Section shall constitute a violation of this Code for which appropriate legal remedies, including the revocation of any applicable land development permits, may result.

C. Irrigation. The intent of this standard is to assure that plants will survive the critical establishment period when they are most vulnerable due to a lack of watering and also to assure that water is not wasted through unnecessary or inefficient irrigation. Approved irrigation system plans shall specify one of the following:

1. A permanent, built-in, irrigation system with an automatic controller. Either a spray or drip irrigation system, or a combination of the two, may be specified.

2. *A permanent or temporary system designed by a landscape architect licensed to practice in the State of Oregon, sufficient to assure that the plants will become established and drought-tolerant.*
3. *Other irrigation system specified by a licensed professional in the field of landscape architecture or irrigation system design.*
4. *A temporary permit issued for a period of one year, after which an inspection shall be conducted to assure that the plants have become established. Any plants that have died, or that appear to the Planning Director to not be thriving, shall be appropriately replaced within one growing season. An inspection fee and a maintenance bond or other security sufficient to cover all costs of replacing the plant materials shall be provided, to the satisfaction of the Community Development Director. Additionally, the applicant shall provide the City with a written license or easement to enter the property and cause any failing plant materials to be replaced.*

D. *Protection. All required landscape areas, including all trees and shrubs, shall be protected from potential damage by conflicting uses or activities including vehicle parking and the storage of materials.*

Response: As detailed on Sheet L2.00, all landscape areas will be watered by a fully automatic underground irrigation system. These standards are met.

(.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: High screening is not required on any corner lots and is not proposed. This standard is not applicable.

(.09) Landscape Plans. *Landscape plans shall be submitted showing all existing and proposed landscape areas. Plans must be drawn to scale and show the type, installation size, number and placement of materials. Plans shall include a plant material list. Plants are to be identified by both their scientific and common names. The condition of any existing plants and the proposed method of irrigation are also to be indicated. Landscape plans shall divide all landscape areas into the following categories based on projected water consumption for irrigation:*

A. *High water usage areas (+/- two (2) inches per week): small convoluted lawns, lawns under existing trees, annual and perennial flower beds, and temperamental shrubs;*
B. *Moderate water usage areas (+/- one (1) inch per week): large lawn areas, average water-using shrubs, and trees;*
C. *Low water usage areas (Less than one (1) inch per week, or gallons per hour): seeded fieldgrass, swales, native plantings, drought-tolerant shrubs, and ornamental grasses or drip irrigated areas.*
D. *Interim or unique water usage areas: areas with temporary seeding, aquatic plants, erosion control areas, areas with temporary irrigation systems, and areas with special water–saving features or water harvesting irrigation capabilities. These categories shall be noted in general on the plan and on the plant material list.*

Response: A landscape plan is included as Sheet L2.00 and indicates the water consumption of the proposed plantings. The proposed site development plan includes street tree plantings, which consist of native vegetation that requires low water usage. Individual lot landscaping will be proposed at the time of building permit submittal and will likely include grass and ground coverings. These standards are met.

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

Response: Acknowledged. No deferral is requested at this time but may be requested in the future subject to the scenarios above.

(.11) Street Trees Not Typically Part of Site Landscaping. *Street trees are not subject to the requirements of this Section and are not counted toward the required standards of this Section. Except, however, that the Development Review Board may, by granting a waiver or variance, allow for special landscaping within the right-of-way to compensate for a lack of appropriate on-site locations for landscaping. See subsection (.06), above, regarding street trees.*

Response: No waiver or variance for on-site landscaping is requested. This standard is not applicable.

(.12) Mitigation and Restoration Plantings. *A mitigation plan is to be approved by the City's Development Review Board before the destruction, damage, or removal of any existing native plants. Plantings intended to mitigate the loss of native vegetation are subject to the following standards. Where these standards conflict with other requirements of this Code, the standards of this Section shall take precedence. The desired effect of this section is to preserve existing native vegetation.*

A. Plant Sources. Plant materials are to be native and are subject to approval by the City. They are to be non-clonal in origin; seed source is to be as local as possible, and plants must be nursery propagated or taken from a pre-approved transplantation area. All of these requirements are to be addressed in any proposed mitigation plan.

B. Plant Materials. The mitigation plan shall specify the types and installation sizes of plant materials to be used for restoration. Practices such as the use of pesticides, fungicides, and fertilizers shall not be employed in mitigation areas unless specifically authorized and approved.

C. Installation. Install native plants in suitable soil conditions. Plant materials are to be supported only when necessary because of extreme winds at the site. Where support is necessary, all stakes, guy wires or other measures are to be removed as soon as the plants can support themselves. Protect from animal and fowl predation and foraging until establishment.

D. Irrigation. Permanent irrigation systems are generally not appropriate in restoration situations, and manual or temporary watering of new plantings is often necessary. The mitigation plan shall specify the method and frequency of manual watering, including any that may be necessary after the first growing season.

E. Monitoring and Reporting. Monitoring of native landscape areas is the on-going responsibility of the property owner. Plants that die are to be replaced in kind and quantity within one year. Written proof of the survival of all plants shall be required to be submitted to the City's Planning Department one year after the planting is completed.

[Section 4.176 amended by Ordinance No. 536, 1/7/02]

Response: The site is currently in residential and agricultural use, and site plantings consist primarily of grass and clustered trees. The existing grass and many of the trees will be removed for site development, specifically to accommodate the planned street network and desired lotting pattern. Tree removal will be mitigated as detailed in the response to Section 4.610.40. These standards are not applicable.

H. 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: The proposed public facility improvements are designed to comply with the standards in this section, the Wilsonville Public Works Standards, and the Transportation System Plan as modified by the Frog Pond Master Plan.

(.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: The street network has been designed per the Frog Pond West Street Demonstration Plan with minor modifications, as described above. Future connections to adjacent sites are anticipated to the north and east. This standard is met.

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: No modifications are proposed to the rights-of-way and street elements widths. The development will construct a 20-ft. portion of Brisband Street at the southeast corner of the site and full street improvements for Street B and Woodbury Loop through the site. See Sheet P2.10 for details.

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.

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.

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 includes the following right-of-way dedications as shown in Sheet P2.10:

- ROW dedication of 20 feet along the site's frontage with SW Brisband Street
- ROW dedication of 52 feet for Woodbury Loop
- ROW dedication of 52 feet for Street B

The site does not have frontage on an arterial street; therefore, the special setback does not apply. These standards are met.

D. Dead-end Streets. New dead-end streets or cul-de-sacs 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. [Amended by Ord. # 674 11/16/09]

Response: No dead-end streets are proposed. Proposed Street B will stub at the eastern property line of the site and is expected to be extended with future development. In the interim, it will be approximately 150 ft. long and serve four lots. This standard is met.

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 6" 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, 10 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.
F. Vertical clearance - a minimum clearance of 12 feet above the pavement surface shall be maintained over all streets and access drives.

Response: Clear vision areas will be maintained at the corner of each property consistent with these requirements.

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.[…]

Response: The Frog Pond Ln right-of-way abuts the natural resource area of the site to the north. This right-of-way terminates at the western site boundary and is not expected to continue. Improvements are not proposed to this section of the street.

(.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.
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: As shown on Sheets P2.00 and P2.10, all sidewalks within the development site are at least 5 ft. wide. No adjustments are requested. These standards are met.

(.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: The proposed street cross-sections shown on Sheet P2.10 comply with this standard. All streets within and adjacent to the proposed development are Local streets and bikes will share the vehicular lane with vehicles. These standards are met.

(.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.

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: A Boeckman Creek Trail is proposed, but it is a recreational trail rather than a multiuse pathway. No multiuse pathways are proposed. This standard does not apply.

(.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.[…]

Response: The site is not adjacent to nor incorporates a major transit street. These standards are not applicable.

(.07) Residential Private Access Drives. *Residential Private Access Drives shall meet the following standards:*

A. Residential Private Access Drives shall provide primary vehicular access to no more than four (4) dwelling units, excluding accessory dwelling units.

Response: No private access drives are proposed. This section is not applicable.

[…]

E. Minimum access requirements shall be adjusted commensurate with the intended function of the site based on vehicle types and traffic generation.

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 TSP does not identify minimum access requirements for local streets and all access is being taken from local streets. These standards are met.

[…]

P. Unless constrained by topography, natural resources, rail lines, freeways, existing or planned or approved development, or easements or covenants, driveways proposed as part of a residential or mixed-use development shall meet local street spacing standards and shall be constructed to align with existing or planned streets, if the driveway.

1. Intersects with a public street that is controlled, or is to be controlled in the planning period, by a traffic signal;

2. Intersects with an existing or planned arterial or collector street; or

3. Would be an extension of an existing or planned local street, or of another major driveway.

Response: Street B is located to comply with local street spacing standards, as shown in Sheet P2.00.

(.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.

B. Minimum intersection spacing standards are provided in Transportation System Plan Table 3-2.

Response: The streets within and adjacent to the development are Local Streets. Per Table 3-2 of the TSP, there is no minimum access spacing standard for Local Streets and access is permitted to each lot. Access to each lot is proposed from local streets. These standards are met.

(.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. [Section 4.177 amended by Ord. 719, 6/17/13]*

Response: No exceptions or adjustments to the spacing standards are requested.

I. Section 4.180. Exceptions and Modifications - Projections into Required Yards.

(.01) *Certain non-structural architectural features are permitted to project into required yards or courts, without requiring the approval of a Variance or Reduced Setback Agreement, as follows:*

A. Into any required yard:

1. Architectural features may project into the required yard not more than two (2) inches for each foot of required setback.

2. Open, unenclosed fire escapes may project a distance not exceeding forty-eight (48) inches.

B. Into any required yard, adjoining a street or tract with a private drive: [Amended by Ord. 682, 9/9/10]

1. Architectural features may project a distance not exceeding forty (40) inches.

2. An uncovered porch, terrace, or patio extending no more than two and one-half (2 1/2) feet above the finished elevation may extend within three (3) feet of an interior side lot line, or within ten (10) feet of a front lot line or of an exterior side lot line.

Response: No buildings are proposed with this application. These provisions are not applicable.

J. Section 4.181. Exceptions & Modifications - Height Limits.

Except as stipulated in Sections 4.800 through 4.804, height limitations specified elsewhere in this Code shall not apply to barns, silos or other farm buildings or structures on farms; to church spires; belfries; cupolas; and domes; monuments; water towers; windmills; chimneys; smokestacks; fire and hose towers; flag poles; above-ground electric transmission, distribution, communication and signal lines, towers and poles; and properly screened mechanical and elevator structures.

Response: No listed structures are proposed at this time. These provisions are not applicable.

K. Section 4.182. Exceptions and Modifications - Setback Modifications.

In any residential zone where the average depth of at least two (2) existing front yards on adjoining lots or within one hundred fifty (150) feet of the lot in question and within the same block front is less or greater than the minimum or maximum front yard depth prescribed elsewhere in this Code, the required depth of the front yard on such lot shall be modified. In such case, the front yard depth shall not be less than the average depth, nor more than the greater depth, of existing front yards on at least two (2) adjoining lots within one hundred and fifty (150) feet. In the case of a corner lot, the depth of the front yard may be reduced to that of the lot immediately adjoining, provided, however, that the depth of a front yard on any corner lot shall be at least ten (10) feet.

Response: No setback modifications are requested under the provisions of this section.

L. 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:[…]*

Response: No zoning text amendments are proposed. This procedure is not applicable.

(.02) *The following procedures shall be followed for zone map amendments. :*

Response: An amendment to the zoning map is proposed as part of this project. Therefore, the criteria in this section apply.

[…]

(C) 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 [Amended by Ord 557, adopted 9/5/03]*

Response: The zone map amendment is being requested concurrent with a Planned Development. The application has been submitted in accordance with the procedures set forth in Section 4.140. This criterion is met.

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 Comprehensive Plan map designation for the Frog Pond Terrace site is Residential Neighborhood RN, which is implemented by the requested Residential Neighborhood RN zone.

The applicable goals, policies, and objectives of the Comprehensive Plan text are addressed in Section III of this narrative. This criterion is met.

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: The Frog Pond Terrace site is designated “Residential” on the City’s Comprehensive Plan Map. Compliance with Implementation Measures 4.1.4.b, d, e, q, and x is addressed in Section III of this narrative. This criterion is met.

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: As addressed elsewhere in this narrative, the development will extend roads and sidewalks, water, sewer, and storm sewer to serve the proposed development. This criterion is met.

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 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 site contains SROZ area associated with Boeckman Creek. The site has been designed to minimize impacts to the SROZ area and no non-exempt activities are proposed within the SROZ. This application includes an exemption request and an SROZ map verification, which is addressed in the responses to Section 4.139 in this narrative. This criterion is met.

6. *That the applicant is committed to a development schedule demonstrating that development of the property is reasonably expected to commence within two (2) years of the initial approval of the zone change; and*

Response: The zone change request is being submitted concurrently with a planned development, subdivision, and site plan review application. The applicant is committed to develop the property as soon as these applications and related site development permits are approved, which is expected to occur by fall 2022. This criterion is met.

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.*

Response: The proposed development and use is for single-family residential in accordance with the Frog Pond West Master Plan. Compliance with the applicable development standards of the RN zone is addressed Section IV of this narrative.

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).*

Response: Adequate public facilities, services, and transportation networks are in place, or are planned to be provided concurrently with the proposed development. The development will extend sewer and water infrastructure into the development from existing lines in Frog Pond Lane, Woodbury Loop, and Brisband Street, and will provide storm drainage facilities to serve the development. See Sheet P4.00 and Appendix B Preliminary Drainage Report.

DKS, the City's traffic engineer, determined that a full Traffic Impact Analysis was not required for this development due to the small number of dwelling units proposed. See Appendix D for a traffic impact memo. Compliance with the TPR is included in the Frog Pond Area Plan and assumes full development of the Frog Pond area. The Frog Pond Area Plan determined that the anticipated development within Frog Pond would comply with the TPR with the addition of a traffic signal at the intersection of Stafford Road and Frog Pond Lane.

This criterion is met.

(.03) *If affirmative findings cannot be made for all applicable criteria listed above the Planning Commission or Development Review Board shall recommend that the proposed text or map amendment, as the case may be, be denied.*

(.04) *City Council action approving a change in zoning shall be in the form of a Zoning Order.*

(.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 proposed development meets the applicable criteria as described above.

VI. Land Divisions

A. Section 4.210. Application Procedure.

(.01) ***Pre-application conference.*** *Prior to submission of a tentative condominium, partition, or subdivision plat, a person proposing to divide land in the City shall contact the Planning Department to arrange a pre-application conference as set forth in Section 4.010.*

A. Preparation of Tentative Plat. The Planning staff shall provide information regarding procedures and general information having a direct influence on the proposed development, such as elements of the Comprehensive Plan, existing and proposed streets, roads and public utilities. The applicant shall cause to be prepared a tentative plat, together with improvement plans and other supplementary material as specified in this Section. The Tentative Plat shall be prepared by an Oregon licensed professional land surveyor or engineer. An affidavit of the services of such surveyor or engineer shall be furnished as part of the submittal.

B. Tentative Plat Submission. The purpose of the Tentative Plat is to present a study of the proposed subdivision to the Planning Department and Development Review Board and to receive approval or recommendations for revisions before preparation of a final Plat. The design and layout of this plan plat shall meet the guidelines and requirements set forth in this Code. The Tentative Plat shall be submitted to the Planning Department with the following information:

1. *Site development application form completed and signed by the owner of the land or a letter of authorization signed by the owner. A preliminary title report or other proof of ownership is to be included with the application form.*
2. *Application fees as established by resolution of the City Council.*
3. *Ten (10) copies and one (1) sepia or suitable reproducible tracing of the Tentative Plat shall be submitted with the application. Paper size shall be eighteen inch (18") by twenty-four inch (24"), or such other size as may be specified by the City Engineer.*
4. *Name of the subdivision. No subdivision name shall duplicate or resemble the name of any other subdivision in Clackamas or Washington County. Names may be checked through the county offices.*
5. *Names, addresses, and telephone numbers of the owners and applicants, and engineer or surveyor.*
6. *Date, north point and scale of drawing.*
7. *Location of the subject property by Section, Township, and Range.*
8. *Legal road access to subject property shall be indicated as City, County, or other public roads.*
9. *Vicinity map showing the relationship to the nearest major highway or street.*
10. *Lots: Dimensions of all lots, minimum lot size, average lot size, and proposed lot and block numbers.*
11. *Gross acreage in proposed plat.*
12. *Proposed uses of the property, including sites, if any, for multi-family dwellings, shopping centers, churches, industries, parks, and playgrounds or other public or semi-public uses.*
13. *Improvements: Statement of the improvements to be made or installed including streets, private drives, sidewalks, lighting, tree planting, and times such improvements are to be made or completed. [Amended by Ord. 682, 9/9/10]*
14. *Trees. Locations, types, sizes, and general conditions of all existing trees, as required in Section 4.600.*
15. *Utilities such as electrical, gas, telephone, on and abutting the tract.*
16. *Easements: Approximate width, location, and purpose of all existing and proposed easements on, and known easements abutting the tract.*
17. *Deed Restrictions: Outline of proposed deed restrictions, if any.*
18. *Written Statement: Information which is not practical to be shown on the maps may be shown in separate statements accompanying the Tentative Plat.*
19. *If the subdivision is to be a "Planned Development," a copy of the proposed Home Owners Association By-Laws must be submitted at the time of submission of the*

application. The Tentative Plat shall be considered as the Stage I Preliminary Plan. The proposed By-Laws must address the maintenance of any parks, common areas, or facilities.

20. *Any plat bordering a stream or river shall indicate areas subject to flooding and shall comply with the provisions of Section 4.172.*
21. *Proposed use or treatment of any property designated as open space by the City of Wilsonville.*
22. *A list of the names and addresses of the owners of all properties within 250 feet of the subject property, printed on self-adhesive mailing labels. The list shall be taken from the latest available property ownership records of the Assessor's office of the affected county.*
23. *A completed "liens and assessments" form, provided by the City Finance Department.*
24. *Locations of all areas designated as a Significant Resource Overlay Zone by the City, as well as any wetlands shall be shown on the tentative plat.*
25. *Locations of all existing and proposed utilities, including but not limited to domestic water, sanitary sewer, storm drainage, and any private utilities crossing or intended to serve the site. Any plans to phase the construction or use of utilities shall be indicated. [Amended by Ord. 682, 9/9/10]*
26. *A traffic study, prepared under contract with the City, shall be submitted as part of the tentative plat application process, unless specifically waived by the Community Development Director.*

C. *Action on proposed tentative plat:*
[…]

D. *Land division phases to be shown. Where the applicant intends to develop the land in phases, the schedule of such phasing shall be presented for review at the time of the tentative plat. In acting on an application for tentative plat approval, the Planning Director or Development Review Board may set time limits for the completion of the phasing schedule which, if not met, shall result in an expiration of the tentative plat approval.*

E. *Remainder tracts to be shown as lots or parcels. Tentative plats shall clearly show all affected property as part of the application for land division. All remainder tracts, regardless of size, shall be shown and counted among the parcels or lots of the division.*

[…]

Response: A Subdivision is requested to create the lots proposed by the Planned Development. The information described above is included with this submittal. A Preliminary Plat is included as Sheet 3.00; a Preliminary Utility Plan is included as Sheet P4.00; a Tree Removal and Protection Plan is included as Sheet L1.00; Preliminary Street Cross-Sections are included as Sheet P2.10; a traffic memo is included as Appendix D; and draft Homeowner Association Bylaws and CC&Rs are included as Appendix G.

B. Section 4.236. General Requirements – Streets.

(.01) *Conformity to the Transportation System Plan. Land divisions shall conform to and be in harmony with the Transportation Systems Plan, the Bicycle and Pedestrian Master Plan, and the Parks and Recreation Master Plan.*

Response: As confirmed by the traffic impact memo prepared by DKS, the proposed street plan conforms to the Transportation System Plan and the Frog Pond West Master Plan.

The Bicycle and Pedestrian Master Plan shows a general alignment for the Boeckman Creek Trail through the subject site. As shown on Sheet P2.00, this project will include a segment of the Boeckman Creek Trail consistent with the Bicycle and Pedestrian Master Plan and the Frog Pond West Master Plan.

This project also includes a proposed Trailhead Park that will provide public access to the Boeckman Creek Trail, consistent with the Parks and Recreation Master Plan and Frog Pond West Master Plan.

The City can find that this standard is met.

(.02) Relation to Adjoining Street System.

A. A land division shall provide for the continuation of the principal streets existing in the adjoining area, or of their proper projection when adjoining property is not developed, and shall be of a width not less than the minimum requirements for streets set forth in these regulations. Where, in the opinion of the Planning Director or Development Review Board, topographic conditions make such continuation or conformity impractical, an exception may be made. In cases where the Board or Planning Commission has adopted a plan or plat of a neighborhood or area of which the proposed land division is a part, the subdivision shall conform to such adopted neighborhood or area plan.

B. Where the plat submitted covers only a part of the applicant's tract, a sketch of the prospective future street system of the unsubmitted part shall be furnished and the street system of the part submitted shall be considered in the light of adjustments and connections with the street system of the part not submitted.

C. At any time when an applicant proposes a land division and the Comprehensive Plan would allow for the proposed lots to be further divided, the city may require an arrangement of lots and streets such as to permit a later resubdivision in conformity to the street plans and other requirements specified in these regulations.

Response: As shown in Sheet P8.00, the proposed street network is designed for future continuation per the Frog Pond West Master Plan. These standards are met.

(.03) *All streets shall conform to the standards set forth in Section 4.177 and the block size requirements of the zone.*

Response: The standards of Section 4.177 are addressed in Section V of this narrative. These standards are met.

(.04) Creation of Easements: *The Planning Director or Development Review Board may approve an easement to be established without full compliance with these regulations, provided such an easement is the only reasonable method by which a portion of a lot large enough to allow partitioning into two (2) parcels may be provided with vehicular access and adequate utilities. If the proposed lot is large enough to divide into more than two (2) parcels, a street dedication may be required. [Amended by Ord. 682, 9/9/10]*

Response: No street easements are proposed. This standard is not applicable.

(.05) Topography: *The layout of streets shall give suitable recognition to surrounding topographical conditions in accordance with the purpose of these regulations.*

Response: The street layout recognizes topographical conditions, specifically slopes to the west toward the creek. This standard is met.

(.06) Reserve Strips: *The Planning Director or Development Review Board may require the applicant to create a reserve strip controlling the access to a street. Said strip is to be placed under the jurisdiction of the City Council, when the Director or Board determine that a strip is necessary:*

A. To prevent access to abutting land at the end of a street in order to assure the proper extension of the street pattern and the orderly development of land lying beyond the street; or

B. To prevent access to the side of a street on the side where additional width is required to meet the right-of-way standards established by the City; or

C. To prevent access to land abutting a street of the land division but not within the tract or parcel of land being divided; or

D. To prevent access to land unsuitable for building development.

Response: No reserve strip is proposed. The applicant acknowledges that the DRB may require that the applicant create a reserve strip.

(.07) Future Expansion of Street: *When necessary to give access to, or permit a satisfactory future division of, adjoining land, streets shall be extended to the boundary of the land division and the resulting dead-end street may be approved without a turn-around. Reserve strips and street plugs*

shall be required to preserve the objective of street extension. Notification that the street is planned for future extension shall be posted on the stub street. [Amended by Ord. #719, 6/17/13]

Response: Street B will be extended to the east with future development and Woodbury Loop will extend north-south through the site and will connect to the east. Due to the natural resource area at the western edge of the site, the street network is not planned to extend further west and no dead-ends or turnarounds are proposed.

(.08) ***Existing Streets:*** *Whenever existing streets adjacent to or within a tract are of inadequate width, additional right-of-way shall conform to the designated width in this Code or in the Transportation Systems Plan.*

Response: The project will dedicate 20 ft. of additional right-of-way along Brisband Street, which is adjacent to the southern site boundary. No right-of-way dedication or improvements are proposed for Frog Pond Lane to the north.

(.09) ***Street Names:*** *No street names will be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and numbers shall conform to the established name system in the City, and shall be subject to the approval of the City Engineer.*

Response: Brisband Lane, Frog Pond Lane, and Woodbury Loop have been established by previous development applications. Street B will conform to the City's established name system and will be subject to approval by the City Engineer. This standard is met.

C. Section 4.237. General Requirements – Other.

(.01) ***Blocks:***

A. The length, width, and shape of blocks shall be designed with due regard to providing adequate building sites for the use contemplated, consideration of needs for convenient access, circulation, control, and safety of pedestrian, bicycle, and motor vehicle traffic, and recognition of limitations and opportunities of topography.

B. Sizes: Blocks shall not exceed the sizes and lengths specified for the zone in which they are located unless topographical conditions or other physical constraints necessitate larger blocks. Larger blocks shall only be approved where specific findings are made justifying the size, shape, and configuration.

Response: The length, width, and shape of blocks have been designed to accommodate the development established by the Frog Pond West Master Plan and to comply with the standards of Section 4.177. These standards are addressed in Section V.H of this narrative. The site is designated as RN and has R7 and R10 zoning; it is also subject to the block, access, and connectivity standards of Section 4.127(.10). Those standards are addressed in Section IV.E of this narrative. These standards are met.

(.02) ***Easements:***

A. Utility lines. Easements for sanitary or storm sewers, drainage, water mains, electrical lines or other public utilities shall be dedicated wherever necessary. Easements shall be provided consistent with the City's Public Works Standards, as specified by the City Engineer or Planning Director. All of the public utility lines within and adjacent to the site shall be installed within the public right-of-way or easement; with underground services extending to the private parcel constructed in conformance to the City's Public Works Standards. All franchise utilities shall be installed within a public utility easement. All utilities shall have appropriate easements for construction and maintenance purposes. [Amended by Ord. 682, 9/9/10]

B. Water courses. Where a land division is traversed by a water course, drainage way, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of the water course, and such further width as will be adequate for the purposes of conveying storm water and allowing for maintenance of the facility or channel. Streets or parkways parallel to water courses may be required.

Response: Generally, public utilities are proposed to be placed within public rights-of-way or within public utility easements (PUE) adjacent to the public streets. A proposed stormwater conveyance and facility is proposed within Tract A west of Lots 1-4, and an easement is proposed in this location. A 15-ft. storm conveyance easement is proposed over the stormwater outfall within Tract A.

(.03) ***Pedestrian and bicycle pathways.*** *An improved public pathway shall be required to transverse the block near its middle if that block exceeds the length standards of the zone in which it is located.*

A. Pathways shall be required to connect to cul-de-sacs or to pass through unusually shaped blocks.

B. Pathways required by this subsection shall have a minimum width of ten (10) feet unless they are found to be unnecessary for bicycle traffic, in which case they are to have a minimum width of six (6) feet.

Response: Per Section 4.124(.06), the maximum block length for new Planned Development land divisions is 330 ft. The blocks that will be created by this proposal are all less than 330 ft. The proposed Boeckman Creek Trail is between 10 ft. and 15 ft. in width. Though not required by this section, the trail meets the dimensional standards of this section.

(.04) ***Tree planting.*** *Tree planting plans for a land division must be submitted to the Planning Director and receive the approval of the Director or Development Review Board before the planting is begun. Easements or other documents shall be provided, guaranteeing the City the right to enter the site and plant, remove, or maintain approved street trees that are located on private property.*

Response: Tree planting plans are included as Sheet L2.00. Proposed street trees are located within public rights-of-way. This standard is met.

(.05) ***Lot Size and shape.*** *The lot size, width, shape and orientation shall be appropriate for the location of the land division and for the type of development and use contemplated. Lots shall meet the requirements of the zone where they are located.*

A. In areas that are not served by public sewer, an on-site sewage disposal permit is required from the City. If the soil structure is adverse to on-site sewage disposal, no development shall be permitted until sewer service can be provided.

B. Where property is zoned or deeded for business or industrial use, other lot widths and areas may be permitted at the discretion of the Development Review Board. Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.

C. In approving an application for a Planned Development, the Development Review Board may waive the requirements of this section and lot size, shape, and density shall conform to the Planned Development conditions of approval.

Response: The site is served by public sewer, and no on-site sewage disposal is proposed. The property is zoned for residential purposes and is subject to an application for a Planned Development. The site is located within the RN designation and is subject to the RN standards. As shown on Sheet P3.00, the proposed lots meet the dimensional standards of the RN zone and the R-7 and R-10 sub-districts. These standards are met.

(.06) ***Access.*** *The division of land shall be such that each lot shall have a minimum frontage on a street or private drive, as specified in the standards of the relative zoning districts. This minimum frontage requirement shall apply with the following exceptions:*

A. A lot on the outer radius of a curved street or tract with a private drive, or facing the circular end of a cul-de-sac shall have frontage of not less than twenty-five (25) feet upon a street or tract with a private drive, measured on the arc.

B. The Development Review Board may waive lot frontage requirements where in its judgment the waiver of frontage requirements will not have the effect of nullifying the intent and purpose of this regulation or if the Board determines that another standard is appropriate because of the characteristics of the overall development.

Response: The minimum lot width in the RN zone/R-7 subdistrict is 35 ft; and the minimum lot width in the RN zone/R-10 subdistrict is 40 ft. As detailed in the response to Section 4.127 and shown on Sheet P3.00, each lot has frontage of at least 40 ft. on a public street with the exception of Lot 19, which is a flag lot with 20 ft. of frontage. These standards are met.

(.07) Through lots. *Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries or adjacent non-residential activity or to overcome specific disadvantages of topography and orientation. A planting screen easement of at least ten (10) feet, across which there shall be no access, may be required along the line of lots abutting such a traffic artery or other disadvantageous use. Through lots with planting screens shall have a minimum average depth of one hundred (100) feet. The Development Review Board may require assurance that such screened areas be maintained as specified in Section 4.176.*

Response: No through lots are proposed with this subdivision. This standard is not applicable.

(.08) Lot side lines. *The side lines of lots, as far as practicable for the purpose of the proposed development, shall run at right angles to the street or tract with a private drive upon which the lots face. [Amended by Ord. 682, 9/9/10]*

Response: All side lot lines run at right angles to the street or the tract upon which they face as far as practicable. Due to the site topography and the location of the SROZ on site, some lots have side lot lines that are not at right angles to the street.

(.09) Large lot land divisions. *In dividing tracts which at some future time are likely to be re-divided, the location of lot lines and other details of the layout shall be such that re-division may readily take place without violating the requirements of these regulations and without interfering with the orderly development of streets. Restriction of buildings within future street locations shall be made a matter of record if the Development Review Board considers it necessary.*

Response: No future development tracts are proposed.

(.10) Building line. *The Planning Director or Development Review Board may establish special building setbacks to allow for the future redivision or other development of the property or for other reasons specified in the findings supporting the decision. If special building setback lines are established for the land division, they shall be shown on the final plat.*

Response: No special building setbacks are proposed.

(.11) Build-to line. *The Planning Director or Development Review Board may establish special build to lines for the development, as specified in the findings and conditions of approval for the decision. If special build-to lines are established for the land division, they shall be shown on the final plat.*

Response: There is no maximum setback in the RN zones, and no build-to-lines are proposed.

(.12) Land for public purposes. *The Planning Director or Development Review Board may require property to be reserved for public acquisition, or irrevocably offered for dedication, for a specified period of time.*

Response: The City is in discussion with the applicant regarding the final acquisition or dedication of the trailhead park. The final disposition of the park will be determined during the land use review process.

(.13) Corner lots. *Lots on street intersections shall have a corner radius of not less than ten (10) feet.*

Response: As shown on Sheet P3.00, lots on street intersections have corner radii of at least 20 ft. This standard is met.

D. Section 4.262. Improvements – Requirements.

(.01) Streets. *Streets within or partially within the development shall be graded for the entire right-of-way width, constructed and surfaced in accordance with the Transportation Systems Plan and*

City Public Works Standards. Existing streets which abut the development shall be graded, constructed, reconstructed, surfaced or repaired as determined by the City Engineer.

(.02) ***Curbs.*** *Curbs shall be constructed in accordance with standards adopted by the City.*

(.03) ***Sidewalks.*** *Sidewalks shall be constructed in accordance with standards adopted by the City.*

Response: As shown on Sheet P2.10, streets will be graded, constructed, and surfaced according to the TSP, the cross-sections incorporated into the Frog Pond West Master Plan, and the City's Public Works Standards as modified by the City Engineer. These standards are met.

(.04) ***Sanitary sewers.*** *When the development is within two hundred (200) feet of an existing public sewer main, sanitary sewers shall be installed to serve each lot or parcel in accordance with standards adopted by the City. When the development is more than two hundred (200) feet from an existing public sewer main, the City Engineer may approve an alternate sewage disposal system.*

(.05) ***Drainage.*** *Storm drainage, including detention or retention systems, shall be provided as determined by the City Engineer.*

Response: The proposed development will be served by public sanitary sewer. Storm drainage systems are being provided as outlined in the City's Site Assessment and Planning standards. LIDA facilities are proposed within the Frog Pond Ln street frontage.

See Sheet P2.00 for the location of LIDA facilities within planter strips and Sheet P4.00 for the location of stormwater facilities within Tract A. See Sheet L2.20 for details of the LIDA facility plantings; and see Appendix B for the Preliminary Drainage Plan.

(.06) ***Underground utility and service facilities.*** *All new utilities shall be subject to the standards of Section 4.300 (Underground Utilities). The developer shall make all necessary arrangements with the serving utility to provide the underground services in conformance with the City's Public Works Standards.*

Response: The standards of Section 4.300 are addressed in Section VII of this narrative. These standards are met.

(.07) ***Streetlight standards.*** *Streetlight standards shall be installed in accordance with regulations adopted by the City.*

Response: Streetlights will be installed per the Frog Pond West Master Plan and regulations adopted by the City. Figure 42 of the Frog Pond West Master Plan identifies the streets within the development site as Local Streets. The Master Plan calls for the use of the Philips Hadco LED Westbrooke fixture for local streets.

(.08) ***Street signs.*** *Street name signs shall be installed at all street intersections and dead-end signs at the entrance to all dead-end streets and cul-de-sacs in accordance with standards adopted by the City. Other signs may be required by the City Engineer.*

Response: Street signs will be installed per City standards.

(.09) ***Monuments.*** *Monuments shall be placed at all lot and block corners, angle points, points of curves in streets, at intermediate points and shall be of such material, size and length as required by State Law. Any monuments that are disturbed before all improvements are completed by the developer and accepted by the City shall be replaced to conform to the requirements of State Law.*

Response: Monuments will be placed per State, Clackamas County, and City requirements.

(.10) ***Water.*** *Water mains and fire hydrants shall be installed to serve each lot in accordance with City standards.*

Response: Water mains and fire hydrants are proposed to serve each lot in accordance with City and Fire Department standards. See Sheet P4.00.

VII. Underground Utilities

A. Section 4.300. General.

(.01) *The City Council deems it reasonable and necessary in order to accomplish the orderly and desirable development of land within the corporate limits of the City, to require the underground installation of utilities in all new developments.*

(.02) *After the effective date of this Code, the approval of any development of land within the City will be upon the express condition that all new utility lines, including but not limited to those required for power, communication, street lighting, gas, cable television services and related facilities, shall be placed underground.*

(.03) *The construction of underground utilities shall be subject to the City's Public Works Standards and shall meet applicable requirements for erosion control and other environmental protection.*

Response: The proposed development is subject to the requirements of this section.

B. Section 4.320. Requirements.

(.01) *The developer or subdivider shall be responsible for and make all necessary arrangements with the serving utility to provide the underground services (including cost of rearranging any existing overhead facilities). All such underground facilities as described shall be constructed in compliance with the rules and regulations of the Public Utility Commission of the State of Oregon relating to the installation and safety of underground lines, plant, system, equipment and apparatus.*

(.02) *The location of the buried facilities shall conform to standards supplied to the subdivider by the City. The City also reserves the right to approve location of all surface-mounted transformers.*

(.03) *Interior easements (back lot lines) will only be used for storm or sanitary sewers, and front easements will be used for other utilities unless different locations are approved by the City Engineer. Easements satisfactory to the serving utilities shall be provided by the developer and shall be set forth on the plat.*

Response: New utilities will be installed underground in accordance with City and other agency requirements. These standards are met.

VIII. Site Design Review

A. Section 4.400. Purpose.

(.01) *Excessive uniformity, inappropriateness or poor design of the exterior appearance of structures and signs and the lack of proper attention to site development and landscaping in the business, commercial, industrial and certain residential areas of the City hinders the harmonious development of the City, impairs the desirability of residence, investment or occupation in the City, limits the opportunity to attain the optimum use in value and improvements, adversely affects the stability and value of property, produces degeneration of property in such areas and with attendant deterioration of conditions affecting the peace, health and welfare, and destroys a proper relationship between the taxable value of property and the cost of municipal services therefor.*

(.02) *The City Council declares that the purposes and objectives of site development requirements and the site design review procedure are to:*

A. Assure that Site Development Plans are designed in a manner that insures proper functioning of the site and maintains a high quality visual environment.

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

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

D. Conserve the City's natural beauty and visual character and charm by assuring that structures, signs and other improvements are properly related to their sites, and to surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to exterior appearances of structures, signs and other improvements;

E. Protect and enhance the City's appeal and thus support and stimulate business and industry and promote the desirability of investment and occupancy in business, commercial and industrial purposes;

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

G. Insure that adequate public facilities are available to serve development as it occurs and that proper attention is given to site planning and development so as to not adversely impact the orderly, efficient and economic provision of public facilities and services.

H. Achieve the beneficial influence of pleasant environments for living and working on behavioral patterns and, thus, decrease the cost of governmental services and reduce opportunities for crime through careful consideration of physical design and site layout under defensible space guidelines that clearly define all areas as either public, semi-private, or private, provide clear identity of structures and opportunities for easy surveillance of the site that maximize resident control of behavior -- particularly crime;

I. Foster civic pride and community spirit so as to improve the quality and quantity of citizen participation in local government and in community growth, change and improvements;

J. Sustain the comfort, health, tranquility and contentment of residents and attract new residents by reason of the City's favorable environment and, thus, to promote and protect the peace, health and welfare of the City.

Response: The City Council adopted the Frog Pond West Master Plan to guide development in this area. The Master Plan addresses visual appeal, infrastructure provisions, and protection of the natural areas within the development site. The proposed development is intended to advance the vision for Frog Pond West by incorporating the natural areas on site, providing attractive streetscapes, and enhancing the existing neighborhood. The intent of this purpose statement is incorporated into the proposed site design.

Per City staff, the project elements subject to the standards of this section include: tracts and their landscaping; landscaping in the public right-of-way; retaining walls; and public furnishings.

B. Section 4.421. Criteria and Application of Design Standards.

(.01) *The following standards shall be utilized by the Board in reviewing the plans, drawings, sketches and other documents required for Site Design Review. These standards are intended to provide a frame of reference for the applicant in the development of site and building plans as well as a method of review for the Board. These standards shall not be regarded as inflexible requirements. They are not intended to discourage creativity, invention and innovation. The specifications of one or more particular architectural styles is not included in these standards. (Even in the Boones Ferry Overlay Zone, a range of architectural styles will be encouraged.)*

A. Preservation of Landscape. The landscape shall be preserved in its natural state, insofar as practicable, by minimizing tree and soils removal, and any grade changes shall be in keeping with the general appearance of neighboring developed areas.

Response: As shown on Sheet L1.00, trees within the SROZ area on the site will be preserved. As shown on Sheet P5.00, the remainder of the site will need to be graded to extend utilities and to accommodate the stormwater facility.

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: Four structures are proposed within the trailhead park within Tract A: two picnic tables and two benches. No buildings are proposed with this application. A chain link fence is proposed around the stormwater facility in Tract A. No buildings are proposed with this application. The chain link fence around the stormwater facility is intended to provide protection for the public. See Sheet L2.30 for details.

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: The drives, parking, and circulation within the development is subject to the requirements of the RN Zone, the Planned Development overlay, and Land Division requirements. The parking to serve single-family dwellings will be provided on site. Pedestrian and vehicular traffic is separated vertically by curbs. These standards are met.

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: See Sheet P2.00 for the location of LIDA facilities within the planter strips of the public streets and Sheet P4.00 for the location of stormwater facilities within Tract B. See Sheet L2.20 for details of LIDA facility planting; and see Appendix B for the Preliminary Drainage Plan.

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: As shown on Sheet P4.00, each lot will be served by a sanitary sewer line. Storm sewage disposal is provided by a storm drain system connecting to each on-site stormwater facility. Above ground utilities will be limited to electrical vaults if required by PGE. This standard is met.

F. Advertising Features. In addition to the requirements of the City's sign regulations, the following criteria should be included: the size, location, design, color, texture, lighting and materials of all exterior signs and outdoor advertising structures or features shall not detract from the design of proposed buildings and structures and the surrounding properties.

Response: No signs or outdoor advertising structures or features are proposed with this application. This standard is not applicable.

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: The proposed development is a single-family residential development, and no storage areas, machinery installations, surface areas, truck loading areas, or utility buildings or structures are proposed. This standard is not applicable.

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

Response: Four structures are proposed within the trailhead park within Tract A: two picnic tables and two benches. No buildings are proposed with this application. See Sheet L2.10 for details. Applicable standards have been addressed above.

(.03) *The Board shall also be guided by the purpose of Section 4.400, and such objectives shall serve as additional criteria and standards.*

Response: The purpose of Section 4.400 is addressed earlier in this section. This standard is met.

(.04) *Conditional application. The Planning Director, Planning Commission, Development Review Board or City Council may, as a Condition of Approval for a zone change, subdivision, land partition, variance, conditional use, or other land use action, require conformance to the site development standards set forth in this Section.*

Response: This application includes a zone change and planned development, among other applications, and includes responses to the site development standards of those sections. Per City staff, the project elements subject to Site Design Review and the standards of this chapter are: tracts and their landscaping; and landscaping in the public right-of-way.

(.05) *The Board may attach certain development or use conditions in granting an approval that are determined necessary to insure the proper and efficient functioning of the development, consistent with the intent of the Comprehensive Plan, allowed densities and the requirements of this Code. In making this determination of compliance and attaching conditions, the Board shall, however, consider the effects of this action on the availability and cost of needed housing. The provisions of this section shall not be used in such a manner that additional conditions either singularly or accumulatively have the effect of unnecessarily increasing the cost of housing or effectively excluding a needed housing type.*

Response: The development has been designed in accordance with the Frog Pond West Master Plan, which is part of, and consistent with, the Comprehensive Plan. The proposed development plan is consistent with the densities and other requirements established by the Frog Pond West Master Plan and the implementing RN zone. No additional conditions are needed to ensure that the development remains consistent with the City's adopted policies.

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

A. Where the conditions of approval for a development permit specify that certain paints or colors of materials be used, the use of those paints or colors shall be binding upon the applicant. No Certificate of Occupancy shall be granted until compliance with such conditions has been verified.

B. Subsequent changes to the color of a structure shall not be subject to City review unless the conditions of approval under which the original colors were set included a condition requiring a subsequent review before the colors could be changed.

Response: The proposed development is detached single-family residential development and two tracts. No paints or colors of materials are identified in the design standards of the Frog Pond West Master Plan. It is anticipated that building elevations, including paint and material colors, will be evaluated at the time of building permit review.

C. Section 4.440. Procedure.

(.01) ***Submission of Documents.*** *A prospective applicant for a building or other permit who is subject to site design review shall submit to the Planning Department, in addition to the requirements of Section 4.035, the following:*

A. A site plan, drawn to scale, showing the proposed layout of all structures and other improvements including, where appropriate, driveways, pedestrian walks, landscaped areas, fences, walls, off-street parking and loading areas, and railroad tracks. The site plan shall indicate the location of entrances and exits and direction of traffic flow into and out of off-

street parking and loading areas, the location of each parking space and each loading berth and areas of turning and maneuvering vehicles. The site plan shall indicate how utility service and drainage are to be provided.

Response: Sheet P2.00 shows the proposed layout of improvements, driveways, pedestrian walks, fences, and walls. Sheets L2.00 – L3.00 show landscaped areas and details.

B. A Landscape Plan, drawn to scale, showing the location and design of landscaped areas, the variety and sizes of trees and plant materials to be planted on the site, the location and design of landscaped areas, the varieties, by scientific and common name, and sizes of trees and plant materials to be retained or planted on the site, other pertinent landscape features, and irrigation systems required to maintain trees and plant materials. An inventory, drawn at the same scale as the Site Plan, of existing trees of 4" caliper or more is required. However, when large areas of trees are proposed to be retained undisturbed, only a survey identifying the location and size of all perimeter trees in the mass in necessary.

Response: Sheet L1.00 provides an inventory of existing trees. Sheets L2.00– L2.30 shows landscaped areas and landscape schedules and Sheet L3.00 shows planting details.

C. Architectural drawings or sketches, drawn to scale, including floor plans, in sufficient detail to permit computation of yard requirements and showing all elevations of the proposed structures and other improvements as they will appear on completion of construction. Floor plans shall also be provided in sufficient detail to permit computation of yard requirements based on the relationship of indoor versus outdoor living area, and to evaluate the floor plan's effect on the exterior design of the building through the placement and configuration of windows and doors.

Response: Example building elevations are included as Appendix H. Compliance with these standards will be evaluated at the time of building permit review.

D. A Color Board displaying specifications as to type, color, and texture of exterior surfaces of proposed structures. Also, a phased development schedule if the development is constructed in stages.
E. A sign Plan, drawn to scale, showing the location, size, design, material, color and methods of illumination of all exterior signs.
F. The required application fee.

Response: A color board is not included, as exterior dwelling design will be evaluated at the time of building permit review. No signs are proposed at this time. The required application fee has been submitted with this application.

IX. Tree Preservation and Protection

A. 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: Upon annexation and at the time of development, the site will be located within City limits and this subchapter will be applicable.

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: As shown on Sheet L1.00 and described in Appendix E, the development will remove trees and a Tree Removal Permit is required.

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 thirty (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 is not listed as exempt. The provisions of this chapter are applicable.

Section 4.600.50. Application For Tree Removal Permit

(.01) ***Application for Permit.*** *A person seeking to remove one or more trees shall apply to the Director for a Tree Removal Permit for a Type A, B, C, or D permit, depending on the applicable standards as provided in this subchapter.*

A. An application for a tree removal permit that does not meet the requirements of Type A may be submitted as a Type B application.

(.02) ***Time of Application.*** *Application for a Tree Removal Permit shall be made before removing or transplanting trees, except in emergency situations as provided in WC 4.600.40 (1)(B) above. Where the site is proposed for development necessitating site plan or plat review, application for a Tree Removal Permit shall be made as part of the site development application as specified in this subchapter.*

(.03) *Fees. A person applying for a Tree Removal Permit shall pay a non-refundable application fee; as established by resolution of the City Council.*

A. By submission of an application, the applicant shall be deemed to have authorized City representatives to have access to applicant's property as may be needed to verify the information provided, to observe site conditions, and if a permit is granted, to verify that terms and conditions of the permit are followed.

Response: The site is proposed for development necessitating site plan and plat review, and this application includes a request for a Type C Tree Removal Permit. The application fee has been submitted with this application.

B. 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.

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 10 (ten) working days. Type B permit applications shall be reviewed by the Planning Director within thirty (30) calendar days, except that the DRB shall review any referred application within sixty (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.

Response: The application is for a Type C Tree Removal Permit and is subject to review and approval by the DRB.

[…]

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: The site contains SROZ area. No tree removal is planned within the proposed SROZ boundary.

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: As shown on Sheet L1.0, most of the trees to be removed are located within the grading limits of proposed streets and public utilities and within future building footprints. The locations of those streets were determined by the Frog Pond West Master Plan and the City's block length and perimeter standards. The remainder of the trees to be removed is located within the building footprint of the individual lots, as determined by minimum setbacks and driveway depth requirements. Two hundred and fifty (250) trees are located on site; 105 trees will be preserved on site.

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: The Frog Pond West Master Plan provides clear direction for street connections, residential densities, and preservation of the SROZ. The subject site contains mapped SROZ areas but does not contain designated tree groves.

D. Land Clearing. Where the proposed activity requires land clearing, the clearing shall be limited to designated street rights-of-way and areas necessary for the construction of buildings, structures or other site improvements.

Response: The proposed land clearing is limited to designated street rights-of-way and areas necessary for the construction of single-family homes. This standard is met.

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: The proposed project is for single-family residential development. The units will be designed and constructed, as much as possible, to blend into the natural areas on the site. This standard is met.

F. Compliance With Statutes and Ordinances. The proposed activity shall comply with all applicable statutes and ordinances.

Response: Applicable statutes and ordinances include the City's Development Code. The proposed activity will comply with this code and any other applicable statutes and ordinances. This standard is met.

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: As shown in Sheet L1.00 and described in Appendix E, trees to be retained will be protected per the provisions of 4.620.10 and trees will be replaced in accordance with 4.620.00.

Those provisions are addressed in the responses to Section 4.620.00 later in this narrative. This standard is met.

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: Per the arborist's report included as Appendix E, there are 250 trees on site. One hundred and five (105) of the trees are identified for protection on site. In total, 145 trees will be removed from the site.

Removal of the trees on site is necessary for construction of site improvements, including utilities, streets, and detached residential dwellings. The location of streets and connections was determined by the Frog Pond West Master Plan and the block perimeter requirements of the RN zone. In addition, the designation of the site as a single-family area requires the grading of each lot to accommodate single-family dwellings and associated site improvements (driveways and walkways, stormwater management, outdoor yard areas, etc.). Reducing building footprints by increasing height is not a viable alternative as the height limit in the RN zone is 35 ft., or 2.5 stories.

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.

(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: No filbert trees were identified. This standard is not applicable.

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: As shown on Sheet L1.00, many of the trees proposed for removal are located within the SW Frog Pond Lane right-of-way to be dedicated with the plat. The remainder are located along the western property line. The construction of SW Frog Pond Lane and associated sidewalks and utilities requires their removal. These trees cannot be preserved while providing the street network required by the Frog Pond West Master Plan and established by previous approvals.

4. Other. Where the applicant shows that tree removal or transplanting is reasonable under the circumstances.

Response: The proposed development is anticipated by the Frog Pond West Master Plan. While the development requires removal of trees on site, the trees removed will be mitigated, and street trees appropriate for the size and location of the planter strips within the public right-of-way will be planted. These trees will serve to soften the urban environment, contribute to stormwater management, and provide shade and protection for pedestrians.

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 has been completed and incorporated into the Tree Removal and Protection Plan includes as Sheet L1.00. This standard is met.

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: A tree survey has been completed and incorporated into the Tree Removal and Protection Plan included as Sheet L1.00. A Tree Maintenance and Protection Plan is included as Appendix E and Sheet L1.00.

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: The utilities will be located and placed within rights-of-way or adjacent PUEs whenever possible. Trees removed from the site will be mitigated and/or replaced per the provisions of 4.620.00. This standard is met.

[…]

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, and any plan changes made that affect trees after Stage II review of a development application shall be subject to review by DRB. Where mitigation is required for tree removal, such mitigation may be considered as part of the landscaping requirements as set forth in this Chapter. Tree removal shall not commence until approval of the required Stage II application and the expiration of the appeal period following that decision. If a decision approving a Type C permit is appealed, no trees shall be removed until the appeal has been settled.*

Response: The proposed development requires removal of trees; a landscaping plan has been submitted as part of the site development application, and the application includes a request for a Tree Removal Permit. Mitigation is required and addressed in the responses to Section 4.620.00.

(.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.*

Response: See Sheets P1.00 and P1.10 Existing Conditions for the location of existing structures and improvements; see Sheet 2.00 Preliminary Site Plan for the location of proposed improvements.

2. *Tree survey. The survey must include:*
    a. *An accurate drawing of the site based on accurate survey techniques at a minimum scale of one inch (1") equals one hundred feet (100') and which provides a) the location of all trees having six inches (6") or greater d.b.h. likely to be impacted, b) the spread of canopy of those trees, (c) the common and botanical name of those trees, and d) the approximate location and name of any other trees on the property.*
    b. *A description of the health and condition of all trees likely to be impacted on the site property. In addition, for trees in a present or proposed public street or road right-of-way that are described as unhealthy, the description shall include recommended actions to restore such trees to full health. Trees proposed to remain, to be transplanted or to be removed shall be so designated. All trees to remain on the site are to be designated with metal tags that are to remain in place throughout the development. Those tags shall be numbered, with the numbers keyed to the tree survey map that is provided with the application.*
    c. *Where a stand of twenty (20) or more contiguous trees exist on a site and the applicant does not propose to remove any of those trees, the required tree survey may be simplified to accurately show only the perimeter area of that stand of trees, including its drip line. Only those trees on the perimeter of the stand shall be tagged, as provided in "b," above.*
    d. *All Oregon white oaks, native yews, and any species listed by either the state or federal government as rare or endangered shall be shown in the tree survey.*

Response: See Sheet L1.00 for a tree survey indicating the location of trees greater than 6-in DBH. See Appendix E Tree Plan and Sheet L1.10 for information about the condition of the trees, crown diameter, and proposed action for each tree. One (1) Oregon white oak (Garry oak) tree was identified on the site and are shown on the tree survey; the tree will be protected.

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."*

Response: See Appendix E page 1 for a description of activities permitted and prohibited within the root protection zone of trees to be protected. See also the Tree Protection Detail and note on Sheet L1.00.

4. *Easements and Setbacks. Location and dimension of existing and proposed easements, as well as all setbacks required by existing zoning requirements.*

Response: See Sheet P2.00 Preliminary Site Plan for setbacks required by zoning requirements. See Sheet P3.00 for the location and dimensions of proposed easements.

5. *Grade Changes. Designation of grade changes proposed for the property that may impact trees.*

Response: Sheet L1.00 Tree Removal and Protection Plan includes proposed grading contours.

6. *Cost of Replacement. A cost estimate for the proposed tree replacement program with a detailed explanation including the number, size and species.*

Response: This estimate will be provided if/as required.

7. *Tree Identification. A statement that all trees being retained will be identified by numbered metal tags, as specified in subsection "A," above in addition to clear identification on construction documents.*

Response: The Tree Plan Legend on Sheet L1.00 includes a statement identifying the purpose of the tree tags.

C. Section 4.620.00. Tree Relocation, Mitigation, Or Replacement

(.01) ***Requirement Established.*** *A Type B or C Tree Removal Permit grantee shall replace or relocate each removed tree having six (6) inches or greater d.b.h. within one year of removal.*

(.02) ***Basis For Determining Replacement.*** *The permit grantee shall replace removed trees on abasis of one (1) tree replanted for each tree removed. All replacement trees must measure two inches (2") or more in diameter. Alternatively, the Planning Director or Development Review Board may require the permit grantee to replace removed trees on a per caliper inch basis, based on a finding that the large size of the trees being removed justifies an increase in the replacement trees required. Except, however, that the Planning Director or Development Review Board may allow the use of replacement Oregon white oaks and other uniquely valuable trees with a smaller diameter.*

Response: The proposed tree removal requires replacement of each tree having 6 inches or greater DBH within one year of removal. As noted on Sheet L1.00, 152 trees of 6 inches or greater DBH are proposed for removal. As shown and noted on Sheet L2.00, there are 31 street trees proposed on site and 72 trees proposed within Tract A, a total of 103 trees. Payment into the tree fund is reqested for 47 trees.

(.03) ***Replacement Tree Requirements.*** *A mitigation or replacement tree plan shall be reviewed by the City prior to planting and according to the standards of this subsection.*

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

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

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

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

Response: There are 103 replacement trees proposed, including street trees. The replacement street trees have been selected from the City's street tree list. Replacement trees will be maintained and replaced if they die within the two-year establishment period.

(.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.

Response: The tree replacement plan/landscaping plan is included as Sheet L2.00. Replacement trees consist of street trees and trees within Tract A. Trees will likely be planted on the individual dwelling lots at the time of site development but are not proposed to be included in the replacement tree plans. The standard is met.

(.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.

Response: There are 152 trees proposed for removal, and105 replacement trees proposed on site. Payment into the City Tree Fund is requested for 47 trees.

(.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: The applicant is not requesting an exception to the tree replacement requirement.

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. Right-of-Ways and Easements. Street right-of-way and utility easements may be cordoned by placing stakes a minimum of fifty (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: Sheet L1.00 and the Tree Plan included as Appendix E provide direction regarding the protection of trees on the site.

X. Annexations and Urban Growth Boundary Amendments

A. Section 4.700. Procedures Relating To The Processing Of Requests For Annexation And Urban Growth Boundary Amendments.

(.01) *The City of Wilsonville is located within the Portland Metropolitan Area, and is therefore subject to regional government requirements affecting changes to the city limits and changes to the Urban Growth Boundary (UGB) around Wilsonville. The City has the authority to annex properties as prescribed in State law, but the City's role in determining the UGB is primarily advisory to Metro, as provided in Oregon Revised Statutes. The following procedures will be used to aid the City Council in formulating recommendations to those regional entities. [Amended by Ordinance No. 538, 2/21/02.]*

A. Proponents of such changes shall provide the Planning Director with all necessary maps and written information to allow for review by city decision-makers. The Planning Director, after consultation with the City Attorney, will determine whether each given request is quasi-judicial or legislative in nature and will make the necessary arrangements for review based upon that determination.

Response: The applicant has provided the required information. The Planning Director has determined that the annexation request is subject to quasi-judicial review.

B. Written information submitted with each request shall include an analysis of the relationship between the proposal and the City's Comprehensive Plan, applicable statutes, as well as the Statewide Planning Goals and any officially adopted regional plan that may be applicable.

Response: See Section III of this narrative for a discussion of the relationship between the proposed annexation and the City's Comprehensive Plan.

XI. Conclusion

The request for the Frog Pond Terrace development and related approvals has been shown to be consistent with the applicable standards of the City of Wilsonville. West Hills Land Development LLC respectfully requests approval of the applications.

Appendix A

City of Wilsonville Annexation Petitions and Certifications

PETITION SIGNERS

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

SIGNATURE	PRINTED NAME	I AM A: *			PROPERTY ADDRESS	PROPERTY DESCRIPTION				PRECINCT #	DATE
		PO	RV	OV		LOT #	¼ SEC	T	R		
	Douglas E. George			X	7500 Frog Pond Lane	2801	31	W	12D	323	12-16-21
	Colleen R. George			X	7500 Frog Pond Lane	2801	31	W	12D	323	12-16-21

* PO =Property Owner
RV =Registered Voter
OV =Owner And Registered Voter

PETITION SIGNERS

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

SIGNATURE	PRINTED NAME	I AM A: *			PROPERTY ADDRESS	PROPERTY DESCRIPTION				PRECINCT #	DATE
		PO	RV	OV		LOT #	¼ SEC	T	R		
	Marchit Investments LLC. Donnie Martin			X	7480 SW Frog Pond Lane	2800	31	W	12D	323	

* PO =Property Owner
RV =Registered Voter

PETITION SIGNERS

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

SIGNATURE	PRINTED NAME	I AM A: *			PROPERTY ADDRESS	PROPERTY DESCRIPTION				PRECIN CT #	DATE
		PO	RV	OV		LOT #	¼ SEC	T	R		
	Debbie Martin			X	No Address	3500	31	W	12D	323	

* PO =Property Owner
RV =Registered Voter
OV =Owner And Registered Voter

CERTIFICATION OF REGISTERED VOTERS

I hereby certify that the attached petition contains the names of at least 50% of the electors registered in the territory proposed for annexation as described in the attached petition.

NAME Jennifer Wessels

TITLE Deputy Clerk

DEPARTMENT Elections

COUNTY OF Clackamas

DATE 2-3-2025

CERTIFIED COPY OF THE ORIGINAL
SHERRY HALL, COUNTY CLERK

BY: _____

CERTIFICATION OF LEGAL DESCRIPTION AND MAP

I hereby certify that the description of the property included within the attached petition (located on Assessor's Map 3S1W12D) has been checked by me and it is a true and exact description of the property under consideration, and the description corresponds to the attached map indicating the property under consideration.

NAME Andrew T Mehos

TITLE GIS Cartographer II

DEPARTMENT Assessment And Taxation

COUNTY OF Clackamas

DATE: 3 February 2022

EXHIBIT A

LEGAL DESCRIPTION for ANNEXATION

May 17, 2022 (Otak #20015)

Those properties described in Statutory Warranty Deed to Marchil Investments, LLC recorded February 6, 2006 as Document No. 2006-011023, in Quitclaim Deed to Donnie L. Martin recorded November 5, 2021 as Document No. 2021-098893, and in Statutory Bargain and Sale Deed to Douglas E. George and Colleen R. George, Trustees, recorded September 8, 2020 as Document No. 2020-073265, all of Clackamas County Records, together with portions of S.W. Frog Pond Lane, (County Road No. 2362), in the southeast quarter of Section 12, Township 3 South, Range 1 West, Willamette Meridian, Clackamas County, Oregon, more particularly described as follows:

BEGINNING at a 5/8 inch iron rod with yellow plastic cap marked “PIONEER DESIGN” found at the northwest corner of MORGAN FARM NO. 2, Plat No. 4610, Clackamas County Records which bears North 01°40’13” East along the east line of the southeast quarter of said section a distance of 858.59 feet, and North 88°36’41” West along the north line of said MORGAN FARM NO. 2 and the easterly extension thereof a distance of 3212.90 feet from the southeast corner of said section, said POINT OF BEGINNING being the southwest corner of said Marchil Investments property;

thence along the east lines of those properties described in deeds to William Z. Spring recorded June 1, 1985 recorded as Document No. 1985-019621, and to Jonathan A. and Laurie E. Clarke recorded June 2, 2015, as Document No. 2015-033122, both of Clackamas County Records, North 05°28'14" West a distance of 173.82 feet to a 2 inch by 2 inch H-beam survey monument found at an angle point in the east lines of said Document No. 2015-033122 property;

thence along the east line of said Clarke property, North 12°48'33" East a distance of 31.08 feet to a 5/8 inch iron rod found at the southeast corner of Partition Plat No. 1998-137, Clackamas County Records

thence along the east line of said Partition Plat, North 13°45'33" East a distance of 184.36 feet to a 5/8 inch iron rod with red plastic cap marked “CENTERLINE CONCEPTS” found at the southeast corner of Tract E, COPPER CREEK, Plat No. 4357, Clackamas County Records;

thence along the east lines of said Tract E through the following two courses:
North 13°21'42" East a distance of 219.83 feet to a 5/8 inch iron rod with yellow plastic cap marked “DE HASS ASSOC. INC.”,
and North 62°40’55” East a distance of 165.32 feet to a 5/8 inch iron rod with yellow plastic cap marked “DE HASS ASSOC. INC.” found at an angle point in the east lines of said Tract E;

thence along the east lines of said Tract E, of that property described deed to the City of Wilsonville recorded March 7, 1997 as Document No. 97-016880, Clackamas County Records, and of Tract R of CANYON CREEK MEADOWS recorded in Book 108, Page 16, Clackamas County Plat Records, North 50°52'05" East a distance of 278.16 feet to a point on the south right of way line of 33.00 foot wide S.W. Frog Pond Lane at the westerly terminus thereof;

thence along said westerly terminus of S.W. Frog Pond Lane (County Road No. 2362) also being a portion of the southeast line of said Tract R, North 50°52'05" East a distance of 50.77 feet to a point on the north right of way line of said S.W. Frog Pond Lane;

thence along said north right of way line, South 88°35'30" East a distance of 288.75 feet;

thence South 01°24'30" West a distance of 33.00 feet to a point on said south right of way line;

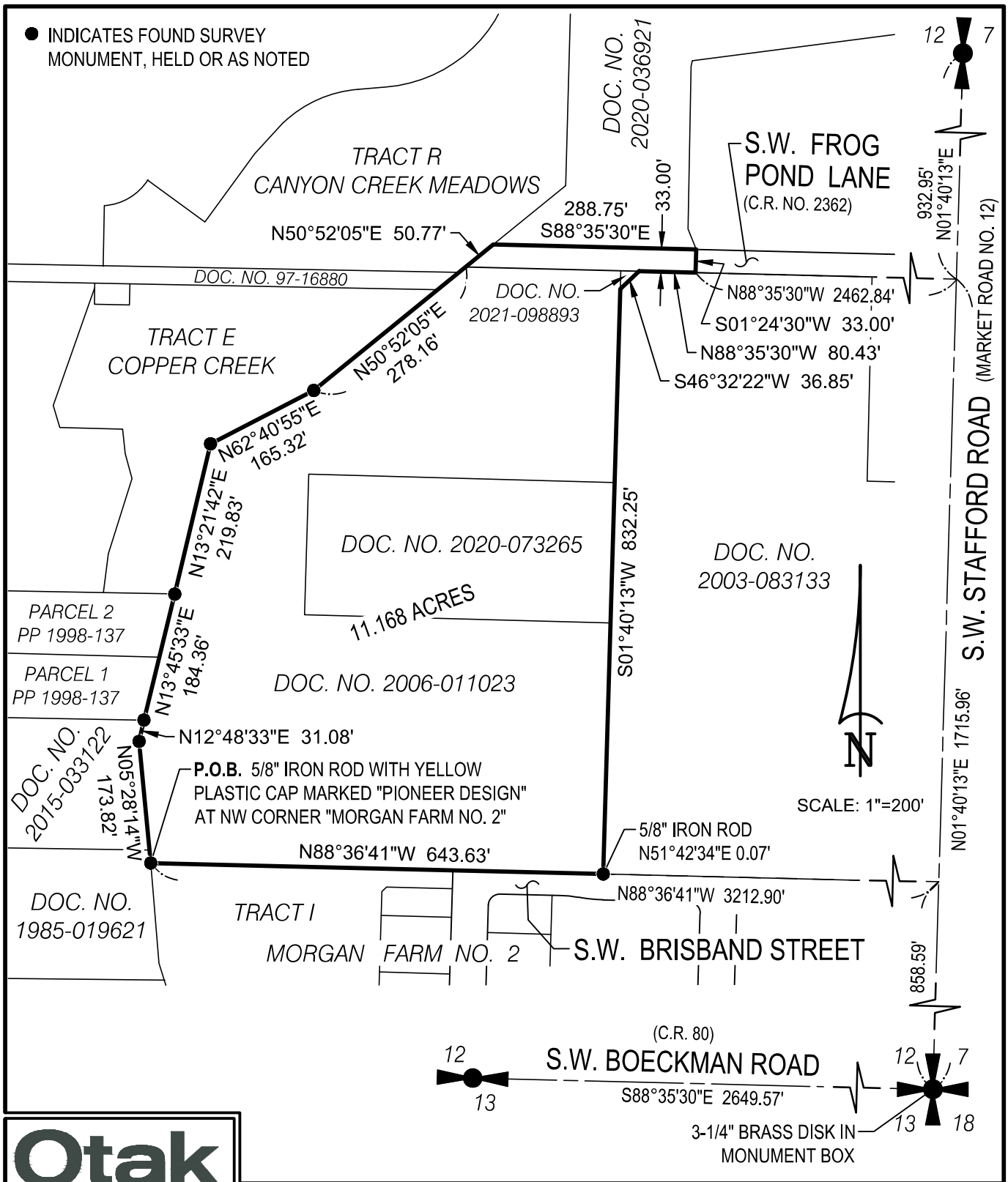
thence along said south right of way line, North 88°35'30" West a distance of 80.43 feet to the northeast corner of that property described in Quitclaim Deed to Donnie L. Martin recorded November 5, 2021 as Document No. 2021-098893, Clackamas County Records;

thence along the southeast line of said Martin property, South 46°32'22" West a distance of 36.85 feet to the southwest corner of said Martin property and a point on the west line of that property described in Statutory Bargain and Sale Deed to P.J. O'Hogan and Sharon L. O'Hogan, Trustees, recorded June 30, 2003 as Document No. 2003-083133, Clackamas County Records;

thence along said west line, South 01°40'13" West a distance of 832.25 feet to a point on the north line of said MORGAN FARMS NO. 2 referenced by a 5/8 inch iron rod with no cap found North 51°42'34" East a distance of 0.07 feet of said point;

thence along said north line, North 88°36'41" West a distance of 643.63 feet to the POINT OF BEGINNING.

Contains 11.168 acres, more or less.



Otak
808 SW 3rd Ave., Ste. 800
Portland, Oregon 97204
Phone: (503) 287-6825
www.otak.com
project: 20015

EXHIBIT B

ANNEXATION OF THE MARTIN, MARCHIL & GEORGE PROPERTIES & A PORTION OF S.W. FROG POND LANE

IN THE SOUTHEAST QUARTER OF SECTION 12, TOWNSHIP 3 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CLACKAMAS COUNTY, OREGON

MAY 17, 2022

CERTIFICATION OF PROPERTY OWNERSHIP OF 100% OF LAND AREA

I hereby certify that the attached petition contains the names of the owners[1] (as shown on the last available complete assessment roll) of 100% of the land area of the territory proposed for annexation as described in the attached petition.

NAME Andrew T Mehos

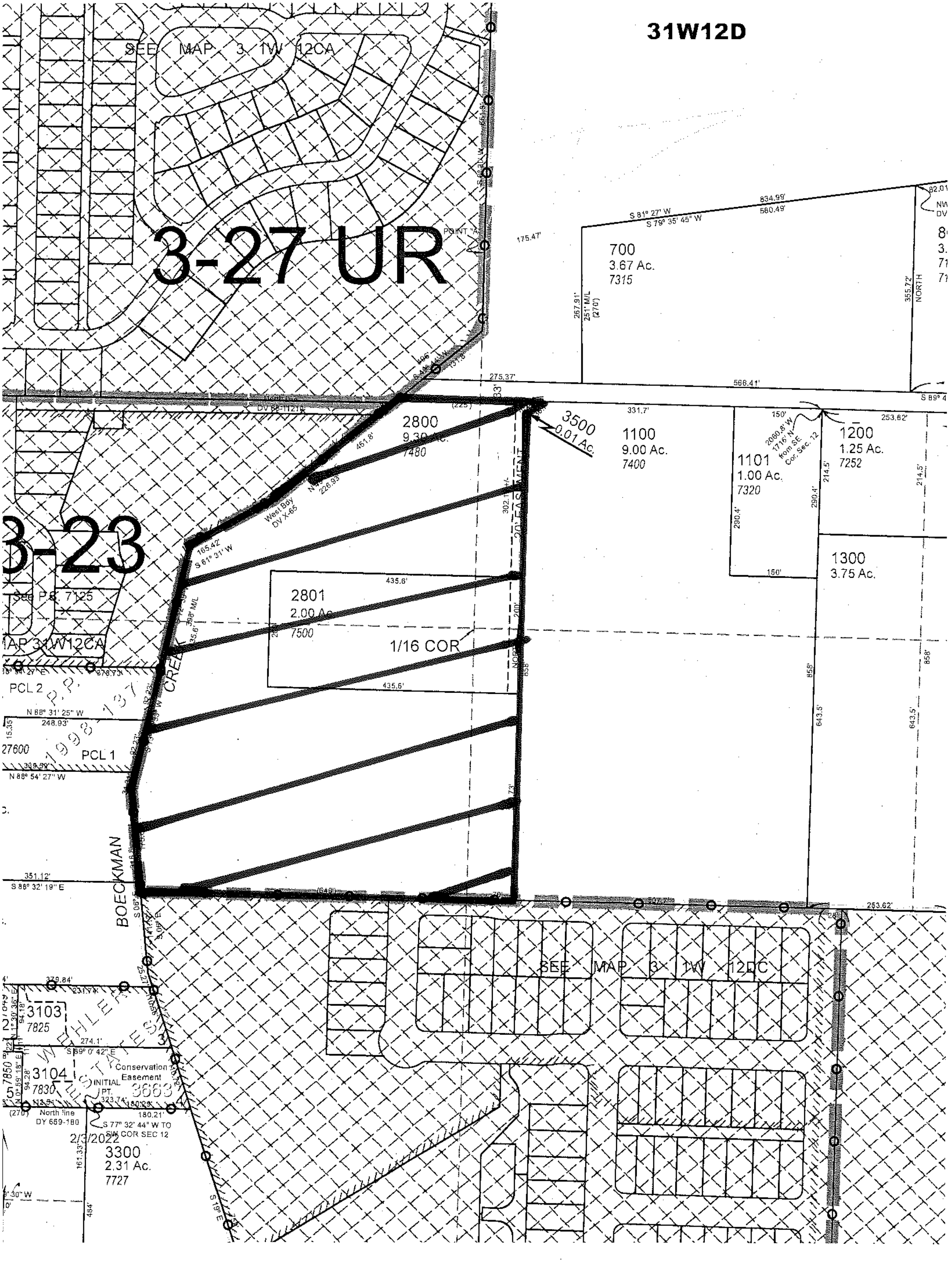
TITLE GIS Cartographer II

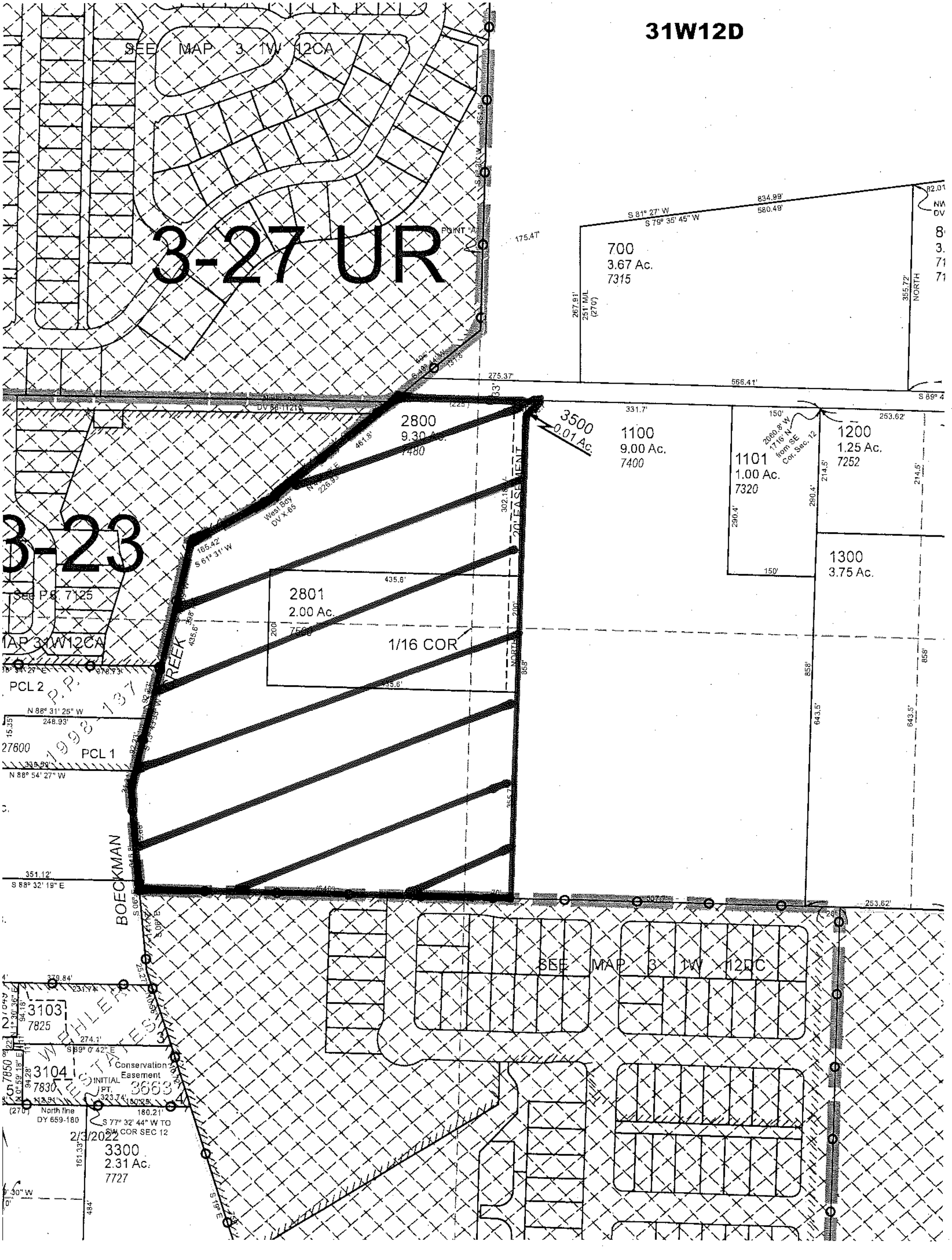
DEPARTMENT Assessment And Taxation

COUNTY OF Clackamas

DATE 3 February 2022

[1] Owner means the legal owner of record or, where there is a recorded land contract which is in force, the purchaser thereunder. If a parcel of land has multiple owners, each consenting owner shall be counted as a percentage of their ownership interest in the land. That same percentage shall be applied to the parcel's land mass and assessed value for purposes of the consent petition. If a corporation owns land in territory proposed to be annexed, the corporation shall be considered the individual owner of that land.


SEE MAP 3 1W 12CA
3-27 UR
POINT "A"
175.47'
S 81° 27' W
S 79° 35' 45" W
834.99'
580.49'
700
3.67 Ac.
7315
267.91'
251' M/L
(270')
355.72'
NORTH
82.01
275.37'
566.41'
2800
9.30 Ac.
7480
461.8'
226.93
West Bdy
DV X-65
3500
0.01 Ac.
1100
9.00 Ac.
7400
331.7'
1101
1.00 Ac.
7320
150'
2060.8' W
1716' N
from SE
Cor. Sec. 12
1200
1.25 Ac.
7252
253.62'
214.5'
290.4'
1300
3.75 Ac.
150'
20' EASEMENT
302.1'
3-23
165.42'
S 81° 31' W
See P.S. 7125
MAP 31W12CA
2801
2.00 Ac.
7500
435.6'
1/16 COR
200'
858'
643.5'
CREEK
PCL 2
PCL 1
P.P. 1998 137
N 88° 31' 25" W
248.93'
27600
N 88° 54' 27" W
351.12'
S 88° 32' 19" E
BOECKMAN
(646')
70'
73'
507.7'
253.62'
SEE MAP 3 1W 12DC
379.84'
3103
7825
274.1'
S 89° 0' 42" E
3104
7830
7850
Conservation
Easement
3663
INITIAL
PT.
323.74'
180.21'
S 77° 32' 44" W TO
SW COR SEC 12
North line
DY 669-180
2/3/2022
3300
2.31 Ac.
7727
484'
S 19° E
WEHLER ESTATES



SEE MAP 3 1W 12CA
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3.67 Ac.
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251' M/L
(270')
355.72'
NORTH
275.37'
566.41'
2800
9.30 Ac.
7480
3500
0.01 Ac.
331.7'
1100
9.00 Ac.
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S 89° 0' 42" E
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323.74'
180.21'
North line
DY 659-180
S 77° 32' 44" W TO SW COR SEC 12
2/3/2022
3300
2.31 Ac.
7727
484'

EXHIBIT A

LEGAL DESCRIPTION for ZONE CHANGE

May 17, 2022 (Otak #20015)

Those properties described in Statutory Warranty Deed to Marchil Investments, LLC recorded February 6, 2006 as Document No. 2006-011023, in Quitclaim Deed to Donnie L. Martin recorded November 5, 2021 as Document No. 2021-098893, and in Statutory Bargain and Sale Deed to Douglas E. George and Colleen R. George, Trustees, recorded September 8, 2020 as Document No. 2020-073265, all of Clackamas County Records, in the southeast quarter of Section 12, Township 3 South, Range 1 West, Willamette Meridian, Clackamas County, Oregon, more particularly described as follows:

BEGINNING at a 5/8 inch iron rod with yellow plastic cap marked “PIONEER DESIGN” found at the northwest corner of MORGAN FARM NO. 2, Plat No. 4610, Clackamas County Records which bears North 01°40’13” East along the east line of the southeast quarter of said section a distance of 858.59 feet, and North 88°36’41” West along the north line of said MORGAN FARM NO. 2 and the easterly extension thereof a distance of 3212.90 feet from the southeast corner of said section, said POINT OF BEGINNING being the southwest corner of said Marchil Investments property;

thence along the east lines of those properties described in deeds to William Z. Spring recorded June 1, 1985 recorded as Document No. 1985-019621, and to Jonathan A. and Laurie E. Clarke recorded June 2, 2015, as Document No. 2015-033122, both of Clackamas County Records, North 05°28'14" West a distance of 173.82 feet to a 2 inch by 2 inch H-beam survey monument found at an angle point in the east lines of said Document No. 2015-033122 property;

thence along the east line of said Clarke property, North 12°48'33" East a distance of 31.08 feet to a 5/8 inch iron rod found at the southeast corner of Partition Plat No. 1998-137, Clackamas County Records

thence along the east line of said Partition Plat, North 13°45'33" East a distance of 184.36 feet to a 5/8 inch iron rod with red plastic cap marked “CENTERLINE CONCEPTS” found at the southeast corner of Tract E, COPPER CREEK, Plat No. 4357, Clackamas County Records;

thence along the east lines of said Tract E through the following two courses:
North 13°21'42" East a distance of 219.83 feet to a 5/8 inch iron rod with yellow plastic cap marked “DE HASS ASSOC. INC.”,
and North 62°40’55” East a distance of 165.32 feet to a 5/8 inch iron rod with yellow plastic cap marked “DE HASS ASSOC. INC.” found at an angle point in the east lines of said Tract E;

thence along the east lines of said Tract E, of that property described deed to the City of Wilsonville recorded March 7, 1997 as Document No. 97-016880, Clackamas County Records, and of Tract R of CANYON CREEK MEADOWS recorded in Book 108, Page 16, Clackamas County Plat Records, North 50°52'05" East a distance of 278.16 feet to a point on the south right of way line of 33.00 foot wide S.W. Frog Pond Lane (County Road No. 2362) at the westerly terminus thereof;

thence along said south right of way line, South 88°35'30" East a distance of 246.90 feet to the northeast corner of that property described in Quitclaim Deed to Donnie L. Martin recorded November 5, 2021 as Document No. 2021-098893, Clackamas County Records;

thence along the southeast line of said Martin property, South 46°32'22" West a distance of 36.85 feet to the southwest corner of said Martin property and a point on the west line of that property described in Statutory Bargain and Sale Deed to P.J. O'Hogan and Sharon L. O'Hogan, Trustees, recorded June 30, 2003 as Document No. 2003-083133, Clackamas County Records;

thence along said west line, South 01°40'13" West a distance of 832.25 feet to a point on the north line of said MORGAN FARMS NO. 2 referenced by a 5/8 inch iron rod with no cap found North 51°42'34" East a distance of 0.07 feet of said point;

thence along said north line, North 88°36'41" West a distance of 643.63 feet to the POINT OF BEGINNING.

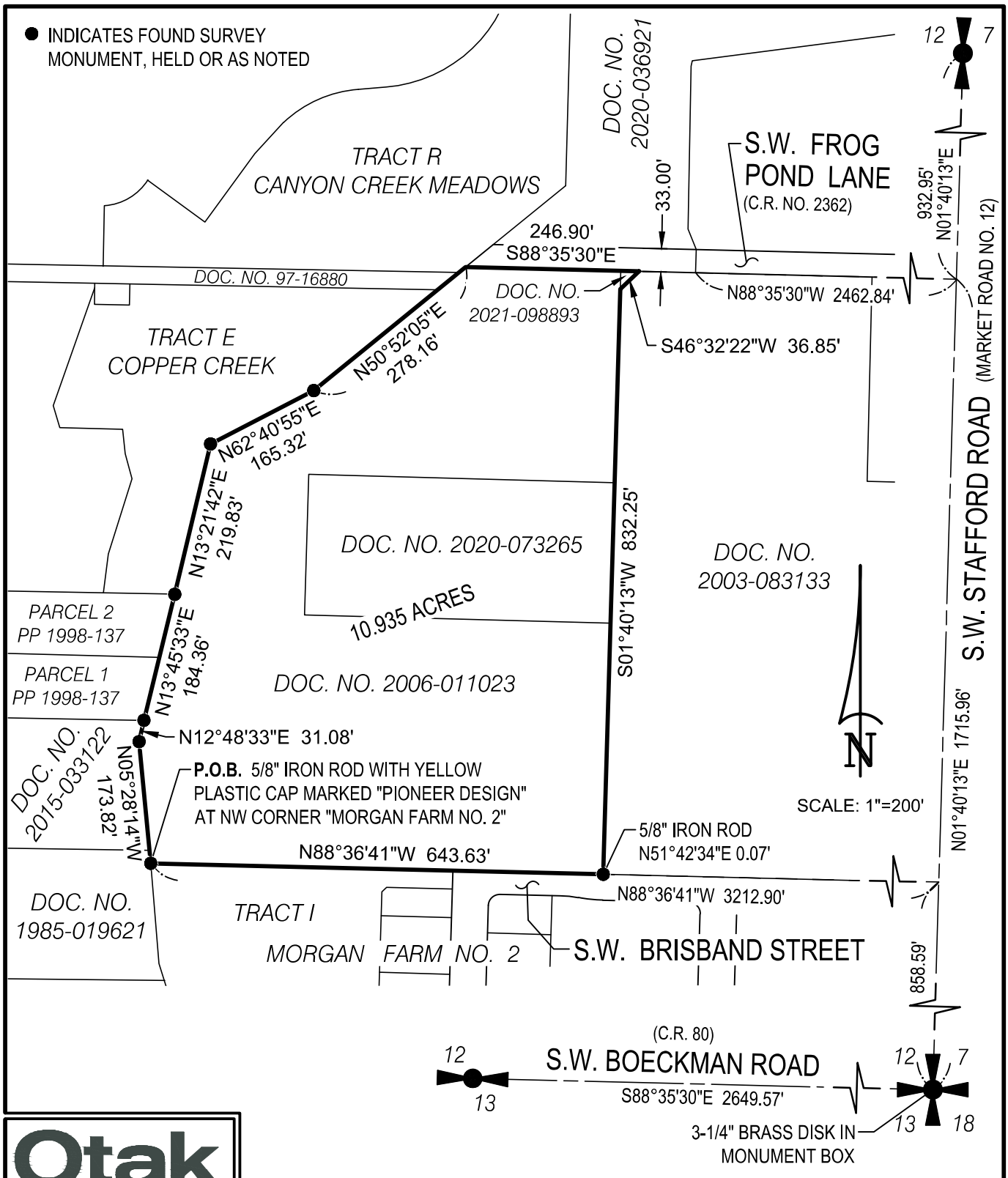
Contains 10.935 acres, more or less.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

2022.05.17
11:24:18-07'00'

OREGON
NOVEMBER 12, 2013
MICHAEL D. SPELTS
87475PLS

RENEWS: JUNE 30, 2024



Otak
808 SW 3rd Ave., Ste. 800
Portland, Oregon 97204
Phone: (503) 287-6825
www.otak.com
project: 20015

EXHIBIT B

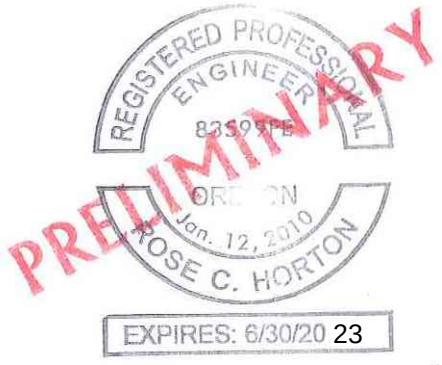
ZONE CHANGE, MARTIN, MARCHIL & GEORGE PROPERTIES

IN THE SOUTHEAST QUARTER OF SECTION 12, TOWNSHIP 3 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CLACKAMAS COUNTY, OREGON

MAY 17, 2022

Appendix B

Preliminary Stormwater Report dated
May 2022 by Otak, Inc.



Frog Pond Terrace, Frog Pond Overlook

Preliminary Storm Drainage Report

Land Use

Submitted to:

City of Wilsonville
29799 SW Town Center Loop E.
Wilsonville, OR 97070

Prepared by:

Otak, Inc.
808 SW Third Avenue, Suite 800
Portland, OR 97204

May 2022

Project No. 20015

Acknowledgements

Project Name: Frog Pond Terrace, Frog Pond Overlook

Type of Report: Preliminary

Submittal Level: Land Use

Site Information

Subject Property: 31W12D Tax lots 700, 2800, 2801

Applicant Information:

Dan Grimberg
West Hills Land Development
3330 NW Yeon St. Suite 200
Portland, OR 97210
503-789-0358

Project Development Team

Stormwater Lead: Rose Horton, PE

Stormwater Designer: Teresa Huntsinger, PE and Roger Tiffany, EIT

TABLE OF CONTENTS

Section 1. Introduction

The Frog Pond Terrace and Frog Pond Overlook sites are proposed residential developments located within the West Neighborhood of the Frog Pond Area Plan. The combined 8.81 acres of property and right-of-way are comprised of Tax map 31W12D lots 700 (Terrace), 2800 and 2801 (Overlook) in Clackamas County within the City of Wilsonville Urban Growth Boundary (UGB) (see Vicinity Map). The Frog Pond Terrace and Frog Pond Overlook developments will consist of 19 and 12 single-family residential dwellings respectively as well as associated public infrastructure improvements including SW Frog Pond Lane, resulting in 4.53 acres in new or replaced impervious surface area.

The purpose of this document is to demonstrate compliance of the Frog Pond Terrace and Frog Pond Overlook stormwater management system with the City of Wilsonville Stormwater and Surface Water Design and Construction Standards (2015). Descriptions of the existing and proposed hydrologic conditions, as well as documentation showing compliance of the proposed onsite stormwater management system with City of Wilsonville standards for water quality and quantity are included in this report.

Section 2. Project Description

The Frog Pond Terrace and Frog Pond Overlook proposed residential developments consist of 31 new single-family lots, local street extensions, as well as sidewalks, public roadway improvements, utilities, and stormwater management systems that discharge to Boeckman Creek. Additionally, this project will include frontage improvements to SW Frog Pond Lane.

Permitting

The following permit applications will be required for this project:

- City of Wilsonville Development Permit
- Section 401 water quality certification from DEQ

Existing Conditions

The project site, shown in Figure 1, is primarily agricultural with a home and outbuildings that comprise 0.46 areas of impervious area. The Frog Pond Terrace project site slopes west at about 5% while the Frog Pond Overlook project site slopes north at about 4%. The right-of-way (ROW) of SW Frog Pond Lane that fronts on the Frog Pond Overlook site includes 0.02 acres of impervious pavement. Both project sites slope towards Boeckman Creek. This proposed project will maintain drainage patterns.

Proposed Conditions

Site improvements will include construction of approximately 4.53 acres of new or replaced impervious surfaces in the form of roof, roadway, and sidewalk area. A detention pond and vegetated stormwater swales are proposed to be constructed within the right-of-way and tracts to provide low impact development water quality treatment and flow control throughout the proposed residential developments. Runoff from approximately 14.65 acres of undeveloped offsite area will be conveyed through the site's stormwater infrastructure.

Section 3. Hydrology

Rainfall Depth

The following rainfall depths listed in Table 3.1 are provided in the City of Wilsonville Public Works Standards (2015). These depths correspond to design recurrence intervals which are used in hydrologic calculations for various aspects of stormwater management design.

Table 1 24 Hour Precipitation Depths

Recurrence Interval (Years)	Total Precipitation Depth (inches)
2	2.50
10	3.45
25	3.90
100	4.50

Pollutants of Concern

The pollutants of concern are those typically found in roadway runoff. These include sediment, oil and grease, polycyclic aromatic hydrocarbons (PAHs), metals such as Copper, Zinc, and Lead as well as pesticides and other nutrients (DEQ, 2016). Table 3.2 lists each waterway affected by this project and DEQ listing status.

Table 2 Pollutants of Concern

Waterway	Parameter	Listing Status
Boeckman Creek	N/A	None
Willamette River (Middle)	Chlorophyll a	303(d), TMDL needed

Waterway	Parameter	Listing Status
Willamette River (Middle)	E. Coli	TMDL approved
Willamette River (Middle)	Mercury	303(d), TMDL needed
Willamette River (Middle)	Temperature	TMDL approved

Wetlands

Wetland and water boundaries were delineated by AKS Engineering and Forestry on December 2, 2021. Wetlands were delineated adjacent to Boeckman Creek. The project is not anticipated to impact wetlands or waters. The project will impact the Significant Resource Overlay Zone (SROZ). Discussion of the impacts to sensitive areas will be provided by the environmental consultant, AKS.

Soils

The Web Soil Survey published by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) was referenced to determine the soil names, symbols, and hydrologic soil groups found on the project site. The soil type identified within the project area is identified as Woodburn silt loam (91B/C). These soils are classified as hydrologic soil type C, which in an undrained condition generally exhibit slow infiltration rates when thoroughly wet. The USDA soil survey map and the corresponding hydrologic soil group (HSG) for the area of interest are provided in Appendix A.

A geotechnical investigation was conducted to determine the site strata and infiltration rates. The field exploitation did not encounter the static groundwater table and well data indicates that the groundwater table is at least 20 feet below ground surface. Perched groundwater conditions may occur during the wet season. Infiltration testing at a depth of five to six feet below ground surface yielded infiltration rates between 0.6 to 1.2 inches/hour. The geotechnical engineer stated that the lower value is more representative of the site and that a factor of safety of at least 2 be applied to the design infiltration rate. The onsite Geotechnical Memorandum by Hardman Geotechnical Services is included in Appendix B.

Flood Hazard

The proposed development for this site is located outside the 100-year floodplain boundary designated by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Clackamas County, Oregon and Incorporated Areas, Panel 234, June 17, 2008. See Appendix A for the FIRMette of the proposed site.

Section 4. Methodology

The stormwater system for the proposed Frog Pond Terrace/Overlook development was modeled using the following methods and design standards:

- Water Quality: The City of Wilsonville requires capture and treatment of 80% of the average annual runoff (approximately 1-inch in 24 hours). The City of Wilsonville has adopted a BMP Sizing Tool that was developed to aid in the design of detention and water quality low impact development facilities. The City of Wilsonville BMP Sizing Tool was used to size the minimum facility footprint areas to meet the water quality treatment standard.

- Flow Control: The BMP sizing tool was also simultaneously used to calculate facility sizes to include flow control. This tool provides the necessary calculations to design a facility to meet the City's flow

duration matching standards whereby the “duration of peak flow rates from post development conditions shall be less than or equal to the duration of peak flow rates from pre-development conditions for all peak flows between 42% of the 2-year storm peak flow rate up to the 10-year peak flow rate.”

- Conveyance: The Santa Barbara Urban Hydrograph (SBUH) method will be used to calculate design conveyance flow rates and XP-SWMM software will be used to size the project conveyance system. The City’s design event for pipe conveyance is the 25-year, 24-hour storm, requiring 1-foot of freeboard between the hydraulic grade line and finished grade at structure rims.

BMP Sizing Tool Hydrology

The BMP Sizing Tool was created to aid in designing low impact development facilities for both treating stormwater runoff and matching flow durations between target conditions and developed conditions. City standards consider target conditions to be pre-development, prior to any human settlement. City of Wilsonville standards stipulate that the pre-developed vegetation of Oak Savannah, which applies to the project site, should be modeled in the sizing tool as grass. Proposed conditions were set to paved conditions for roof, roadway, and sidewalk, and set to landscaped conditions for landscaped and other disturbed pervious areas within the project boundary.

A detention pond and vegetated filtration swales will function to provide both water quality and flow control mitigation. The BMP Sizing Tool provides minimum facility footprint areas for treatment and flow control. The BMP Sizing Tool also provides the required orifice sizes for incorporating the flow control component into these facilities.

Drainage

The developed site drains to Boeckman Creek over a mile north of its discharge point at the Willamette River. The Boeckman Creek drainage basin upstream of the project site is approximately 800 acres and the project area comprises less than 2% of the contributing drainage basin. Boeckman Creek is confined to a deep channel approximately 40 feet below the adjacent developments. A flow control structure on the creek exists in Boeckman Creek directly upstream of SW Boeckman Road (Wilsonville, 1992). Otak conducted a downstream impact analysis on the downstream section of Boeckman Creek per City of Wilsonville standards and the downstream impact analysis is included in Appendix C.

Conveyance

The proposed development will include a piped conveyance network that will convey flows to Boeckman Creek. Pipes draining the project site will be designed to meet City of Wilsonville conveyance standards.

The Santa Barbara Urban Hydrograph (SBUH) method will be used to calculate runoff rates generated under proposed developed conditions for contributing onsite areas as well as offsite upstream areas. The City of Wilsonville Public Works Standards (2015) identifies the 25-year, 24-hour storm to be used for conveyance design, maintaining 1-foot of clearance between the hydraulic grade line and conveyance structure rim elevations. The City also requires an assessment of the 100-year storm event impacts to the proposed system. Flow rates during the 100-year may be conveyed overland but are not expected to inundate existing structures. The stormwater conveyance network will be sized during final design.

Section 5. Water Quality Treatment

Low Impact Development

The City of Wilsonville promotes the use of Low Impact Development (LID) approaches to meet water quality treatment standards. Locations of LID facilities for water quality treatment for the Frog Pond Terrace and Frog Pond Overlook project site are shown on Figures 2 and 3.

Water Quality Facilities

Water quality treatment will be provided through a detention pond and filtration vegetated swales. The BMP Sizing Tool was used to calculate minimum facility sizes to satisfy water quality requirements. Facility sizing calculation reports from the BMP Sizing Tool are provided in Appendix D.

The proposed ten-foot wide pedestrian trail along the west end of the site is located adjacent to a steep slope where it is not feasible to install stormwater management facilities. Runoff from the trail will sheet flow through a vegetated area toward Boeckman Creek. The trail is located 100 – 250 feet away from the creek.

Section 6. Flow Control

City of Wilsonville Public Works Standards (2015) requires the use of flow attenuation when a proposed development increases impervious surface area by more than 5,000 square feet. Therefore, this project site will require flow control mitigation prior to discharging site runoff to downstream conveyance systems (open or closed channels or conduits). Per City requirements, the “post-development conditions shall be less than or equal to the duration of peak flow rates from pre-development conditions for all peak flows between 42% of the 2-year storm peak flow rate up to the 10-year peak flow rate.”

Flow control structures will be located immediately downstream of the detention pond and vegetated filtration swales, per the City’s standard detail. These facilities provide flow control by installing orifices at the end of their corresponding underdrain pipes to backwater flows into the available storage and voids present in facility soil and rock layers. Water is released from the facility through the orifice, which is sized to meter flows at a rate that meets flow control standards.

Orifices are provided for flow control purposes only; construction details of the flow control structures are provided on the plan sheets. Construction details of the flow control structures are provided on the plan sheets. A summary of facilities to serve this project is presented in Tables 3 and 4.

Table 3 Facility Summary Table

Basin ID	Facility ID	Function	LID Min. Size, BMP Output (sf)	LID Treatment Size, Site Plan (sf)	Orifice Diameter (in)
T11	Swale 1	WQ	150	342	0.6
T12	Swale 2	WQ, FC	314	336	0.8
T13	Swale 3	WQ, FC	357	384	0.9
O3	Swale 4	WQ	180	221	0.6
O4	Swale 5	WQ	162	192	0.6
FP2	Swale 6	WQ, FC	113	183	0.5
FP3	Swale 7	WQ, FC	179	248	0.6

Table 4 Detention Pond Summary Table

Basin ID	Facility ID	Function	Max Depth (ft)	Treatment Area (sf)
T1-T10, T14, O1, O2, O5, FP1, FP4	Pond	WQ, FC	5.0	7,523

Section 7. Operations and Maintenance

Vegetated facilities will be maintained by the private development. Operations and Maintenance requirements are included in Appendix E in conjunction with corresponding standard details for each type of facility. The following representative will be responsible for ongoing maintenance of onsite facilities: Dan Grimberg, Director of Land Development at West Hills Development, 503-641-7342.

Section 8. Conclusion

The proposed Frog Pond Terrace and Frog Pond Overlook developments will include a stormwater management system designed to comply with standards set forth by the City of Wilsonville. The proposed development will create 4.53 acres of impervious area. Runoff from impervious areas will be treated by LID facilities, including a detention pond and vegetated filtration swales. Flow control requirements will also be met by adding orifices at the downstream end of underdrain to regulate outflows from the detention pond and vegetated swales. The BMP Sizing Tool was used to calculate minimum facility and orifice sizes to satisfy water quality and flow control requirements. In accordance with City of Wilsonville standards, the conveyance system will be sized to convey the 25-year, 24-hour storm event with a minimum of one foot of freeboard between the hydraulic grade line (HGL) and the finished grade elevation.

Section 9. References

AKS, 2021A. *Natural Resources Feasibility Map SW Frog Pond Lane Martin Properties*, AKS Engineering & Forestry, October 2021.

AKS, 2021B. *Natural Resources Feasibility Map SW Frog Pond Lane Ross Properties*, AKS Engineering & Forestry, October 2021.

AKS, 2021C. *Frog Pond Terrace Significant Resource Impact Report*, AKS Engineering & Forestry, December 2021.

DEQ, 2016. *Section 401 Water Quality Certification*, State of Oregon Department of Environmental Quality, May 2016.

FEMA, 2017. *FEMA Map Service Center*. <http://msc.fema.gov/> Accessed: December 11, 2019.

Hardman, 2021. Geotechnical Engineering and Infiltration Testing Report – Frog Pond West-West – Martin, George and Ross Properties, Wilsonville, Oregon, Hardman Geotechnical Services Inc., December 15, 2021

National Resource Conservation Services, 2018. *United States Department of Agriculture. Web Soil Survey*. <http://websoilsurvey.nrcs.usda.gov/> Accessed: August 17, 2021.

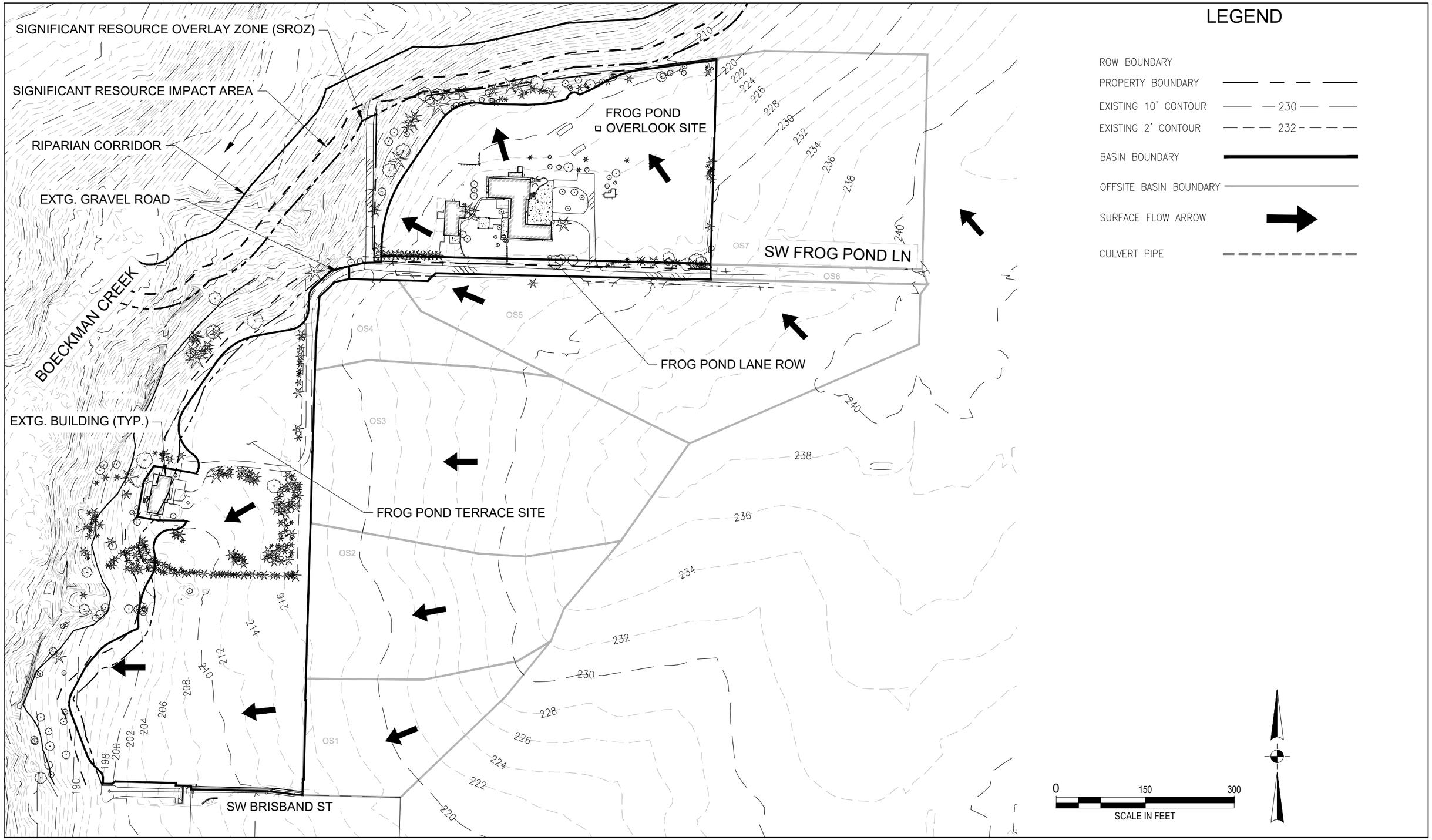
SCS, 1986. *Technical Release 55: Urban Hydrology for Small Watersheds*, United States Department of Agriculture Soil Conservation Service, June 1986.

USACE, 2014. Standard Local Operating Procedures for Endangered Species (*SLOPES V) to Administer Maintenance or Improvement of Stormwater, Transportation or Utility Actions*, United States Army Corps of Engineers, March 14, 2014.

Wilsonville, 1992. *Boeckman Creek Detention. Job No. 92-06-001,* City of Wilsonville, June 1992.

Wilsonville, 2015. *City of Wilsonville Public Works Standards. Section 3, Stormwater & Surface Water Design and Construction Standards 2015*; Revised December 2015.

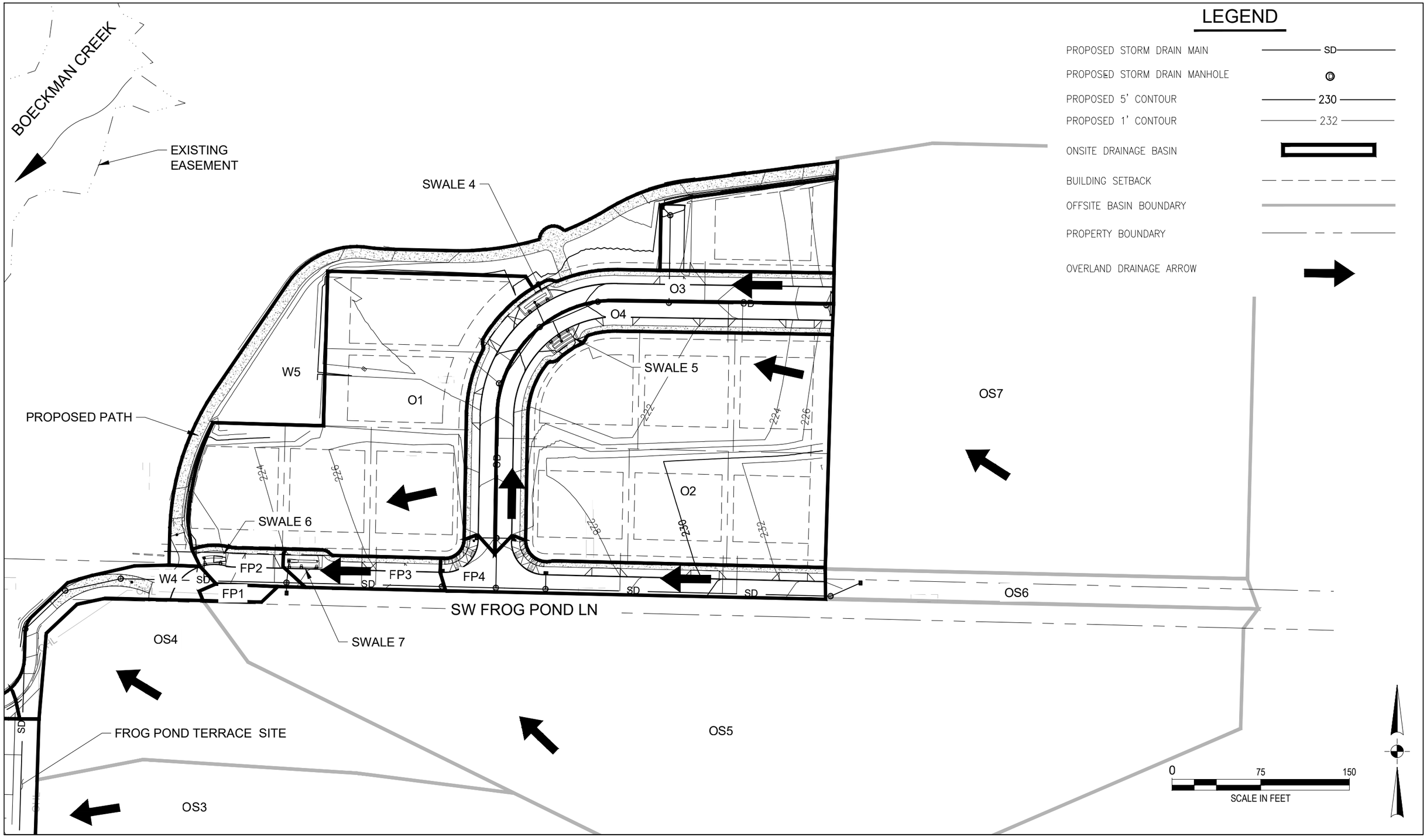
Figures



FROG POND TERRACE & OVERLOOK | PRELIMNARY DESIGN | EXISTING CONDITIONS

FIG 1 | MAY 2022 | PROJECT NUMBER: 20015

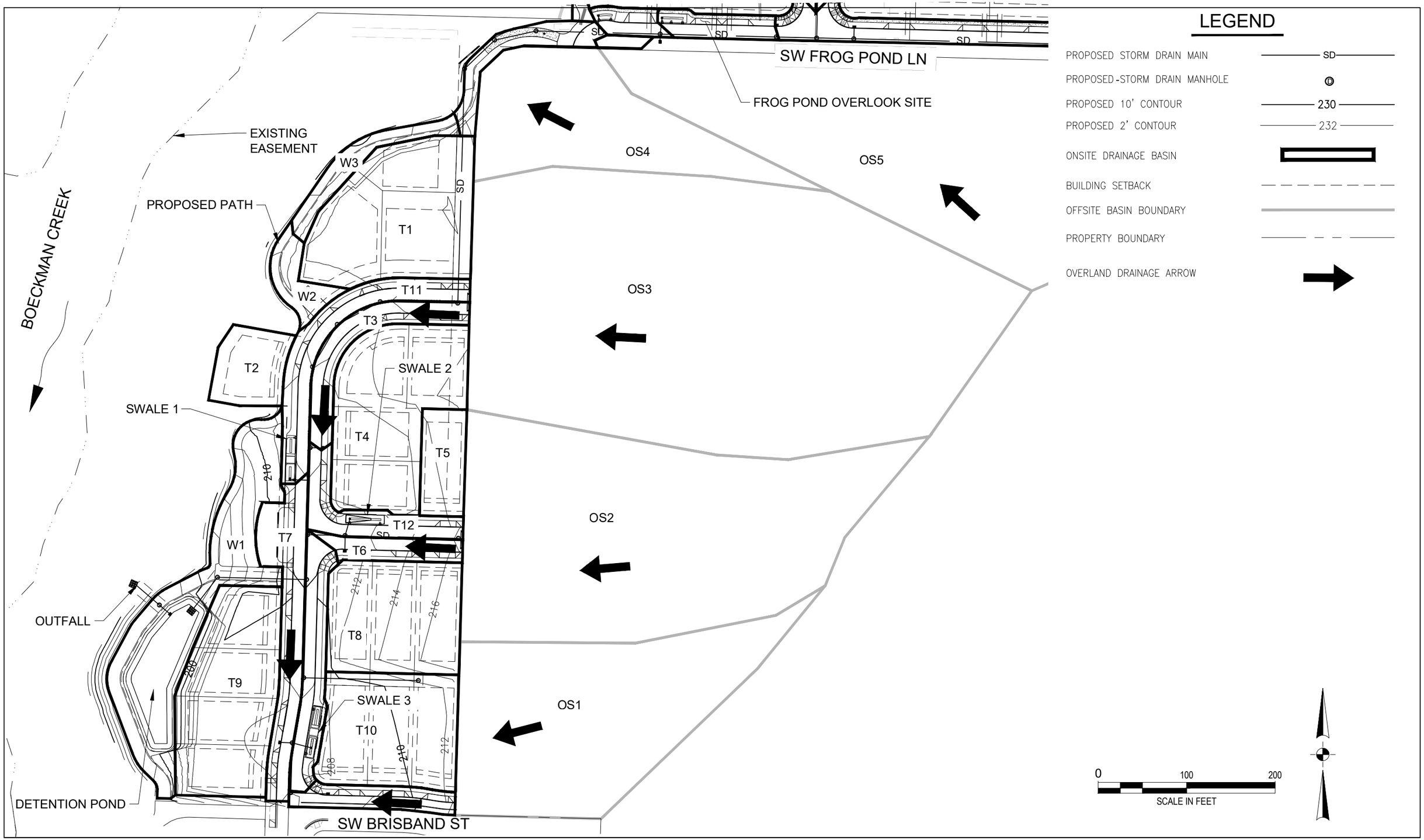
Otak



FROG POND OVERLOOK | PRELIMNARY DESIGN | PROPOSED CONDITIONS

FIG 3 | MAY 2022 | PROJECT NUMBER: 20015

Otak



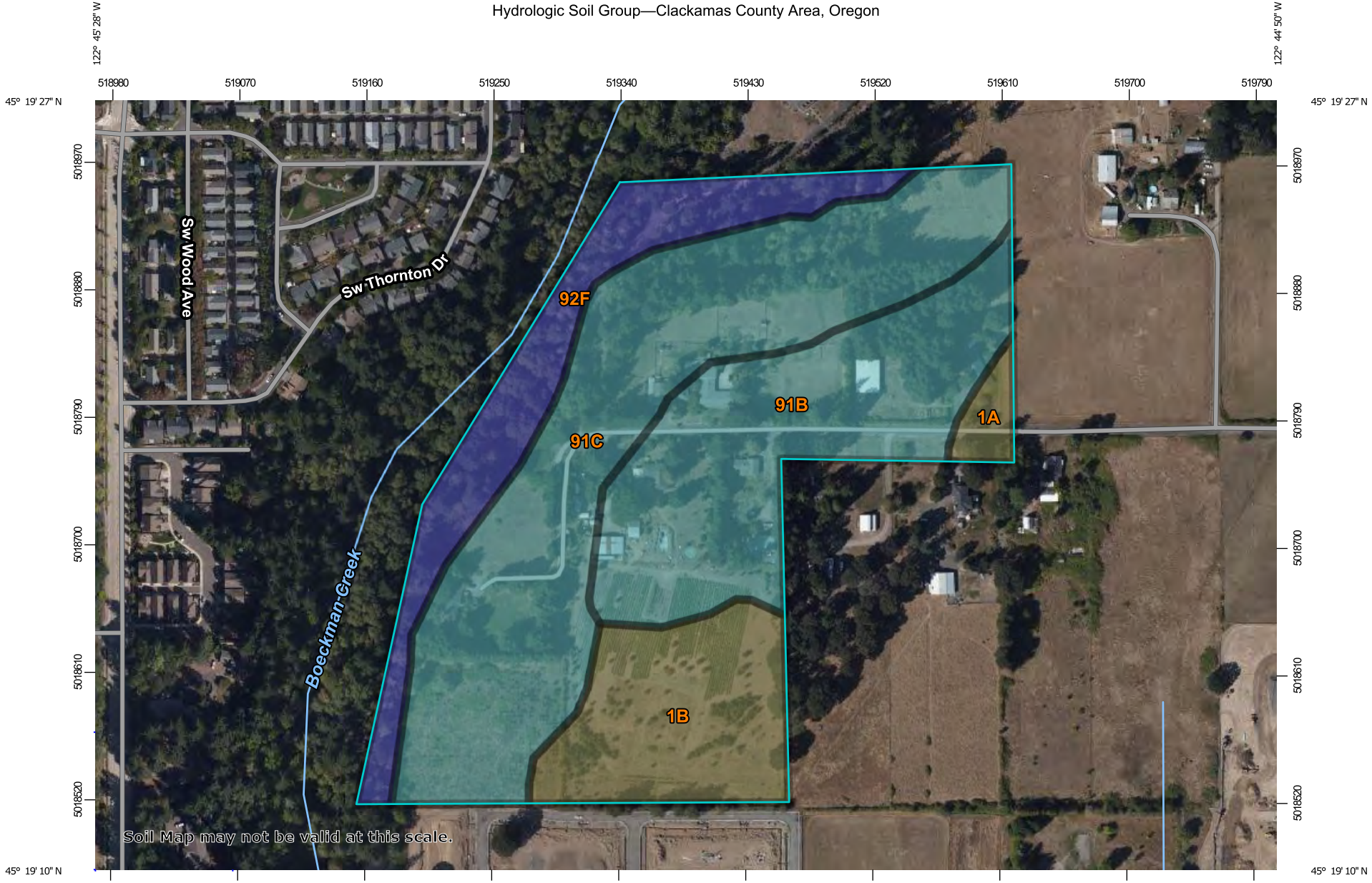
FROG POND TERRACE | PRELIMNARY DESIGN | PROPOSED CONDITIONS

FIG 3 | MAY 2022 | PROJECT NUMBER: 20015

Otak

Appendix A

Hydrology



Map Scale: 1:3,830 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 16, Jun 11, 2020

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1A	Aloha silt loam, 0 to 3 percent slopes	C/D	0.6	1.9%
1B	Aloha silt loam, 3 to 6 percent slopes	C/D	5.1	15.1%
91B	Woodburn silt loam, 3 to 8 percent slopes	C	8.9	26.7%
91C	Woodburn silt loam, 8 to 15 percent slopes	C	13.9	41.3%
92F	Xerochrepts and Haploxerolls, very steep	B	5.0	15.0%
Totals for Area of Interest			**33.5**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

MAP SCALE 1" = 500'

250 0 500 1000 FEET

MET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0234D

FIRM

FLOOD INSURANCE RATE MAP

CLACKAMAS COUNTY, OREGON

AND INCORPORATED AREAS

PANEL 234 OF 1175

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLACKAMAS COUNTY	415588	0234	D
WILSONVILLE, CITY OF	410025	0234	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
41005C0234D

EFFECTIVE DATE
JUNE 17, 2008

Federal Emergency Management Agency

Drainage Basin Areas

20015 Frog Pond Terrace, Frog Pond Overlook

Existing Conditions:

	Impervious Area		Pervious Area		Total Area	
Basin Name	Total (sf)	Total (ac)	Total (sf)	Total (ac)	(sf)	(ac)
Site Total	**21076**	**0.48**	**362,700**	**8.33**	**383,776**	**8.81**
Terrace	3,451	0.08	214,181	4.92	217,632	5.00
Overlook	16,780	0.39	131,665	3.02	148,445	3.41
ROW	845	0.02	16,854	0.39	17,699	0.406

Impervious Area per Lot 2,750 SF (2015 Public Works Stds 301.4.01)

Proposed Conditions: 31.0 lots HSG Type C

		Impervious Area				Pervious Area		Total Area	
Basin	Treated By	Roadway (sf)	Roof (sf)	Total (sf)	Total (ac)	(sf)	(ac)	(sf)	(ac)
Site Total		**110,770**	**85,250**	**197,378**	**4.53**	**152,956**	**3.51**	**383,550**	**8.81**
T1	Pond	2,281	8,250	10,531	0.24	15,541	0.36	26,072	0.60
T2	Pond	0	2,750	2,750	0.06	4,073	0.09	6,823	0.16
T3	Pond	6,349	0	6,349	0.15	867	0.02	7,216	0.17
T4	Pond	0	11,000	11,000	0.25	14,166	0.33	25,166	0.58
T5	Pond	0	2,750	2,750	0.06	3,313	0.08	6,063	0.14
T6	Pond	3,553	0	3,553	0.08	475	0.01	4,028	0.09
T7	Pond	11,600	0	11,600	0.27	475	0.01	11,600	0.27
T8	Pond	0	8,250	8,250	0.19	475	0.01	18,955	0.44
T9	Pond	0	11,000	11,000	0.25	475	0.01	24,021	0.55
T10	Pond	0	8,250	8,250	0.19	475	0.01	19,640	0.45
T11	Swale 1	9,707	0	9,707	0.22	548	0.01	10,255	0.24
T12	Swale 2	5,835	0	5,835	0.13	889	0.02	6,724	0.15
T13	Swale 3	6,251	0	6,251	0.14	1,775	0.04	8,026	0.18
T14	Pond	4,741	0	4,741	0.11	0	0.00	4,741	0.11
O1	Pond	0	13,750	13,750	0.32	28,494	0.65	42,244	0.97
O2	Pond	0	16,500	16,500	0.38	32,114	0.74	48,614	1.12
O3	Swale 4	11,467	0	11,467	0.26	998	0.02	12,465	0.29
O4	Swale 5	10,399	0	10,399	0.24	815	0.02	11,214	0.26
O5	Pond	1,101	2,750	3,851	0.09	6,315	0.14	10,166	0.23
FP1	Pond	783	0	783	0.02	0	0.00	783	0.02
FP2	Swale 6	2,177	0	2,177	0.05	183	0.00	2,360	0.05
FP3	Swale 7	3,445	0	3,445	0.08	248	0.01	3,693	0.08
FP4	Pond	9,700	0	9,700	0.22	0	0.00	9,700	0.22
W1	Veg Corridor	8,128	0	8,128	0.19	18,324	0.42	26,452	0.61
W2	Veg Corridor	1,305	0	1,305	0.03	2,667	0.06	3,972	0.09
W3	Veg Corridor	2,398	0	2,398	0.06	2,472	0.06	4,870	0.11
W4	Veg Corridor	1,087	0	2,445	0.06	2,751	0.06	5,196	0.12
W5	Veg Corridor	8,463	0	8,463	0.19	14,028	0.32	22,491	0.52
OS1	Offsite*			30,737	0.71	25,149	0.58	55,886	1.28
OS2	Offsite*			52,874	1.21	43,260	0.99	96,134	2.21
OS3	Offsite*			89,730	2.06	73,415	1.69	163,145	3.75
OS4	Offsite*			17,929	0.41	14,670	0.34	32,599	0.75
OS5	Offsite*			83,168	1.91	68,046	1.56	151,214	3.47
OS6	Offsite*			4,990	0.11	4,083	0.09	9,073	0.21
OS7	Offsite*			70,520	1.62	57,699	1.32	128,219	2.94
Pond Total				**125,358**	**2.88**	**107,258**	**2.46**	**265,832**	**6.10**

* For conveyance sizing offsite areas are assumed to be developed to 55% imperviousness

Appendix B

Geotechnical Report

HARDMAN GEOTECHNICAL SERVICES INC.
Practical, Cost-Effective Engineering Solutions

December 15, 2021
HGSI Project No. 21-2824

Dan Grimberg / Kristi Hosea
West Hills Land Development
3330 NW Yeon Avenue, Suite 200
Portland, Oregon 97210

Via e-mail (pdf format); hard copies mailed upon request

Subject: **GEOTECHNICAL ENGINEERING AND INFILTRATION TESTING REPORT**
FROG POND WEST-WEST
MARTIN, GEORGE AND ROSS PROPERTIES
WILSONVILLE, OREGON

This report presents the results of a geotechnical engineering study conducted by Hardman Geotechnical Services Inc. (HGSI) for Frog Pond West-West (Martin, George and Ross Properties) in Wilsonville, Oregon (Figure 1). The purpose of this study was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The project totals about 15.07 acres, as summarized below. Please note that the parcel addresses and acreages were taken from the Clackamas County GIS website and are only as accurate as the information provided.

Property	Tax Lot No.	Address	Acreage	House Constructed Date
Ross	31W12D 00700	7315 SW Frog Pond Ln	4.09	1964
George	31W12D 02801	7500 SW Frog Pond Ln	2.00	1972
Martin	31W12D 02800	No address	8.98	--

The Ross and George properties are currently occupied by residential homes, with several detached shops, garages and barns. Existing facilities are present only within the eastern, more flat-lying portion of the overall site. The areas surrounding the homes and other structures are landscaped with lawn, shrubbery and ornamental or fruit-bearing trees. No structures are present on the Martin property, which is overgrown with blackberries, etc. Along the western edge of the site is an area of steep slopes descending down to Boeckman Creek. The steep slope is vegetated with large deciduous and evergreen trees, and undergrowth.

Preliminary plans indicate the site will be developed into a 31-lot residential subdivision that will include two separate tracts with the intention of having one or both serve as water quality/detention facilities. The actual number of lots may vary as project design progresses. Site development will also include construction of on-site streets and underground utilities. All of the proposed development is within the eastern, flat to gently sloping portion of the site. The steep slopes in the western portion of the site are to remain open space.

In the northwest portion of the site, a temporary access easement extends near the top of the steep slope area. HGSI has studied potential landslide hazards and slope stability specific to this area, in a previous report (HGSI, 2021). The report concludes that the planned utility lines and temporary access way can be safely constructed, with a low-height soldier pile wall along the downslope (northwest) portion of the easement to protect against surficial soil sloughing/erosion.

REGIONAL GEOLOGY AND SEISMIC SETTING

The subject site lies within the heart of the Portland Basin, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. The Portland Basin is a northwest-southwest trending structural basin produced by broad regional downwarping of the area. The Portland Basin is approximately 20 miles wide and 45 miles long and is filled with consolidated and unconsolidated sedimentary rocks of late Miocene, Pliocene and Pleistocene age.

Geologic maps indicate the subject site is underlain by Quaternary age (last 1.6 million years) Willamette Silt, fine flood deposits that mantles basalt bedrock (Madin, 1990). This generally consists of massive fine sand and silt deposited following repeated catastrophic flooding events in the Willamette Valley, the last of which occurred between 15,000 and 10,000 years ago. In localized areas, the light brown sandy silts include buried paleosols that developed between depositional events. Regionally, the total thickness of catastrophic flood deposits range from 5 feet to greater than 100 feet.

The Willamette Formation is underlain by residual soil formed by in place weathering of the underlying Columbia River Basalt Formation (Madin, 1990). The Miocene aged (about 14.5 to 16.5 million years ago) Columbia River Basalts are a thick sequence of lava flows which form the crystalline basement of the Tualatin Valley. The basalts are composed of dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. Individual basalt flow units typically range from 25 to 125 feet thick and interflow zones are typically vesicular, scoriaceous, brecciated, and sometimes include sedimentary rocks.

At least three major fault zones capable of generating damaging earthquakes are known to exist in the region. These include the Portland Hills Fault Zone, Gales Creek-Newberg-Mt. Angel Structural Zone, and the Cascadia Subduction Zone. These potential earthquake source zones are included in the determination of seismic design values for structures, as presented in the *Seismic Design* section. None of the known faults extend beneath the site.

FIELD EXPLORATION

Test Pits and Exploratory Hand Auger Borings

The site-specific exploration for this study was conducted on October 22, 2021 and December 3 and 9, 2021. On October 22, 2021 HGSI oversaw the excavation of two test pits using a medium-sized excavator in the area of the temporary easement (Figure 2). Test pits TP-3 through TP-11 were excavated on December 3, 2021, using a rubber-tired backhoe with extend-a-hoe attachment. Six hand auger borings (HA-1 through HA-6) were drilled on December 3 and 9, 2021 by HGSI staff using hand auger tools. Explorations were conducted at the approximate locations shown on the attached Site Plan, Figure 2.

Explorations were conducted under the full-time observation of HGSI personnel. Soil samples obtained from the borings were classified in the field and representative portions were placed in relatively air-tight plastic bags. These soil samples were then returned to the laboratory for further examination. Pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence was recorded. Soils were classified in general accordance with the Unified Soil Classification System.

Summary exploration logs are attached to this report. The stratigraphic contacts shown on the individual exploration logs represent the approximate boundaries between soil types. The actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times.

Infiltration Testing

On December 3, 2021, HGSI performed falling head infiltration tests using the open-hole method in hand auger borings HA-1, HA-2 and HA-3. The infiltration testing was performed by measuring the water level at one-minute intervals using HOBO™ data loggers, which measures water pressure corrected for temperature and barometric pressure. See attached HOBO™ water level data logger plot. The infiltration rate was determined based on the slope of the water depth line near the end of the test. Table 1 presents the results of the falling head infiltration tests.

Table 1. Summary of Infiltration Test Results

Boring	Depth (feet)	Soil Type	Infiltration Rate (in/hr)	Hydraulic Head Range during Testing (inches)
HA-1	5	Silt with Clay (ML)	0.6	7.8 – 6.6
HA-2	6	Fine Sandy Silt (ML)	1.1	15 - 14
HA-3	6	Fine Sandy Silt (ML)	1.2	14 – 13

The average of the three infiltration tests is 1.0 inches/hour. Reported values are ultimate and should be adjusted using an appropriate factor of safety for design purposes.

SUBSURFACE CONDITIONS

The following discussion is a summary of subsurface conditions encountered in our explorations. For more detailed information regarding subsurface conditions at specific exploration locations, refer to the attached hand auger logs. Also, please note that subsurface conditions can vary between exploration locations, as discussed in the *Uncertainty and Limitations* section below.

Soil

On-site soils are anticipated to consist of undocumented fill, topsoil, colluvium, and Willamette Formation soils as described below.

> ***Undocumented Fill*** – In the northeast portion of the Ross Property, we encountered an area of undocumented fill. Test Pits TP-8, TP-9 and TP-10; and hand auger boring HA-3 encountered undocumented fill extending to 4.5 to 5 feet bgs. Between the fill and native soils a zone of old

topsoil was encountered in all three of the test pits. Undocumented fill consisted generally of soft silt with trace organics, and trace amounts of crushed rock and other erratic material.

Topsoil – Beginning at the surface level, all explorations encountered a zone of topsoil about 6 to 12 inches thick. The topsoil was generally comprised of soft, wet to moist dark brown organic silt. The upper roughly 6 inches of the topsoil appeared highly organic.

Colluvium – In TP-1 we encountered a zone of colluvium, comprised of stiff clayey silt with black and orange mottling. This material had a weathered, slightly disturbed appearance and extended to a depth of about 2.5 feet bgs. Colluvium, a zone of down-slope creep occurring due to weathering of surficial soils on natural slopes, was not encountered in the other test pits and hand auger borings.

Willamette Silt – Beneath the undocumented fill, topsoil and/or colluvium, all explorations encountered stiff to very stiff, moist to very moist, brown silt, clayey silt and silt with fine sand interpreted as Willamette Formation. The upper several feet of this unit exhibited orange and gray mottling. All explorations were terminated in the Willamette Silt unit, at depths ranging from 5 to 13 feet bgs.

Groundwater

Seepage was encountered in two of the deeper test pits, TP-4 and TP-7, at depths of about 13 and 10 feet respectively. During the field exploration, no seepage or static groundwater table was encountered in the other explorations. Based on nearby water well data, depth to static groundwater is at least 20 feet below the ground surface. Perched groundwater conditions often occur over fine-grained native deposits such as those beneath the site, particularly during the wet season. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. The perched groundwater conditions reported above are for the specific date and locations indicated, and therefore may not necessarily be indicative of other times and/or locations.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicate that the proposed development is geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. The proposed development avoids the steep slope area to the west; slope stability impacts are considered minimal as discussed in the *Slope Stability and Landslide Hazards* section. Recommendations are presented below regarding site preparation and undocumented fill removal, engineered fill, fill slope keying and benching, wet weather earthwork, spread footing foundations, below grade structural retaining walls, concrete slabs-on-grade, perimeter footing drains, seismic design, excavating conditions and utility trench backfill, stormwater infiltration systems, and erosion control considerations.

Slope Stability and Landslide Hazards

For the purpose of evaluating slope stability, we reviewed published geologic and hazard mapping, reviewed regional site topography and LIDAR images, performed a field reconnaissance, and evaluated subsurface soil conditions in exploratory test pits and hand auger borings.

Reconnaissance observations indicate that slope geomorphology at the site is generally smooth and uniform, consistent with stable slope conditions. No geomorphic evidence of prior slope instability (such as hummocky topography, benches or old scarps) was observed. No seeps or springs were observed on site.

Regional geologic mapping and the Oregon Department of Geology and Mineral Industries online landslide database (SLIDO, 2017) shows a small mapped landslide in the western portion of the Martin/George

property (Figure 3). This feature is mapped with low (<10%) confidence level, and historical (<150 years) in age. In our opinion this mapped ancient slide is not indicative of a significant slope stability hazard to the site, and is located far enough away from the proposed development that slope stability impacts are not anticipated.

In the northwest portion of the site between the Ross and Martin Properties (Figures 2 and 3), a temporary access easement extends near the top of the steep slope area. HGSI has studied potential landslide hazards and slope stability specific to this area, in a previous report (HGSI, 2021). The report concludes that the planned utility lines and temporary access way can be safely constructed, with a low-height soldier pile wall along the downslope (northwest) portion of the easement to protect against surficial soil sloughing/erosion.

The planned development does not extend onto the steep slope areas in the western portion of the site. Based on our observations and results of the slope stability evaluation, it is our opinion that no special design or construction provisions are needed to address slope issues on the site, with the exception of the soldier pile wall planned in conjunction with the temporary access easement (HGSI, 2021). The project will be designed and constructed per current building codes, City of Wilsonville requirements, and the current standard-of-practice in geotechnical engineering. As such, it is our opinion that adequate slope stability factors of safety will be maintained for both temporary construction, and long-term conditions.

We understand that the proposed storm water management plan may consist of flow through planters, stormwater ponds or swales, with overflow to an approved outlet. Significant infiltration of stormwater via stormwater chambers or dry wells is not proposed for this site based on soil conditions and infiltration test results. The planned storm water facilities are not anticipated to impact slope stability on site, or to create any unstable conditions. Storm water management systems should be designed such that potential overflow is discharged in a controlled manner away from structures and slopes, and all systems should include an adequate factor of safety.

Site Preparation and Undocumented Fill Removal

The areas of the site to be graded should first be cleared of vegetation and any loose debris; and debris from clearing should be removed from the site. Organic-rich topsoil should then be removed to competent native soils. We anticipate that the average depth of topsoil stripping will be 6 to 12 inches over most of the site. Deeper stripping / root picking may be needed in areas that are or were formerly treed. The final depth of stripping removal may vary depending on local subsurface conditions and the contractor's methods, and should be determined on the basis of site observations after the initial stripping has been performed. Stripped organic soil should be stockpiled only in designated areas or removed from the site and stripping operations should be observed and documented by HGSI. Existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath areas of proposed structures and pavement should be removed and the excavations backfilled with engineered fill.

Undocumented fill was encountered in the northeast portion of the Ross Property, in TP-8, TP-9 and TP-10; and HA-3, at depths of about 4.5 to 5 feet bgs. There is potential for old fills to be present on site in areas beyond our explorations. Where encountered beneath proposed structures, pavements, or other settlement-sensitive improvements, undocumented fill should be removed down to firm inorganic native soils and the removal area backfilled with engineered fill (see below). HGSI should observe removal excavations (if any) prior to fill placement to verify that overexcavations are adequate and an appropriate bearing stratum is exposed.

In construction areas, once stripping has been verified, the area should be ripped or tilled to a depth of 12 inches, moisture conditioned, and compacted in-place prior to the placement of engineered fill. Exposed subgrade soils should be evaluated by HGSI. For large areas, this evaluation is normally performed by

proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. The depth of overexcavation, if required, should be evaluated by HGSI at the time of construction.

Engineered Fill

In general, we anticipate that on-site soils will be suitable for use as engineered fill in dry weather conditions, provided they are relatively free of organics and are properly moisture conditioned for compaction. Imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 90 percent of the maximum dry density determined by ASTM D1557 (Modified Proctor) or equivalent. On-site soils may be wet or dry of optimum; therefore, we anticipate that moisture conditioning of native soil will be necessary for compaction operations.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should conform to ASTM D2922 and D3017, or D1556. Engineered fill should be periodically observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing.

Fill Slope Keying and Benching

Engineered fill placed on slopes requires keying and benching. We recommend that cut and fill slopes for the project be planned no steeper than 2H:1V. Fill slopes constructed over sloping ground should be constructed in accordance with the Fill Slope Detail, Figure 4. For fill slopes constructed at 2H:1V or flatter, and comprised of engineered fill placed and compacted as recommended herein, we anticipate that adequate factors of safety against global failure will be maintained.

Prior to placing compacted fill against the existing natural slopes, all loose undocumented fill, topsoil, and soft soils must first be removed. Adequate benching must be maintained. Fill slope keyways should be constructed with a minimum depth of 2 feet and minimum width of H/3 (10 feet minimum), where H equals the vertical height between the base and top of the fill slope. Both benches and keyways should be roughly horizontal in the down slope direction. A subdrain should be incorporated in the fill slope keyway, and HGSI should observe the keyway excavations prior to the placement of fill.

Measures should be taken to prevent surficial instability and/or erosion of embankment material. This can be accomplished by conscientious compaction of the embankment fills all the way out to the slope face, by maintaining adequate drainage, and planting the slope face as soon as possible after construction. To achieve the specified relative compaction at the slope face, it may be necessary to overbuild the slopes several feet, and then trim back to design finish grade. In our experience, compaction of slope faces by "track-walking" is generally ineffective and is therefore not recommended.

Wet Weather Earthwork

The on-site soils are moisture sensitive and may be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will probably require

expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than about 7 percent fines. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;
- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Bales of straw and/or geotextile silt fences should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, HGSI should be contacted to provide additional recommendations and field monitoring

Spread Footing Foundations

Shallow, conventional isolated or continuous spread footings may be used to support the proposed structures, provided they are founded on competent native soils, or compacted engineered fill placed directly upon the competent native soils. We recommend a maximum allowable bearing pressure of 2,000 pounds per square foot (psf) for designing spread footings bearing on undisturbed native soils or engineered fill. The recommended maximum allowable bearing pressure may be increased by a factor of 1.33 for short term transient conditions such as wind and seismic loading. Exterior footings should be founded at least 18 inches below the lowest adjacent finished grade. Minimum footing widths should be determined by the project engineer/architect in accordance with applicable design codes.

Assuming construction is accomplished as recommended herein, and for the foundation loads anticipated, we estimate total settlement of spread foundations of less than about 1 inch and differential settlement between two adjacent load-bearing components supported on competent soil of less than about ½ inch. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.5 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 390 pounds per cubic foot (pcf), assuming footings are cast against dense, natural soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a

safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

Footing excavations should be trimmed neat and the bottom of the excavation should be carefully prepared. Loose, wet or otherwise softened soil should be removed from the footing excavation prior to placing reinforcing steel bars. HGSI should observe foundation excavations prior to placing crushed rock, to verify that adequate bearing soils have been reached. Due to the high moisture sensitivity of on-site soils, construction during wet weather may require overexcavation of footings and backfill with compacted, crushed aggregate.

Below-Grade Cantilever Concrete Retaining Walls

Recommendations are provided below for design of concrete retaining walls. Footings for below-grade cantilever concrete walls should be designed using the 2,000 psf allowable soil bearing pressure recommended in the *Spread Footing Foundations* section. Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

Table 2 below provides recommended lateral earth pressure values for unrestrained and restrained walls, for both level backfill conditions and 2H:1V (Horizontal:Vertical) sloping ground conditions at the top of the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

Table 2. Recommended Lateral Earth Pressures for Below-Grade Structural Walls

Earth Pressure Condition	Level at Top of Wall	2H:1V Slope at Top of Wall
Active (unrestrained wall)	35	54
At-rest (restrained wall)	55	74

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude 5H, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 390 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and HGSI should be contacted for additional recommendations.

A coefficient of friction of 0.5 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build up. This can be accomplished by placing a 12-inch wide zone of crushed drain rock containing less than 5 percent fines against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a sump to remove water from the crushed drain rock zone. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging. The above drainage measures are intended to remove water from behind the wall to prevent hydrostatic pressures from building up. Additional drainage measures may be specified by the project architect or structural engineer, for damp-proofing or other reasons.

HGSI should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as recommended in the *Site Preparation* section. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content, and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock. For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 200 kcf (115 pci) should be assumed for the soils anticipated at subgrade depth. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of crushed rock of 8 inches beneath the slab.

Interior slab-on-grade floors should be provided with an adequate moisture break. The capillary break material should consist of ODOT open graded aggregate per ODOT Standard Specifications 02630-2. The minimum recommended thickness of capillary break materials on re-compacted soil subgrade is 8 inches. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction, and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 90% of its maximum dry density as determined by ASTM D1557 or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. A commonly applied vapor barrier system consists of a 10-mil polyethylene vapor barrier placed directly over the capillary break material. Other damp/vapor barrier systems may also be feasible. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection, radon and mold prevention issues, which are outside HGSI's area of expertise.

Perimeter Footing Drains

Due to the potential for perched surface water above fine grained deposits such as those encountered at the site, we recommend the outside edge of perimeter footings be provided with a drainage system consisting of 3-inch minimum diameter perforated PVC pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining sand and gravel or 1"- ¼" drain rock. The drain pipe and surrounding drain rock should be

wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. Water collected from the footing drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. The footing drains should include clean-outs to allow periodic maintenance and inspection.

Down spouts and roof drains should collect roof water in a system separate from the footing drains in order to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Seismic Design

Structures should be designed to resist earthquake loading in accordance with the methodology described in the current Oregon Residential Specialty Code (ORSC). We recommend Site Class D (Stiff Soils) be used for design per the ORSC. Design values determined for the site using the ASCE 7-16 Hazard Tool are summarized on Table 3, for Risk Category II.

Table 3. Recommended Earthquake Ground Motion Parameters (ASCE 7-16)

Parameter	Value
Location (Lat, Long), degrees	45.3211, -122.7494
Mapped Spectral Acceleration Values (MCE, Site Class B):	
Short Period, S_s	0.82 g
1.0 Sec Period, S_1	0.381 g
Design Values for **Site Class D** (Stiff Soils):	
Peak Ground Acceleration PGA_M	0.458
F_a	1.172
$SD_s = 2/3 \times F_a \times S_s$	0.641 g
Seismic Design Category (2021 ORSC)	D_0

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to earthquake shaking. Soil liquefaction is generally limited to loose, granular soils located below the water table. Following development, on-site soils will consist predominantly of stiff to very stiff silt which are not considered susceptible to liquefaction. Therefore, it is our opinion that special design or construction measures are not required to mitigate the effects of liquefaction.

Excavating Conditions and Utility Trench Backfill

We anticipate that on-site soils can be excavated using conventional heavy equipment such as scrapers and trackhoes to depths of 13 feet and likely greater. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Perched groundwater conditions often occur over fine-grained native deposits such as those beneath the site, particularly during the wet season. If encountered, the contractor should be prepared to implement an appropriate dewatering system for installation of the utilities. At this time, we anticipate that dewatering systems consisting of ditches, sumps and pumps would be adequate for control of groundwater where encountered during construction conducted during the dry season. Regardless of the dewatering system used, it should be installed and operated such that in-place soils are prevented from being removed along with the groundwater.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

Utility trench backfill should consist of ¾"-0 crushed rock, compacted to at least 95% of the maximum dry density obtained by Modified Proctor (ASTM D1557) or equivalent. Initial backfill lift thick nesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Stormwater Infiltration Facilities

Based on results of the soil infiltration testing, soils on site exhibit low infiltration rates especially in the presence of perched water or static groundwater. Infiltration rates ranged from 0.6 to 1.2 inches/hour as summarized on Table 1. We recommend shallow systems in the range of 2 to 5 feet bgs be designed using an infiltration rate of **0.6 inches/hour**. This is slightly less than the average test value of 1.0 inches/hour, but we feel 0.3 inches/hour is more representative of overall site conditions. Also, please note that the potential for infiltration of stormwater will be reduced during the wet season due to saturated soils / perched water conditions over much of the site. We do not believe the site is well suited for use of deeper infiltration facilities such as dry wells due to the very low-permeability site soils, and perched water conditions.

The designer should select an appropriate infiltration value based on our test results and the location of the proposed infiltration facility. The recommended infiltration rates do not incorporate a factor of safety. For the design infiltration rate, we recommend a factor of safety of at least 2.0. Greater factors of safety may be required by the governing agency.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw, bio-bags, silt fences, or other appropriate technology. Where used, erosion control devices should be in place and remain in place throughout site preparation and construction. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets.

UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and his/her consultants for use in design of this project only. This report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, HGSI should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, HGSI executed these services in accordance with generally accepted professional principles and practices in the field of geotechnical engineering at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

HARDMAN GEOTECHNICAL SERVICES INC.

Scott L. Hardman, P.E., G.E.
Geotechnical Engineer

Attachments: References
Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – DOGAMI LiDAR Mapping
Figure 4 – Fill Slope Detail
Logs of Test Pits TP-1 through TP-11
Logs of Hand Auger Borings HA-1 through HA-6
Infiltration Test Data Plots (3 Pages)
ASCE Seismic Design Hazards Report (3 Pages)

REFERENCES

Hardman Geotechnical Services Inc., 2021, *Geotechnical Evaluation of Landslide Hazards and Slope Stability; Proposed Underground Utility Easement; Frog Pond West-West; Martin, George and Ross Properties; Wilsonville, Oregon*; consultant report dated October 28.

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VICINITY MAP

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2856	FIGURE 1

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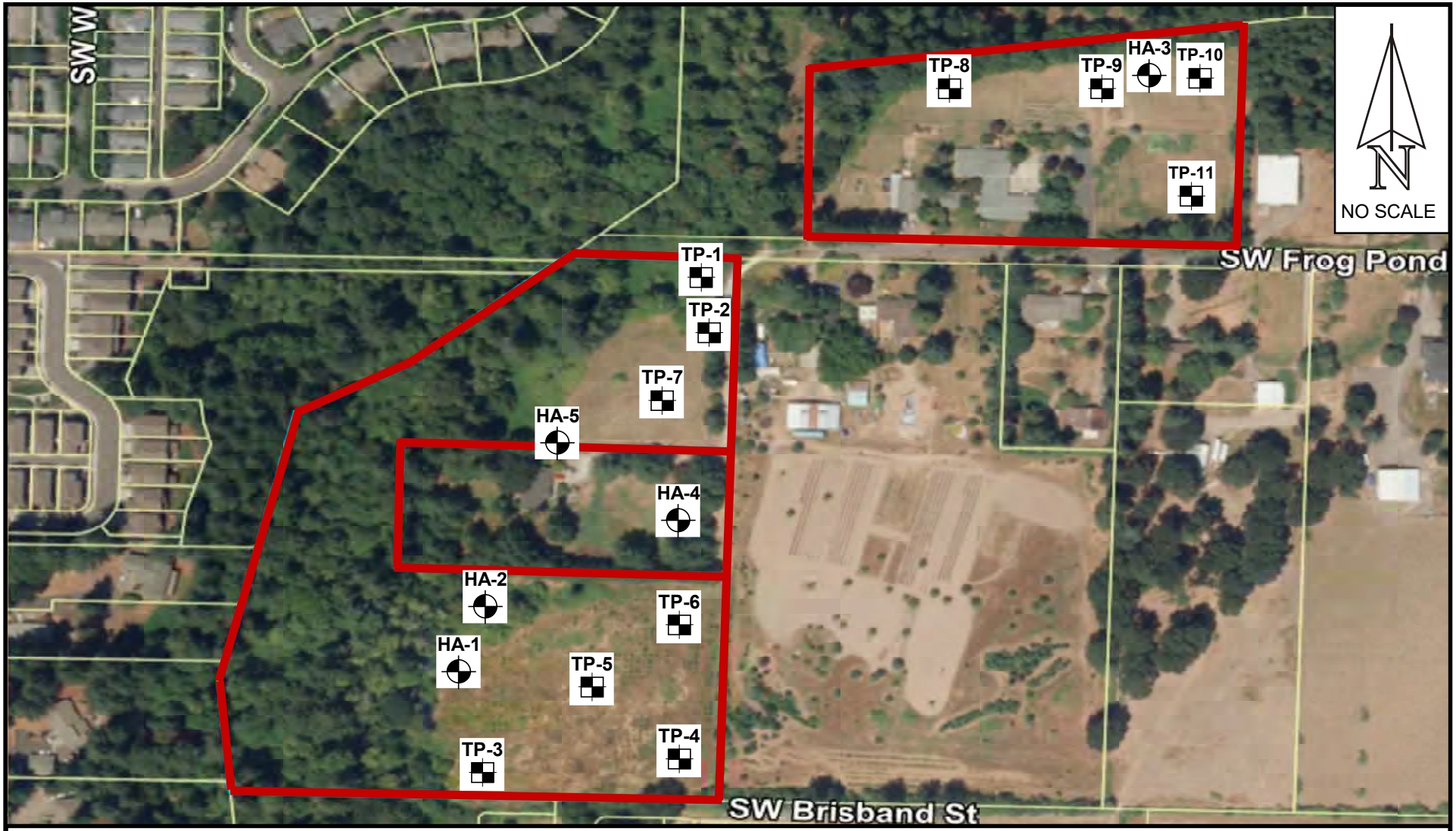
SITE PLAN AND EXPLORATION LOCATIONS



Legend

TP-X Backhoe Test Pit Designation and Approximate Location

Base Map by Portland Maps

Project: Frog Pond West West Wilsonville, Oregon	Project No. 20-2642	FIGURE 2

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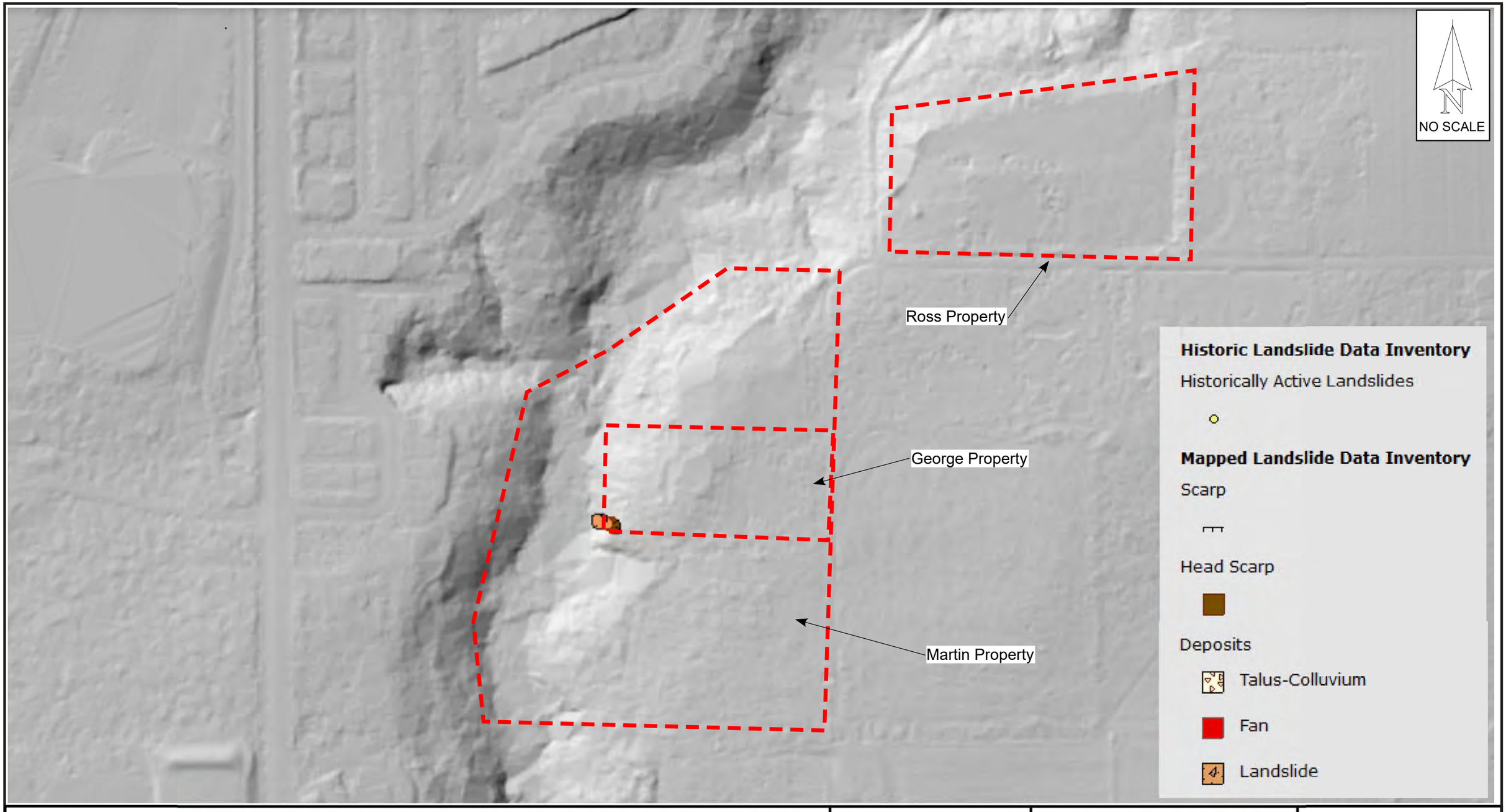
DOGAMI LiDAR MAPPING



LEGEND

Approximate Site Boundary

Base Map from DOGAMI SLIDO Website

Project No. 21-2824

Frog Pond West-West
Wilsonville, Oregon

FIGURE 3

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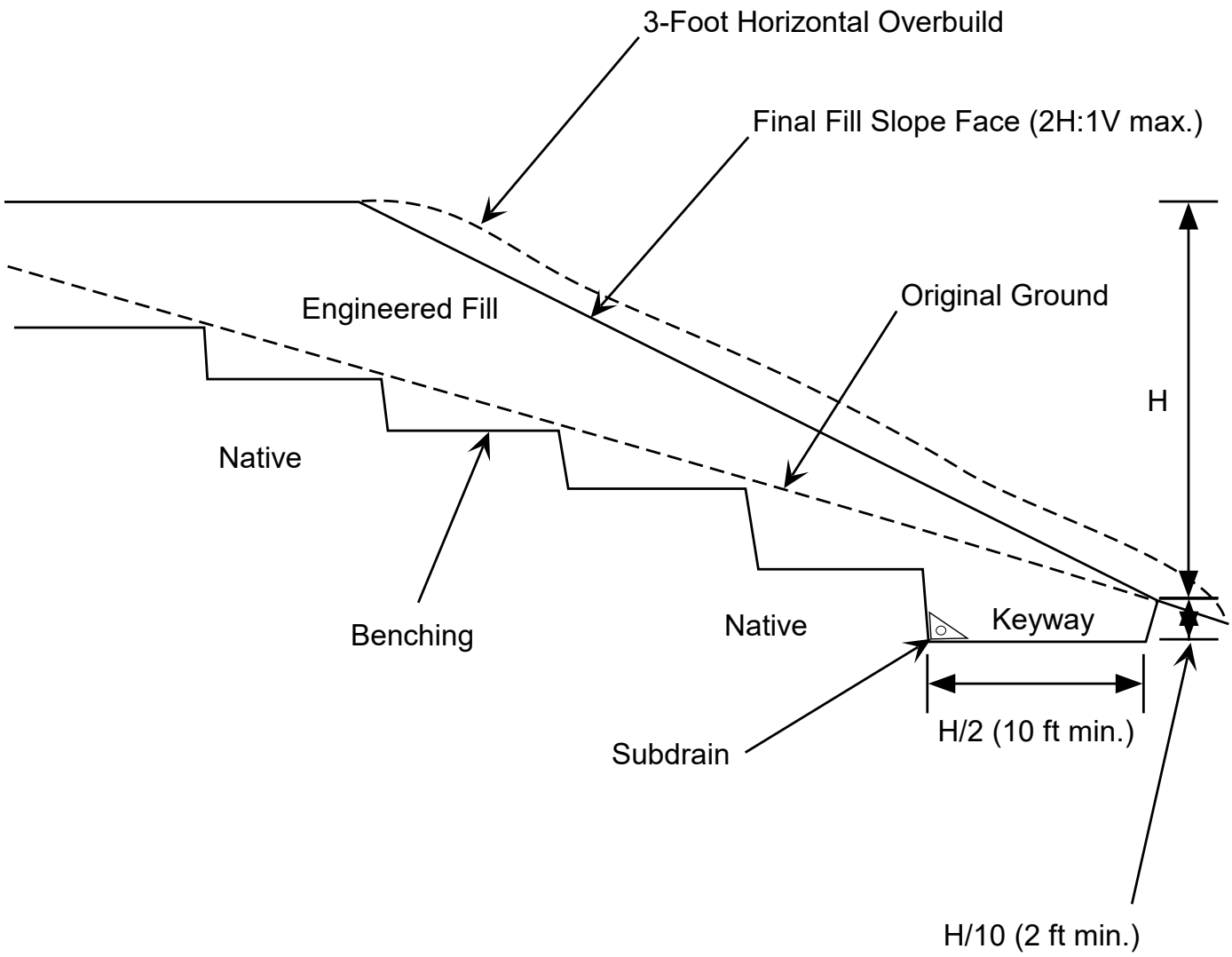
FILL SLOPE DETAIL

TYPICAL KEYWAY, BENCHING & FILL SLOPE DESIGN



Recommended subdrain is minimum 3-inch-diameter ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2" to 1/2" open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent).

Project: Frog Pond West-West Wilsonville, Oregon	Project No. 21-2824	FIGURE 4

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Soft, Organic SILT, dark brown, moist, many roots throughout (topsoil)
2	3.0 3.5					Stiff, Clayey SILT, light yellowish brown with black and orange mottling, moist, weathered (Colluvium)
3	>4.5					Very stiff to hard, Clayey SILT, yellowish brown with trace mottling in upper portion of unit only, slightly moist, unweathered and intact
4	>>4.5					
5						
6						
7						
8						Very difficult excavating at 8 feet due to hard materials.
9						Test pit terminated at 8 feet No caving of pit side walls No groundwater or seepage encountered
10						
11						
12						
13						
14						
15						
16						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 10/22/2021

Logged By: SLH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Soft, Organic SILT, dark brown, moist, abundant grass roots (topsoil)
1						Dense, silty angular gravel, gray, moist (old driveway or pull-out area)
2						Very stiff to hard, Clayey SILT, yellowish brown with trace mottling in upper portion of unit only, slightly moist, unweathered and intact
8						Grades to Clayey Silt with some fine sand at 8 feet
10						Test pit terminated at 10 feet No caving of pit sidewalls No groundwater or seepage encountered

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Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 10/22/2021
Logged By: SLH
Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
3						
4						
5	4.2					Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, heavily micaceous. [Willamette Formation]
6						
7						
8		☒	S-1			
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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LEGEND

☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
11						Saturated, medium stiff, brown, sandy SILT (ML) with clay, heavily micaceous. [Willamette Formation]
13					▽	*Test Pit terminated at 13 feet* *Seepage observed in the bottom of the test pit* *No caving*

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☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown and light grey, silty CLAY (CL), orange and dark brown mottling. [Willamette Formation]
2	3.0					
3						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling. [Willamette Formation]
4						
5						
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						
3						
4						
5						
6						Sandiness increasing with depth
7						
8						Moist, stiff, brown, sandy SILT (ML), orange and dark brown mottling, slightly micaceous. [Willamette Formation]
9						
10						
11						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021
Logged By: CSH
Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown and light grey, silty CLAY (CL), orange and dark brown mottling. [Willamette Formation]
2						
3						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling. [Willamette Formation]
4						
5						
6						
7						
8						
9						Very moist to saturated, medium stiff, brown, silty fine grained SAND (SM), heavily micaceous. [Willamette Formation]
10					▽	
11						
12						
						Test Pit terminated at 12 feet *Seepage observed around 10 feet bgs* *No caving*
13						
14						
15						
16						

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☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, brown silt interbedded with dark brown silt and organics. Strata matrix is disturbed and there are some crushed rock fragments. [Undocumented Fill]
3						
4						Decomposing grass layer and buried topsoil
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 9**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, brown silt interbedded with dark brown silt and organics. Strata matrix is disturbed and there are some crushed rock fragments. [Undocumented Fill]
3						
4	1.8					Decomposing grass layer and buried topsoil
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 10**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, dark brown silt with organics and fractured rock. [Undocumented Fill]
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 11**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						
3						
4						
5						
6						Sandiness increasing with depth
7						
8						Moist, stiff, brown, sandy SILT (ML), orange and dark brown mottling, slightly micaceous. [Willamette Formation]
9						
10						
11						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
1						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
4						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, heavily micaceous. [Willamette Formation]
5						*Boring terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
10						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021

Logged By: CSH

Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
1						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
2						
3						Moist, stiff to very stiff, brown, sandy SILT (ML), micaceous. [Willamette Formation]
4						
5						
6						*Boring terminated at 6 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, dark brown silt with organics and fractured rock. [Undocumented Fill]
3						
4						
5						Moist, stiff to very stiff, brown, sandy SILT (ML) [Willamette Formation]
6						*Boring terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						Dry, very stiff, light brown, sandy SILT (ML), orange and dark brown mottling. [Willamette Formation]
3						
4						
5						
6						*Test Pit terminated at 6 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
2						Moist, medium stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
3						
4						
5						*Test Pit terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
6						
7						
8						
9						
10						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021

Logged By: CSH

Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Slightly Moist, Medium Dense, Poorly Graded, Subangular, 1"-0" GRAVEL (GP) in Dark Brown Silty Matrix, Top 3" Highly Organic with Grass Roots *[Undocumented Fill]*
2						*Boring refusal on gravel at 1.1 feet (13 inches)* *No groundwater or seepage encountered* *No caving*
3						
4						
5						
6						
7						
8						
9						
10						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 11/09/2021

Logged By: CSH

Surface Elevation:

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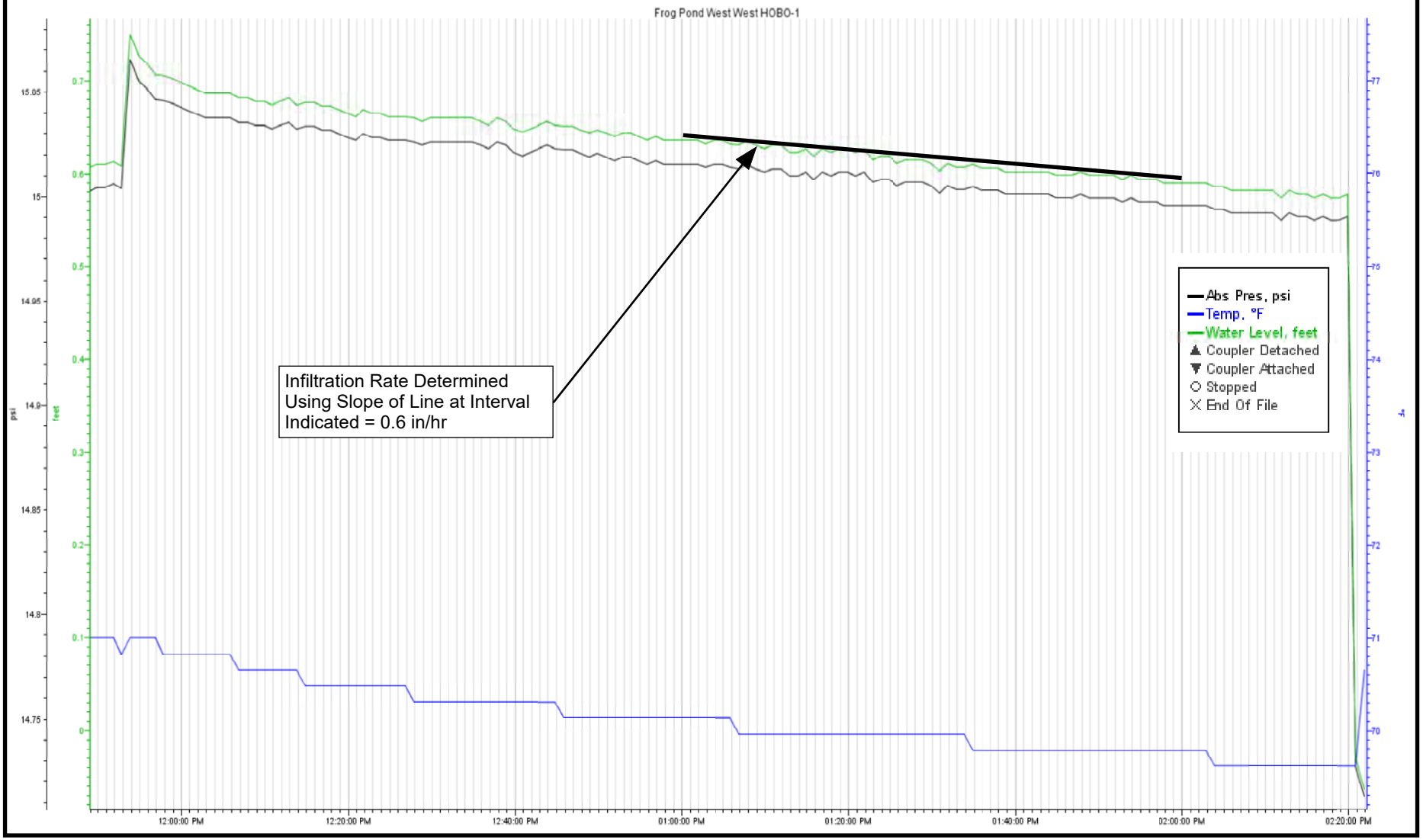
INFILTRATION TEST DATA



Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-1 Depth: 5 Feet

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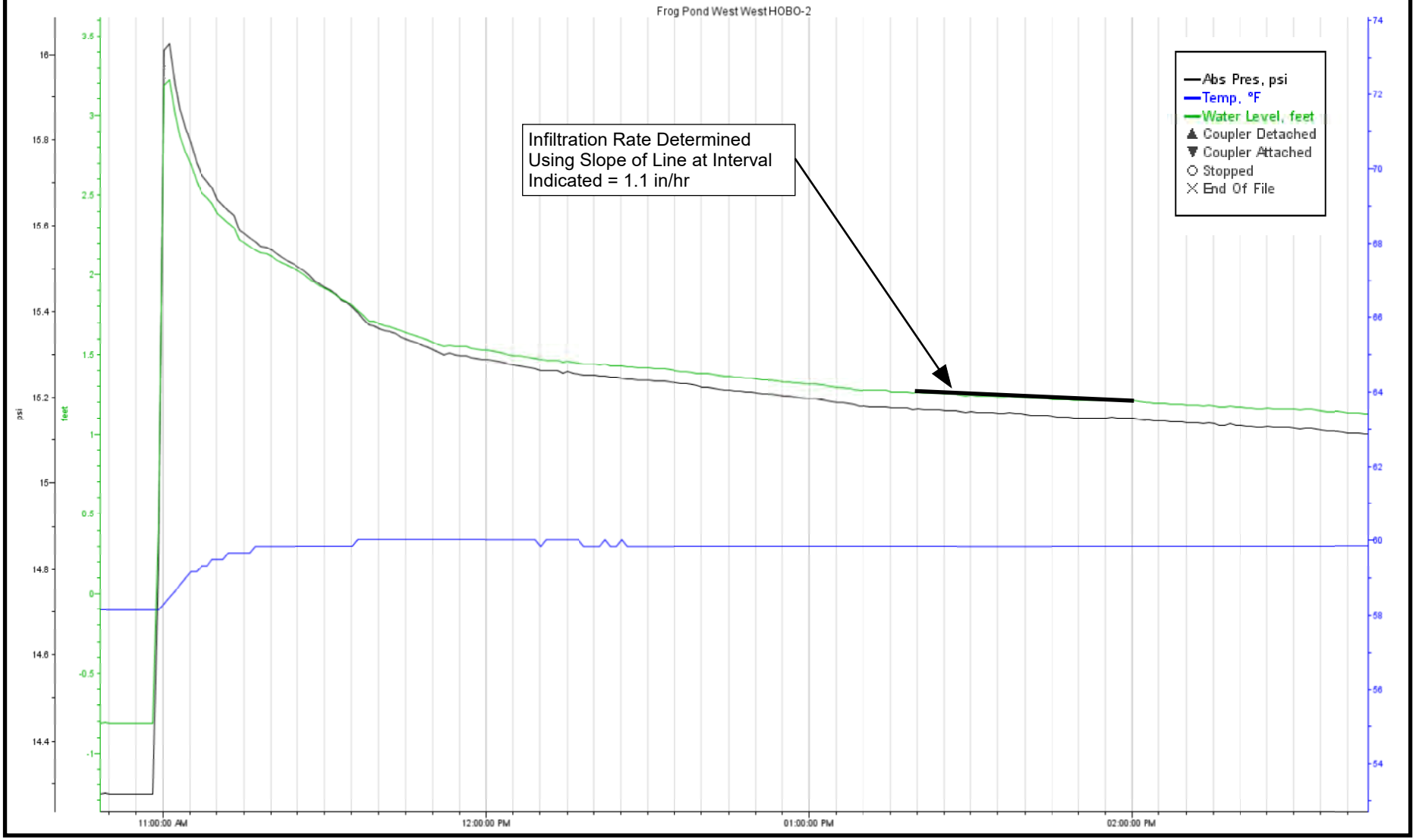
INFILTRATION TEST DATA



Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-2 Depth: 6 Feet

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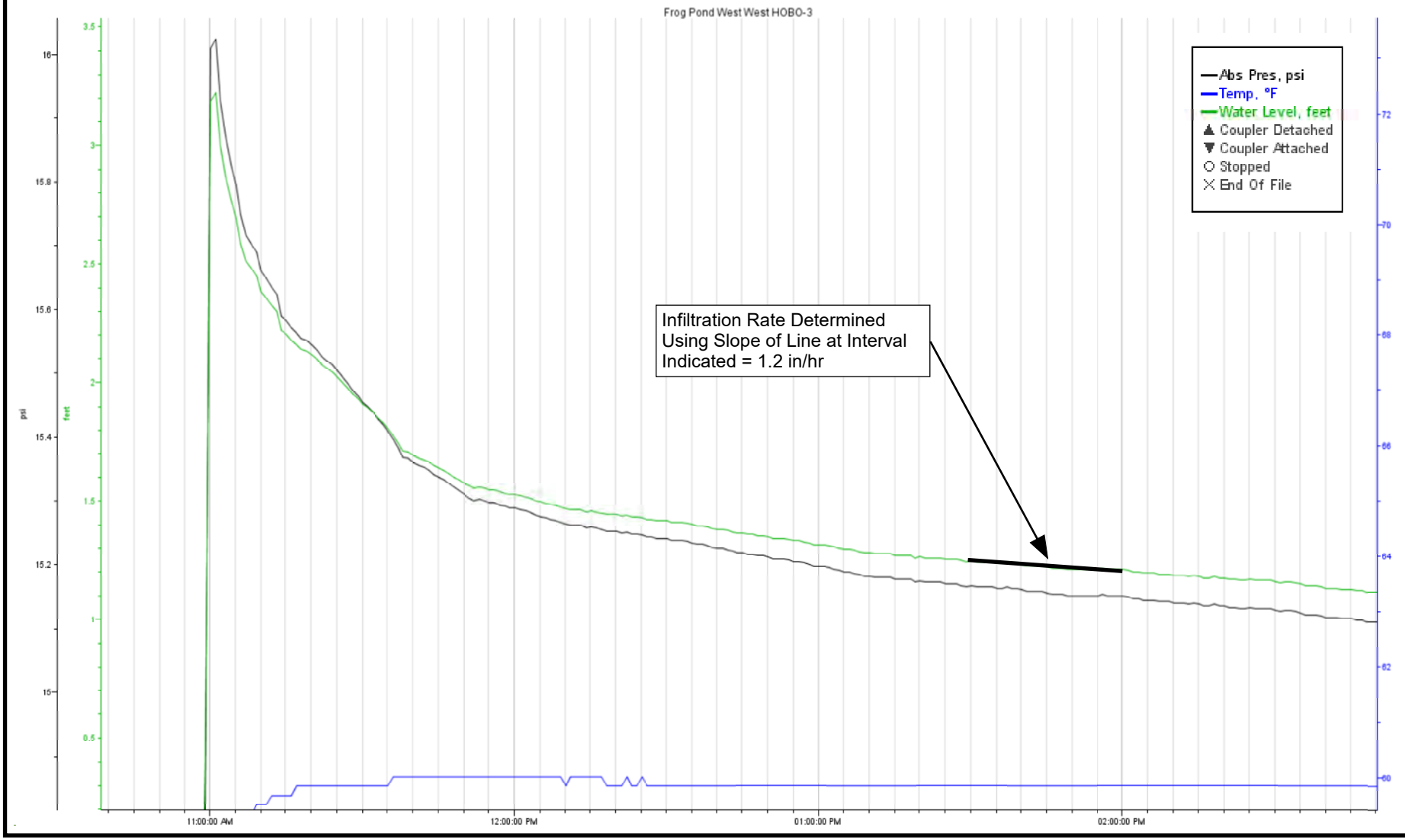
INFILTRATION TEST DATA



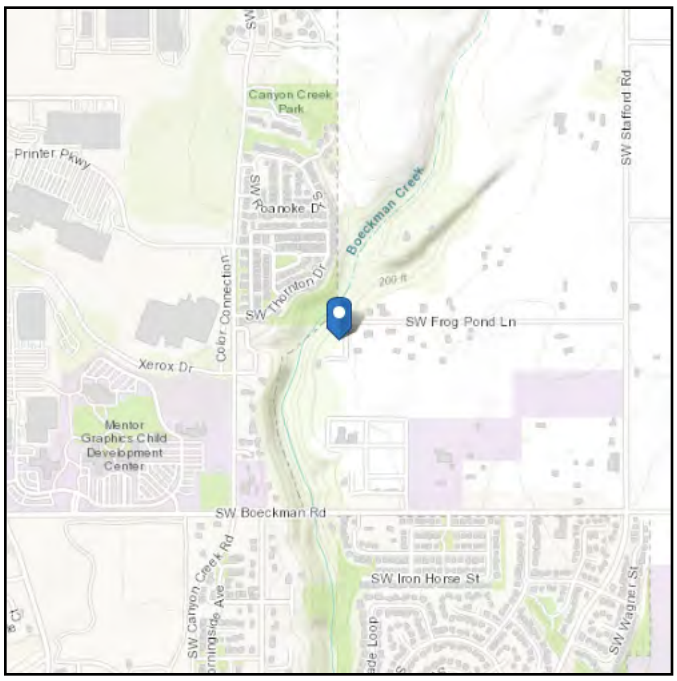
Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-3 Depth: 6 Feet

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 216.52 ft (NAVD 88)
Latitude: 45.3218
Longitude: -122.754



Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.82	S_{D1} :	N/A
S_1 :	0.381	T_L :	16
F_a :	1.172	PGA :	0.373
F_v :	N/A	PGA_M :	0.458
S_{MS} :	0.961	F_{PGA} :	1.227
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.641	C_v :	1.21

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Tue Dec 14 2021

Date Source: USGS Seismic Design Maps

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Appendix C

DownStream Analysis

Memorandum

To:	Keith Buisman, PE
From:	Roger Tiffany, EI and Rose Horton, PE
Copies:	File
Date:	May 17, 2022
Subject:	Downstream Impact Analysis of Boeckman Creek
Project No.:	20015

Introduction

Otak has conducted a downstream impact analysis on the downstream storm conveyance system for the proposed Frog Pond Terrace and Frog Pond Overlook developments, per City of Wilsonville 2015 standards. These proposed developments are located adjacent to Frog Pond Lane and east of Boeckman Creek, as shown on Figure 1.

Figure 1 Vicinity Map

The development will meet the City of Wilsonville Public Work Standards Section 301.4.04 which requires flow control from post-development conditions for peak flow rates generated by between 42% of the 2-year storm up to the 10-year storm.

To meet the requirements of City of Wilsonville Public Work Standards Section 301.5.01, a downstream analysis shall include:

- verifying that the downstream system has the capacity to convey the 25-year design storm.
- extending the analysis downstream to a point in the drainage system where the proposed development site contributes 10% or less of the total tributary drainage flow or for one-quarter mile downstream of the approved point of discharge.

Per email communications with Kerry Rappold on March 3, 2022, the downstream analysis should extend down to the flow control structure directly upstream of SW Boeckman Road.

Existing Conveyance System

The existing conveyance system used in this analysis is shown on Figure 2 (attached), which also includes the drainage basin delineation, time of concentration (Tc) flow paths, and runoff node locations represented in the hydraulic model. Cross sections of the open channel system were obtained from LiDAR and field observation. The proposed Frog Pond Terrace and Frog Pond Overlook developments will discharge runoff into the existing Boeckman Creek channel approximately 1,330 feet upstream of the existing flow control structure.

The stretch of channel downstream of the project site was visited on March 16, 2022. The purpose of the field visit was to observe and document existing channel conditions, outfalls, and contributing waterways. Visual documentation of the drainage system along the channel is included in the Photo Log in Appendix A.

Conveyance Hydrology

Peak runoff rates from the drainage basins delineated in Figure 2 during proposed conditions were calculated using XPSWMM V2021. The Santa Barbara Urban Hydrograph (SBUH) method was used to apply the conveyance design event (25-year recurrence interval, 24-hour duration, NRCS Type 1A rainfall distribution), per Section 301.5.01. Time of Concentration values were calculated for delineated drainage basin using TR-55 equations. Time of Concentration (Tc) flow paths are shown in Figure 2 and corresponding calculations for each drainage basin are included in Appendix B. A time of concentration of five minutes, the minimum allowable, was applied to steep and developed basins for a conservative estimate.

The study area is primarily comprised of Aloha silt loam categorized in the hydrologic soil groups (HSG) Type D and Woodburn silt loam categorized as HSG Type C. HSG D soils generally exhibit very slow infiltration rates when thoroughly wet. The steep area of the channel is Xerochrepts and Haploxerolls which is categorized as HSG Type B with moderate infiltration. A Curve Number (CN) of 98 was used for all impervious areas. The pervious areas were open space with good grass cover, thus a CN of 74 (HSG Type C) was used as applicable.

The basins downstream of the proposed project site are developed residential areas. Impervious percentages were estimated based on existing impervious surfaces captured in 2022 aerial imagery.

The upstream flow in Boeckman Creek was obtained from StreamStats (see Appendix B). It is not recommended to mix hydrologic methods and this data should not be used for design. In this case, the StreamStats data was used provide a rough order of magnitude flowrate for the large upstream basin in comparison with the flowrates generated from the proposed development. Table 1 summarizes the 25-year peak flowrates in Boeckman Creek for proposed project conditions calculated in XP-SWMM. The stationing represents the distance upstream from the existing Boeckman Road flow control structure. The existing flow control structure at the end of the analysis is 1,331 feet downstream from the project's proposed discharge location.

Table 1 Peak 25-Year Flowrates

Node	Station	Total Contributing Basin Area (ac)	Flow Rate (cfs)
Drainage Node 4	16+95	910	116.62
Drainage Node 3	13+31	978	158.38
Drainage Node 2	5+78	992	160.6
Drainage Node 1	2+00	1,025	173.6

Downstream Conveyance Modeling Analysis

The stormwater conveyance network was analyzed in XP-SWMM. The conveyance system was modeled to determine whether the existing downstream system has sufficient capacity to support the Frog Pond Overlook and Frog Pond Terrace developments runoff undetained during the 25-year, 24-hour storm event. The inverts are from as-builts of the flow control structure and LiDAR data. Manning's n values of 0.035 or 0.04 were applied to the channel of Boekman Creek depending on the amount of wood located in the channel along the reach. A Manning's n value of 0.1 was applied to the overbanks. A minimum of one-foot of freeboard between the hydraulic grade line (HGL) and the top of bank was confirmed. The model does not include the effect of the existing flow control structure on the system. Appendix C includes output information from the XP-SWMM model, summarizing the channel network characteristics and results of the hydraulic routing during the design storm.

Conclusions

The downstream stormwater conveyance system was analyzed to confirm conveyance capacity for the proposed development to Boeckman Road. The system consists entirely of open channel upstream of the existing flow control structure at Boeckman Road. A site visit along the downstream reach provided a qualitative assessment of the storm conveyance system and found no evidence of capacity restrictions under existing conditions. The channel was modeled using XP-SWMM software and shows adequate capacity for the proposed flows and the existing flow control structure creates ponding in the downstream reach.

References

Wilsonville, 2015. *City of Wilsonville Public Works Standards. Section 3, Stormwater & Surface Water Design and Construction Standards*, City of Wilsonville, Revised December 2015.

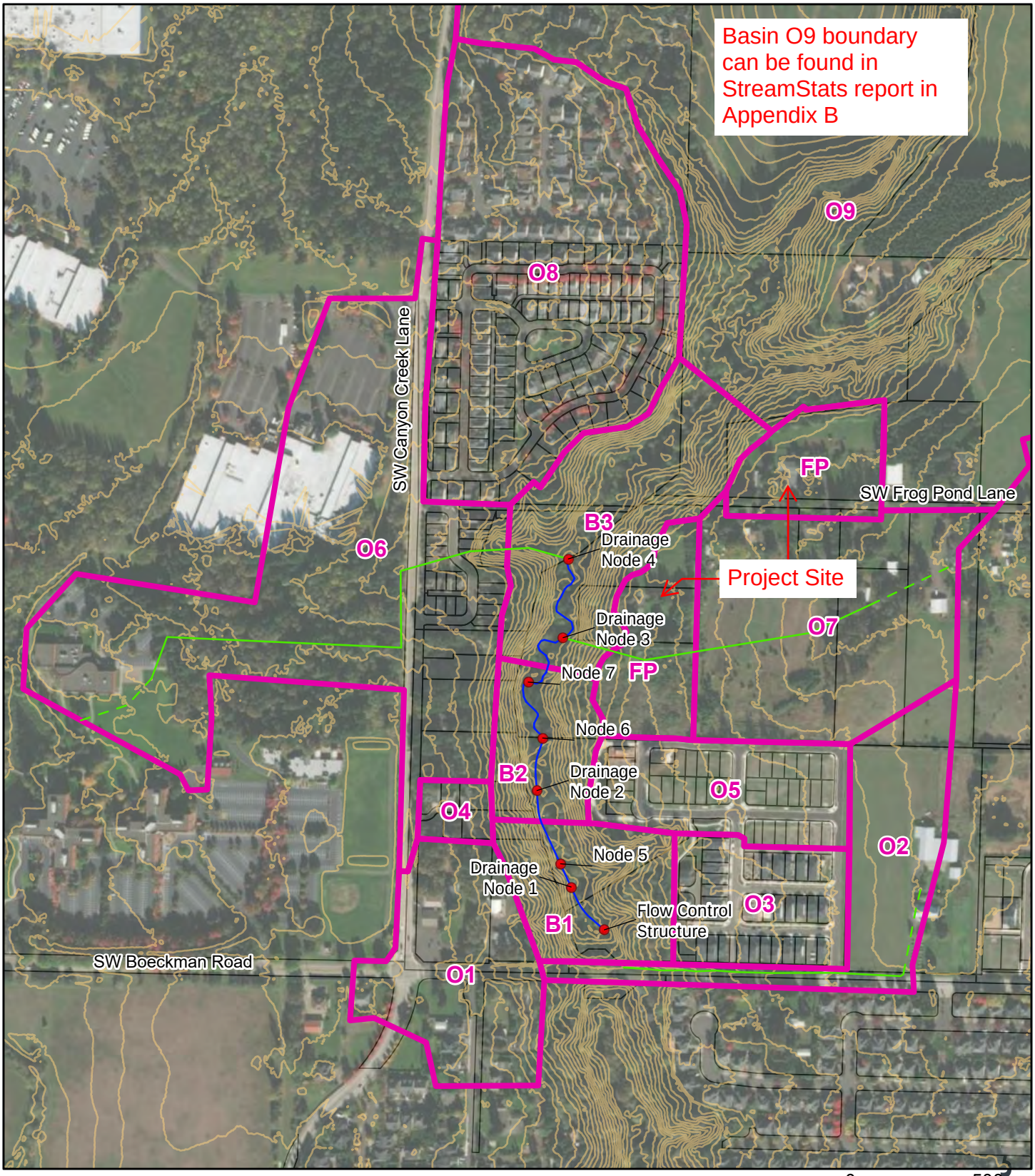

FIGURE 2

DOWNSTREAM ANALYSIS

BOECKMAN CREEK

WILSONVILLE, OREGON

Legend

- Nodes
- Stream Centerline (Analysis Extent)
- Drainage Basins
- Contours (5 ft)

Time of Concentration Path

- Shallow Concentrated Flow
- Sheet Flow

Data Sources:
Date: 4/18/2022
Disclaimer: This data is not to survey accuracy and is meant for planning purposes only.

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Otak

Downstream Analysis of Boeckman Creek
Appendix A
Photo Log

20015 Frog Pond Terrace/Overlook DSA Photolog

Reach 1 - Flow Control Structure
Photo looking upstream

- Measured bank full depth – 52”
- Wide activated overbank floodplain
- Minimal wood and vegetation in channel

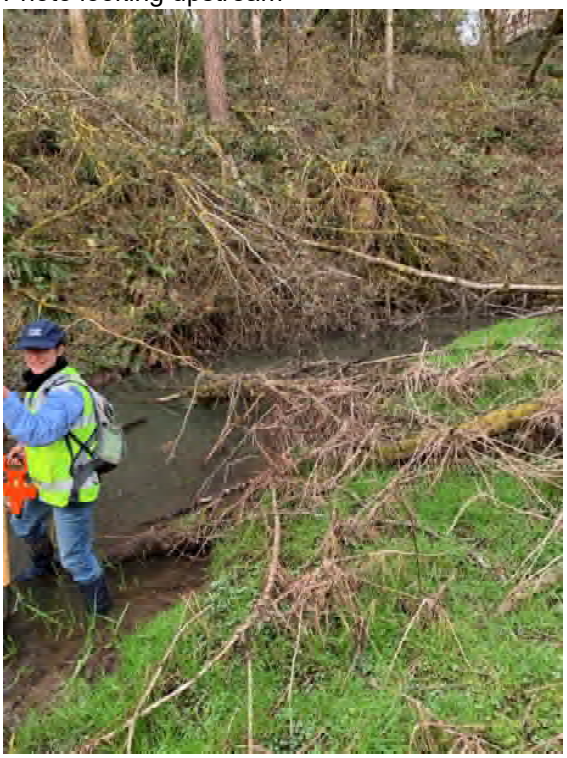
Reach 2
Photo looking upstream

- Measured bank full depth – 30”
- Activated overbank floodplain
- Higher density of wood in channel and beaver dams

Reach 3
Photo looking downstream

- Measured bank full depth – 48”
- More wood in channel than other reaches

Reach 4
Photo looking upstream



- Measured bank full depth – 32”
- More wood located in channel than other reaches

Reach 5

Photo looking downstream

- Measured bank full depth – 24”
- Scattered wood in channel

Reach 6 – Outfall General Location

Photo looking upstream

- Measured depth 2 ft
- Additional 14” above water surface to TOB at 1:1 slope
- Scattered wood in channel

Downstream Analysis of Boeckman Creek
Appendix B
Hydrology

Otak

DSA Drainage Basin Areas

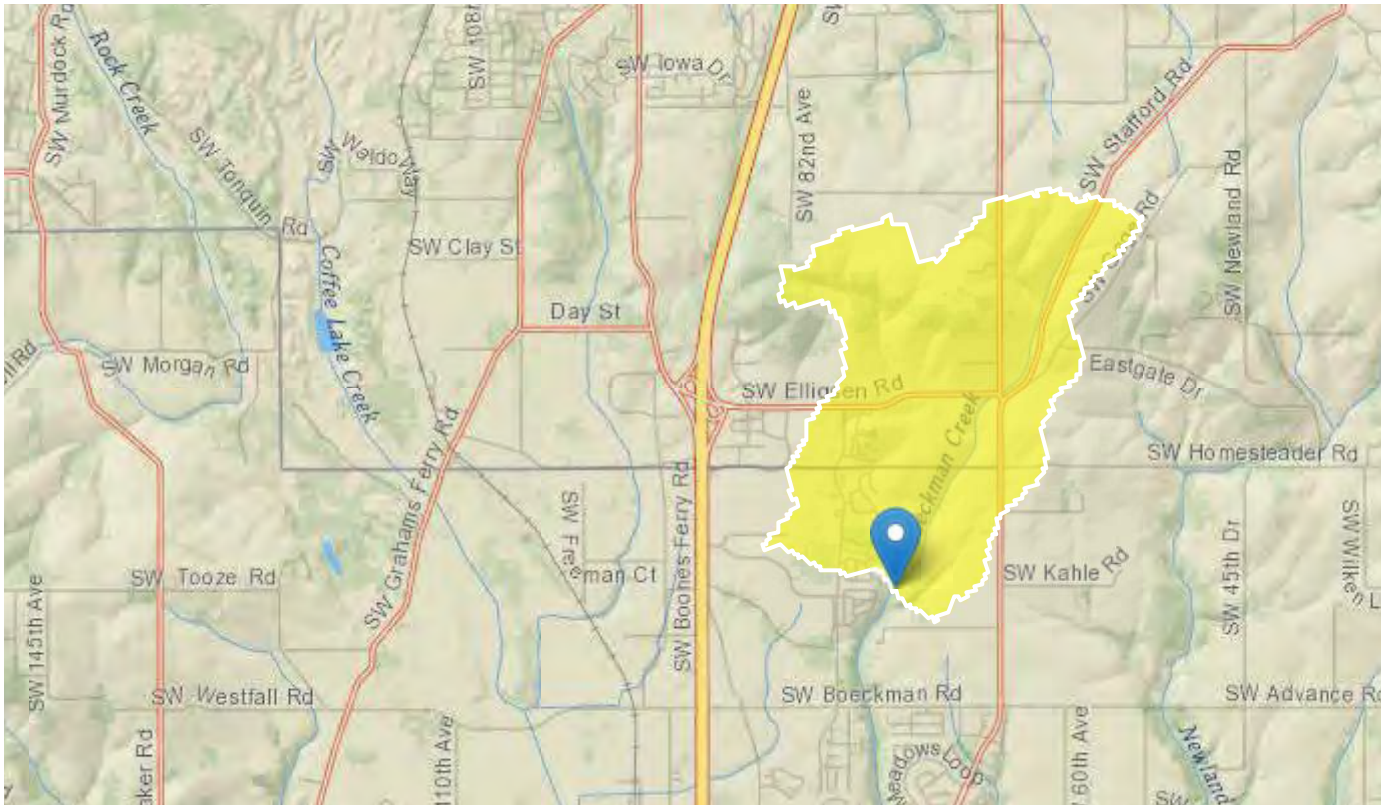
Boeckman Creek

Basin	XP-SWMM Node	Pervious Curve #	Impervious Area		Total Area	
			Tc	%	(sf)	(ac)
Site Total				390	44,646,105	1,025
O1	1	74	5	30	440,423	10.11
O3	1	74	5	50	288,301	6.62
O5	2	74	5	60	335,041	7.69
O4	2	74	5	30	58,509	1.34
O6	4	74	55.4	50	1,520,186	34.90
O8	3	74	5	80	1,250,809	28.71
B1	1	74	5	0	292,661	6.72
B2	2	74	5	0	206,554	4.74
B3	3	74	5	0	542,471	12.45
O9*	4	74			38,128,714	875.31
O2	1	74	28.2	20	405,690	9.31
O7	3	74	48.4	10	759,013	17.42
FP	3	74	5	60	417,733	9.59

*Modeled flow rates from Stream Stats

StreamStats Report - Boeckman Creek

Region ID: OR
Workspace ID: OR20220117180346388000
Clicked Point (Latitude, Longitude): 45.32457, -122.75288
Time: 2022-01-17 10:04:08 -0800



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.59	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	1.81	inches
SOILPERM	Average Soil Permeability	0.71	inches per hour
JANMAXT2K	Mean Maximum January Temperature from 2K resolution PRISM 1961-1990 data	46.2	degrees F

Parameter Code	Parameter Description	Value	Unit
WATCAPORC	Available water capacity from STATSGO data using methods from SIR 2005-5116	0.13	inches
ORREG2	Oregon Region Number	10001	dimensionless
BSLOPD	Mean basin slope measured in degrees	4.36	degrees
JANMINT2K	Mean Minimum January Temperature from 2K resolution PRISM PRISM 1961-1990 data	33.2	degrees F
ELEV	Mean Basin Elevation	338	feet
PRECIP	Mean Annual Precipitation	44.6	inches
DRNDENSITY	Basin drainage density defined as total stream length divided by drainage area.	0.63	dimensionless
MINBELEV	Minimum basin elevation	170	feet
MINTEMP	Mean annual minimum air temperature over basin surface area as defined in SIR 2008-5126	42.8	degrees F
JANMINTMP	Mean Minimum January Temperature	33.8	degrees F
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	62.4	degrees F
LC11DVOPN	Percentage of developed open area from NLCD 2011 class 21	13	percent
LC11WETLND	Percentage of wetlands, classes 90 and 95, from NLCD 2011	0	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	13.4	percent
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	1.62	miles

Peak-Flow Statistics Parameters [Reg 2B Western Interior LT 3000 ft Cooper]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.59	square miles	0.37	7270
BSLOPD	Mean Basin Slope degrees	4.36	degrees	5.62	28.3
I24H2Y	24 Hour 2 Year Precipitation	1.81	inches	1.53	4.48
ELEV	Mean Basin Elevation	338	feet		

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ORREG2	Oregon Region Number	10001	dimensionless		

Peak-Flow Statistics Disclaimers [Reg 2B Western Interior LT 3000 ft Cooper]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Reg 2B Western Interior LT 3000 ft Cooper]

Statistic	Value	Unit
50-percent AEP flood	45.8	ft^3/s
20-percent AEP flood	68.7	ft^3/s
10-percent AEP flood	84.7	ft^3/s
4-percent AEP flood	105	ft^3/s
2-percent AEP flood	121	ft^3/s
1-percent AEP flood	137	ft^3/s
0.2-percent AEP flood	174	ft^3/s

Peak-Flow Statistics Citations

Cooper, R.M.,2005, Estimation of Peak Discharges for Rural, Unregulated Streams in Western Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5116, 76 p. (http://pubs.usgs.gov/sir/2005/5116/pdf/sir2005-5116.pdf)

Monthly Flow Statistics Parameters [LowFlow Apr Region02 2008 5126]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.59	square miles	3.068	2025.868
PRECIP	Mean Annual Precipitation	44.6	inches	42.7355	101.2128
SOILPERM	Average Soil Permeability	0.71	inches per hour	0.502	3.724

Monthly Flow Statistics Parameters [LowFlow Aug Region02 2008 5126]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.59	square miles	3.068	2025.868
DRNDENSITY	Basin Drainage Density	0.63	dimensionless	0.118	0.876

Time of Concentration Calculations

Boeckman Creek Downstream Analysis

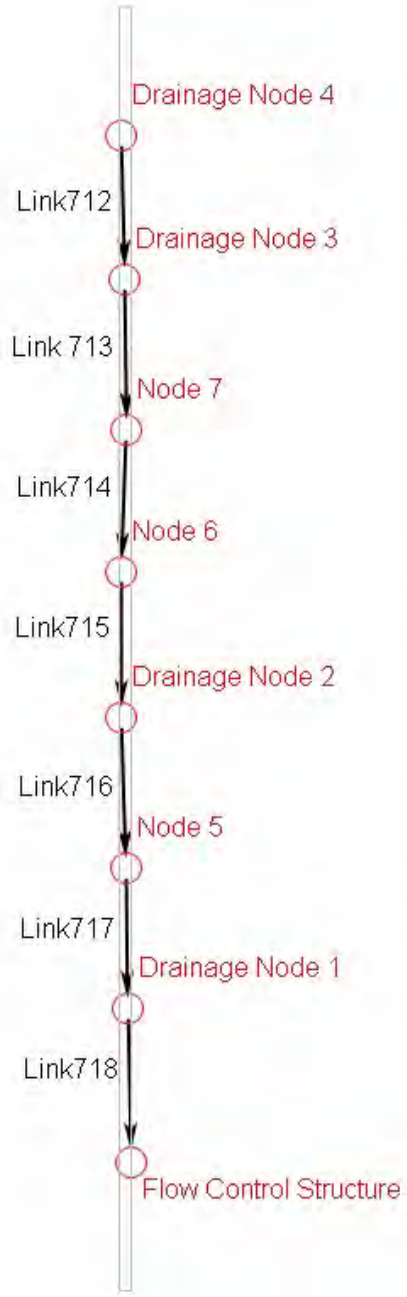
BASINS:		O7	O6	O2
SHEET FLOW				
INPUT				
Surface Description (from Table 3-1)		Short Grass/Woods mix	Short Grass	Short Grass
Manning's Roughness Coefficient		0.25	0.4	0.15
Flow Length , L (<300 ft)	ft	300	300	300
2-Year, 24-Hour Rainfall, P_2	in	2.5	2.5	2.5
Land Slope, s	ft/ft	0.016	0.027	0.025
OUTPUT				
Travel Time	hr	0.73	0.86	0.41
SHALLOW CONCENTRATED FLOW				
INPUT				
Surface Description (paved or unpaved)		Unpaved		Unpaved
Flow Length, L	ft	1200		900
Watercourse Slope, s	ft/ft	0.075		0.06
OUTPUT				
Average Velocity, V	ft/s	4.42		3.95
Travel Time	hr	0.08		0.06
CHANNEL FLOW				
INPUT				
Cross Sectional Flow Area, a	ft^2		1.23	
Wetted Perimeter, p_w	ft		3.93	
Channel Slope, s	ft/ft		0.03	
Manning's Roughness Coefficient			0.013	
Flow Length, L	ft		1925	
OUTPUT				
Average Velocity, V	ft/s		9.15	
Hydraulic Radius, r = a/p_w	ft		0.31	
Travel Time	hr		0.058	
Basin Time of Concentration, T_c	**hrs**	**0.81**	**0.92**	**0.47**
	min	**48.4**	**55.4**	**28.2**

Downstream Analysis of Boeckman Creek
Appendix C
Model Results

Otak

XP-SWMM Layout

Boeckman Creek Downstream Analysis



XP-SWMM RUNOFF DATA
Boeckman Creek Downstream Analysis
Proposed Conditions

SCS Type 1A 25-Year Storm Event							
XP-SWMM Input Data					XP-SWMM Output Data		
Node Name	Total Area (ac)	Impervious %	Pervious Curve Number	Tc (min)	Rainfall Depth (in)	Unit Hydrograph Method	Surface Runoff Flow (cfs)
Drainage Node 1	10.11	30	74	5	3.9	Santa Barbara	6.24
Drainage Node 1	6.62	50	74	5	3.9	Santa Barbara	5.19
Drainage Node 1	6.72	0	74	5	3.9	Santa Barbara	2.65
Drainage Node 1	9.31	20	74	28.2	3.9	Santa Barbara	2.78
Drainage Node 2	7.69	60	74	5	3.9	Santa Barbara	6.70
Drainage Node 2	1.34	30	74	5	3.9	Santa Barbara	0.83
Drainage Node 2	4.74	0	74	5	3.9	Santa Barbara	1.87
Drainage Node 3	28.71	80	74	5	3.9	Santa Barbara	29.94
Drainage Node 3	12.45	0	74	5	3.9	Santa Barbara	4.91
Drainage Node 3	17.42	10	74	48.4	3.9	Santa Barbara	3.43
Drainage Node 3	9.59	60	74	5	3.9	Santa Barbara	8.36
Drainage Node 4	34.90	50	74	55.4	3.9	Santa Barbara	11.55

XP-SWMM HYDRAULICS DATA

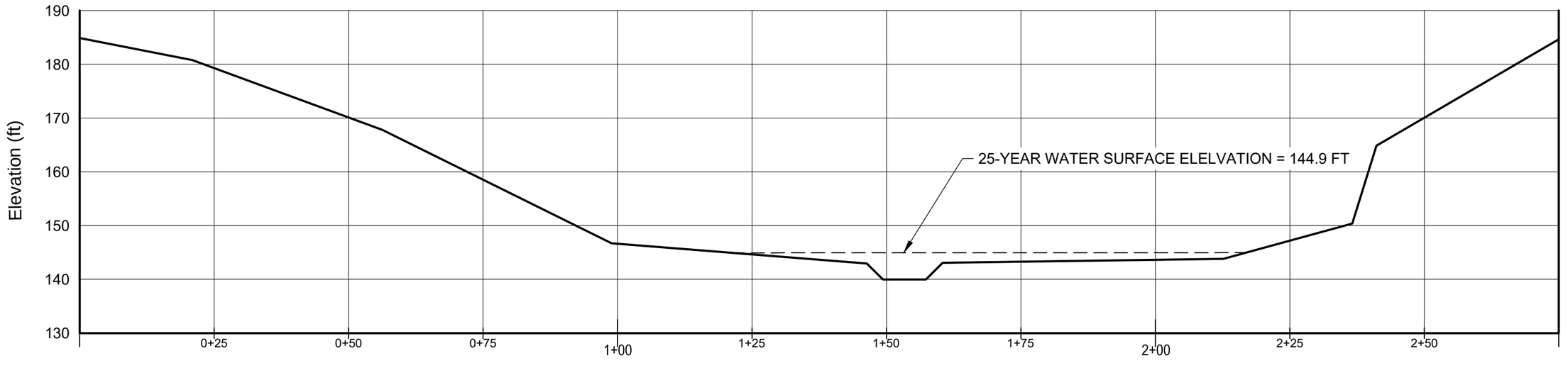
Boeckman Creek Downstream Analysis

Proposed Conditions

SCS Type 1A 25-Year Storm Event																
Location			Channel		Channel Profile								Channel Results			
Link Name	Node Limits		Length	Slope	Ground Elevation (ft)		Invert Elevation (ft)		Max. Water Elevation (ft)		Freeboard (ft)		Max. Flow	Max. Velocity	Max. Depth	y/d0
	From	To	ft	%	US	DS	US	DS	US	DS	US	DS	(cfs)	(ft/s)	(ft)	
Link712	Drainage Node 4	Drainage Node 3	364.00	0.6	188.19	186.12	143.27	141.20	146.53	144.90	41.66	41.22	116.62	3.66	3.70	0.08
Link 713	Drainage Node 3	Node 7	309.00	0.6	186.12	184.93	141.20	139.42	144.90	143.17	41.22	41.76	158.38	3.74	3.75	0.08
Link715	Node 6	Drainage Node 2	196.00	0.2	186.41	186.00	137.41	137.00	142.07	141.44	44.34	44.56	153.78	3.20	4.66	0.10
Link717	Node 5	Drainage Node 1	93.00	1.0	185.60	184.43	136.60	135.10	139.77	137.15	45.83	47.28	160.56	4.60	3.17	0.07
Link714	Node 7	Node 6	248.00	0.8	184.93	186.41	139.42	137.41	143.17	142.07	41.76	44.34	155.45	2.99	4.66	0.10
Link716	Drainage Node 2	Node 5	285.00	0.1	186.00	185.60	137.00	136.60	141.44	139.77	44.56	45.83	160.61	3.75	4.44	0.09
Link718	Drainage Node 1	Flow Control Structure	200.00	1.6	184.43	181.33	135.10	132.00	137.15	133.96	47.28	47.37	173.66	7.02	2.05	0.04

Boeckman Road surface is higher than elevation 176

Cross Section for Link 713 is directly downstream of the proposed development



Link 713 Cross Section

Appendix D

BMP Sizing Tool Output

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Frog Pond Terrace & Frog Pond Overlook
Project Type	Subdivision
Location	7480 SW Frog Pond Lane
Stormwater Management Area	6500
Project Applicant	West Hills Development
Jurisdiction	CCSD1NCSA

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
O3 Perv	998	Grass	LandscapeCsoil	C	Swale 4
O3 Imp.	11,467	Grass	ConventionalConcrete	C	Swale 4
T13 Perv.	1,775	Grass	LandscapeCsoil	C	Swale 3
T13 Imp.	6,251	Grass	ConventionalConcrete	C	Swale 3
T11 Imp.	9,707	Grass	ConventionalConcrete	C	Swale 1
T11 Perv.	548	Grass	LandscapeCsoil	C	Swale 1
Pond Basins Imp.	125,358	Grass	ConventionalConcrete	C	Pond
Pond Basins Perv.	107,258	Grass	LandscapeCsoil	C	Pond
T12 Imp.	5,835	Grass	ConventionalConcrete	C	Swale 2
T12 Perv.	889	Grass	LandscapeCsoil	C	Swale 2
O4 Imp.	10,399	Grass	ConventionalConcrete	C	Swale 5
O4 Perv.	815	Grass	LandscapeCsoil	C	Swale 5
FP2 Imp.	2,177	Grass	ConventionalConcrete	C	Swale 6
FP2 Perv.	183	Grass	LandscapeCsoil	C	Swale 6
FP3 Imp	3,445	Grass	ConventionalConcrete	C	Swale 7
FP3 Perv.	248	Grass	LandscapeCsoil	C	Swale 7

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
Swale 2	FlowControlAndTreatment	Vegetated Swale - Filtration	C2	314.0	336.0	0.8
Swale 1	WaterQuality	Vegetated Swale - Filtration	C2	149.7	342.0	0.6
Swale 3	FlowControlAndTreatment	Vegetated Swale - Filtration	C2	356.9	384.0	0.9
Swale 4	WaterQuality	Vegetated Swale - Filtration	C2	179.5	221.0	0.6
Swale 5	WaterQuality	Vegetated Swale - Filtration	C2	162.1	192.0	0.6
Swale 6	FlowControlAndTreatment	Vegetated Swale - Filtration	C2	113.4	183.0	0.5
Swale 7	FlowControlAndTreatment	Vegetated Swale - Filtration	C2	178.5	248.0	0.6

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?
Pond	FCWQT	Lined	5.00	7,523.0	3	26,105.1	18,278.3	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: Pond
Design: FlowControlAndTreatment

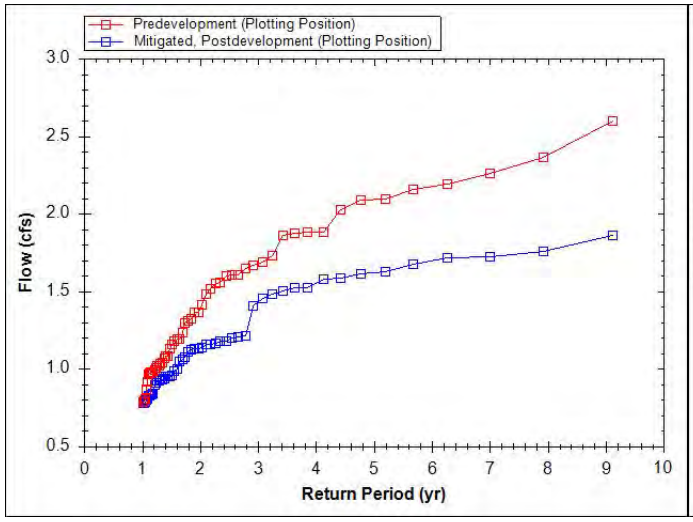
Shape Curve

Depth (ft)	Area (sq ft)
5.0	7,523.0

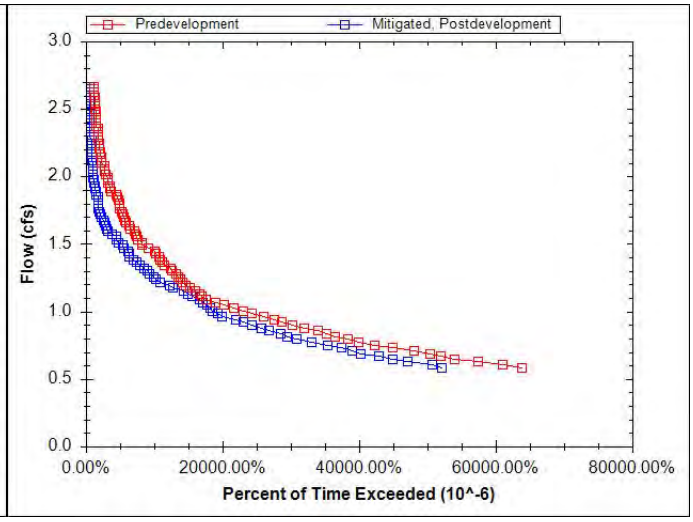
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	3.2
Upper Orifice Invert(ft)	3.4
Upper Orifice Dia (in)	7.9
Overflow Weir Invert(ft)	4.0
Overflow Weir Length (ft)	6.3

Flow Frequency Chart

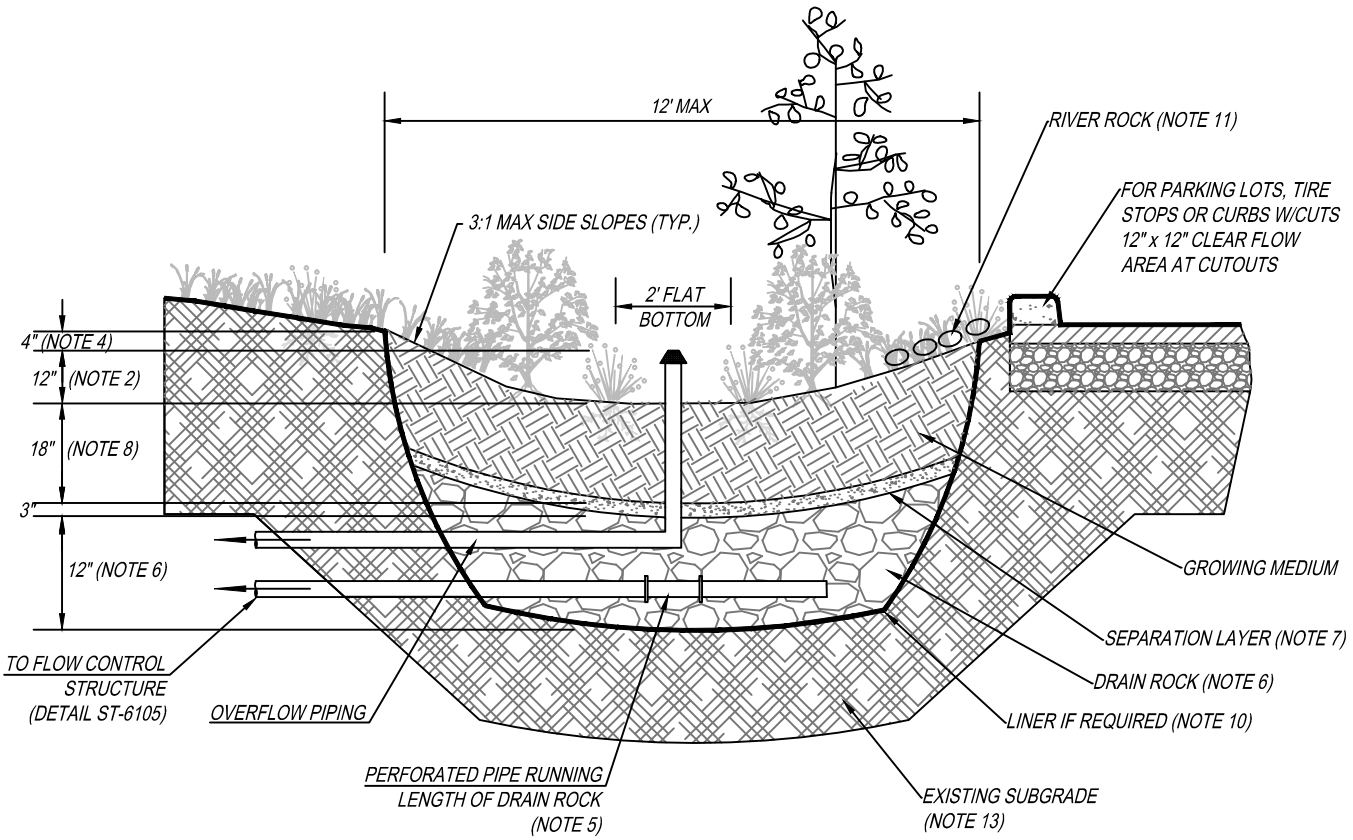


Flow Duration Chart



Appendix E

Operations and Maintenance Plans



GENERAL NOTES:

1. **PROVIDE PROTECTION** FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED SWALES ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.
2. **DIMENSIONS:**
   -DEPTH OF SWALE (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION); 12"
   -LONGITUDINAL SLOPE OF SWALE:6.0% OR LESS
   -FLAT BOTTOM WIDTH: 2' MINIMUM
   -SIDE SLOPES OF SWALE: 3:1 MAXIMUM
3. **LOCATION/SETBACKS:**
   -FILTRATION SWALES SHALL BE 10' FROM FOUNDATIONS AND 5' FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL
4. **OVERFLOW:**
   -INLET ELEVATION SHALL ALLOW FOR 4" OF FREEBOARD, MIMIMUM.
   - PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.
5. **PIPING:**
   -PERFORATED UNDER-DRAIN PIPING: SHALL BE ABS SCH. 40, CAST IRON, OR PVC SCH.40. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND. WRAP UNDER-DRAIN IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
   -OVERFLOW PIPING: SHALL BE ABS SCH. 40, CAST IRON, OR PVC SCH. 40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND.
6. **DRAIN ROCK:**
   -SIZE: 1 1/2" - 3/4" WASHED
   -DEPTH: 12"
7. **SEPARATION** BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.
8. **GROWING MEDIUM:**
   -18" MINIMUM
   -SEE APPENDIX C FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
   -FACILITY SURFACE AREA MAY BE REDUCED BY 25% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30" OR MORE.
9. **VEGETATION:** FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.
10. **WATERPROOF LINER (IF REQUIRED):** SHALL BE 30 MIL PVC OR EQUIVALENT.
11. **INSTALL RIVER ROCK** SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLETS TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" TO 3", 4 SQUARE FEET, 6" DEEP.
12. **CHECK DAMS:** SHALL BE PLACED ACCORDING TO FACILITY DESIGN. REFER TO DETAIL ST-6100 FOR PROFILE AND SPACING.
13. **SEASONAL HIGH GROUNDWATER SEPARATION:**
    -SEPARATION DISTANCE AS REQUIRED BY CITY.

Vegetated Swale - Filtration			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6045	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6045.DWG	APPROVED BY: NK	DATE: 6/3/16	PUBLIC WORKS STANDARDS

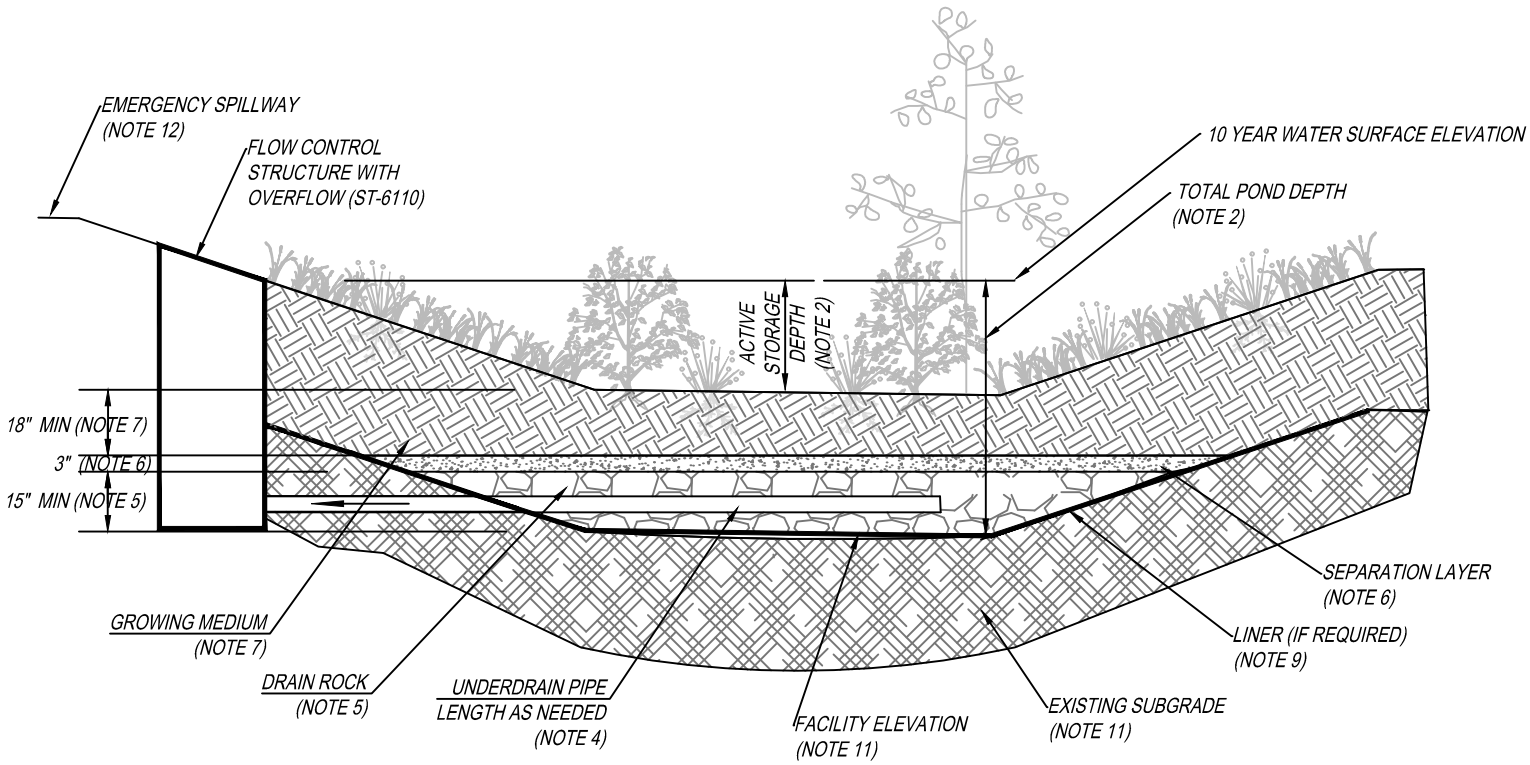
Vegetated Swales
Operations & Maintenance Plan

What to Look For	What to Do
Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains, curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Replace/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 - 10 inch deep rock check dams at design intervals.
Vegetation	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back to 4-6 inches, 1-2 times per year. Remove cuttings
Weeds	-Manually remove weeds. Remove all plant debris.
Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Restore or create outfalls, checkdams, or splash blocks where necessary.
Slope Sippage	-Stabilize Slope.
Ponding	-Rake, till, or amend to restore infiltration rate.

Annual Maintenance Schedule:

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

Vegetated Swale O & M Plan			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6055	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6055.DWG	APPROVED BY: NK	DATE: 10/8/14	PUBLIC WORKS STANDARDS



GENERAL NOTES:

1. **PROVIDE PROTECTION** FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED PONDS ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.
2. **DIMENSIONS:**
   -ACTIVE STORAGE DEPTH: (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION); PER FACILITY SIZING MODEL
   -TOTAL POND DEPTH: 4' MINIMUM, PER FACILITY SIZING MODEL
   -BOTTOM SLOPE: 2.0% OR LESS
   -SIDE SLOPES OF DETENTION POND: 3:1 MAXIMUM
3. **LOCATION/SETBACKS:**
   -DETENTION POND SHALL BE 10' FROM FOUNDATIONS AND 5' FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL.
4. **PIPING:**
   -PERFORATED UNDER-DRAIN PIPING: SHALL BE ABS SCH. 40, CAST IRON OR PVC SCH. 40. 6" MINIMUM DIAMETER. PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND. WRAP UNDER-DRAIN PIPE IN FILTER FABRIC TO REDUCE TRANSPORT OF FINES.
   -OVERFLOW PIPING: SHALL BE ABS SCH. 40, CAST IRON OR PVC SCH. 40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6". PIPING SHALL HAVE 1% GRADE AND FOLLOW THE UNIFORM PLUMBING CODE. PVC NOT ALLOWED ABOVE GROUND.
5. **DRAIN ROCK:**
   -SIZE: 1 1/2" - 3/4"-0 WASHED
   -DEPTH: 15" MINIMUM
6. **SEPARATION** BETWEEN DRAIN ROCK AND GROWING MEDIUM: SHALL BE A 3" LAYER OF 3/4" - 1/4" OPEN GRADED AGGREGATE.
7. **GROWING MEDIUM:**
   -18" MINIMUM
   -SEE APPENDIX C FOR SPECIFICATION OR USE SAND/LOAM/COMPOST 3-WAY MIX.
8. **VEGETATION:** FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX A.
9. **WATERPROOF LINER (IF REQUIRED):** SHALL BE 30 MIL PVC OR EQUIVALENT FOR DETENTION POND.
10. **INSTALL RIVER ROCK** SPLASH PAD OVER A NON WOVEN GEO TEXTILE FABRIC TO TRANSITION FROM INLETS TO GROWING MEDIUM. SIZE OF ROCK SHALL BE 1" TO 3", 4 SQUARE FEET 6" DEEP.
11. **SEASONAL HIGH GROUNDWATER SEPARATION:**
    -SEPARATION DISTANCE AS REQUIRED BY CITY.
12. **EMERGENCY SPILLWAY** SIZED TO CONVEY THE 100 YEAR DESIGN STORM (S-2275). SEE PUBLIC WORKS STANDARDS 301.4.09

Detention Pond			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6060	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6060.DWG	APPROVED BY: NK	DATE: 6/3/16	PUBLIC WORKS STANDARDS

Detention Pond
Operations & Maintenance Plan

Detention Pond removes pollutants through several processes: sedimentation, filtration, and biological processes. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

What to Look For	What to Do
Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.	
Clogged inlets or outlets	-Remove sediment and debris from catch basins, trench drains, curb inlets and pipes to maintain at least 50% conveyance capacity at all times.
Cracked Drain Pipes	-Repair/seal cracks. Replace when repair is insufficient.
Check Dams	-Maintain 4 - 10 inch deep rock check dams at design intervals.
Vegetation shall cover 90% of the facility.	
Dead or strained vegetation	-Replant per original planting plan, or substitute from Appendix A. -Irrigate as needed. Mulch banks annually. DO NOT apply fertilizers, herbicides, or pesticides.
Tall Grass and Vegetation	-Cut back grass and prune overgrowth 1-2 times per year. Remove cuttings.
Weeds	-Manually remove weeds. Remove all plant debris.
Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 72 hours.	
Gullies	-Fill, lightly compact, and plant vegetation to disperse flow.
Erosion	-Replace splash blocks or inlet gravel/rock.
Slope Sippage	-Stabilize 3:1 Slopes/banks with plantings from Appendix A
Ponding	-Rake, till, or amend to restore infiltration rate.

Annual Maintenance Schedule:

All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, and 2 times per year thereafter, and within 48 hours after each major storm event.

Access: Maintain ingress/egress to design standards.

Infiltration/Flow Control: All facilities shall drain within 72 hours. Record time/date, weather, and site conditions when ponding occurs.

Pollution Prevention: All sites shall implement best management practices to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Contact _____ for immediate assistance responding to spills. Record time/date, weather, and site conditions if site activities contaminate stormwater.

Vectors (Mosquitoes & Rodents): Stormwater facilities shall not harbor mosquito larvae or rats that pose a threat to public health or that undermine the facility structure. Monitor standing water for small wiggling sticks perpendicular to the water's surface. Note holes/burrows in and around facilities. Call Clackamas County Vector Control for immediate assistance to eradicate vectors. Record time/date, weather, and site conditions when vector activity observed.

Detention Pond O & M Plan			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6065	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6065.DWG	APPROVED BY: NK	DATE: 10/8/14	PUBLIC WORKS STANDARDS

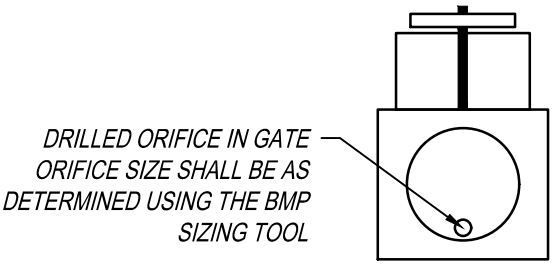
STORMWATER FACILITIES
OPERATIONS AND MAINTENANCE CHECKLIST

Problem	Frequency	Trigger	Preferred Condition
Sediment Accumulation in Treatment Area	Monthly from November through April Annually Required	Sediment depth exceeds 3 inches	Sediment removed from vegetated treatment area: level side to side and drains freely toward outlet; no standing water within 24 hours of any major storm (1" in 24 hours)
Erosion Scouring	Monthly from November through April Annually Required	Monthly from November through April Annually Required	Repair ruts or bare areas by filling with topsoil during dry season; regreade and replant large bare areas.
Standing Water	Monthly from November through April and after any major storm (1 inch in 24 hours)	Standing water in the planter between storms that does not drain freely	Remove sediment or trash blockages; improve end to end grade so there is no standing water 24 hours after any major storm (1 inch in 24 hours)
Flow not Distributed Evenly	Monthly from November through April Annually Required	Flows unevenly distributed through planter width due to uneven or clogged flow spreader	Level the spreader and clean so that flows spread evenly over entire planter width
Settlement/ Misalignment	Annually Required	Failure of planters has created safety, function, or design problem	Planter replaced or repaired to design standards
Constant Baseflow	Monthly from November through April Annually Required	Small, continual flow of water through the planter even after weeks without rain; planter bottom has an eroded, muddy channel	Add a low-flow pea gravel drain the length of the planter or bypass the baseflow around the planter
Vegetation	Monthly from November through April Annually Required	Vegetation blocking more than 10% of the inlet pipe opening	No vegetation blocking the inlet pipe opening
Poor Vegetation Coverage	Monthly Annually Required	Grass or other vegetation is sparse, or bare in more than 10% of the planter area	Determine cause of poor growth and correct the condition; replant with plants (per Appendix A) as needed to meet facility standards
Invasive Vegetation	Monthly Annually Required	No invasive vegetation is planted or permitted to remain	no invasive vegetation present; remove excessive weeds. Control if complete eradication is not feasible
Rodents	Monthly Annually Required	Evidence of rodents or rodent damage	No rodents; functioning facility
Insects	Annually Required	Insects such as wasps and hornets that interfere with maintenance activities	Harmful Insects removed
Trash and Debris	Monthly and after any major storm (1 inch in 24 hours) Annually Required	Visual evidence of trash, debris or dumping	Trash and Debris removed from facility
Contamination and Pollution	Monthly from November through April Annually Required	Any evidence of oil, gasoline, contamination or other pollutants	No contaminants or pollutants present; coordinate removal/cleanup with local water quality response agency
Obstructed Inlet/Outlet	Monthly and after any major storm event (1 inch in 24 hours) Annually Required	Inlet/outlet areas clogged with sediment, vegetation or debris	Clear inlet and outlet; obstructions removed
Excessive Shading	Monthly from November through April Annually Required	Vegetation growth is poor because unlight does not reach planter	Trim over-hanging limbs and/or remove brushy vegetation as needed
Vegetation	Monthly from November through April Annually Required	Specified or approved grass grows so tall that if competes with shrubs and/or becomes a fire danger	String trim non-wetland grasses to 4 inch to 6 inch and remove clippings; protect woody vegetation

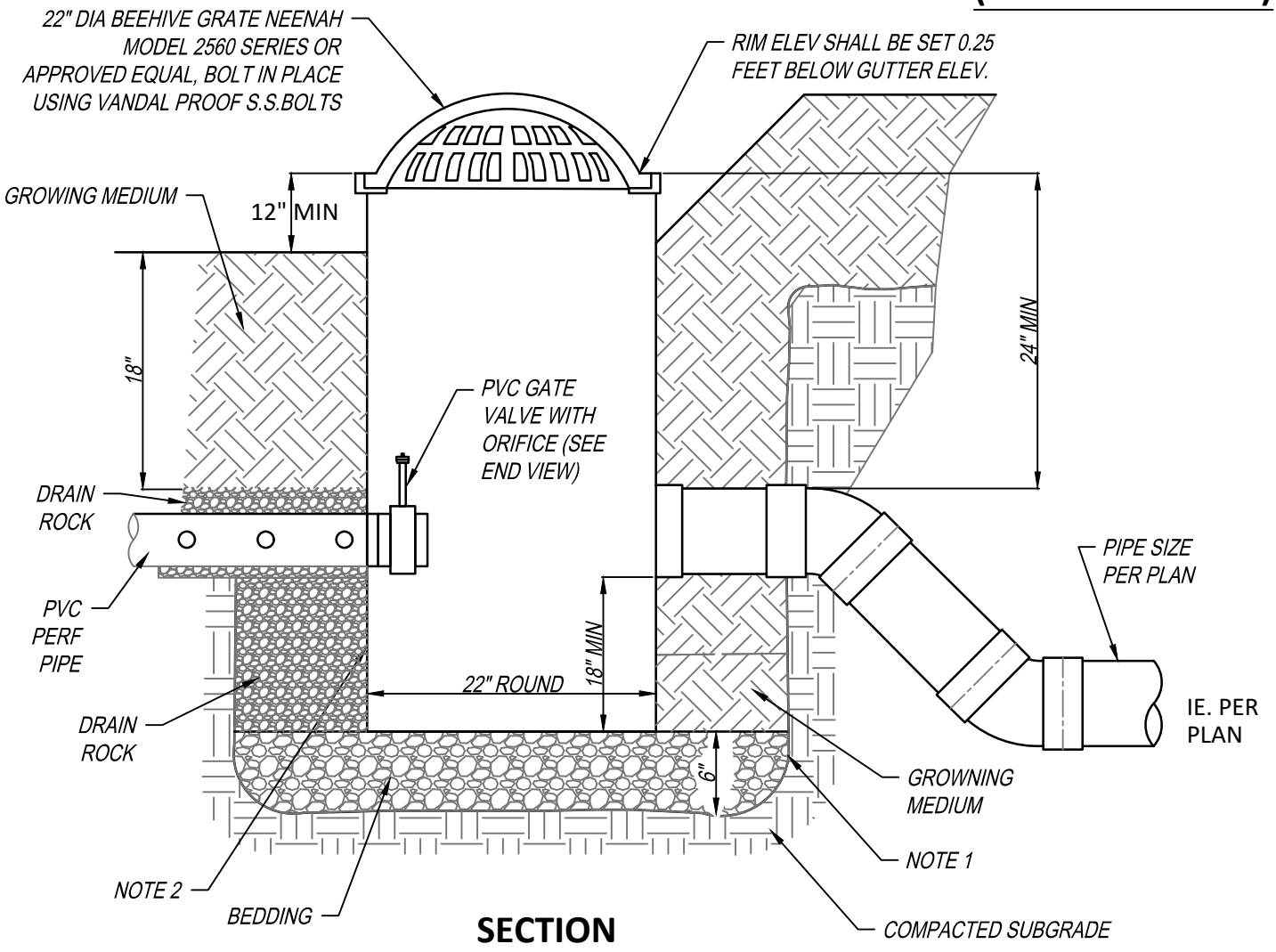
Stormwater Facilities Operations & Maintenance Checklist		
DRAWING NUMBER: ST-6115	DRAWN BY: SR	SCALE: N.T.S.
FILE NAME: ST-6115.DWG	APPROVED BY: NK	DATE: 10/3/14

CITY OF WILSONVILLE

PUBLIC WORKS STANDARDS



END VIEW
(PVC GATE VALVE)



SECTION

NOTES:
1. CONTRACTOR TO WIDEN EXCAVATION AS REQUIRED TO OBTAIN COMPACTION WITH CONTRACTORS COMPACTION EQUIPMENT.
2. 10 GA. STEEL PLATE, BITUMINOUS COATED BASIN AS MANUFACTURED BY GIBSON STEEL, GRATEMASTER OR APPROVED EQUAL.
3. BEDDING SHALL BE 6" OF COMPACTED 3/4"-0 CRUSHED ROCK BASE MATERIAL.

Beehive Overflow Inlet			CITY OF WILSONVILLE
DRAWING NUMBER: ST-6120	DRAWN BY: SR	SCALE: N.T.S.	
FILE NAME: ST-6120.dwg	APPROVED BY: NK	DATE: 2/15/18	PUBLIC WORKS STANDARDS

Appendix C

Wetland Delineation and Significant Resource Impact Report (SRIR)
dated January 2022 by AKS Engineering & Forestry, LLC

Frog Pond Terrace
Abbreviated Significant Resource Impact Report (SRIR)

Date: January 2022

Prepared for:
West Hills Land Development, LLC
3330 NW Yeon Avenue
Portland, OR 97210

Prepared by:
AKS Engineering & Forestry, LLC
Lex Francis, Natural Resource Specialist
Stacey Reed, PWS, Senior Wetland Scientist
503-563-6151 | staceyr@aks-eng.com

Site Information:
7480 SW Frog Pond Lane
Wilsonville, OR 97070
Clackamas County Assessor's Map 3 1 W 12D
Tax Lots 2800 and 2801

AKS Job Number: 7005

AKS ENGINEERING & FORESTRY
12965 SW Herman Road, Suite 100
Tualatin, OR 97062
(503) 563-6151

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Introduction

AKS Engineering & Forestry, LLC (AKS) was contracted by West Hills Land Development, LLC to prepare a Significant Resource Impact Report (SRIR) for the Frog Pond Terrace residential subdivision (Project) located at 7480 SW Frog Pond Lane in Wilsonville, Clackamas County, Oregon. The Project site consists of Tax Lots 2800 and 2801 of Clackamas County Assessor's Map 3 1 W 12D (Figures 1 and 2). The Project site is located within the Frog Pond West Neighborhood of the Frog Pond Urban Growth Boundary (UGB), added to the City of Wilsonville (City) in 2002. The Frog Pond Terrace consists of a single-family residential community with a park, trails, and stormwater facilities.

Boeckman Creek (Primary Protected Water Feature) was delineated on the Project site. Floodplain wetland (referred to as Wetlands A and B; Primary Protected Water Feature) were delineated adjacent to the downstream segment of Boeckman Creek.

The western portion of the site is mapped as Significant Resource Overlay Zone (SROZ) on the City of Wilsonville's 2009 SROZ map and governed by the City's SROZ Ordinance, Section 4.139.00 of the Wilsonville Development Code. Slopes adjacent to Boeckman Creek and the wetland are greater than 25 percent for less than 150 feet, requiring the Metro Regional Services' (Metro's) Title 3 Vegetated Corridor setback to extend 50 feet past the break in slope to less than 25 percent. A 25-foot-wide Significant Resource (SR) Impact Area buffer extends from the edge of the outer SROZ boundary.

No impacts will occur to Boeckman Creek, wetland, or within the Riparian Corridor Area. Permanent impacts are necessary within the outer edges of the Area of Limited Conflicting Use (ALCU)/ Vegetated Corridor (VC) and the 25-foot-wide SR Impact Area for a stormwater outfall, and 15-foot-wide paved public trail. According to Sections 4.139.04(.05) and (0.8), these development activities within SROZ are allowed uses exempt from the City's SROZ Ordinance with appropriate mitigation. Mitigation for impacts within the SROZ will be through on-site enhancement within portions of remaining degraded condition SROZ. A mitigation plan has been prepared with this report in accordance with the mitigation standards under Section 4.139.07 of the City's SROZ Ordinance.

No non-exempt SROZ impacts will occur. This report has been prepared to meet Section 4.139.06 of the City's SROZ Ordinance and describes the requirements listed under Section 4.139.06(.01)(A)-(I), updated June 2020.

Background Information / Physical Analysis

Topography on the eastern portion of the site has a gentle (less than 5 percent overall) slope westerly toward Boeckman Creek where slopes in the western portion of the site are greater than 25 percent. The Project site is bounded by a residential subdivision to the south, with rural residential area to the north and east.

The following soil units are mapped within the Project area, according to the Natural Resources Conservation Service (NRCS) Clackamas County Area Soil Survey Map and Clackamas County Hydric Soils List (Figure 3):

- (Unit 1B) Aloha Silt Loam, 3 to 6 percent slopes; Non-Hydric
- (Unit 91C) Woodburn silt loam, 8 to 15 percent slopes; Non-hydric
- (Unit 92F) Xerochrepts and Haploxerolls, very steep slopes; Non-hydric

One single-family residence with detached structures is centrally located on the site. The remainder of the site is undeveloped with evidence of past logging.

Geology of the site contains Qs-alluvium and Pleistocene age glacial-outburst flood sediment containing silt, sand, and gravel. The site also contains glaciofluvial sediments from the Cascade Range include Willamette silt, Linn gravel, lacustrine deposits, and older alluvium.

Vegetation in the eastern area above the top of slope was dominated by Douglas-fir (*Pseudotsuga menziesii*; FACU), English hawthorn (*Crataegus monogyna*; FAC), northern bracken fern (*Pteridium aquilinum*; FACU), large sweet vernal grass (*Anthoxanthum odoratum*; FACU), common velvet grass (*Holcus lanatus*; FAC), and scattered Oregon white oak (*Quercus garryana*; FACU) with patches of Scouler's willow (*Salix scouleriana*; FAC) and common rush (*Juncus effusus*; FACW) in the vicinity of Plots 5 and 6.

The vegetation within the SROZ mapped area was dominated by an upland forested community: Douglas-fir, big-leaf maple (*Acer macrophyllum*; FACU), beaked hazelnut (*Corylus cornuta*; FACU), English holly (*Ilex aquifolium*; FACU), pineland swordfern (*Polystichum munitum*; FACU), Pacific waterleaf (*Hydrophyllum tenuipes*; FAC), California dewberry (*Rubus ursinus*; FACU), large swaths of Himalayan blackberry (*Rubus armeniacus*; FAC), and very few spotted touch-me-not (*Impatiens capensis*; FACW) in the vicinity of ephemeral tributary confluence areas to Boeckman Creek.

Wetlands and Waters Mapping

Wilsonville Local Wetland and Riparian Inventory Maps

The Project site is mapped on the City of Wilsonville's 1998 Local Wetland Inventory (LWI). Boeckman Creek spans the border of the map. A wetland is shown extending from the southern edge of the study area into the upland area. AKS determined this wetland as only extending from the southern edge of Boeckman Creek to the toe slope of the adjacent east and west bank in the southern portion of the study area. No wetlands extended to the top of the slope. The LWI map is included in Figure 4.

Natural Resources Inventory Pacific Habitat Services (PHS) Map

According to the 2014 PHS Natural Resource Inventory for the Frog Pond Master Plan, Significant Natural Resources, Boeckman Creek and a floodplain wetland are mapped throughout the western portion of the study area (Figure 6). No Significant Tree Groves are mapped on the site. This figure illustrates the potential Metro Title 3 and 13 resources on the site.

City of Wilsonville Significant Resource Overlay Zone (SROZ) Map

According to the City's 2009 SROZ map, the western portion of the site is mapped in SROZ (Figure 5). Our delineation determined on-site SROZ is generally consistent with the City's 2009 SROZ map, except for the southern portion of the site. The SROZ mapping shows SROZ extending into an area that was logged sometime around 2007, after the SROZ mapping. This area lacks continuous tree canopy and was therefore removed from the SROZ mapping. The section below describes the SROZ field-delineated map verification for the site. Our SROZ delineation closely resembles the PHS 2014 Natural Resource Inventory (Figure 6).

SROZ Delineation Methodology

Natural Resource Specialists Lex Francis and Rebecca Schilling conducted a site visit on December 02, 2021. The methodology used to determine the presence of wetlands followed the *Corps of Engineers*

Wetlands Delineation Manual (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Wakeley et al., 2010). The *National Wetland Plant List* (USACE, 2018) was used to assign wetland indicator status for the appropriate region. Six wetland determination plots were taken on standard Wetland Determination Data Forms to document site conditions (Appendix A). Sample plots were taken at the lowest topographic setting at the site or within areas of hydrophytic vegetation.

AKS mapped the on-site portion of the top of bank for Boeckman Creek as the potentially jurisdictional limits of the feature, which is shown on the attached Natural Resource Existing Conditions, Figure 7 in Appendix A. The bankfull/OHWM was below the top of bank.

Representative site photographs are included in Appendix B. A list of literature cited, and references is included at the end of the report.

On-site portions of perennial Boeckman Creek, and Palustrine Emergent (PEM) floodplain wetlands (Wetlands A and B) were delineated as Primary Protected Water Features on the Project site. The wetland and Boeckman Creek extend off site to the south. Boeckman Creek also extends off site to the north.

Primary Protected Water Features

Boeckman Creek is a sinuous perennial stream which flows southerly through the western portion of the site. The upstream portion of the creek is deeply incised with an average ±6-foot-wide channel bed averaging up to 4 feet tall banks, with incision lessening in the downstream segments. The channel bed is unvegetated and dominated by a silt loam substrate generally lacking gravels and cobbles. Within the Project site, the channel includes in-stream habitat (large woody debris) with evidence of recent beaver activity. The channel contained an average of ± 1 to 3 feet deep continuous flow during our December 2, 2021 site visit.

According to the Pacific States Marine Fisheries Commission's (PSMFC's) StreamNet the on-site portion of Boeckman Creek as potentially containing coastal cutthroat trout. Boeckman Creek is mapped as having a direct connection to the Willamette River, a Navigable Water of the US. According to ODFW current Essential Salmonid Habitat (ESH) Mapping, off-site downstream segments of Boeckman Creek is mapped as ESH off-site in downstream

Riparian vegetation was dominated by Douglas fir red alder (*Alnus rubra*; *FAC*), Himalayan blackberry, pineland swordfern, fragrant fringecup (*Tellima grandiflora*; FACU), and English ivy (*Hedera helix*; FACU).

Plots 3 and 4 document upland conditions along Boeckman Creek. Vegetation generally consists of big-leaf maple, pineland sword fern, and fragrant fringecup. Soils were described as dark brown throughout and lacked redoximorphic features. Soils were dry and lacked wetland hydrology indicators. These plots determined wetland conditions are not adjacent to Boeckman Creek in the northern portion of the site.

Wetlands A and B are located in the southern portion of the study area along a floodplain bench of Boeckman Creek. Wetland A extends off site to the south. The wetland boundary is well defined based on changes in the vegetation community coinciding with a change in landform from low elevation floodplain bench to higher elevation convex hillside. Wetland conditions were documented at Plot 1. Vegetation within the wetland was dominated by Himalayan blackberry, bentgrass (*Agrostis* SPP; FAC), and piggyback-plant (*Tolmiea menziesii*; FAC) with scattered yellow-skunk-cabbage (*Lysichiton americanus*; OBL). Soils contained a depleted matrix with prominent redoximorphic features from 9 to 16 inches,

meeting Depleted Matrix (F3) and Depleted Below Dark Surface (A11) hydric soil indicators. Wetland hydrology was met with secondary indicators as no water table or saturation was observed during our December 2, 2021 site visit.

Ephemeral Tributaries 1 and 2 are located on the slope adjacent to Boeckman Creek. Tributaries 1 and 2 were dry and lacked a well-defined bed and bank with upland vegetation throughout the channel. These drainages do not meet the definition of a Primary or Secondary Protected Water Feature; therefore, do not require a Vegetated Corridor buffer.

Upland

Plots 5 and 6 were taken in the southern portion of the study area in areas with small patches of reed canary grass were. Vegetation at Plots 5 and 6 was dominated by Douglas-fir, English hawthorn, with scattered common rush, and reed canary grass (*Phalaris arundinacea*; FACW). Soils lacked hydric sol indicators, and no evidence of wetland hydrology indicators were observed. Therefore, these plots were determined to meet upland parameters.

Riparian Corridor

The riparian corridor boundary was established per Section 4.139.00 of the City's SROZ Ordinance, as defined in Figure NR-2: Riparian Corridor Type NR-2 (stream-riparian ecosystem). The slopes adjacent to the Boeckman Creek and Wetland A exceed 25 percent for less than 150 feet, requiring ALCU/ VC to extend 50 feet past the break in slope to less than 25 percent. Slope measurements and the extent of SROZ are shown on the attached Figure 7. Existing vegetation communities were documented at VECO Plots A through E. VECO data sheets are included in Appendix C.

Vegetation in the riparian corridor consist of a predominantly native forest generally dominated by Douglas-fir, big-leaf maple, red alder, English holly, pineland swordfern, California dewberry, and fragrant fringecup.

Area of Limited Conflicting Use (ALCU)

The ALCU was dominated by invasive Himalayan blackberry and western lady fern (*Athyrium cyclosorum*; FAC). The ALCU can be described as being in *degraded* condition due to the high percentage of invasive vegetation species and lack of a native shrub layer, thus providing low quality functions.

Project

The Project consists of a residential subdivision located in the Frog Pond West community. The Project requires permanent encroachment into a portion of the ALCU for a 15-foot wide public trail and stormwater outfall, as shown on the Natural Resource Site Plan (Figure 8). The stormwater facility will impact the Impact Area buffer. Turf lawn associated with a community park will also encroach into the Impact Area buffer. The existing home will remain as part of this project.

According to Section 4.139.04(.08) of the City's SROZ Ordinance, construction of new pedestrian paths to cross or provide access to the SROZ are exempt if they are consistent with the Wilsonville Comprehensive Plan. This path will provide access and connectivity among neighborhoods and promote recreational and education opportunity within the riparian habitat.

According to Section 4.139.04(.05) of the City's SROZ Ordinance, construction and operation of stormwater facilities consistent with the Stormwater Management Plan or Wilsonville Comprehensive Plan are exempt from SROZ regulations. Due to the degraded/low functioning condition of the Impact

Area buffer, the placement of the stormwater facility within SROZ will provide a water quality and habitat benefit through planting the facility with native vegetation. Stormwater outfalls within ALCU will consist of riprap flow spreader to protect the riparian area from erosion.

SROZ Impacts Ecological Analysis

The existing condition of the upland ALCU (outer edge of SROZ) and portions of the SR Impact Area can be described as *degraded* condition (invasive dominant understory). Therefore, enhancement of the remaining area after permanent encroachments into SROZ for the pedestrian trail and stormwater facility will create a significant functional increase of resources within the City's local watershed.

SROZ Buffer Enhancement Mitigation Plan

On-site enhancement mitigation within the remaining ACLU is proposed at a 1:1 ratio to compensate for the exempted path and stormwater facility encroachments. The existing function at the encroachment area can be described as providing low. The location of the on-site enhancement area is shown on the Natural Resource Site Plan (Figure 8) and was determined based on the area of disturbance. The enhancement area is dominated by invasive vegetation, lacking a closed tree canopy. The removal of invasive non-native vegetation followed by the planting of native woody vegetation will provide functions and values.

The enhancement planting specification plan included in Appendix D provides a list of recommended native species and quantities in accordance with Section 4.139.07(.02)(E)(1)(b) of the City's SROZ Ordinance. Throughout the enhancement area, native trees will be planted at a rate of five trees per 500 square feet of impact and native woody shrubs will be planted at a rate of 25 shrubs per 500 square feet of impact.

Enhancement Mitigation Monitoring & Maintenance Plan

To meet the City of Wilsonville's mitigation requirements listed under Section 4.139.07 of the City's SROZ Ordinance, woody enhancement plantings will be monitored and maintained for a minimum of five full growing seasons beginning after installation of plantings. Monitoring will consist of establishing an appropriate number of monitoring plot locations across the mitigation area to be assessed in Years 1, 2, 3, 4 and 5. At each plot, the survivorship of planted shrubs and trees; cover of planted or naturally recruited native shrubs and trees; cover of invasive and nonnative species; and general site observations will be recorded. Representative site photographs will be taken from established "photo points" across the mitigation area. Vegetation monitoring plot and photo point locations will be determined during the first monitoring year.

Monitoring reports will be submitted to the City by November 1 of each year following the growing seasons of Years 1, 2, 3, 4, and 5. The first-year monitoring report will confirm whether the impacted areas were seeded and planted appropriately to restore buffer functions. The monitoring report will consist of photographs and a discussion of performance standards, maintenance activities, problems and successes, and any maintenance needs or contingency actions necessary to ensure success of the enhancement mitigation project. Success will be achieved when monitoring results indicate that performance standards are being met at the end of the five-year monitoring period, or thereafter as necessary.

Performance Standards

1. Within the buffer enhancement mitigation area, native tree and shrub plantings shall maintain 80 percent survival in years one through five.
2. Within the buffer enhancement mitigation area, there will be at least 20 percent aerial cover for all native trees and shrubs after five growing seasons.
3. Invasive and noxious weeds, including Himalayan blackberry, will not exceed 10 percent aerial cover in the buffer enhancement mitigation area during all monitoring years.
4. Enhancement mitigation area will provide diverse habitat structure supporting a diversity of wildlife.

Per Section 4.139.07(.02)(E)(7) of the City's SROZ Ordinance, 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 planted shall remain alive on year five of the date the enhancement plantings were completed.

Report Preparer and Qualifications

Lex Francis
Natural Resource Specialist
Field Work, Report Preparation

Stacey Reed, PWS
Senior Wetland Scientist
Report QA/QC
Stacey Reed is a certified Professional Wetland Scientist (PWS) with more than 20 years of experience delineating wetlands and waters, conducting wetland and stream function and value assessments, and preparing natural resource assessments throughout Oregon.

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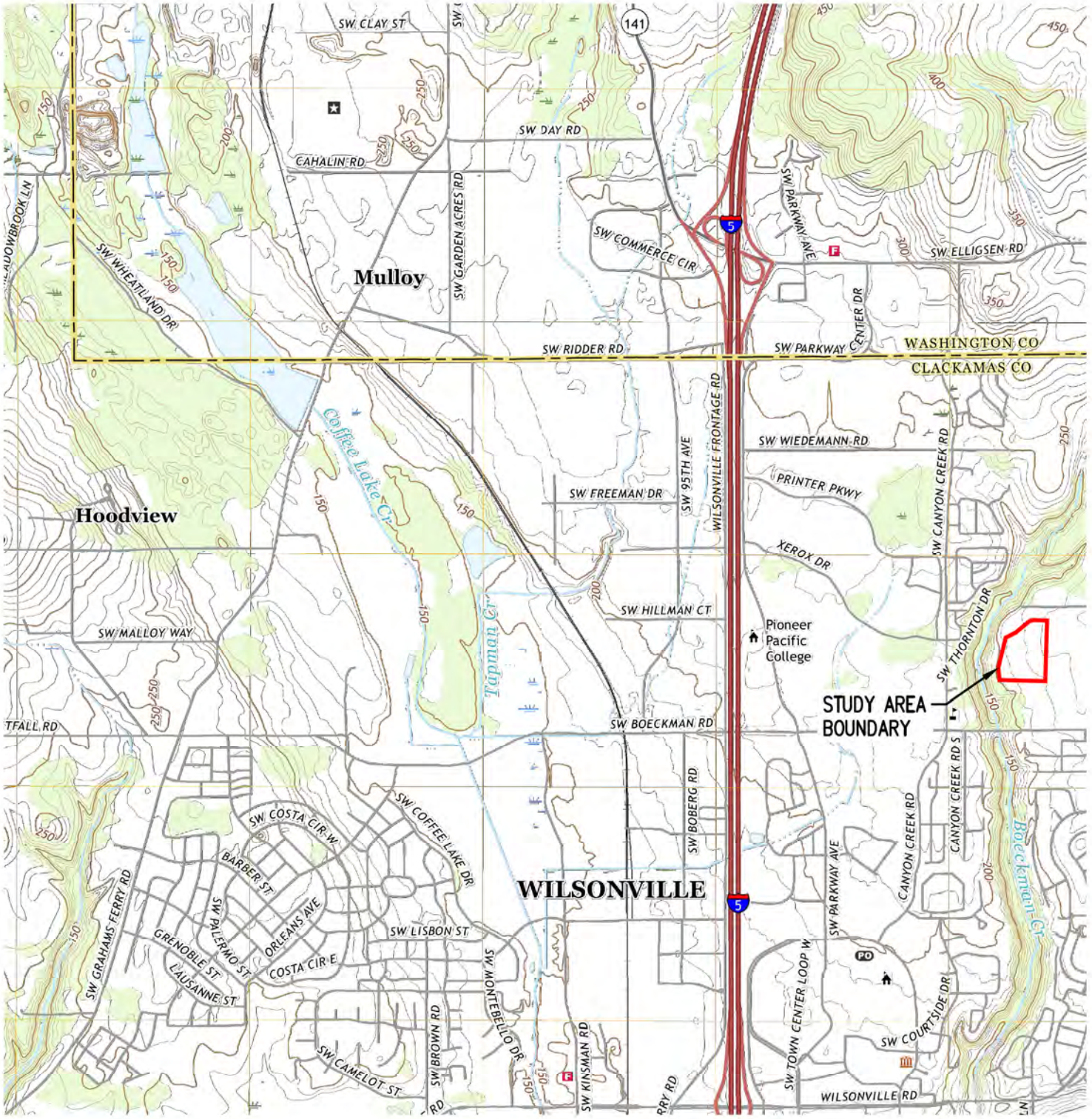


USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: SHERWOOD, OR (2020)

N

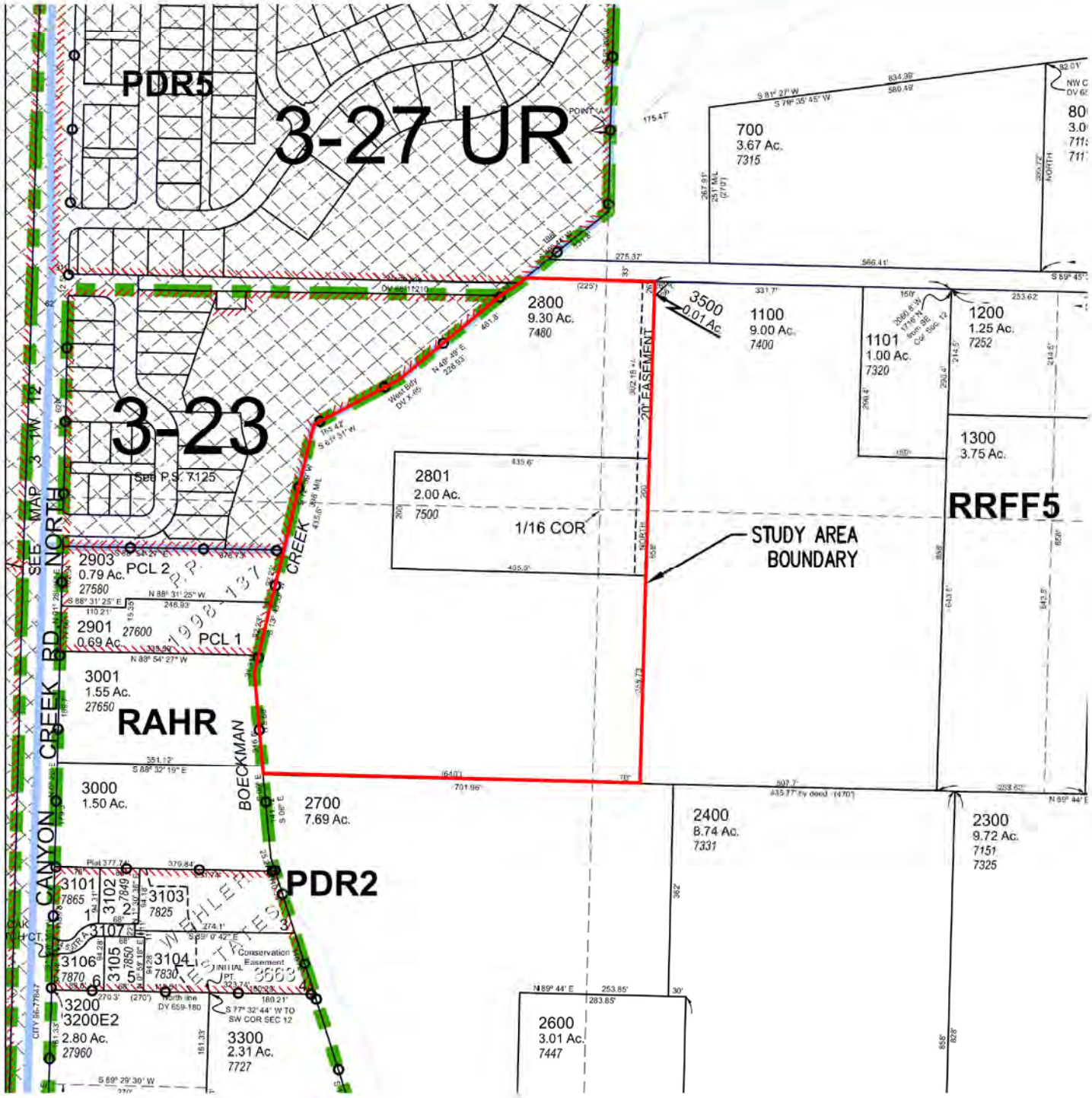
SCALE: 1"= 2000 FEET

2000 0 800 1200 1600 2000

DATE: 01/28/2022

USGS VICINITY MAP FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT	FIGURE 1
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 7005

DWG: 7005 SROZ BACKGROUND FIGURES | FIGURE 1



CLACKAMAS COUNTY
TAX LOTS 2800 AND 2801
TAX MAP 3 1 W 12D

N

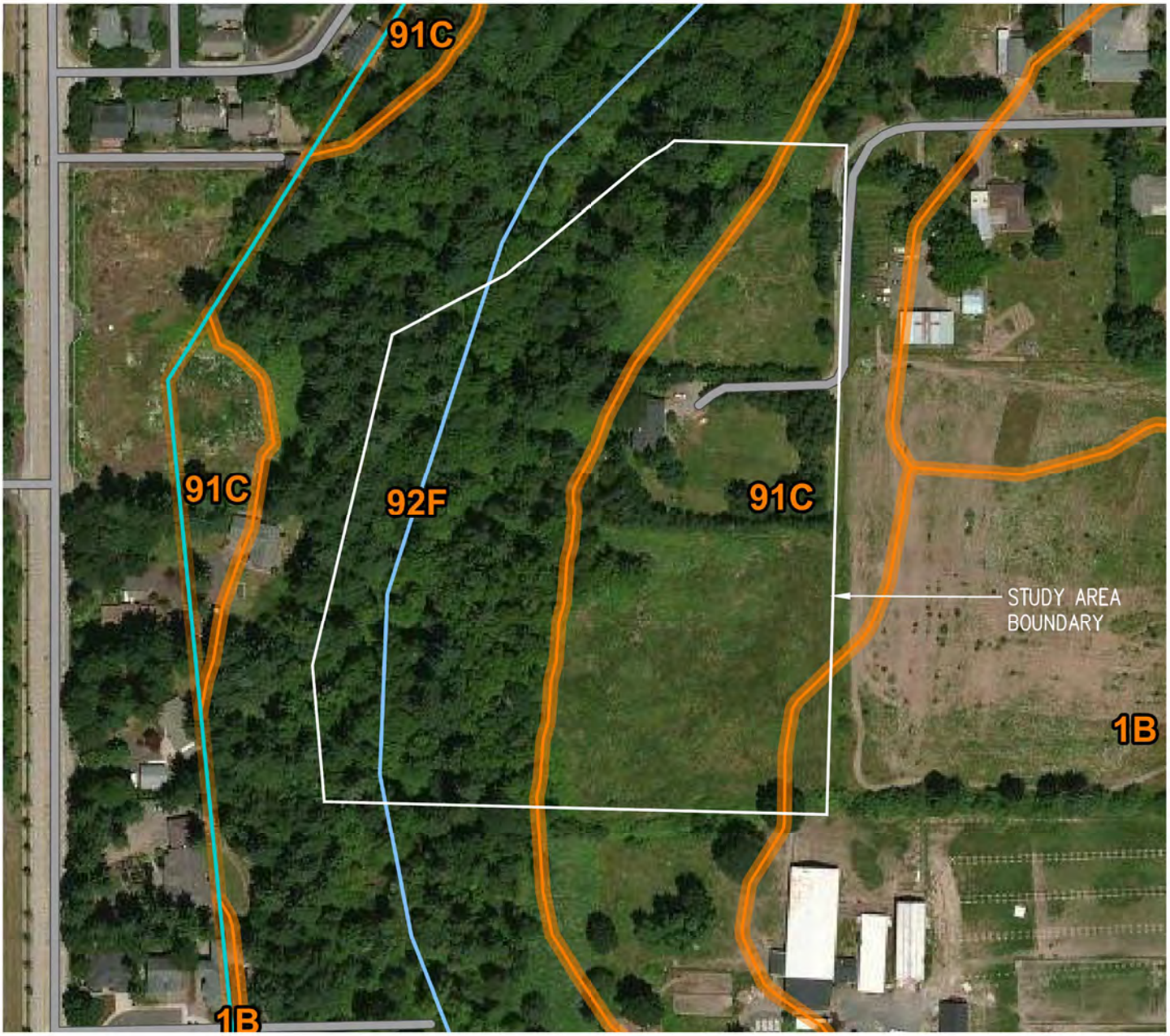
SCALE: 1"= 250 FEET

250 0 100 150 200 250

DATE: 01/28/2022

TAX MAP (MAP 3S 1 12D) FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT	FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 7005

DWG: 7005 SROZ BACKGROUND FIGURES | FIGURE 2



MAP UNIT SYMBOL	MAP UNIT NAME
1B	ALOHA SILT LOAM, 3% TO 6% SLOPES; NON-HYDRIC
91C	WOODBURN SILT LOAM, 8% TO 15% SLOPES, NON-HYDRIC
92F	XEROCHREPTS AND HAPLOXEROLLS, VERY STEEP; NON-HYDRIC

NRCS WEB SOIL SURVEY FOR
CLACKAMAS COUNTY

N

SCALE: 1"= 250 FEET

250 0 100 150 200 250

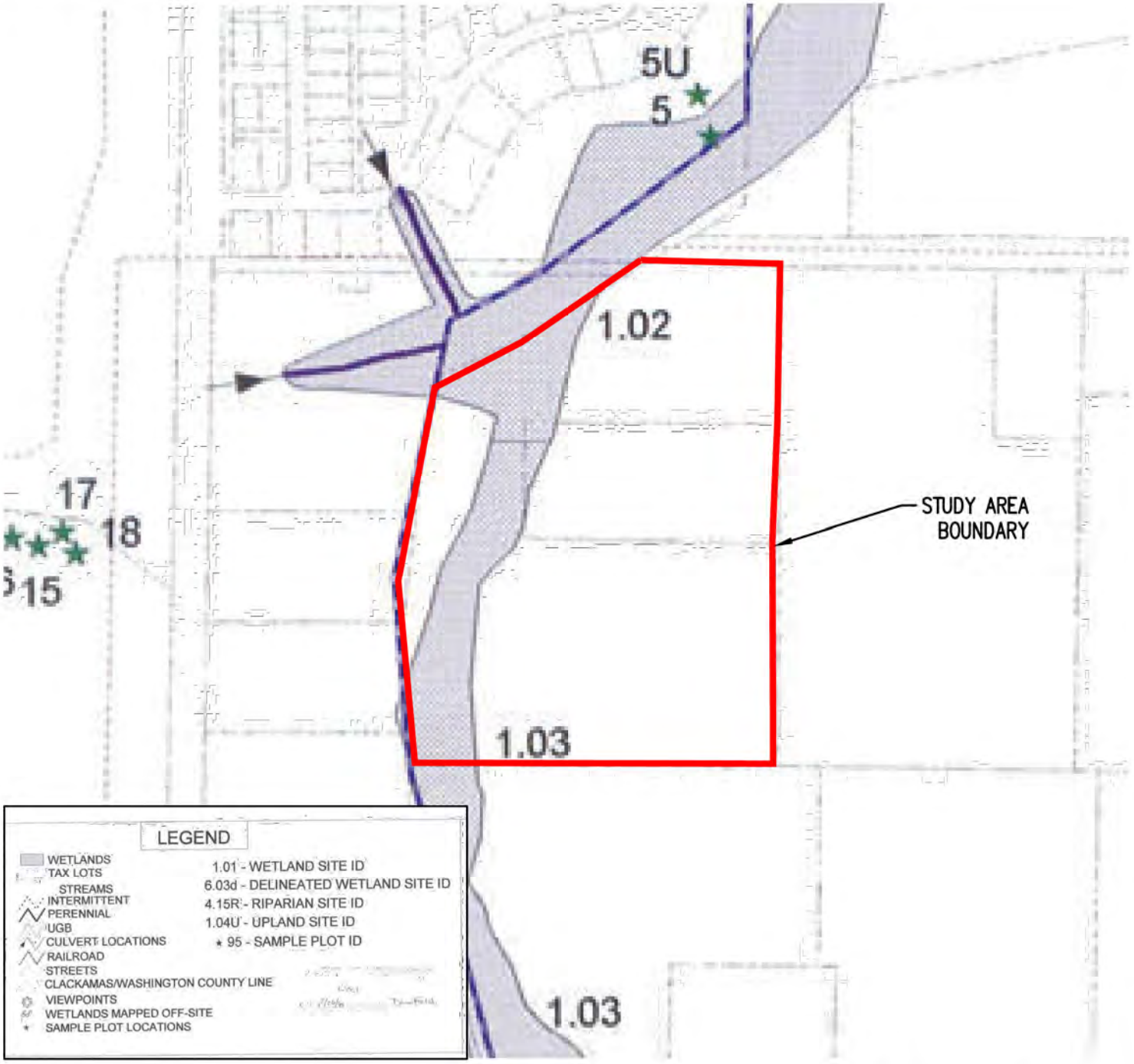
DATE: 01/28/2022

NRCS SOIL SURVEY MAP
FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT

FIGURE 3

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB: 7005



CITY OF WILSONVILLE
LOCAL WETLAND AND RIPARIAN
CORRIDOR INVENTORY MAP (1999)

N

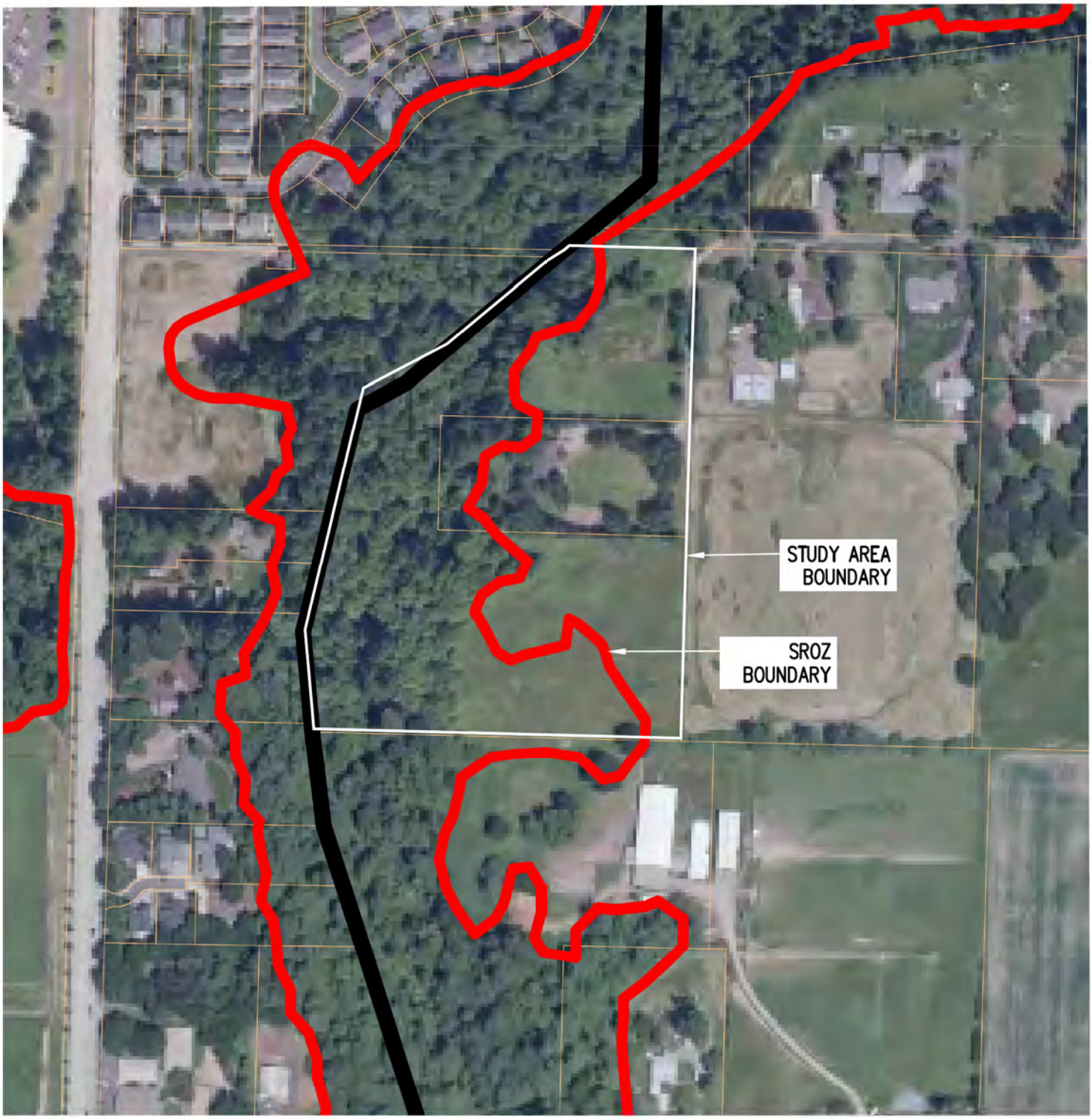
SCALE: 1"= 250 FEET

250 0 100 150 200 250

DATE: 01/28/2022

LOCAL WETLAND INVENTORY MAP FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT	FIGURE 4
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 7005

DWG: 7005 SROZ BACKGROUND FIGURES | FIGURE 4



CITY OF WILSONVILLE SIGNIFICANT RESOURCE OVERLAY ZONE (2009)

N

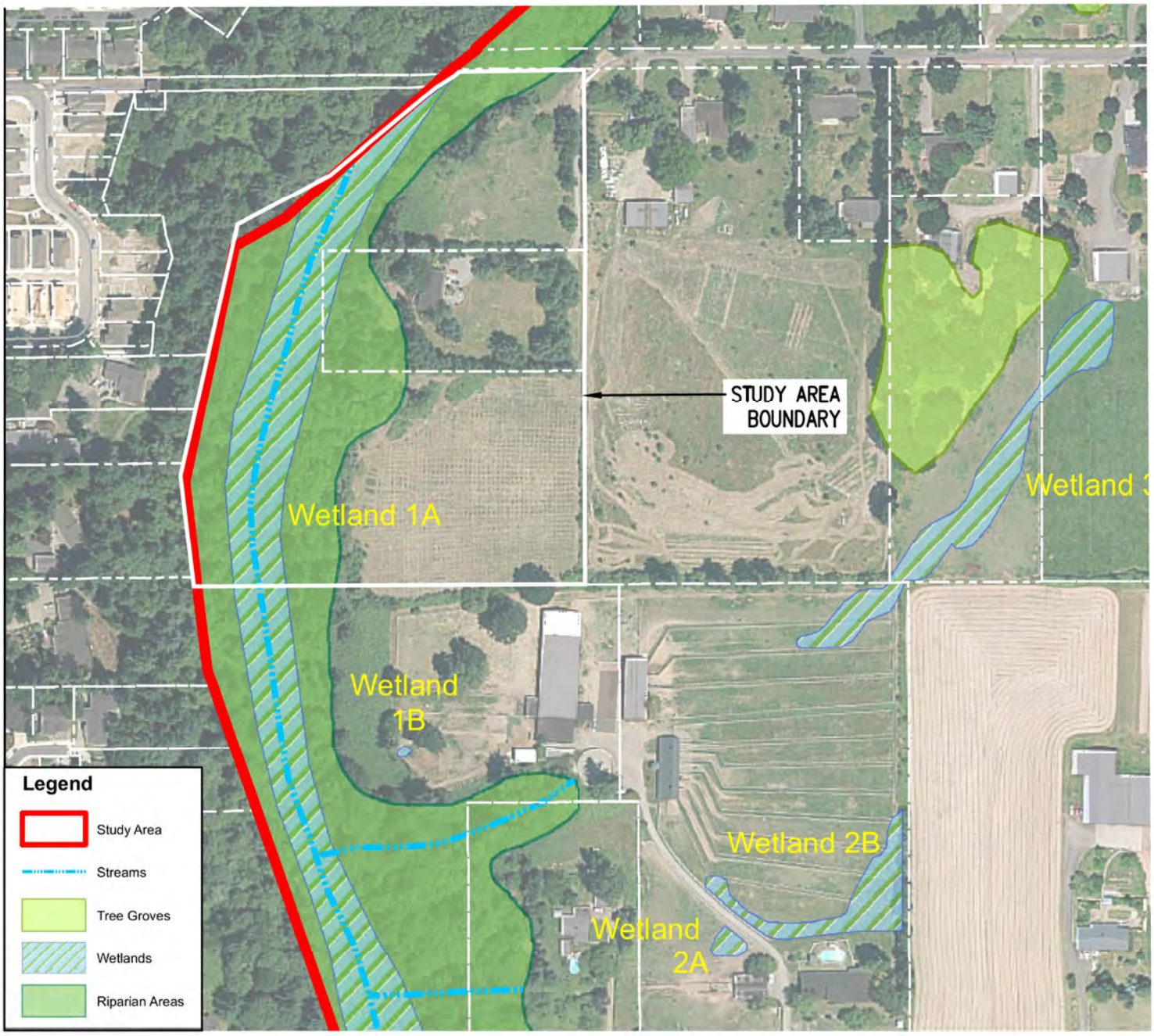
SCALE: 1"= 250 FEET

250 0 100 150 200 250

DATE: 01/28/2022

SIGNIFICANT RESOURCE OVERLAY ZONE MAP FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT	FIGURE 5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 7005

DWG: 7005 SROZ BACKGROUND FIGURES | FIGURE 5



PACIFIC HABITAT SERVICES FROG POND
NATURAL RESOURCE INVENTORY (2014)

N

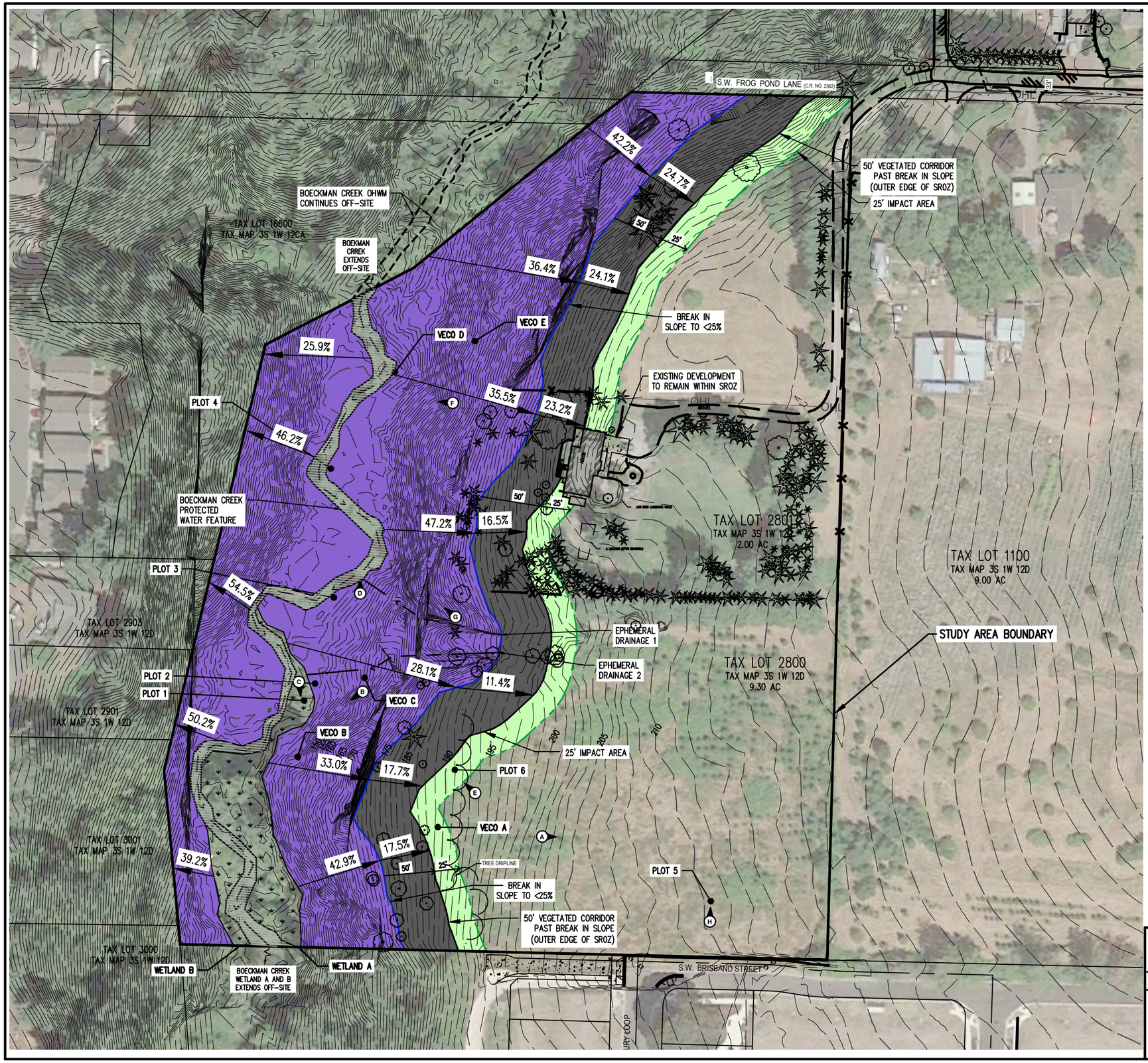
SCALE: 1"= 250 FEET

250 0 100 150 200 250

DATE: 01/28/2022

NATURAL RESOURCE INVENTORY MAP FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT	FIGURE 6
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 7005

DWG: 7005 SROZ BACKGROUND FIGURES | FIGURE 6



LEGEND

- ON-SITE WETLAND A AREA: 10,930 SF± (0.25 ACRES)
  ON-SITE WETLAND B AREA: 2,058 SF± (0.05 ACRES)
- ON-SITE BOECKMAN CREEK AREA: 11,565 SF± (0.27 ACRES)
- RIPARIAN CORRIDOR/ RIPARIAN IMPACT AREA: 164,597 SF± (3.78 ACRES±)
- AREA OF LIMITED CONFLICTING USE: 51,066 SF± (1.16 ACRES±)
- 25' SIGNIFICANT RESOURCE (SR) IMPACT AREA: 24,132 SF± (0.55 ACRES±)
- (A) PHOTO POINT ORIENTATION AND LOCATION

WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON DECEMBER 2, 2021 AND LOCATED USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUB-METER ACCURACY.

1-FOOT INTERVAL GROUND CONTOURS COMBINED WITH LIDAR, EXISTING CONDITIONS AND TREE SURVEY WAS CONDUCTED BY OTAK. A FULL TREE INVENTORY OF THE SITE WAS NOT COMPLETED.

N

SCALE: 1"=100 FEET

100 0 20 50 100

ORIGINAL PAGE SIZE: 11" x 17"

DATE: 01/27/2022

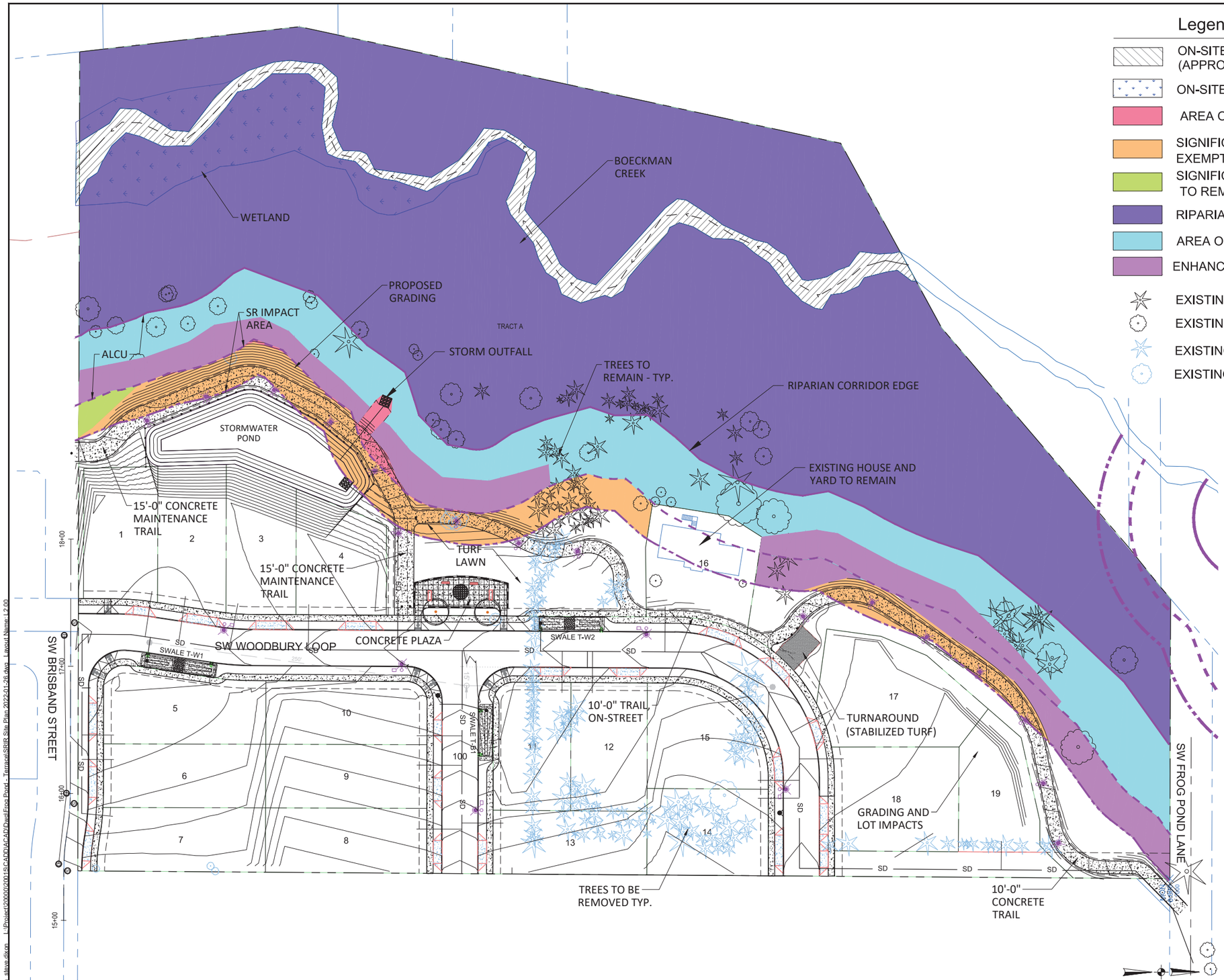
NATURAL RESOURCE EXISTING CONDITIONS

FROG POND TERRACE SIGNIFICANT RESOURCE IMPACT REPORT

FIGURE 7

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
P: 503.563.6151 F: 503.563.6152 aks-eng.com

DRWN: RAS
CHKD: SKT
AKS JOB: 7005



Legend

- ON-SITE PORTION OF BOECKMAN CREEK (11,684 SF) (APPROX. 925 LF)
- ON-SITE WETLAND (13,054 SF)
- AREA OF CONFLICTING USE EXEMPT IMPACTS (3,449 SF)
- SIGNIFICANT RESOURCE IMPACT AREA EXEMPT IMPACTS (16,090 SF)
- SIGNIFICANT RESOURCE IMPACT AREA TO REMAIN (7,531 SF)
- RIPARIAN IMPACT AREA TO REMAIN (177,553 SF)
- AREA OF LIMITED CONFLICTING USE TO REMAIN (47,026 SF)
- ENHANCEMENT AREA @ 1:1 RATIO (19,539 SF)
- EXISTING CONIFEROUS TREE >6" TO REMAIN - TYP.
- EXISTING DECIDUOUS TREE >6" TO REMAIN - TYP.
- EXISTING CONIFEROUS TREE >6" TO BE REMOVED - TYP.
- EXISTING DECIDUOUS TREE >6" TO BE REMOVED - TYP.

Otak

Otak, Inc.
808 SW Third Avenue, Ste. 800
Portland, OR 97204
503. 287. 6825
www.otak.com

PRELIMINARY

STAMP

WEST HILLS LAND DEVELOPMENT

CONSULTANT

FROG POND TERRACE
SIGNIFICANT RESOURCE IMPACT REPORT

SITE PLAN

TITLE

#	DATE	DESCRIPTION

REVISIONS

NAVD88
DATUM

OTAK CAD — KJB
DRAWN BY — CHECKED BY

SRIR IMPACT REPORT
STATUS

JANUARY 31, 2022
DATE

20015
PROJECT NUMBER

EX 1

If this drawing is not 22" x 34", it has been reduced/enlarged. Scale accordingly.

Appendix A:
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 1

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 1-3%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.32048899N | Long: -122.75578082W | Datum:

Soil Map Unit Name: Xerochrepts and Haploxerolls (Unit 92F), very steep; Non-hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:
Plot located approximately 6 feet from stream in flood plain bench.

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Sambucus species*			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Rubus armeniacus*	40%	Yes	FAC
2.			
3.			
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Agrostis species*	50%	Yes	FAC*
2. *Tolmiea menziesii*	30%	Yes	FAC
3. *Lysichiton americanus*	5%	No	OBL
4. *Athyrium cyclosorum*	2%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	87% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 13%

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	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	122	x 3 =	366
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	127 (A)		371 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC. Bare ground covered by leaf litter.

SOIL

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
0-9	10YR 3/2	99	7.5YR 4/4	1	C	M	SiC	
9-16	10YR 4/2	80	5YR 3/4	20	C	M/PL	SiC	

[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)
_X_ 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)
_X_ 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 _X_ No _____

Remarks:
Soils moist throughout.

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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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)
_X_ 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 _X_ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 2

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): ~10%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.32046633N | Long: -122.75575959W | Datum:

Soil Map Unit Name: Xerochrepts and Haploxerolls (Unit 92F), very steep; Non-hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:
Plot located approximately 2 feet higher in elevation than Plot 1 at Wetland A.

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	20%	Yes	FACU
2.			
3.			
4.			
	20% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Rubus armeniacus*	15%	Yes	FAC
2. *Cirsium arvense*	10%	Yes	FAC
3.			
4.			
5.			
	25% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Polystichum munitum*	30%	Yes	FACU
2. *Tellima grandiflora*	15%	No	FACU
3. *Agrostis species*	5%	No	FAC*
4. *Hydrophyllum tenuipes*	1%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	51% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
1. *Rubus ursinus*	10%	Yes	FACU
2.			
	10% = Total Cover		

% Bare Ground in Herb Stratum 49%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	31	x 3 =	93
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	86 (A)		313 (B)

Prevalence Index = B/A = 3.64

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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:
*Assumed FAC. Bare ground covered by leaf litter.

SOIL

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
0-7	10YR 3/2	100					SiCL	
7-14	10YR 3/2	80					SiC	
	7.5 YR 3/3	20					SiCL	

[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:
1 inch duff layer.

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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 3

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): None | Slope (%): 1-3%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.32080379N | Long: -122.75561556W | Datum:

Soil Map Unit Name: Xerochrepts and Haploxerolls (Unit 92F), very steep; Non-hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** Yes No **X**
Wetland Hydrology Present?	Yes	No **X**	

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:
Plot located aproximately 3 feet from stream. Approximately 3.5 feet above Ordinary High Water Mark.

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30%	Yes	FAC
2. *Acer macrophyllum*	5%	No	FACU
3.			
4.			
	35% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Alnus rubra*	20%	Yes	FAC
2. *Ilex aquifolium*	5%	No	FACU
3. *Sambucus species*	5%	No	FAC*
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Polystichum munitum*	20%	Yes	FACU
2. *Agrostis species*	10%	Yes	FAC*
3. *Carex species*	5%	No	FAC*
4. *Hydrophyllum tenuipes*	1%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	36% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
1. *Hedera helix*	5%	Yes	FACU
2.			
	5% = Total Cover		

% Bare Ground in Herb Stratum 64%

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 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 71	x 3 =	213
FACU species 35	x 4 =	140
UPL species 0	x 5 =	0
Column Totals: 106 (A)		353 (B)
Prevalence Index = B/A =		3.33

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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC. Bare ground covered by leaf litter.

SOIL

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
0-14+	10YR 3/2	100					SiCL	

[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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 4

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave | Slope (%): 0-5%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.32114023N | Long: -122.75568219W | Datum:

Soil Map Unit Name: Xerochrepts and Haploxerolls (Unit 92F), very steep; Non-hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes	No X	

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:
Plot located approximately 3 feet from stream. Approximately 3.5 feet above Ordinary High Water Mark.

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Rubus armeniacus*	60%	Yes	FAC
2.			
3.			
4.			
5.			
	60% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Tellima grandiflora*	40%	Yes	FACU
2. *Agrostis species*	10%	No	FAC*
3. *Carex species*	5%	No	FAC*
4. *Tolmiea menziesii*	1%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	56% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 44%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	116	x 3 =	348
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	156 (A)		508 (B)

Prevalence Index = B/A = 3.26

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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC. Bare ground covered by leaf litter.

SOIL

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
0-16+	10YR 3/2	100%					SiL	

[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:
Soils dry throughout.

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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 5

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 1%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.31998180N | Long: -122.75412486W | Datum:

Soil Map Unit Name: Woodburn silt loam (Unit 91C), 8 - 15 % slopes; Non- hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes	No X	

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:
Plot taken in small *Phalaris arundinacea* patch in upland area, adjacent to recent off-site development.

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii*	5%	Yes	FACU
2.			
3.			
4.			
	5% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Crataegus monogyna*	10%	Yes	FAC
2. *Rubus armeniacus*	1%	No	FAC
3.			
4.			
5.			
	11% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Juncus effusus*	30%	Yes	FACW
2. *Phalaris arundinacea*	25%	Yes	FACW
3. *Agrostis species*	10%	No	FAC*
4. *Cirsium arvense*	10%	No	FAC
5. *Dactylis glomerata*	5%	No	FACU
6. *Geranium molle*	5%	No	NOL
7. *Holcus lanatus*	5%	No	FAC
8. *Elymus repens*	5%	No	FAC
9.			
10.			
11.			
	95% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 5%

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	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	41	x 3 =	123
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column Totals:	106 (A)		278 (B)

Prevalence Index = B/A = 2.62

Hydrophytic Vegetation Indicators:
- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC.

SOIL

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
0-7	10YR 3/2	100					SiL	
7-12	10YR 3/2	98%	7.5 YR 4/4	20	C	M	SiL	
12-16	10YR 4/3	95%	7.5 YR 4/6	5	C	M	SiCL	

[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:
Soils slightly moist throughout.

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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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): >16"
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:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Frog Pond Terrace | City/County: Wilsonville/ Clackamas County | Sampling Date: 12/2/2021

Applicant/Owner: West Hills Land Development, LLC | State: OR | Sampling Point: 6

Investigator(s): Lex Francis, Rebecca Schilling | Section, Township, Range: Sec. 12, T.3S., R.1 W., W.M.

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 3-5%

Subregion (LRR): A. Northwest Forests and Coast | Lat: 45.31998180N | Long: -122.75412486W | Datum:

Soil Map Unit Name: Woodburn silt loam (Unit 91C), 8 - 15 % slopes; Non- hydric | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Precipitation:
According to the NWS Portland weather station, 0.00 inches of rainfall was received on the day of the site visit and 1.57 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii*	5%	Yes	FACU
2.			
3.			
4.			
	5% = Total Cover		
Sapling/Shrub Stratum (Plot Size: 10' r or)			
1. *Rubus laciniatus*	5%	Yes	FACU
2. *Rubus armeniacus*	3%	No	FAC
3. *Toxicodendron diversilobum*	1%	No	FAC
4. *Pseudotsuga menziesii*	1%	No	FACU
5.			
	10% = Total Cover		
Herb Stratum (Plot Size: 5' r or)			
1. *Holcus lanatus*	50%	Yes	FAC
2. *Agrostis species*	40%	Yes	FAC*
3. *Phalaris arundinacea*	3%	No	FACW
4. *Cirsium arvense*	2%	No	FAC
5. *Juncus effusus*	2%	No	FACW
6. *Carex pachystachya*	2%	No	FAC
7. *Galium aparine*	1%	No	FACU
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot Size: 10' r or)			
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 0	x 1 =	0
FACW species 5	x 2 =	10
FAC species 98	x 3 =	294
FACU species 7	x 4 =	28
UPL species 0	x 5 =	0
Column Totals: 110 (A)		332 (B)

Prevalence Index = B/A = 3.02

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 (Explain)[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:
*Assumed FAC.

SOIL

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
0-4	10YR 3/3	100%					SiL	
4-16	10YR 4/3	98%	7.5YR 3/4	2	C	M	SiL	

[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:
Soils dry throughout.

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 Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (LRR A)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (MLRA 1, 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)
X 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 B:
Representative Site Photographs

Photo A. General site condi ons of upland fi ld dominated by grasses and common, non-native, upland forbs. Oriented east.

Photo C. View south of Plot 1 and Wetland A.

Photo B. Upland forested community adjacent to Boeckman Creek. Oriented southwest.

Photo D. View north of Boeckman Creek.

Photos taken by Lex Francis December 2, 2021

Photo E. View northwest within the vicinity of Plot 6.

Photo F. Degraded vegetati n community within the ALCU/ Impact Area. Oriented West towards Boeckman Creek.

Photo G. Ephemeral Drainage 1 vegetated throughout with upland vegetation. Oriented Northwest.

Photo H. Upland Plot 5 with patchy FACW vegetati n. Oriented North.

Photos taken by Lex Francis December 2, 2021

Appendix C:
VECO Data Forms

Vegetated Corridor (VECO) Condition Assessment

Site:	Stafford Meadows
Job Number:	7005
Investigators:	Lex Francis and Rebecca Schilling
Date:	December 2, 2021
Community:	Himalayan blackberry/ western lady fern
Location:	Upland east of Forested community
Plot ID:	VECO A

Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover: 0%

Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover: 53%

*	*Rubus armeniacus*	Himalayan blackberry	*invasive*	50%
	Salix species	willow	*native*	3%

Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover: 100%

*	*Athyrium cyclosorum*	western lady fern	*native*	35%
	Agrostis capillaris	colonial bent	*non-native*	15%
	Lolium perenne	perennial rye grass	*non-native*	
	Holcus lanatus	common velvet grass	*non-native*	15%
	Geranium molle	dovefoot geranium	*non-native*	9%
	Rubus laciniatus	cut-leaf blackberry	*invasive*	5%
	Vicia species	vetch	*non-native*	5%
	Carex species	sedge	*native*	1%

* Dominant

Total Cover 153%

	Absolute areal cover
% Tree canopy:	**0%**
% Cover by natives:	4%
% Invasive:	55%
% Non-native:	94%
	153%

Corridor Condition: Degraded

Vegetated Corridor (VECO) Condition Assessment

Site:	Stafford Meadows
Job Number:	7005
Investigators:	Lex Francis and Rebecca Schilling
Date:	December 2, 2021
Community:	Douglas-fir/ pineland sword fern
Location:	Approximately 30 feet from stream in upland Forest
Plot ID:	VECO B

Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover:				55%
*	*Pseudotsuga menziesii*	Douglas-fir	*native*	40%
*	*Alnus rubra*	red alder	*native*	10%
*	*Acer macrophyllum*	big-leaf maple	*native*	5%
Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover:				25%
*	*Ilex aquifolium*	English holly	*non-native*	15%
*	*Cirsium arvense*	Canadian thistle	*invasive*	5%
*	*Rubus armeniacus*	Himalayan blackberry	*invasive*	5%
Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover:				78%
*	*Polystichum munitum*	pineland sword fern	*native*	30%
*	*Rubus ursinus*	California dewberry	*native*	30%
	Agrostis species	bentgrass	*native*	14%
	Hydrophyllum tenuipes	Pacific waterleaf	*native*	2%
	Galium aparine	sticky-willy	*native*	2%

* Dominant

Total Cover 158%

	Absolute areal cover
% Tree canopy:	**55%**
% Cover by natives:	133%
% Invasive:	10%
% Non-native:	15%
	158%

Corridor Condition: Good

Vegetated Corridor (VECO) Condition Assessment

Site:	Stafford Meadows		
Job Number:	7005		
Investigators:	Lex Francis and Rebecca Schilling		
Date:	January 30, 2017		
Community:	big-leaf maple/ Himalayan blackberry		
Location:	Approximately 30 feet from stream, north of VECO B		
Plot ID:	VECO C		
Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			40%
* *Acer macrophyllum*	big-leaf maple	*native*	20%
* *Pseudotsuga menziesii*	Douglas-fir	*native*	15%
* *Alnus rubra*	red alder	*native*	5%
Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			90%
* *Rubus armeniacus*	Himalayan blackberry	*invasive*	90%
Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover:			36%
* *Tellima grandiflora*	fragrant fringecup	*native*	15%
* *Polystichum munitum*	pineland sword fern	*native*	10%
Rubus laciniatus	cut-leaf blackberry	*invasive*	5%
Rubus armeniacus	Himalayan blackberry	*invasive*	5%
Carex species	sedge	*native*	1%

* Dominant

Total Cover 166%

	Absolute areal cover
% Tree canopy:	**40%**
% Cover by natives:	66%
% Invasive:	100%
% Non-native:	0%
	166%

Corridor Condition: Marginal

Vegetated Corridor (VECO) Condition Assessment

Site:	Stafford Meadows		
Job Number:	7005		
Investigators:	Lex Francis and Rebecca Schilling		
Date:	December 2, 2021		
Community:	big-leaf maple/ pineland sword fern		
Location:	Approximately 25 feet above stream edge southwest of VECO E		
Plot ID:	VECO D		
Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			80%
* *Acer macrophyllum*	big-leaf maple	*native*	60%
* *Alnus rubra*	red alder	*native*	20%
Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			30%
* *Alnus rubra*	red alder	*native*	15%
* *Rubus armeniacus*	Himalayan blackberry	*invasive*	15%
Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover:			25%
* *Polystichum munitum*	pineland sword fern	*native*	15%
* *Tellima grandiflora*	fragrant fringecup	*native*	8%
Galium aparine	sticky-willy	*native*	2%
* Dominant			
		Total Cover	135%

	Absolute areal cover
% Tree canopy:	**80%**
% Cover by natives:	120%
% Invasive:	15%
% Non-native:	0%
	135%

Corridor Condition: Good

Vegetated Corridor (VECO) Condition Assessment

Site:	Stafford Meadows		
Job Number:	7005		
Investigators:	Lex Francis and Rebecca Schilling		
Date:	December 2, 2021		
Community:	big-leaf maple/ Himalayan blackberry		
Location:	Northern most plot with in SROZ buffer		
Plot ID:	VECO E		
Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			50%
* *Alnus rubra*	red alder	*native*	25%
* *Acer macrophyllum*	big-leaf maple	*native*	25%
Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			100%
* *Rubus armeniacus*	Himalayan blackberry	*invasive*	95%
Ilex aquifolium	English holly	*non-native*	5%
Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover:			0%

* Dominant

Total Cover 150%

	Absolute areal cover
% Tree canopy:	**50%**
% Cover by natives:	50%
% Invasive:	95%
% Non-native:	5%
	150%

Corridor Condition: Degraded

Appendix D:
Planting Specifications Table

Frog Pond Terrace –Enhancement Mitigation Planting Specifications

Planting specifications for ±19,539 square feet of enhancement.

Scientific Name	Common Name	Size*	Spacing/Seeding Rate	Quantity
Trees (total 196)**				
Acer macrophyllum	bigleaf maple	2 gallon	10 feet on center	80
Quercus garryana	Oregon white oak	2 gallon	10 feet on center	80
Pseudotsuga menziesii	Douglas-fir	2 gallon	10 feet on center	36
Shrubs (total 977)**				
Symphoricarpus albus	snowberry	1 gallon	4-5 feet on center	200
Mahonia aquifolium	tall Oregon grape	1 gallon	4-5 feet on center	200
Corylus cornuta	beaked hazelnut	1 gallon	4-5 feet on center	200
Polystichum munitum	pineland sword fern	1 gallon	4-5 feet on center	170
Rosa gymnocarpa	baldhip rose	1 gallon	4-5 feet on center	105
Ribes sanguineum	red flowering currant	1 gallon	4-5 feet on center	102
Seed Mix/Plug				
*Sunmark Seeds *** (Native E/C Mix)*	meadow barley California brome blue wildrye tufted hairgrass spike bentgrass	seed	2 LB/1,000 SF OR 88 LB/AC	As needed for bare soil areas >25 square feet
*Sunmark Seeds*** (Ecobiotics Plus Organic Amendment)*	N/A	Blend directly with Native E/C Mix	200 LB/AC	As needed for bare soil areas >25 square feet

**Bare root plants may be substituted for container plants based on availability. If bare root plants are used, they must be planted during the late winter/early spring dormancy period.*
*** Minimum plant quantities ordered.*
**** Native E/C Mix and Ecobiotics Plus can be obtained from Sunmark Seeds International or other similar seed supplier.*

Planting Notes (Per Section 4.139.06(.02)(E) of the City of Wilsonville's SROZ Ordinance):

1) Container stock shall be installed only from February 1 through May 1 and October 1 through November 15. Bare root stock shall be installed only from December 15 through April 15. Plantings outside these times may require additional measures to ensure survival which shall be specified on the plans.

2) All non-native invasive our noxious vegetation shall be removed from planting areas prior to installing native enhancement plantings and shall be removed or controlled for 5 years following the date the enhancement plantings are completed. Invasive species control shall be consistent with The City of Wilsonville 2018 *Integrated Pest Management (IPM) Plan*.

3) Appropriate plant selection, along with adequate site preparation and maintenance, reduces the need for irrigation. However, unless site hydrology is currently adequate, a City approved irrigation system or equivalent (i.e., polymer, plus watering) shall be used during the two-year

plant establishment period. Watering shall be at a minimum rate of at least one inch per week from June 15 through October 15.

4) Trees, shrubs, and groundcovers planted shall be mulched at a minimum of three inches in depth and 18 inches in diameter, to retain moisture and discourage weed growth around newly installed plant material. Appropriate mulches are made from composted bark or leaves that have not been chemically treated. Browse protection shall be installed on trees and shrubs. Mulching and browse protection shall be maintained during the two-year plant establishment period.

5) 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 planted shall remain alive on year 5 of the date the enhancement plantings were completed.

Appendix D

Traffic Impact Letter dated February 7, 2022
by DKS and Associates

117 COMMERCIAL STREET NE, SUITE 310, SALEM, OR 97301 • 503.391.8773 • DKSASSOCIATES.COM

TECHNICAL MEMORANDUM

DATE: February 7, 2022

TO: Amy Pepper | City of Wilsonville

FROM: Scott Mansur, P.E., PTOE | DKS Associates
Jenna Bogert, P.E. | DKS Associates
Travis Larson, E.I. |DKS Associates

SUBJECT: Frog Pond West Terrace Subdivision Transportation Evaluation P19006-023

INTRODUCTION

This memorandum evaluates the trip generation associated with the proposed Frog Pond West Terrace housing development to be located at 7500 Frog Pond Lane in Wilsonville, Oregon. The developer desires to construct 19 single-family homes as part of the Frog Pond West Master Plan.[1] The property is in unincorporated Clackamas County but within the City's Urban Growth Boundary (UGB), and as part of the project will be annexed to the City of Wilsonville.

The purpose of this memorandum is to provide the estimated vehicle trip generation for the proposed development, to identify potential operational impacts to the one current gateway intersection to the property, and to evaluate the proposed site plan for potential safety issues and consistency with City planning documents. The study intersection, Boeckman Road/ Sherman Drive, is shown in Figure 1.

The Boeckman Road/Sherman Drive intersection was selected for analysis as it is the most impacted by the increase in vehicle trips from the development and is the only Frog Pond West access to the proposed development. Other study intersections, such as Stafford Road/65th Avenue and Canyon Creek Road/Boeckman Road, were not included in this analysis as the trips through those intersections would be insignificant (around 10 peak hour trips or less).

FIGURE 1: STUDY AREA

[1] Frog Pond West Master Plan, City of Wilsonville, July 17, 2017.

Additionally, the Stafford Road/65th Avenue intersection was not included in this analysis as it was found to already fail to meet County standards under existing 2021 conditions, as noted in the Frog Pond Crossing TIA[2] and Frog Pond Vista TIA[3]. As noted in both of those reports, an intersection improvement has already been identified in the County's Capital Improvement Project List[4].

TRIP GENERATION

The Institute of Transportation Engineers (ITE) trip generation rates for Single-Family Detached Housing (210) were used to estimate the site's trip generation, which is based on the number of lots in the development.[5] As one home will be removed from the site during construction, the trips from that home have been subtracted from the total trips. As shown in Table 1, the proposed development is expected to generate a net total 20 PM peak hour trips (12 in, 8 out).

TABLE 1: VEHICLE TRIP GENERATION

LAND USE	ITE DESCRIPTION (CODE)	UNITS	PM PEAK TRIP RATE [A]	PM PEAK TRIPS			WEEKDAY
				IN	OUT	TOTAL	
NEW HOMES	SINGLE-FAMILY DETACHED HOUSING (210)	19 Lots	1.11 trips/lot	13	8	21	219
EXISTING HOME REMOVED	SINGLE-FAMILY DETACHED HOUSING (210)	1 Lot	1.00 trips/lot	-1	-0	-1	-15
		TOTAL NET NEW TRIPS		**12**	**8**	**20**	**204**

[A] PM peak trip rate is back-calculated from the fitted curve equation

PROJECT TRIP DISTRIBUTION

The project trips were distributed based on data from the Wilsonville Travel Demand Model and previous Frog Pond traffic analyses.[6] It is estimated that 50% of trips utilize Stafford Road to/from the north, 35% of trips utilize Boeckman Road to/from the west, 10% of trips utilize Wilsonville Road to/from the south, and 5% of trips utilize Advance Road to/from the east. The project trips and distribution are shown in Figure 2.

[2] Wilsonville Frog Pond West Crossing Subdivision, Transportation Impact Study, DKS Associates, August 2021.

[3] Wilsonville Frog Pond West Vista Subdivision, Transportation Impact Study, DKS Associates, August 2021.

[4] Clackamas County Comprehensive Plan, Table 5-3a, Amended January 18, 2017

[5] Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021.

[6] Wilsonville Frog Pond West Oaks Subdivision, Transportation Impact Analysis, DKS Associates, November 2021.

PROJECT TRIPS THROUGH CITY OF WILSONVILLE INTERCHANGE AREAS

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions. Approximately 5% (1 PM trip) of the project trips are expected to travel through the I-5/Wilsonville Road interchange area and 5% (1 PM trip) are expected to travel through the I-5/Elligsen Road interchange area.

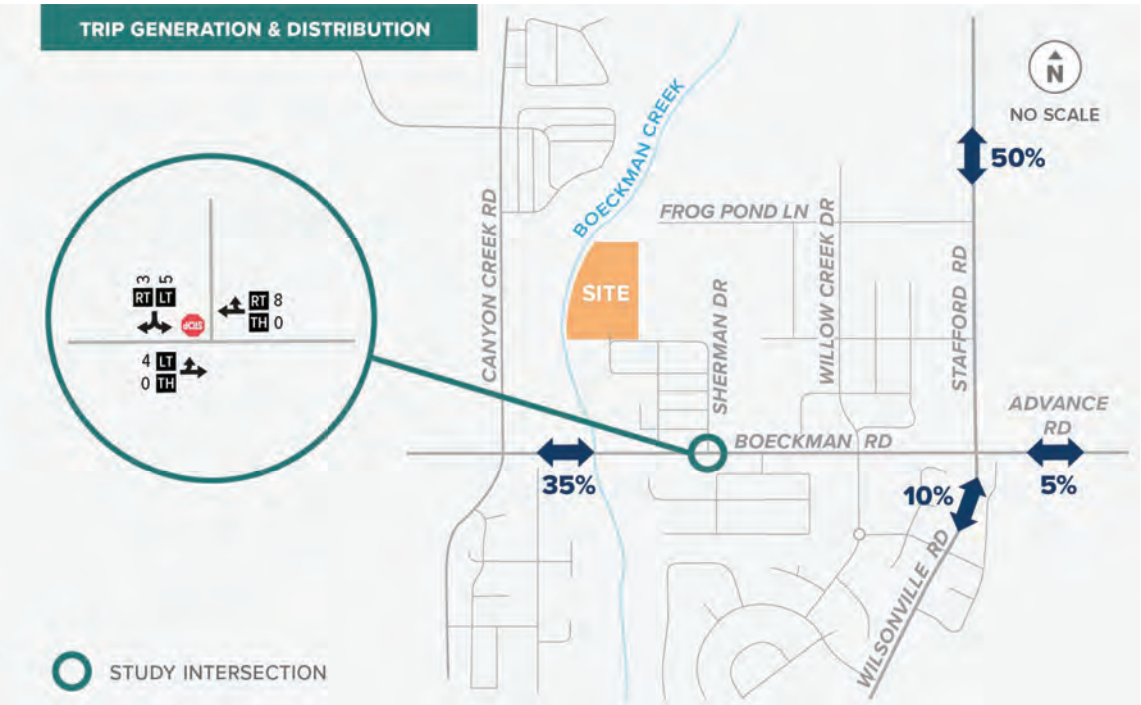


FIGURE 2: PROJECT TRIPS AND DISTRIBUTION

INTERSECTION ANALYSIS

This section contains the intersection analysis at the identified study intersection and includes a discussion of the volume development. Intersection operations were determined for the analysis scenario *Existing + Project + Stage II*.

EXISTING TRAFFIC VOLUMES

A combination of sources were used to estimate the turning movement volumes at the Boeckman Road/ Sherman Drive study intersection based on best practices. Recent turning movement count data from nearby intersections on September 30th, 2021, during the PM peak period (4:00-6:00 pm) were utilized to estimate the through movement volumes along Boeckman road. The Institute of Transportation Engineers (ITE) trip generation rates for Single-Family Detached Housing (210) were used to estimate the turning movement volumes at the intersection based on the number of

houses constructed and that Sherman Drive is the only access point for the development.[7] A conservative estimate of 60 completed houses was used for the site. These intersection volumes were then evaluated for any necessary factoring to represent typical existing PM peak volumes.

In July 2021, ODOT released their final COVID Monitoring Traffic Report, which indicated that statewide traffic levels were approximately back to "pre-COVID" levels (plus or minus 5%). Other local agencies in the area (including City of Wilsonville) had anecdotally noted similar observations on the local street system. Due to this fact, and that the historical traffic counts were collected when West Linn-Wilsonville schools were back to full-time, in-person attendance, no COVID adjustment factor was applied to the traffic counts.

These intersections counts were then factored up to 2022 conditions by assuming a yearly growth rate of 2%. This yearly growth rate is a typical growth rate used in Wilsonville traffic impact analyses and has been calculated using the Wilsonville Travel Demand model.

STAGE II TRAFFIC VOLUMES

Stage II development trips were included in the intersection analysis. Stage II trips represent approved developments that have not yet been constructed. The list of these developments was provided by City staff and is included in the appendix.[8] For this analysis, the Stage II trips also included the Frog Pond West Crossing, Vista, Oaks, Estates, and Overlook housing developments. A list of all these developments is also included in the appendix.

INTERSECTION OPERATIONS

Intersection operations were analyzed for the PM peak hour during the Existing + Project + Stage II scenario. The traffic volumes are shown in Figure 3. The operations were determined based on the Highway Capacity Manual (HCM) 6th Edition methodology.[9] The volume to capacity (v/c) ratio, delay, and level of service (LOS) of the study intersection is listed in Table 2.

TABLE 2: EXISTING + PROJECT + STAGE II INTERSECTION OPERATIONS – PM PEAK

INTERSECTION	OPERATING STANDARD	PM PEAK HOUR		
		V/C	DELAY	LOS
TWO-WAY STOP CONTROLLED				
BOECKMAN RD/ SHERMAN DR	LOS D	0.12	18.6	A/C

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)

[7] Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021.

[8] Email from Daniel Pauly, City of Wilsonville, January 7, 2022.

[9] Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

As shown, the study intersection meets the City of Wilsonville's operating standard for the Existing + Project + Stage II PM peak hour condition.

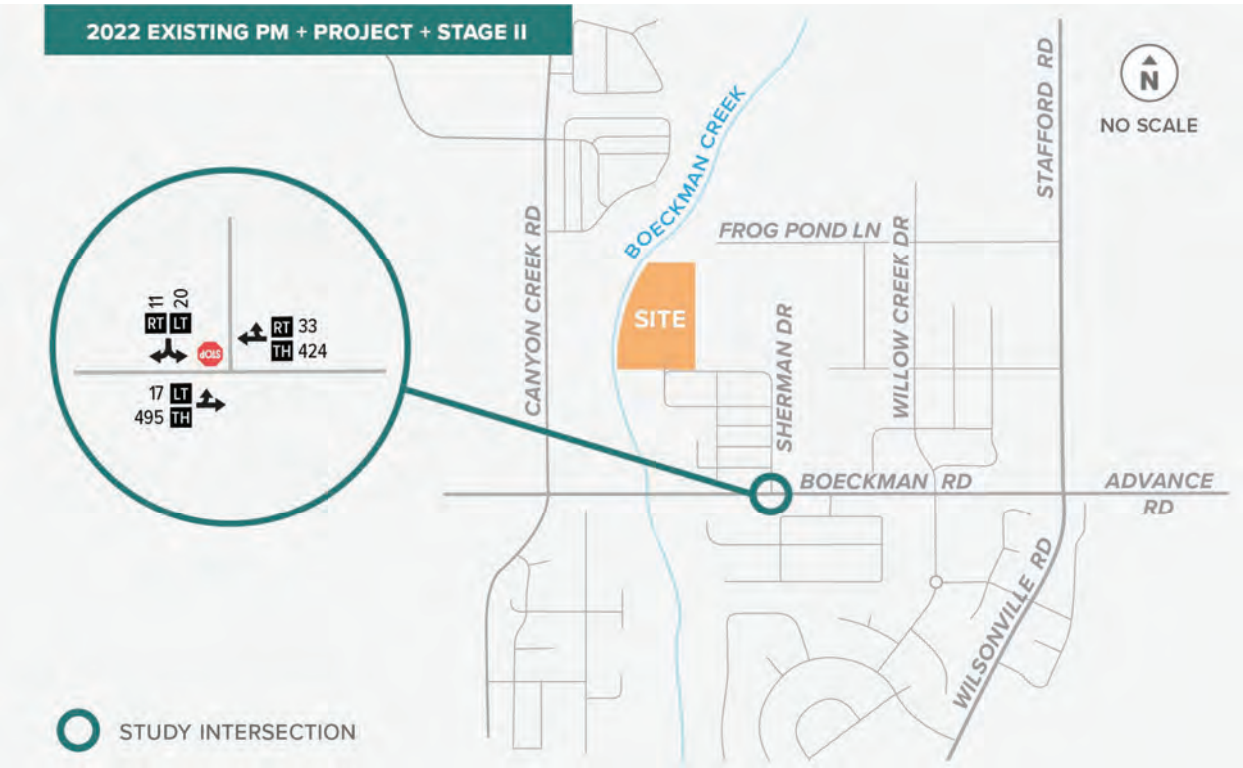


FIGURE 3: EXISTING + PROJECT + STAGE II PM PEAK HOUR TRAFFIC VOLUMES

SITE REVIEW

This section reviews the provided site plan to determine consistency with the Frog Pond West Master Plan and alignment with the Wilsonville Development Code and Construction Standards.

FROG PONG WEST MASTER PLAN CONSISTENCY

The proposed street layout generally matches the framework plan as laid out in the Frog Pond West Master Plan.[10] The primary internal north-south street of the development is connected to Woodbury Loop but does not appear to facilitate a future connection to Frog Pond Lane as documented in the Master Plan. Figure 4 shows the desired street connection to Frog Pond Lane as identified in the Master Plan and the proposed site plan street network. This development should provide an extension of Woodbury Lane to the future connection to Frog Pond Lane as Frog Pond Lane is a key route within Frog Pond and provides access to/from Stafford Road.

[10] Figure 19, Frog Pond West Master Plan, City of Wilsonville, July 17, 2017.

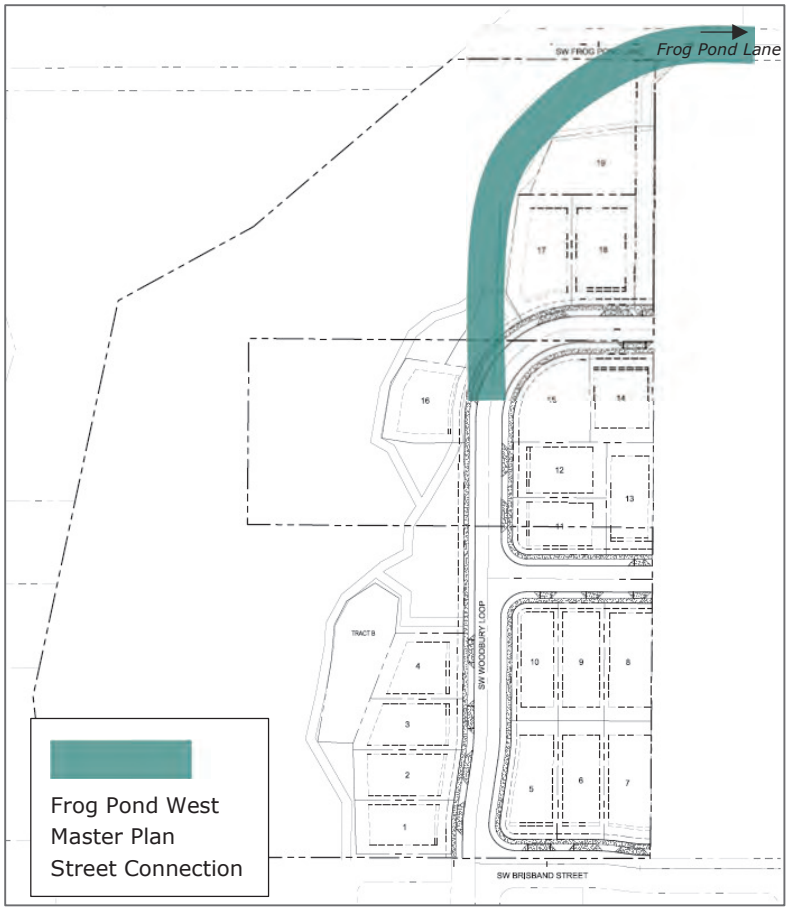


FIGURE 4: MASTER PLAN CONNECTION TO FROG POND LANE

ACCESS SPACING

The proposed project is required to comply with access spacing requirements as laid out in the City Transportation System Plan.[11] The access points for the new development are all on local streets, for which there is no spacing requirements prescribed by the City.

STREETS

The Frog Pond West Master Plan provides the street type plan and required cross sections for all streets in the Frog Pond West neighborhood.[12] All proposed streets within and fronting this development are classified as local streets and the developer will be responsible for building all streets up to standards. Local streets include on-street parking, sidewalks, planter strips, and a public utility easement. No dedicated bicycle facilities are required.

[11] Table 3-2, Wilsonville Transportation System Plan, Amended November 2020.
[12] Figures 19-28, Frog Pond West Master Plan, City of Wilsonville, July 17, 2017.

SIGHT DISTANCE

Adequate sight distance should be provided at the proposed alleys and internal streets. 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. Prior to occupancy, sight distance at any proposed access point or local street connection will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs, or landscaping does not restrict sight distance.

SUMMARY OF PROJECT IMPACTS

The key findings of the trip generation memo for the Frog Pond West Terrace development are summarized below.

- The project will consist of 19 single-family home lots as part of the Frog Pond West Master Plan. The parcel currently contains one single-family home on it.
- The proposed development is expected to generate a net total of 20 PM peak hour trips (12 in, 8 out).
- Approximately one (5%) trip is expected to travel through the I-5/Wilsonville Road interchange area and one (5%) trip is expected to travel through the I-5/Elligsen Road interchange area.
- The study intersection will meet the City's peak hour operating standard under Existing + Project + Stage II PM peak hour conditions.
- This development should provide an extension of Woodbury Lane to the future connection to Frog Pond Lane as Frog Pond Lane is a key route within Frog Pond and provides access Stafford Road.
- Prior to occupancy, sight distance at any proposed access point or local street connection will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon to assure that buildings, signs, or landscaping does not restrict sight distance.

Attachments:

A. Traffic Count Data

B. Stage II List

C. HCM Reports – Existing + Project + Stage II

D. Site Plan

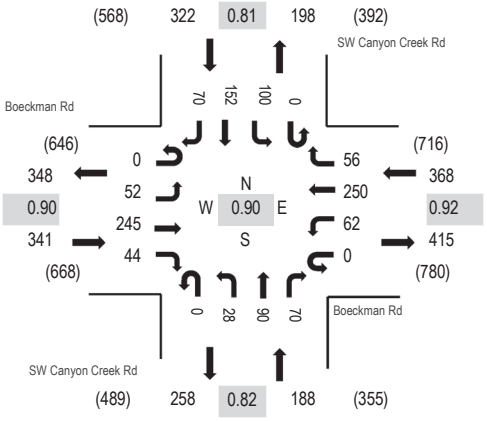
A. TRAFFIC COUNT DATA

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

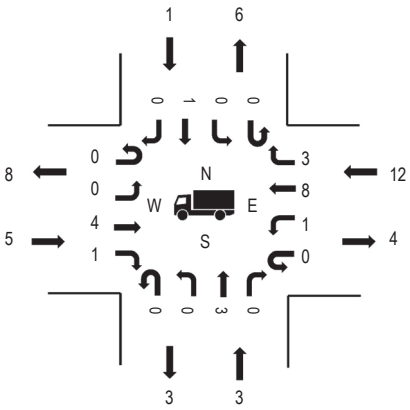
Location: 2 SW Canyon Creek Rd & Boeckman Rd PM
Date: Thursday, September 30, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 04:50 PM - 05:05 PM

Peak Hour

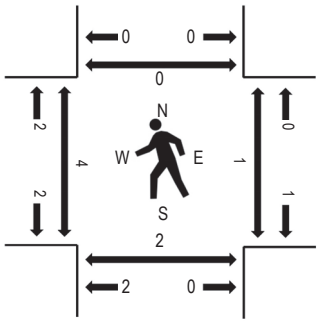
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.90
WB	3.3%	0.92
NB	1.6%	0.82
SB	0.3%	0.81
All	1.7%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	Boeckman Rd Eastbound				Boeckman Rd Westbound				SW Canyon Creek Rd Northbound				SW 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	6	17	8	0	11	31	4	0	4	5	2	0	5	9	4	106	1,142
4:05 PM	0	4	22	2	0	4	18	7	0	0	8	6	0	2	9	1	83	1,148
4:10 PM	0	5	21	3	0	3	20	4	0	1	5	5	0	3	15	7	92	1,172
4:15 PM	0	5	14	3	0	2	15	5	0	2	15	6	0	8	7	3	85	1,184
4:20 PM	0	2	28	2	0	4	14	6	0	2	11	4	0	5	15	3	96	1,201
4:25 PM	0	3	19	7	0	7	22	4	0	3	7	4	0	7	9	2	94	1,201
4:30 PM	0	3	23	3	0	8	21	4	0	2	4	5	0	7	5	9	94	1,202
4:35 PM	0	4	22	5	0	2	19	5	0	3	10	1	0	3	13	3	90	1,214
4:40 PM	0	3	19	2	0	6	12	3	0	3	8	4	0	11	14	7	92	1,215
4:45 PM	0	3	18	4	0	1	20	3	0	3	5	3	0	9	9	7	85	1,219
4:50 PM	0	8	12	4	0	5	31	6	0	2	9	5	0	12	16	3	113	1,214
4:55 PM	0	7	25	2	0	6	19	3	0	3	7	8	0	9	13	10	112	1,190
5:00 PM	0	5	22	0	0	2	12	6	0	5	9	11	0	16	15	9	112	1,165
5:05 PM	0	2	27	7	0	8	24	6	0	1	7	3	0	9	10	3	107	
5:10 PM	0	3	21	6	0	8	20	5	0	1	11	4	0	6	12	7	104	
5:15 PM	0	7	19	3	0	4	20	6	0	3	10	7	0	6	14	3	102	
5:20 PM	0	5	14	5	0	7	23	7	0	3	4	5	0	6	11	6	96	
5:25 PM	0	4	19	6	0	7	18	5	0	2	3	3	0	7	16	5	95	
5:30 PM	0	2	25	5	0	3	20	3	0	1	10	7	0	10	11	9	106	
5:35 PM	0	3	21	1	0	6	17	5	0	3	8	5	0	4	17	1	91	
5:40 PM	0	3	22	1	0	5	26	1	0	1	7	9	0	6	8	7	96	
5:45 PM	0	1	21	3	0	7	20	2	0	2	8	6	0	6	2	2	80	
5:50 PM	0	2	16	4	0	5	20	6	0	0	11	2	0	10	10	3	89	
5:55 PM	0	4	19	2	0	6	16	5	0	0	5	3	0	9	14	4	87	
Count Total	0	94	486	88	0	127	478	111	0	50	187	118	0	176	274	118	2,307	
Peak Hour	0	52	245	44	0	62	250	56	0	28	90	70	0	100	152	70	1,219	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

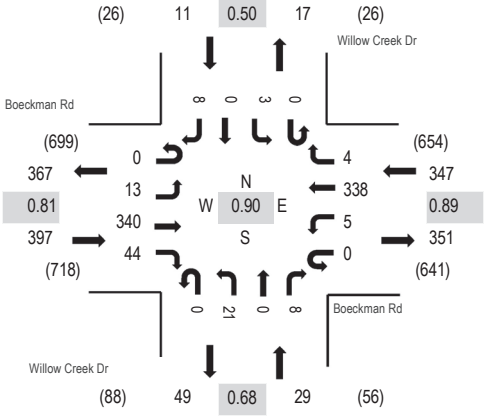
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	3	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	2	2	0	4	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	0	1	0	2	4:10 PM	0	0	0	0	0	4:10 PM	0	2	0	0	2
4:15 PM	1	1	0	1	3	4:15 PM	0	0	0	0	0	4:15 PM	1	2	2	0	5
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	1	0	2	0	3	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	2	0	3	4:30 PM	0	0	0	0	0	4:30 PM	0	2	0	0	2
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	2	0	2
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	1	1	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	1	0	1	4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	1	0	0	1
5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	1	0	0	0	1
5:10 PM	1	0	1	0	2	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	1	0	0	0	1
5:20 PM	2	0	2	0	4	5:20 PM	0	0	0	0	0	5:20 PM	0	1	0	0	1
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	0	1	2	0	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	2	3	0	5	5:35 PM	0	0	0	0	0	5:35 PM	0	0	1	0	1
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	2	0	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	2	0	0	0	2
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	1	0	0	1
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	9	7	23	2	41	Count Total	0	0	0	2	2	Count Total	7	9	5	0	21
Peak Hour	5	3	12	1	21	Peak Hour	0	0	0	1	1	Peak Hour	4	2	1	0	7

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

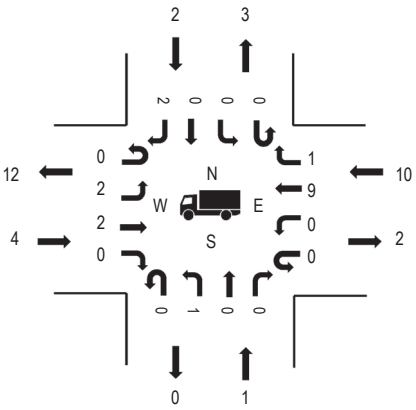
Location: 3 Willow Creek Dr & Boeckman Rd PM
Date: Thursday, September 30, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour

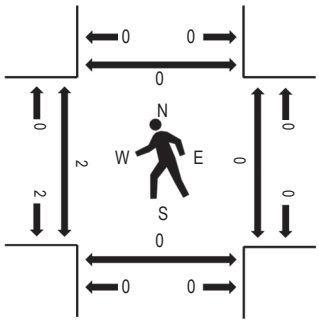
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.0%	0.81
WB	2.9%	0.89
NB	3.4%	0.68
SB	18.2%	0.50
All	2.2%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	Boeckman Rd Eastbound				Boeckman Rd Westbound				Willow Creek Dr Northbound				Willow Creek Dr Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	19	2	0	0	45	0	0	3	0	0	0	1	0	0	72	700
4:05 PM	0	0	16	2	0	1	23	0	0	3	0	1	0	0	0	0	46	697
4:10 PM	0	0	28	4	0	0	23	0	0	2	0	1	0	0	0	1	59	723
4:15 PM	0	1	24	2	0	0	18	3	0	1	0	0	0	0	0	2	51	741
4:20 PM	0	1	30	2	0	0	18	0	0	2	0	1	0	1	0	2	57	749
4:25 PM	0	1	22	5	0	1	33	0	0	0	0	0	0	1	0	1	64	754
4:30 PM	0	0	23	2	0	0	30	0	0	1	0	0	0	1	0	2	59	736
4:35 PM	0	0	27	1	0	1	18	0	0	1	0	0	0	0	0	1	49	744
4:40 PM	0	0	23	3	0	1	16	0	0	2	0	0	0	0	0	0	45	756
4:45 PM	0	0	29	1	0	1	27	1	0	1	0	1	0	0	0	1	62	784
4:50 PM	0	1	22	3	0	1	33	0	0	3	0	2	0	0	0	2	67	773
4:55 PM	0	1	35	6	0	0	25	0	0	0	0	2	0	0	0	0	69	773
5:00 PM	0	2	36	9	0	0	20	0	0	2	0	0	0	0	0	0	69	754
5:05 PM	0	1	30	2	0	0	36	0	0	2	0	0	0	1	0	0	72	
5:10 PM	0	1	33	7	0	0	34	0	0	2	0	0	0	0	0	0	77	
5:15 PM	0	1	24	3	0	0	27	1	0	2	0	1	0	0	0	0	59	
5:20 PM	0	2	25	0	0	1	31	0	0	1	0	0	0	0	0	2	62	
5:25 PM	0	0	22	0	0	0	20	1	0	1	0	0	0	1	0	1	46	
5:30 PM	0	0	28	8	0	0	28	0	0	1	0	1	0	0	0	1	67	
5:35 PM	0	3	25	2	0	2	25	1	0	3	0	0	0	0	0	0	61	
5:40 PM	0	1	31	3	0	0	32	0	0	3	0	1	0	1	0	1	73	
5:45 PM	0	1	23	2	0	1	20	0	0	3	0	0	0	1	0	0	51	
5:50 PM	0	0	22	4	0	1	35	0	0	4	0	0	0	0	0	1	67	
5:55 PM	0	0	25	4	0	0	19	0	0	2	0	0	0	0	0	0	50	
Count Total	0	19	622	77	0	11	636	7	0	45	0	11	0	8	0	18	1,454	
Peak Hour	0	13	340	44	0	5	338	4	0	21	0	8	0	3	0	8	784	

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	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	9	0	0	9
4:05 PM	0	0	2	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	10	0	0	10
4:10 PM	0	0	1	0	1	4:10 PM	0	0	0	0	0	4:10 PM	0	1	0	0	1
4:15 PM	1	0	0	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	10	0	0	10
4:20 PM	0	0	2	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	1	0	0	1
4:25 PM	1	0	2	0	3	4:25 PM	0	0	0	0	0	4:25 PM	0	5	0	0	5
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	3	0	0	3
4:40 PM	0	0	0	0	0	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	1	1	2	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1	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	0	0
5:10 PM	2	1	1	0	4	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	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	1	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	3	0	3	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	2	0	0	0	2
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	2	0	0	0	2
5:50 PM	0	0	0	1	1	5:50 PM	0	0	0	0	0	5:50 PM	0	1	0	0	1
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	6	1	19	3	29	Count Total	0	0	0	0	0	Count Total	4	40	0	0	44
Peak Hour	4	1	10	2	17	Peak Hour	0	0	0	0	0	Peak Hour	2	0	0	0	2

B. STAGE II LIST

Updated by D. Pauly 01.07.22

Stage II Approved

Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
					Internal	Pass-By	In	Out	Total
Hydro-Temp: Recent agreement with the City, the project is vested and so are the traffic trips	Office/Flex-Space	Not built	60.8 KSF				44	46	90
Mercedes Benz (Phase 2)	Auto Dealership	Not built					20	26	46
Shredding Systems (SQFT does not including paint canopy and another canopy)	Industrial/Commercial	Under construction	66.8 KSF				20	46	66
Town Center Ph III *and trip dedication to Miller Paint store* *Uses marked with "*" have not been built and PM peak hr trip sum exceeds remaining vested trip level by 2 trips. It has yet to be determined how to allocate trips between remaining buildings.*	*High Turnover Restaurant (Pad 1)	Not built	7.5 KSF				24	17	47*
	Remaining Approved Total								47
Wilsonville Road Business Park Phase II	Phase 2 - office (2-story building on west parcel)	Partially Built	21.7 KSF				15	71	86
Frog Pond-Stafford Meadows (Phase 2 and 3a of 10/18 study)	Residential	Partially Built, 32 homes built and occupied	46 units				9	5	14
Frog Pond-Frog Pond Meadows (Phase 3B, 4A, 4B of 10/18 Study)	Residential	Partially Built, 14 homes built and occupied	74 units				37	23	60
Frog Pond Ridge	Residential	nstruction, no homes built or	71 units				43	28	71
Frog Pond-Morgan Farm	Residential	Partially Built, 50 homes built and occupied	80 units				18	12	30
Fir Avenue Commons	Residential	Partially Built, 6 homes built and occupied	10 units				2	2	4
Magnolia Townhomes	Residential	Under construction	6 units				3	2	5
Aspen Meadows II	Residential	Under construction, 3 homes sold and occupied	5 units				1	1	2
Canyon Creek III	Residential	Approved	5 units (traffic study was for 11)				2	3	5
Coffee Creek Logistics	Industrial/Commercial	Under construction	115K				16	41	57
PW Complex on Boberg	Public	Approved	15,800 office, 17,900 warehouse				11	39	50
DAS North Valley Complex	Public/Industria	Approved	174,700 sf				5	15	20

Stage II Approved – Villebois

Project	Phase	Status	Land Use					Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
			SF	Town.	Apt.	Retail	School		Internal	Pass-By	In	Out	Total
North (Entirety)	Residential	Partially built, 364 homes sold and occupied	451								53	34	87
Central	Residential	Partially Built, 991 homes (102 single family, 319 condo/row homes, 365 apartments) occupied	102	391	510						60	30	90

Pending Projects for Which Traffic Analysis has been completed (except Villebois)

Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage			Net New (Primary) PM Peak Hour Trips		
					Internal	Pass-By	Diverted	In	Out	Total
Frog Pond Crossing								19	9	28
Frog Pond Vista								27	17	44
Frog Pond Estates								11	7	18
Boones Ferry Gas Station/Convenience Store	Commercial	under review	3,460 sf store, 12 gas pumps	240		134		53	53	106

C. HCM REPORTS – EXISTING + PROJECT + STAGE II

Intersection	
Int Delay, s/veh	0.7

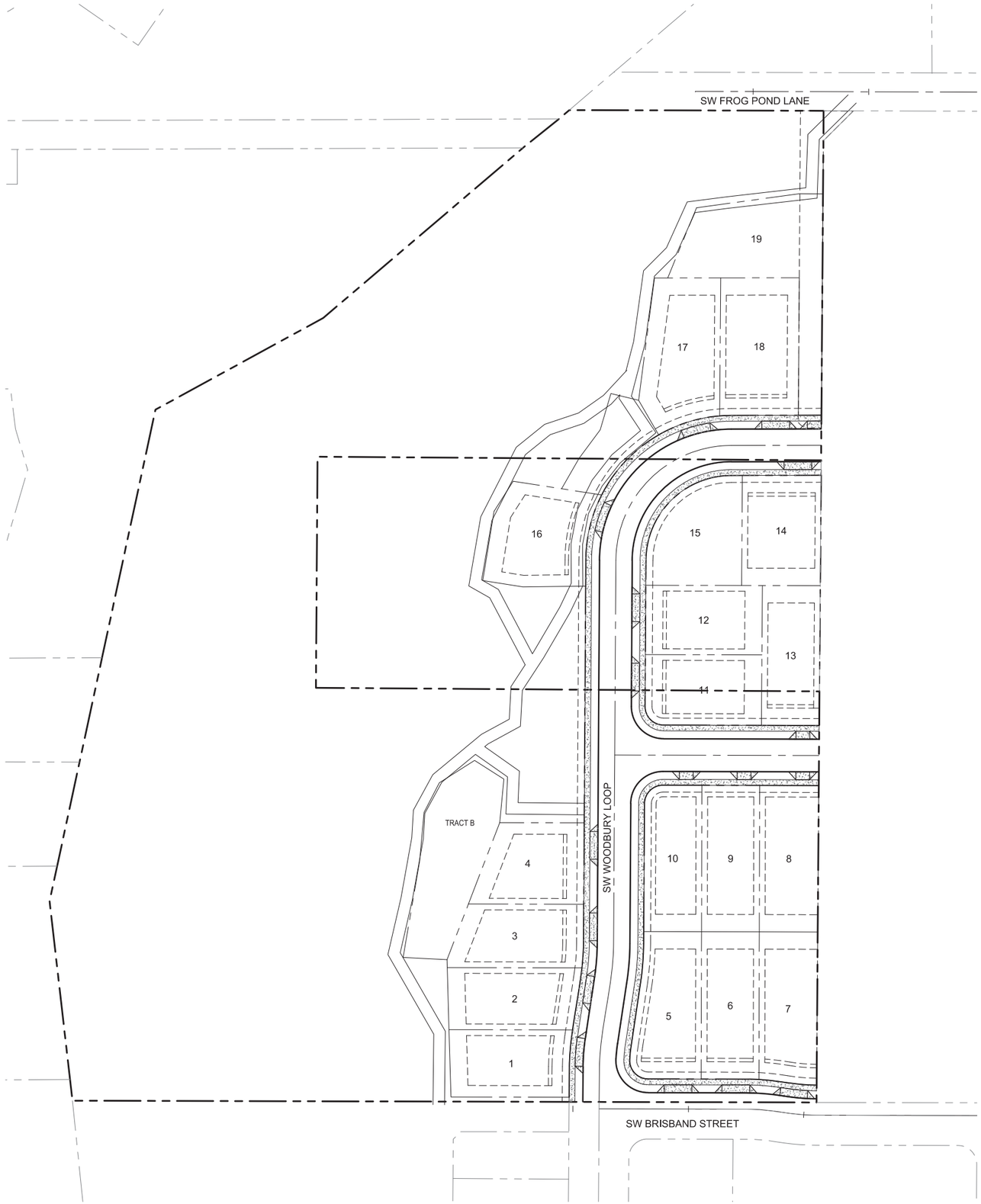
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	495	424	33	20	11
Future Vol, veh/h	17	495	424	33	20	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	3	1	1	1
Mvmt Flow	19	550	471	37	22	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	508	0	-	0	1078	490
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	588	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1062	-	-	-	243	580
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	557	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1062	-	-	-	237	580
Mov Cap-2 Maneuver	-	-	-	-	237	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	557	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	18.6
HCM LOS			C

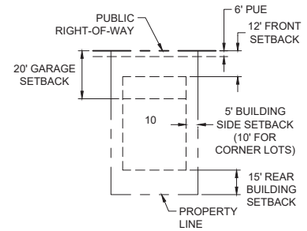
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1062	-	-	-	300
HCM Lane V/C Ratio	0.018	-	-	-	0.115
HCM Control Delay (s)	8.5	0	-	-	18.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

D. SITE PLAN

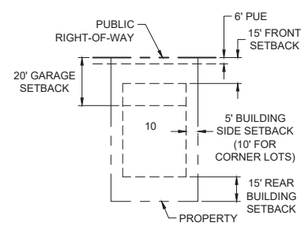


LEGEND

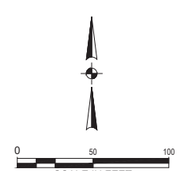
- PROPERTY LINE
- CENTER LINE
- LOT LINE
- LOT SETBACK
- LOT NUMBER / NAME — 16
- EASEMENT LINE
- STANDARD CURB
- SIDEWALK
- RETAINING WALL
- INTERSECTION SIGHT DISTANCE — [x'] ; x'=DESIGN SPEED(MPH)X10'/MPH
- TYPICAL STREET CROSS SECTION (SEE SHEET P2.10) — A / P2.10
- PUBLIC RAIN GARDEN
- DRIVEWAY
- CURB RAMP



R5 FRONT LOADED SINGLE FAMILY BUILDING SETBACKS
LOTS 1-12 NTS



R7 FRONT LOADED SINGLE FAMILY BUILDING SETBACKS
LOTS 13-41 NTS



Otak
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Portland, OR 97204
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www.otak.com

PRELIMINARY

STAMP

WEST HILLS LAND DEVELOPMENT
CONSULTANT

FROG POND TERRACE
XX DETACHED SINGLE FAMILY LOTS
CITY OF WILSONVILLE, OREGON

PRELIMINARY SITE PLAN

TITLE

#	DATE	DESCRIPTION

REVISIONS

NAVD88
DATUM

OTAK CAD — DRAWN BY
KJB — CHECKED BY

LAND USE SUBMITTAL
STATUS

OCTOBER 15, 2021
DATE

20141
PROJECT NUMBER

P2.00

Plotted: Dec 02, 2021 - 4:15pm Mike Havnes L:\20000\20015\CAD\DA\CAD\Dwg\Frog Pond - Terrace\P2001SP200.dwg Layout Name - P2.00

Appendix E

Arborist Report and Tree Plan dated January 27, 2022
by Portland Tree Consulting

Frog Pond Terrace Arborist Report

This Tree Plan is required by Section 4.610.40. Type C Permit as part of the site development application for the Frog Pond Terrace Subdivision in Wilsonville, Oregon. The attached Tree Table includes all trees that are 6 inches in diameter and larger on or close to the property. Species, crown diameters, and health and condition were inventoried by an ISA Certified Arborist. Trees were tied and diameters measured by licensed Otak surveyors. There are two hundred and fifty trees, and the Tree Table delineates those to be removed and those to be protected. Protected trees have metal identification tags that will remain until final inspection of the project. Root protection zones (RPZs) for protected trees are listed in the Tree Table.

The one hundred five trees being preserved during development will be cordoned off with fencing built at the edge of root protection zones before construction activity begins. Fencing will consist of 6-foot-high metal chain link secured with 8-foot metal posts. I recommend that the project arborist and the project supervisor walk through the project after the fences are up and before grading begins to see if any changes should be made

Without authorization, none of the following is allowed within a root protection zone:
1. New buildings.
2. Grade change or cut and fill, during or after construction.
3. New impervious surfaces.
4. Utility or drainage field placement.
5. Staging or storage of materials and equipment during construction.
6. Vehicle maneuvering during construction.

With supervision by an arborist, ground disturbance and construction may occur inside RPZs after authorization from the City. This ensures that development activities contemplated by the owner and put into effect by the construction team are done without endangering protected trees.

One hundred forty-five trees will be removed from the property. Section 4.620.00. requires that each removed tree be replaced with a 2-inch caliper tree within one year of removal. Replacement trees shall be 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. The species and locations of replacement trees will be determined by the landscape designer. I recommend that the project arborist reviews the species selection and tree placement for poorly compatible choices.

Replacement trees must be staked, fertilized, and mulched, and shall be guaranteed by the permit grantee for two years after the planting date. Alternatively, if some trees cannot be planted at the site due to spatial limitations, the owner may invoke Section 4.629.00.(06.) and pay the value of the replacement trees to the City Tree Fund.

Portland Tree Consulting

This Tree Plan meets the requirements of the tree preservation code, and the owner will observe all laws, rules, and regulations. Trees to be removed should be verified and marked and tree protection measures should be inspected and approved before any clearing or grading work begins. It is the owner's responsibility to implement this tree plan and to monitor the construction process to its conclusion. Deviations can result in tree damage, liability, and violations of the City Code.

Portland Tree Consulting PO Box 19042 Portland, OR 97280
503.421.3883 petertorresusa@gmail.com CCB 230301

1. Client warrants any legal description provided to the Consultant is correct and titles and ownerships to property are good and marketable. Consultant shall not be responsible for incorrect information provided by Client.

2. Consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

3. The Consultant shall not be required to give testimony or attend court or hearings unless subsequent contractual arrangements are made, including additional fees.

4. The report and any values expressed therein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

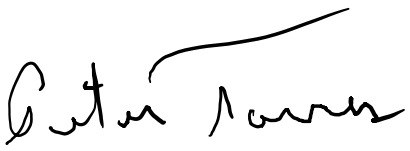
5. Sketches, drawings and photographs in the report are intended as visual aids and may not be to scale. The reproduction of information generated by others will be for coordination and ease of reference. Inclusion of such information does not warrant the sufficiency or accuracy of the information by the Consultant.

6. Unless expressed otherwise, information in the report covers only items that were examined and reflects the condition at the time of inspection. The inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing, or coring, unless otherwise stated.

7. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

8. The report is the completed work product. Any additional work, including production of a site plan, addenda and revisions, construction of tree protection measures, tree work, or inspection of tree protection measures, for example, must be contracted separately. Loss or alteration of any part of the report invalidates the entire report.

9. Any action or proceeding seeking to enforce any provision of this Agreement shall be brought against any of the parties in Multnomah County Circuit Court of the State of Oregon, or, when applicable, in the United States District Court for the District of Oregon. Each party consents to the jurisdiction of such courts (and of the appropriate appellate courts) and waives any objection to such venue.



Peter Torres

Master of Forestry ASCA RCA 372 ISA Certified Arborist PN-0650B TRAQ

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30007	bigleaf maple	20"	18	2	in ravine	14	protect
30008	Oregon ash	10"	12	2	in ravine	8	protect
30009	Oregon ash	14"	15	2	in ravine	8	protect
30014	red alder	12"	10	2	in ravine	8	protect
30015	red alder	13"	10	2	in ravine	8	protect
30017	Oregon ash	16"	24	2	in ravine	12	protect
30019	Scouler willow	4X4"-14"	18	2	in ravine	10	protect
30027	bigleaf maple	4X8"-12"	15	2	in ravine	0	remove
30028	Oregon ash	12"	15	2	in ravine	8	protect
30029	bigleaf maple	2X12"-14"	18	2	in ravine	14	protect
30033	Scouler willow	3X8"-10"	18	2	in ravine	0	remove
30042	Oregon ash	2X6"-8"	15	2	in ravine	8	protect
30045	bigleaf maple	10"	12	2	in ravine	8	protect
30046	bigleaf maple	10"	12	2	in ravine	8	protect
30053	Douglas-fir	26"	24	2	in ravine	18	protect
30054	red alder	2X11"-14"	12	1	terminal decline	14	protect
30062	bigleaf maple	8"	12	2	in ravine	8	protect
30063	bigleaf maple	8"	18	2	in ravine	8	protect
30076	bigleaf maple	18"	18	2	in ravine	10	protect
30090	Douglas-fir	14"	12	2	in ravine	10	protect
30099	bigleaf maple	14"	15	2	in ravine	10	protect
30100	bigleaf maple	16"	18	2	in ravine	12	protect
30101	red alder	12"	10	2	dead in ravine	0	protect
30117	red alder	4X13"-18"	10	2	dead in ravine	0	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30482	Douglas-fir	36"	36	2	in ravine	24	protect
30497	Alder	22"	24	2	in ravine	16	protect
30507	bigleaf maple	3X8"-28"	24	2	in ravine	24	protect
30513	Douglas-fir	24"	30	2	in ravine	16	protect
30514	bigleaf maple	2X14"-24"	12	2	the 24" stem is a Douglas-fir tree	20	protect
30516	Douglas-fir	24"	24	2	in ravine	16	protect
30517	Douglas-fir	20"	21	2	in ravine	14	protect
30518	Douglas-fir	20"	21	2	in ravine	14	protect
30519	Douglas-fir	28"	24	2	in ravine	18	protect
30520	Douglas-fir	24"	24	2	in ravine	16	protect
30534	bigleaf maple	16"	21	2	in ravine	12	protect
30535	Douglas-fir	34"	30	2	in ravine	24	protect
30536	Douglas-fir	20"	24	2	in ravine	14	protect
30537	Douglas-fir	40"	33	2	in ravine	24	protect
30599	Douglas-fir	12"	12	2	in ravine	8	protect
30600	Douglas-fir	18"	18	2	two tops	12	protect
30601	Douglas-fir	16"	18	2	at utility pole	12	protect
30602	Douglas-fir	16"	18	2	topped at 20 ft.	12	protect
30603	Japanese maple	6"	9	2	at house	8	protect
30709	Douglas-fir	9"	9	2	in ravine	8	protect
30710	Douglas-fir	9"	9	2	in ravine	8	protect
30711	bigleaf maple	28"	30	2	in ravine	24	protect
30712	Garry oak	36"	90	2	leans over house to remain and one-sided	24	protect
30713	Douglas-fir	32"	30	2	must preserve to protect 30712 Garry oak; two tops, one-sided	24	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30714	red alder	14"	9	2	terminal decline	10	protect
30715	Douglas-fir	12"	9	2	in ravine	8	protect
30716	Douglas-fir	14"	0	2	in ravine	10	protect
30717	red alder	14"	0	2	in ravine	10	protect
30718	red alder	16"	12	2	in ravine	12	protect
30719	Douglas-fir	10"	9	2	in ravine	8	protect
30720	Douglas-fir	11"	12	2	in ravine	8	protect
30721	Douglas-fir	18"	12	2	in ravine	12	protect
30722	Douglas-fir	12"	12	2	in ravine	8	protect
30723	Douglas-fir	9"	9	2	native species	8	protect
30724	Douglas-fir	13"	12	2	in ravine	10	protect
30725	Douglas-fir	7"	12	2	in ravine	8	protect
30726	Douglas-fir	12"	12	2	in ravine	8	protect
30727	Douglas-fir	8"	9	2	in ravine	8	protect
30728	Douglas-fir	13"	12	2	in ravine	10	protect
30729	yellow pine	18"	18	2	in ravine	12	protect
30730	yellow pine	8"	9	2	in ravine	8	protect
30731	Douglas-fir	13"	12	2	in ravine	10	protect
30732	Douglas-fir	16"	15	2	in ravine	12	protect
30733	Douglas-fir	14"	12	2	in ravine	10	protect
30734	Douglas-fir	6"	9	2	in ravine	8	protect
30735	yellow pine	18"	18	2	in ravine	12	protect
30736	sweet cherry	14"	15	2	in ravine	10	protect
30737	yellow pine	12"	15	2	native species	8	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30738	yellow pine	14"	12	2	one-sided	10	protect
30739	yellow pine	14"	12	2	one-sided	10	protect
30740	Douglas-fir	16"	15	2	asymmetrical crown	12	protect
30741	yellow pine	15"	15	2	asymmetrical crown	10	protect
30772	quaking aspen	8"	9	2	asymmetrical crown	8	protect
30773	Sato cherry	2X6"-8"	15	2	asymmetrical crown	8	protect
30774	quaking aspen	8"	12	2	asymmetrical crown	8	protect
30775	quaking aspen	12"	15	2	asymmetrical crown	8	protect
30776	Douglas-fir	18"	18	2	asymmetrical crown	12	protect
30777	Douglas-fir	15"	18	2	asymmetrical crown	10	protect
30778	Douglas-fir	10"	15	2	asymmetrical crown	8	protect
30779	Douglas-fir	16"	18	2	asymmetrical crown	12	protect
30780	Douglas-fir	12"	12	2	asymmetrical crown	8	protect
30781	Douglas-fir	12"	12	2	asymmetrical crown	8	protect
30782	yellow pine	18"	21	2	asymmetrical crown	12	protect
30783	yellow pine	12"	15	2	asymmetrical crown	8	protect
30784	yellow pine	14"	18	2	asymmetrical crown	10	protect
30785	Douglas-fir	13"	12	2	asymmetrical crown	10	protect
30786	Douglas-fir	14"	9	2	asymmetrical crown	10	protect
30787	Douglas-fir	10"	12	2	asymmetrical crown	8	protect
30788	Douglas-fir	16"	18	2	asymmetrical crown	0	remove
30789	yellow pine	16"	18	2	asymmetrical crown	12	protect
30790	Douglas-fir	10"	12	2	viable	8	protect
30791	Douglas-fir	13"	12	2	asymmetrical crown	8	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30792	yellow pine	9"	9	2	asymmetrical crown	8	protect
30793	yellow pine	12"	12	2	asymmetrical crown	8	protect
30794	yellow pine	9"	9	2	asymmetrical crown	8	protect
30795	yellow pine	14"	12	2	asymmetrical crown	10	protect
30796	yellow pine	14"	12	2	asymmetrical crown	10	protect
30797	yellow pine	14"	12	2	asymmetrical crown	10	protect
30798	yellow pine	18"	15	2	asymmetrical crown	12	protect
30799	missing	0	0	2	missing from behind house	0	none
30822	quaking aspen	10"	12	2	viable	8	protect
31353	Douglas-fir	20"	15	2	on berm, shallow-rooted	0	remove
31354	Douglas-fir	14"	12	2	on berm, shallow-rooted	0	remove
31356	Douglas-fir	14"	12	2	on berm, shallow-rooted	0	remove
31357	Douglas-fir	18"	12	2	on berm, shallow-rooted	0	remove
31358	Douglas-fir	12"	12	2	on berm, shallow-rooted	0	remove
31359	Douglas-fir	2X10"-13"	12	2	poor structure	0	remove
31360	Douglas-fir	12"	12	2	on berm, shallow-rooted	0	remove
31361	Douglas-fir	8"	12	2	on berm, shallow-rooted	0	remove
31362	Douglas-fir	10"	12	2	on berm, shallow-rooted	0	remove
31363	Douglas-fir	13"	15	2	on berm, shallow-rooted	0	remove
31364	Douglas-fir	20"	21	2	on berm, shallow-rooted	0	remove
31367	Douglas-fir	20"	24	2	on berm, shallow-rooted	0	remove
31368	Douglas-fir	14"	15	2	on berm, shallow-rooted	0	remove
31369	yellow pine	31"	30	2	crowded	0	remove
31370	yellow pine	18"	15	2	crowded	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31371	yellow pine	14"	24	2	crowded	0	remove
31372	yellow pine	13"	18	2	crowded	0	remove
31373	yellow pine	14"	18	2	crowded	0	remove
31374	yellow pine	14"	18	2	crowded	0	remove
31375	yellow pine	18"	24	2	asymmetrical crown	0	remove
31376	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31377	yellow pine	16"	15	2	asymmetrical crown	0	remove
31378	yellow pine	10"	12	2	asymmetrical crown	0	remove
31379	yellow pine	12"	12	2	asymmetrical crown	0	remove
31380	yellow pine	14"	12	2	asymmetrical crown	0	remove
31381	yellow pine	7"	9	2	asymmetrical crown	0	remove
31382	yellow pine	14"	15	2	asymmetrical crown	0	remove
31383	yellow pine	19"	24	2	asymmetrical crown	0	remove
31384	yellow pine	18"	18	2	asymmetrical crown	0	remove
31385	bigleaf maple	24"	24	2	native species	0	remove
31386	Douglas-fir	17"	24	2	one-sided	0	remove
31387	Douglas-fir	12"	18	2	asymmetrical crown	0	remove
31388	yellow pine	13"	15	2	asymmetrical crown	0	remove
31389	yellow pine	20"	21	2	asymmetrical crown	0	remove
31390	yellow pine	16"	18	2	asymmetrical crown	0	remove
31391	yellow pine	12"	12	2	asymmetrical crown	0	remove
31392	yellow pine	14"	12	2	asymmetrical crown	0	remove
31393	yellow pine	10"	12	2	asymmetrical crown	0	remove
31394	yellow pine	16"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31395	yellow pine	11"	9	2	topped at 20 ft.	0	remove
31396	yellow pine	13"	21	2	asymmetrical crown	0	remove
31397	yellow pine	14"	15	2	asymmetrical crown	0	remove
31398	yellow pine	16"	15	2	asymmetrical crown	0	remove
31399	yellow pine	11"	15	2	asymmetrical crown	0	remove
31400	yellow pine	16"	12	2	asymmetrical crown	0	remove
31401	yellow pine	13"	15	2	asymmetrical crown	0	remove
31402	yellow pine	18"	12	2	asymmetrical crown	0	remove
31403	yellow pine	24"	18	2	asymmetrical crown	0	remove
31404	yellow pine	18"	15	2	asymmetrical crown	0	remove
31405	yellow pine	15"	12	2	asymmetrical crown	0	remove
31406	yellow pine	24"	24	2	asymmetrical crown	0	remove
31407	yellow pine	16"	18	2	asymmetrical crown	0	remove
31408	yellow pine	20"	9	2	codominant trunks	0	remove
31409	yellow pine	6"	9	2	suppressed	0	remove
31410	yellow pine	14"	12	2	asymmetrical crown	0	remove
31411	yellow pine	8"	9	2	asymmetrical crown	0	remove
31412	yellow pine	12"	12	2	asymmetrical crown	0	remove
31413	yellow pine	10"	12	2	asymmetrical crown	0	remove
31414	yellow pine	17"	18	2	asymmetrical crown	0	remove
31415	yellow pine	10"	12	2	asymmetrical crown	0	remove
31416	yellow pine	6"	9	2	asymmetrical crown	0	remove
31417	yellow pine	8"	9	2	asymmetrical crown	0	remove
31418	yellow pine	12"	12	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31419	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31420	Douglas-fir	14"	12	2	asymmetrical crown	0	remove
31421	yellow pine	12"	12	2	asymmetrical crown	0	remove
31422	yellow pine	16"	15	2	asymmetrical crown	0	remove
31423	yellow pine	8"	9	2	asymmetrical crown	0	remove
31424	yellow pine	12"	15	2	asymmetrical crown	0	remove
31425	yellow pine	7"	9	2	asymmetrical crown	0	remove
31426	yellow pine	14"	12	2	asymmetrical crown	0	remove
31427	Douglas-fir	8"	9	2	asymmetrical crown	0	remove
31428	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31429	Douglas-fir	14"	18	2	asymmetrical crown	0	remove
31430	yellow pine	16"	18	2	asymmetrical crown	0	remove
31431	yellow pine	17"	18	2	asymmetrical crown	0	remove
31432	yellow pine	22"	24	2	asymmetrical crown	0	remove
31433	yellow pine	14"	18	2	asymmetrical crown	0	remove
31434	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31435	yellow pine	16"	15	2	asymmetrical crown	0	remove
31436	yellow pine	22"	24	2	asymmetrical crown	0	remove
31437	Douglas-fir	13"	12	2	asymmetrical crown	0	remove
31438	Douglas-fir	17"	18	2	asymmetrical crown	0	remove
31439	Douglas-fir	16"	15	2	asymmetrical crown	0	remove
31440	yellow pine	13"	12	2	asymmetrical crown	0	remove
31441	Douglas-fir	16"	15	2	asymmetrical crown	0	remove
31442	yellow pine	17"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31443	Douglas-fir	13"	12	2	asymmetrical crown	0	remove
31444	Douglas-fir	16"	24	2	asymmetrical crown	0	remove
31445	yellow pine	11"	12	2	asymmetrical crown	0	remove
31446	yellow pine	8"	12	2	asymmetrical crown	0	remove
31447	yellow pine	18"	18	2	asymmetrical crown	0	remove
31448	yellow pine	14"	15	2	asymmetrical crown	0	remove
31449	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31450	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31451	yellow pine	12"	12	2	asymmetrical crown	0	remove
31452	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31453	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31454	yellow pine	12"	12	2	asymmetrical crown	0	remove
31455	yellow pine	16"	18	2	asymmetrical crown	0	remove
31456	Douglas-fir	2X4"-6"	9	2	asymmetrical crown	0	remove
31457	yellow pine	14"	12	2	asymmetrical crown	0	remove
31458	yellow pine	16"	15	2	asymmetrical crown	0	remove
31459	yellow pine	10"	12	2	asymmetrical crown	0	remove
31460	yellow pine	16"	12	2	asymmetrical crown	0	remove
31461	yellow pine	21"	21	2	asymmetrical crown	0	remove
31463	yellow pine	12"	12	2	asymmetrical crown	0	remove
31464	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31465	yellow pine	15"	15	2	asymmetrical crown	0	remove
31466	yellow pine	2X10"-16"	18	2	asymmetrical crown	0	remove
31467	yellow pine	16"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31468	yellow pine	16"	15	2	asymmetrical crown	0	remove
31469	yellow pine	8"	12	2	asymmetrical crown	0	remove
31470	yellow pine	13"	12	2	asymmetrical crown	0	remove
31471	yellow pine	14"	15	2	asymmetrical crown	0	remove
31472	cottonwood	10"	12	2	asymmetrical crown	0	remove
31473	yellow pine	16"	18	2	asymmetrical crown	0	remove
31474	yellow pine	9"	9	2	asymmetrical crown	0	remove
31475	yellow pine	8"	9	2	asymmetrical crown	0	remove
31476	yellow pine	14"	15	2	asymmetrical crown	0	remove
31477	yellow pine	16"	18	2	asymmetrical crown	0	remove
31478	yellow pine	9"	9	2	asymmetrical crown	0	remove
31479	yellow pine	11"	9	2	asymmetrical crown	0	remove
31480	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31481	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31482	yellow pine	12"	15	2	asymmetrical crown	0	remove
31483	yellow pine	12"	12	2	asymmetrical crown	0	remove
31484	Douglas-fir	9"	9	2	asymmetrical crown	0	remove
31485	yellow pine	16"	15	2	asymmetrical crown	0	remove
31486	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31487	yellow pine	14"	15	2	asymmetrical crown	0	remove
31488	Douglas-fir	9"	9	2	asymmetrical crown	0	remove
31489	Douglas-fir	10"	12	2	asymmetrical crown	0	remove
31490	Douglas-fir	10"	9	2	native species	8	protect
31491	Douglas-fir	18"	18	2	asymmetrical crown	14	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31492	Douglas-fir	16"	18	2	asymmetrical crown	12	protect
31493	Douglas-fir	20"	24	2	asymmetrical crown	14	protect
31496	red alder	15"	15	0	dead	0	remove
31497	red alder	14"	12	1	terminal decline	0	remove
31498	bigleaf maple	2X14"	15	2	viable	0	remove
31499	red alder	8"	9	1	terminal decline	0	remove
31500	bigleaf maple	8"	9	1	terminal decline	0	remove
31501	red alder	20"	0	0	dead	0	remove
33453	cherry species	6"	6	2	viable	0	remove
33455	cherry species	6"	6	2	viable	0	remove
33456	cherry species	6"	6	2	viable	0	remove

Rating- 0/dead or hazardous, 1/decline, 2/average, 3/excellent health and structure

RPZ mean root protection zone. This is a radius from the trunk measured in feet.

Dripline is average Crown Diameter or Canopy Spread

Trees tied and DBHs measured by **Otak** licensed surveyors for at various times.

Many of the trees are crowded or have asymmetrical crowns because they have grown in hedgerows, functioning as hedges, wind breaks, and property line delineators.

Compiled for West Hills Development LLC

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action

Species

apple- *Maus sylvestris*
bigleaf maple- *Acer macrophyllum*
black oak- *Quercus velutina*
blue spruce- *Picea pungens*
cherry species- *Prunus* sp.
Cottonwood- *Populus tricarpa*
Deodar cedar- *Cedrus deodara*
Douglas fir- *Pseudotsuga menziesii*
European birch- *Betula pendula*
Garry oak- Quercus garryana
giant sequoia- *Sequoia giganteum*
ginkgo- *Gingko biloba*
grand fir- *Abies grandis*
incense-cedar- *Calocedrus decurrens*
Japanese maple- *Acer japonica*
limber pine- *Pinus flexilis*
Lombardy poplar- *Populus nigra*
Norway maple- *Acer platanoides*
paperbark maple- *Acer griseum*
Portuguese laurel- *Prunus lusitanica*
red alder- *Alnus rubra*
red spruce- *Picea rubens*
Sato Cherry- *Prunus* sp.
Scouler willow- *Salix scouleriana*
Sitka spruce- *Picea sitchensis*
sweet cherry- *Prunus avium*
western redcedar- *Thuja plicata*
yellow pine- *Pinus ponderosa* var. *scopulorum*

Appendix E

Arborist Report and Tree Plan dated January 27, 2022
by Portland Tree Consulting

Frog Pond Terrace Arborist Report

This Tree Plan is required by Section 4.610.40. Type C Permit as part of the site development application for the Frog Pond Terrace Subdivision in Wilsonville, Oregon. The attached Tree Table includes all trees that are 6 inches in diameter and larger on or close to the property. Species, crown diameters, and health and condition were inventoried by an ISA Certified Arborist. Trees were tied and diameters measured by licensed Otak surveyors. There are two hundred and fifty trees, and the Tree Table delineates those to be removed and those to be protected. Protected trees have metal identification tags that will remain until final inspection of the project. Root protection zones (RPZs) for protected trees are listed in the Tree Table.

The one hundred five trees being preserved during development will be cordoned off with fencing built at the edge of root protection zones before construction activity begins. Fencing will consist of 6-foot-high metal chain link secured with 8-foot metal posts. I recommend that the project arborist and the project supervisor walk through the project after the fences are up and before grading begins to see if any changes should be made

Without authorization, none of the following is allowed within a root protection zone:
1. New buildings.
2. Grade change or cut and fill, during or after construction.
3. New impervious surfaces.
4. Utility or drainage field placement.
5. Staging or storage of materials and equipment during construction.
6. Vehicle maneuvering during construction.

With supervision by an arborist, ground disturbance and construction may occur inside RPZs after authorization from the City. This ensures that development activities contemplated by the owner and put into effect by the construction team are done without endangering protected trees.

One hundred forty-five trees will be removed from the property. Section 4.620.00. requires that each removed tree be replaced with a 2-inch caliper tree within one year of removal. Replacement trees shall be 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. The species and locations of replacement trees will be determined by the landscape designer. I recommend that the project arborist reviews the species selection and tree placement for poorly compatible choices.

Replacement trees must be staked, fertilized, and mulched, and shall be guaranteed by the permit grantee for two years after the planting date. Alternatively, if some trees cannot be planted at the site due to spatial limitations, the owner may invoke Section 4.629.00.(06.) and pay the value of the replacement trees to the City Tree Fund.

Portland Tree Consulting

This Tree Plan meets the requirements of the tree preservation code, and the owner will observe all laws, rules, and regulations. Trees to be removed should be verified and marked and tree protection measures should be inspected and approved before any clearing or grading work begins. It is the owner's responsibility to implement this tree plan and to monitor the construction process to its conclusion. Deviations can result in tree damage, liability, and violations of the City Code.

Portland Tree Consulting PO Box 19042 Portland, OR 97280
503.421.3883 petertorresusa@gmail.com CCB 230301

1. Client warrants any legal description provided to the Consultant is correct and titles and ownerships to property are good and marketable. Consultant shall not be responsible for incorrect information provided by Client.

2. Consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

3. The Consultant shall not be required to give testimony or attend court or hearings unless subsequent contractual arrangements are made, including additional fees.

4. The report and any values expressed therein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

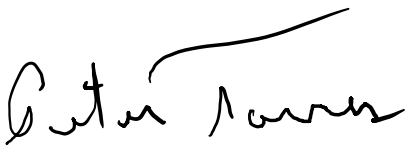
5. Sketches, drawings and photographs in the report are intended as visual aids and may not be to scale. The reproduction of information generated by others will be for coordination and ease of reference. Inclusion of such information does not warrant the sufficiency or accuracy of the information by the Consultant.

6. Unless expressed otherwise, information in the report covers only items that were examined and reflects the condition at the time of inspection. The inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing, or coring, unless otherwise stated.

7. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

8. The report is the completed work product. Any additional work, including production of a site plan, addenda and revisions, construction of tree protection measures, tree work, or inspection of tree protection measures, for example, must be contracted separately. Loss or alteration of any part of the report invalidates the entire report.

9. Any action or proceeding seeking to enforce any provision of this Agreement shall be brought against any of the parties in Multnomah County Circuit Court of the State of Oregon, or, when applicable, in the United States District Court for the District of Oregon. Each party consents to the jurisdiction of such courts (and of the appropriate appellate courts) and waives any objection to such venue.



Peter Torres

Master of Forestry ASCA RCA 372 ISA Certified Arborist PN-0650B TRAQ

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30007	bigleaf maple	20"	18	2	in ravine	14	protect
30008	Oregon ash	10"	12	2	in ravine	8	protect
30009	Oregon ash	14"	15	2	in ravine	8	protect
30014	red alder	12"	10	2	in ravine	8	protect
30015	red alder	13"	10	2	in ravine	8	protect
30017	Oregon ash	16"	24	2	in ravine	12	protect
30019	Scouler willow	4X4"-14"	18	2	in ravine	10	protect
30027	bigleaf maple	4X8"-12"	15	2	in ravine	0	remove
30028	Oregon ash	12"	15	2	in ravine	8	protect
30029	bigleaf maple	2X12"-14"	18	2	in ravine	14	protect
30033	Scouler willow	3X8"-10"	18	2	in ravine	0	remove
30042	Oregon ash	2X6"-8"	15	2	in ravine	8	protect
30045	bigleaf maple	10"	12	2	in ravine	8	protect
30046	bigleaf maple	10"	12	2	in ravine	8	protect
30053	Douglas-fir	26"	24	2	in ravine	18	protect
30054	red alder	2X11"-14"	12	1	terminal decline	14	protect
30062	bigleaf maple	8"	12	2	in ravine	8	protect
30063	bigleaf maple	8"	18	2	in ravine	8	protect
30076	bigleaf maple	18"	18	2	in ravine	10	protect
30090	Douglas-fir	14"	12	2	in ravine	10	protect
30099	bigleaf maple	14"	15	2	in ravine	10	protect
30100	bigleaf maple	16"	18	2	in ravine	12	protect
30101	red alder	12"	10	2	dead in ravine	0	protect
30117	red alder	4X13"-18"	10	2	dead in ravine	0	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30482	Douglas-fir	36"	36	2	in ravine	24	protect
30497	Alder	22"	24	2	in ravine	16	protect
30507	bigleaf maple	3X8"-28"	24	2	in ravine	24	protect
30513	Douglas-fir	24"	30	2	in ravine	16	protect
30514	bigleaf maple	2X14"-24"	12	2	the 24" stem is a Douglas-fir tree	20	protect
30516	Douglas-fir	24"	24	2	in ravine	16	protect
30517	Douglas-fir	20"	21	2	in ravine	14	protect
30518	Douglas-fir	20"	21	2	in ravine	14	protect
30519	Douglas-fir	28"	24	2	in ravine	18	protect
30520	Douglas-fir	24"	24	2	in ravine	16	protect
30534	bigleaf maple	16"	21	2	in ravine	12	protect
30535	Douglas-fir	34"	30	2	in ravine	24	protect
30536	Douglas-fir	20"	24	2	in ravine	14	protect
30537	Douglas-fir	40"	33	2	in ravine	24	protect
30599	Douglas-fir	12"	12	2	in ravine	8	protect
30600	Douglas-fir	18"	18	2	two tops	12	protect
30601	Douglas-fir	16"	18	2	at utility pole	12	protect
30602	Douglas-fir	16"	18	2	topped at 20 ft.	12	protect
30603	Japanese maple	6"	9	2	at house	8	protect
30709	Douglas-fir	9"	9	2	in ravine	8	protect
30710	Douglas-fir	9"	9	2	in ravine	8	protect
30711	bigleaf maple	28"	30	2	in ravine	24	protect
30712	Garry oak	36"	90	2	leans over house to remain and one-sided	24	protect
30713	Douglas-fir	32"	30	2	must preserve to protect 30712 Garry oak; two tops, one-sided	24	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30714	red alder	14"	9	2	terminal decline	10	protect
30715	Douglas-fir	12"	9	2	in ravine	8	protect
30716	Douglas-fir	14"	0	2	in ravine	10	protect
30717	red alder	14"	0	2	in ravine	10	protect
30718	red alder	16"	12	2	in ravine	12	protect
30719	Douglas-fir	10"	9	2	in ravine	8	protect
30720	Douglas-fir	11"	12	2	in ravine	8	protect
30721	Douglas-fir	18"	12	2	in ravine	12	protect
30722	Douglas-fir	12"	12	2	in ravine	8	protect
30723	Douglas-fir	9"	9	2	native species	8	protect
30724	Douglas-fir	13"	12	2	in ravine	10	protect
30725	Douglas-fir	7"	12	2	in ravine	8	protect
30726	Douglas-fir	12"	12	2	in ravine	8	protect
30727	Douglas-fir	8"	9	2	in ravine	8	protect
30728	Douglas-fir	13"	12	2	in ravine	10	protect
30729	yellow pine	18"	18	2	in ravine	12	protect
30730	yellow pine	8"	9	2	in ravine	8	protect
30731	Douglas-fir	13"	12	2	in ravine	10	protect
30732	Douglas-fir	16"	15	2	in ravine	12	protect
30733	Douglas-fir	14"	12	2	in ravine	10	protect
30734	Douglas-fir	6"	9	2	in ravine	8	protect
30735	yellow pine	18"	18	2	in ravine	12	protect
30736	sweet cherry	14"	15	2	in ravine	10	protect
30737	yellow pine	12"	15	2	native species	8	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30738	yellow pine	14"	12	2	one-sided	10	protect
30739	yellow pine	14"	12	2	one-sided	10	protect
30740	Douglas-fir	16"	15	2	asymmetrical crown	12	protect
30741	yellow pine	15"	15	2	asymmetrical crown	10	protect
30772	quaking aspen	8"	9	2	asymmetrical crown	8	protect
30773	Sato cherry	2X6"-8"	15	2	asymmetrical crown	8	protect
30774	quaking aspen	8"	12	2	asymmetrical crown	8	protect
30775	quaking aspen	12"	15	2	asymmetrical crown	8	protect
30776	Douglas-fir	18"	18	2	asymmetrical crown	12	protect
30777	Douglas-fir	15"	18	2	asymmetrical crown	10	protect
30778	Douglas-fir	10"	15	2	asymmetrical crown	8	protect
30779	Douglas-fir	16"	18	2	asymmetrical crown	12	protect
30780	Douglas-fir	12"	12	2	asymmetrical crown	8	protect
30781	Douglas-fir	12"	12	2	asymmetrical crown	8	protect
30782	yellow pine	18"	21	2	asymmetrical crown	12	protect
30783	yellow pine	12"	15	2	asymmetrical crown	8	protect
30784	yellow pine	14"	18	2	asymmetrical crown	10	protect
30785	Douglas-fir	13"	12	2	asymmetrical crown	10	protect
30786	Douglas-fir	14"	9	2	asymmetrical crown	10	protect
30787	Douglas-fir	10"	12	2	asymmetrical crown	8	protect
30788	Douglas-fir	16"	18	2	asymmetrical crown	0	remove
30789	yellow pine	16"	18	2	asymmetrical crown	12	protect
30790	Douglas-fir	10"	12	2	viable	8	protect
30791	Douglas-fir	13"	12	2	asymmetrical crown	8	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
30792	yellow pine	9"	9	2	asymmetrical crown	8	protect
30793	yellow pine	12"	12	2	asymmetrical crown	8	protect
30794	yellow pine	9"	9	2	asymmetrical crown	8	protect
30795	yellow pine	14"	12	2	asymmetrical crown	10	protect
30796	yellow pine	14"	12	2	asymmetrical crown	10	protect
30797	yellow pine	14"	12	2	asymmetrical crown	10	protect
30798	yellow pine	18"	15	2	asymmetrical crown	12	protect
30799	missing	0	0	2	missing from behind house	0	none
30822	quaking aspen	10"	12	2	viable	8	protect
31353	Douglas-fir	20"	15	2	on berm, shallow-rooted	0	remove
31354	Douglas-fir	14"	12	2	on berm, shallow-rooted	0	remove
31356	Douglas-fir	14"	12	2	on berm, shallow-rooted	0	remove
31357	Douglas-fir	18"	12	2	on berm, shallow-rooted	0	remove
31358	Douglas-fir	12"	12	2	on berm, shallow-rooted	0	remove
31359	Douglas-fir	2X10"-13"	12	2	poor structure	0	remove
31360	Douglas-fir	12"	12	2	on berm, shallow-rooted	0	remove
31361	Douglas-fir	8"	12	2	on berm, shallow-rooted	0	remove
31362	Douglas-fir	10"	12	2	on berm, shallow-rooted	0	remove
31363	Douglas-fir	13"	15	2	on berm, shallow-rooted	0	remove
31364	Douglas-fir	20"	21	2	on berm, shallow-rooted	0	remove
31367	Douglas-fir	20"	24	2	on berm, shallow-rooted	0	remove
31368	Douglas-fir	14"	15	2	on berm, shallow-rooted	0	remove
31369	yellow pine	31"	30	2	crowded	0	remove
31370	yellow pine	18"	15	2	crowded	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31371	yellow pine	14"	24	2	crowded	0	remove
31372	yellow pine	13"	18	2	crowded	0	remove
31373	yellow pine	14"	18	2	crowded	0	remove
31374	yellow pine	14"	18	2	crowded	0	remove
31375	yellow pine	18"	24	2	asymmetrical crown	0	remove
31376	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31377	yellow pine	16"	15	2	asymmetrical crown	0	remove
31378	yellow pine	10"	12	2	asymmetrical crown	0	remove
31379	yellow pine	12"	12	2	asymmetrical crown	0	remove
31380	yellow pine	14"	12	2	asymmetrical crown	0	remove
31381	yellow pine	7"	9	2	asymmetrical crown	0	remove
31382	yellow pine	14"	15	2	asymmetrical crown	0	remove
31383	yellow pine	19"	24	2	asymmetrical crown	0	remove
31384	yellow pine	18"	18	2	asymmetrical crown	0	remove
31385	bigleaf maple	24"	24	2	native species	0	remove
31386	Douglas-fir	17"	24	2	one-sided	0	remove
31387	Douglas-fir	12"	18	2	asymmetrical crown	0	remove
31388	yellow pine	13"	15	2	asymmetrical crown	0	remove
31389	yellow pine	20"	21	2	asymmetrical crown	0	remove
31390	yellow pine	16"	18	2	asymmetrical crown	0	remove
31391	yellow pine	12"	12	2	asymmetrical crown	0	remove
31392	yellow pine	14"	12	2	asymmetrical crown	0	remove
31393	yellow pine	10"	12	2	asymmetrical crown	0	remove
31394	yellow pine	16"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31395	yellow pine	11"	9	2	topped at 20 ft.	0	remove
31396	yellow pine	13"	21	2	asymmetrical crown	0	remove
31397	yellow pine	14"	15	2	asymmetrical crown	0	remove
31398	yellow pine	16"	15	2	asymmetrical crown	0	remove
31399	yellow pine	11"	15	2	asymmetrical crown	0	remove
31400	yellow pine	16"	12	2	asymmetrical crown	0	remove
31401	yellow pine	13"	15	2	asymmetrical crown	0	remove
31402	yellow pine	18"	12	2	asymmetrical crown	0	remove
31403	yellow pine	24"	18	2	asymmetrical crown	0	remove
31404	yellow pine	18"	15	2	asymmetrical crown	0	remove
31405	yellow pine	15"	12	2	asymmetrical crown	0	remove
31406	yellow pine	24"	24	2	asymmetrical crown	0	remove
31407	yellow pine	16"	18	2	asymmetrical crown	0	remove
31408	yellow pine	20"	9	2	codominant trunks	0	remove
31409	yellow pine	6"	9	2	suppressed	0	remove
31410	yellow pine	14"	12	2	asymmetrical crown	0	remove
31411	yellow pine	8"	9	2	asymmetrical crown	0	remove
31412	yellow pine	12"	12	2	asymmetrical crown	0	remove
31413	yellow pine	10"	12	2	asymmetrical crown	0	remove
31414	yellow pine	17"	18	2	asymmetrical crown	0	remove
31415	yellow pine	10"	12	2	asymmetrical crown	0	remove
31416	yellow pine	6"	9	2	asymmetrical crown	0	remove
31417	yellow pine	8"	9	2	asymmetrical crown	0	remove
31418	yellow pine	12"	12	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31419	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31420	Douglas-fir	14"	12	2	asymmetrical crown	0	remove
31421	yellow pine	12"	12	2	asymmetrical crown	0	remove
31422	yellow pine	16"	15	2	asymmetrical crown	0	remove
31423	yellow pine	8"	9	2	asymmetrical crown	0	remove
31424	yellow pine	12"	15	2	asymmetrical crown	0	remove
31425	yellow pine	7"	9	2	asymmetrical crown	0	remove
31426	yellow pine	14"	12	2	asymmetrical crown	0	remove
31427	Douglas-fir	8"	9	2	asymmetrical crown	0	remove
31428	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31429	Douglas-fir	14"	18	2	asymmetrical crown	0	remove
31430	yellow pine	16"	18	2	asymmetrical crown	0	remove
31431	yellow pine	17"	18	2	asymmetrical crown	0	remove
31432	yellow pine	22"	24	2	asymmetrical crown	0	remove
31433	yellow pine	14"	18	2	asymmetrical crown	0	remove
31434	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31435	yellow pine	16"	15	2	asymmetrical crown	0	remove
31436	yellow pine	22"	24	2	asymmetrical crown	0	remove
31437	Douglas-fir	13"	12	2	asymmetrical crown	0	remove
31438	Douglas-fir	17"	18	2	asymmetrical crown	0	remove
31439	Douglas-fir	16"	15	2	asymmetrical crown	0	remove
31440	yellow pine	13"	12	2	asymmetrical crown	0	remove
31441	Douglas-fir	16"	15	2	asymmetrical crown	0	remove
31442	yellow pine	17"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31443	Douglas-fir	13"	12	2	asymmetrical crown	0	remove
31444	Douglas-fir	16"	24	2	asymmetrical crown	0	remove
31445	yellow pine	11"	12	2	asymmetrical crown	0	remove
31446	yellow pine	8"	12	2	asymmetrical crown	0	remove
31447	yellow pine	18"	18	2	asymmetrical crown	0	remove
31448	yellow pine	14"	15	2	asymmetrical crown	0	remove
31449	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31450	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31451	yellow pine	12"	12	2	asymmetrical crown	0	remove
31452	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31453	Douglas-fir	18"	18	2	asymmetrical crown	0	remove
31454	yellow pine	12"	12	2	asymmetrical crown	0	remove
31455	yellow pine	16"	18	2	asymmetrical crown	0	remove
31456	Douglas-fir	2X4"-6"	9	2	asymmetrical crown	0	remove
31457	yellow pine	14"	12	2	asymmetrical crown	0	remove
31458	yellow pine	16"	15	2	asymmetrical crown	0	remove
31459	yellow pine	10"	12	2	asymmetrical crown	0	remove
31460	yellow pine	16"	12	2	asymmetrical crown	0	remove
31461	yellow pine	21"	21	2	asymmetrical crown	0	remove
31463	yellow pine	12"	12	2	asymmetrical crown	0	remove
31464	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31465	yellow pine	15"	15	2	asymmetrical crown	0	remove
31466	yellow pine	2X10"-16"	18	2	asymmetrical crown	0	remove
31467	yellow pine	16"	18	2	asymmetrical crown	0	remove

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31468	yellow pine	16"	15	2	asymmetrical crown	0	remove
31469	yellow pine	8"	12	2	asymmetrical crown	0	remove
31470	yellow pine	13"	12	2	asymmetrical crown	0	remove
31471	yellow pine	14"	15	2	asymmetrical crown	0	remove
31472	cottonwood	10"	12	2	asymmetrical crown	0	remove
31473	yellow pine	16"	18	2	asymmetrical crown	0	remove
31474	yellow pine	9"	9	2	asymmetrical crown	0	remove
31475	yellow pine	8"	9	2	asymmetrical crown	0	remove
31476	yellow pine	14"	15	2	asymmetrical crown	0	remove
31477	yellow pine	16"	18	2	asymmetrical crown	0	remove
31478	yellow pine	9"	9	2	asymmetrical crown	0	remove
31479	yellow pine	11"	9	2	asymmetrical crown	0	remove
31480	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31481	Douglas-fir	14"	15	2	asymmetrical crown	0	remove
31482	yellow pine	12"	15	2	asymmetrical crown	0	remove
31483	yellow pine	12"	12	2	asymmetrical crown	0	remove
31484	Douglas-fir	9"	9	2	asymmetrical crown	0	remove
31485	yellow pine	16"	15	2	asymmetrical crown	0	remove
31486	Douglas-fir	12"	12	2	asymmetrical crown	0	remove
31487	yellow pine	14"	15	2	asymmetrical crown	0	remove
31488	Douglas-fir	9"	9	2	asymmetrical crown	0	remove
31489	Douglas-fir	10"	12	2	asymmetrical crown	0	remove
31490	Douglas-fir	10"	9	2	native species	8	protect
31491	Douglas-fir	18"	18	2	asymmetrical crown	14	protect

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action
31492	Douglas-fir	16"	18	2	asymmetrical crown	12	protect
31493	Douglas-fir	20"	24	2	asymmetrical crown	14	protect
31496	red alder	15"	15	0	dead	0	remove
31497	red alder	14"	12	1	terminal decline	0	remove
31498	bigleaf maple	2X14"	15	2	viable	0	remove
31499	red alder	8"	9	1	terminal decline	0	remove
31500	bigleaf maple	8"	9	1	terminal decline	0	remove
31501	red alder	20"	0	0	dead	0	remove
33453	cherry species	6"	6	2	viable	0	remove
33455	cherry species	6"	6	2	viable	0	remove
33456	cherry species	6"	6	2	viable	0	remove

Rating- 0/dead or hazardous, 1/decline, 2/average, 3/excellent health and structure

RPZ mean root protection zone. This is a radius from the trunk measured in feet.

Dripline is average Crown Diameter or Canopy Spread

Trees tied and DBHs measured by **Otak** licensed surveyors for at various times.

Many of the trees are crowded or have asymmetrical crowns because they have grown in hedgerows, functioning as hedges, wind breaks, and property line delineators.

Compiled for West Hills Development LLC

8	Species	DBH	Dripline	Rating	Health & Structure	RPZ	Action

Species

apple- *Maus sylvestris*
bigleaf maple- *Acer macrophyllum*
black oak- *Quercus velutina*
blue spruce- *Picea pungens*
cherry species- *Prunus* sp.
Cottonwood- *Populus tricarpa*
Deodar cedar- *Cedrus deodara*
Douglas fir- *Pseudotsuga menziesii*
European birch- *Betula pendula*
Garry oak- Quercus garryana
giant sequoia- *Sequoia giganteum*
ginkgo- *Gingko biloba*
grand fir- *Abies grandis*
incense-cedar- *Calocedrus decurrens*
Japanese maple- *Acer japonica*
limber pine- *Pinus flexilis*
Lombardy poplar- *Populus nigra*
Norway maple- *Acer platanoides*
paperbark maple- *Acer griseum*
Portuguese laurel- *Prunus lusitanica*
red alder- *Alnus rubra*
red spruce- *Picea rubens*
Sato Cherry- *Prunus* sp.
Scouler willow- *Salix scouleriana*
Sitka spruce- *Picea sitchensis*
sweet cherry- *Prunus avium*
western redcedar- *Thuja plicata*
yellow pine- *Pinus ponderosa* var. *scopulorum*

Appendix F

Geotechnical Report dated December 15, 2021
by Hardman Geotechnical Services, Inc.

HARDMAN GEOTECHNICAL SERVICES INC.
Practical, Cost-Effective Engineering Solutions

December 15, 2021
HGSI Project No. 21-2824

Dan Grimberg / Kristi Hosea
West Hills Land Development
3330 NW Yeon Avenue, Suite 200
Portland, Oregon 97210

Via e-mail (pdf format); hard copies mailed upon request

Subject: **GEOTECHNICAL ENGINEERING AND INFILTRATION TESTING REPORT**
FROG POND WEST-WEST
MARTIN, GEORGE AND ROSS PROPERTIES
WILSONVILLE, OREGON

This report presents the results of a geotechnical engineering study conducted by Hardman Geotechnical Services Inc. (HGSI) for Frog Pond West-West (Martin, George and Ross Properties) in Wilsonville, Oregon (Figure 1). The purpose of this study was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The project totals about 15.07 acres, as summarized below. Please note that the parcel addresses and acreages were taken from the Clackamas County GIS website and are only as accurate as the information provided.

Property	Tax Lot No.	Address	Acreage	House Constructed Date
Ross	31W12D 00700	7315 SW Frog Pond Ln	4.09	1964
George	31W12D 02801	7500 SW Frog Pond Ln	2.00	1972
Martin	31W12D 02800	No address	8.98	--

The Ross and George properties are currently occupied by residential homes, with several detached shops, garages and barns. Existing facilities are present only within the eastern, more flat-lying portion of the overall site. The areas surrounding the homes and other structures are landscaped with lawn, shrubbery and ornamental or fruit-bearing trees. No structures are present on the Martin property, which is overgrown with blackberries, etc. Along the western edge of the site is an area of steep slopes descending down to Boeckman Creek. The steep slope is vegetated with large deciduous and evergreen trees, and undergrowth.

Preliminary plans indicate the site will be developed into a 31-lot residential subdivision that will include two separate tracts with the intention of having one or both serve as water quality/detention facilities. The actual number of lots may vary as project design progresses. Site development will also include construction of on-site streets and underground utilities. All of the proposed development is within the eastern, flat to gently sloping portion of the site. The steep slopes in the western portion of the site are to remain open space.

In the northwest portion of the site, a temporary access easement extends near the top of the steep slope area. HGSI has studied potential landslide hazards and slope stability specific to this area, in a previous report (HGSI, 2021). The report concludes that the planned utility lines and temporary access way can be safely constructed, with a low-height soldier pile wall along the downslope (northwest) portion of the easement to protect against surficial soil sloughing/erosion.

REGIONAL GEOLOGY AND SEISMIC SETTING

The subject site lies within the heart of the Portland Basin, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. The Portland Basin is a northwest-southwest trending structural basin produced by broad regional downwarping of the area. The Portland Basin is approximately 20 miles wide and 45 miles long and is filled with consolidated and unconsolidated sedimentary rocks of late Miocene, Pliocene and Pleistocene age.

Geologic maps indicate the subject site is underlain by Quaternary age (last 1.6 million years) Willamette Silt, fine flood deposits that mantles basalt bedrock (Madin, 1990). This generally consists of massive fine sand and silt deposited following repeated catastrophic flooding events in the Willamette Valley, the last of which occurred between 15,000 and 10,000 years ago. In localized areas, the light brown sandy silts include buried paleosols that developed between depositional events. Regionally, the total thickness of catastrophic flood deposits range from 5 feet to greater than 100 feet.

The Willamette Formation is underlain by residual soil formed by in place weathering of the underlying Columbia River Basalt Formation (Madin, 1990). The Miocene aged (about 14.5 to 16.5 million years ago) Columbia River Basalts are a thick sequence of lava flows which form the crystalline basement of the Tualatin Valley. The basalts are composed of dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. Individual basalt flow units typically range from 25 to 125 feet thick and interflow zones are typically vesicular, scoriaceous, brecciated, and sometimes include sedimentary rocks.

At least three major fault zones capable of generating damaging earthquakes are known to exist in the region. These include the Portland Hills Fault Zone, Gales Creek-Newberg-Mt. Angel Structural Zone, and the Cascadia Subduction Zone. These potential earthquake source zones are included in the determination of seismic design values for structures, as presented in the *Seismic Design* section. None of the known faults extend beneath the site.

FIELD EXPLORATION

Test Pits and Exploratory Hand Auger Borings

The site-specific exploration for this study was conducted on October 22, 2021 and December 3 and 9, 2021. On October 22, 2021 HGSI oversaw the excavation of two test pits using a medium-sized excavator in the area of the temporary easement (Figure 2). Test pits TP-3 through TP-11 were excavated on December 3, 2021, using a rubber-tired backhoe with extend-a-hoe attachment. Six hand auger borings (HA-1 through HA-6) were drilled on December 3 and 9, 2021 by HGSI staff using hand auger tools. Explorations were conducted at the approximate locations shown on the attached Site Plan, Figure 2.

Explorations were conducted under the full-time observation of HGSI personnel. Soil samples obtained from the borings were classified in the field and representative portions were placed in relatively air-tight plastic bags. These soil samples were then returned to the laboratory for further examination. Pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence was recorded. Soils were classified in general accordance with the Unified Soil Classification System.

Summary exploration logs are attached to this report. The stratigraphic contacts shown on the individual exploration logs represent the approximate boundaries between soil types. The actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times.

Infiltration Testing

On December 3, 2021, HGSI performed falling head infiltration tests using the open-hole method in hand auger borings HA-1, HA-2 and HA-3. The infiltration testing was performed by measuring the water level at one-minute intervals using HOBO™ data loggers, which measures water pressure corrected for temperature and barometric pressure. See attached HOBO™ water level data logger plot. The infiltration rate was determined based on the slope of the water depth line near the end of the test. Table 1 presents the results of the falling head infiltration tests.

Table 1. Summary of Infiltration Test Results

Boring	Depth (feet)	Soil Type	Infiltration Rate (in/hr)	Hydraulic Head Range during Testing (inches)
HA-1	5	Silt with Clay (ML)	0.6	7.8 – 6.6
HA-2	6	Fine Sandy Silt (ML)	1.1	15 - 14
HA-3	6	Fine Sandy Silt (ML)	1.2	14 – 13

The average of the three infiltration tests is 1.0 inches/hour. Reported values are ultimate and should be adjusted using an appropriate factor of safety for design purposes.

SUBSURFACE CONDITIONS

The following discussion is a summary of subsurface conditions encountered in our explorations. For more detailed information regarding subsurface conditions at specific exploration locations, refer to the attached hand auger logs. Also, please note that subsurface conditions can vary between exploration locations, as discussed in the *Uncertainty and Limitations* section below.

Soil

On-site soils are anticipated to consist of undocumented fill, topsoil, colluvium, and Willamette Formation soils as described below.

> ***Undocumented Fill*** – In the northeast portion of the Ross Property, we encountered an area of undocumented fill. Test Pits TP-8, TP-9 and TP-10; and hand auger boring HA-3 encountered undocumented fill extending to 4.5 to 5 feet bgs. Between the fill and native soils a zone of old

topsoil was encountered in all three of the test pits. Undocumented fill consisted generally of soft silt with trace organics, and trace amounts of crushed rock and other erratic material.

Topsoil – Beginning at the surface level, all explorations encountered a zone of topsoil about 6 to 12 inches thick. The topsoil was generally comprised of soft, wet to moist dark brown organic silt. The upper roughly 6 inches of the topsoil appeared highly organic.

Colluvium – In TP-1 we encountered a zone of colluvium, comprised of stiff clayey silt with black and orange mottling. This material had a weathered, slightly disturbed appearance and extended to a depth of about 2.5 feet bgs. Colluvium, a zone of down-slope creep occurring due to weathering of surficial soils on natural slopes, was not encountered in the other test pits and hand auger borings.

Willamette Silt – Beneath the undocumented fill, topsoil and/or colluvium, all explorations encountered stiff to very stiff, moist to very moist, brown silt, clayey silt and silt with fine sand interpreted as Willamette Formation. The upper several feet of this unit exhibited orange and gray mottling. All explorations were terminated in the Willamette Silt unit, at depths ranging from 5 to 13 feet bgs.

Groundwater

Seepage was encountered in two of the deeper test pits, TP-4 and TP-7, at depths of about 13 and 10 feet respectively. During the field exploration, no seepage or static groundwater table was encountered in the other explorations. Based on nearby water well data, depth to static groundwater is at least 20 feet below the ground surface. Perched groundwater conditions often occur over fine-grained native deposits such as those beneath the site, particularly during the wet season. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors. The perched groundwater conditions reported above are for the specific date and locations indicated, and therefore may not necessarily be indicative of other times and/or locations.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicate that the proposed development is geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. The proposed development avoids the steep slope area to the west; slope stability impacts are considered minimal as discussed in the *Slope Stability and Landslide Hazards* section. Recommendations are presented below regarding site preparation and undocumented fill removal, engineered fill, fill slope keying and benching, wet weather earthwork, spread footing foundations, below grade structural retaining walls, concrete slabs-on-grade, perimeter footing drains, seismic design, excavating conditions and utility trench backfill, stormwater infiltration systems, and erosion control considerations.

Slope Stability and Landslide Hazards

For the purpose of evaluating slope stability, we reviewed published geologic and hazard mapping, reviewed regional site topography and LIDAR images, performed a field reconnaissance, and evaluated subsurface soil conditions in exploratory test pits and hand auger borings.

Reconnaissance observations indicate that slope geomorphology at the site is generally smooth and uniform, consistent with stable slope conditions. No geomorphic evidence of prior slope instability (such as hummocky topography, benches or old scarps) was observed. No seeps or springs were observed on site.

Regional geologic mapping and the Oregon Department of Geology and Mineral Industries online landslide database (SLIDO, 2017) shows a small mapped landslide in the western portion of the Martin/George

property (Figure 3). This feature is mapped with low (<10%) confidence level, and historical (<150 years) in age. In our opinion this mapped ancient slide is not indicative of a significant slope stability hazard to the site, and is located far enough away from the proposed development that slope stability impacts are not anticipated.

In the northwest portion of the site between the Ross and Martin Properties (Figures 2 and 3), a temporary access easement extends near the top of the steep slope area. HGSI has studied potential landslide hazards and slope stability specific to this area, in a previous report (HGSI, 2021). The report concludes that the planned utility lines and temporary access way can be safely constructed, with a low-height soldier pile wall along the downslope (northwest) portion of the easement to protect against surficial soil sloughing/erosion.

The planned development does not extend onto the steep slope areas in the western portion of the site. Based on our observations and results of the slope stability evaluation, it is our opinion that no special design or construction provisions are needed to address slope issues on the site, with the exception of the soldier pile wall planned in conjunction with the temporary access easement (HGSI, 2021). The project will be designed and constructed per current building codes, City of Wilsonville requirements, and the current standard-of-practice in geotechnical engineering. As such, it is our opinion that adequate slope stability factors of safety will be maintained for both temporary construction, and long-term conditions.

We understand that the proposed storm water management plan may consist of flow through planters, stormwater ponds or swales, with overflow to an approved outlet. Significant infiltration of stormwater via stormwater chambers or dry wells is not proposed for this site based on soil conditions and infiltration test results. The planned storm water facilities are not anticipated to impact slope stability on site, or to create any unstable conditions. Storm water management systems should be designed such that potential overflow is discharged in a controlled manner away from structures and slopes, and all systems should include an adequate factor of safety.

Site Preparation and Undocumented Fill Removal

The areas of the site to be graded should first be cleared of vegetation and any loose debris; and debris from clearing should be removed from the site. Organic-rich topsoil should then be removed to competent native soils. We anticipate that the average depth of topsoil stripping will be 6 to 12 inches over most of the site. Deeper stripping / root picking may be needed in areas that are or were formerly treed. The final depth of stripping removal may vary depending on local subsurface conditions and the contractor's methods, and should be determined on the basis of site observations after the initial stripping has been performed. Stripped organic soil should be stockpiled only in designated areas or removed from the site and stripping operations should be observed and documented by HGSI. Existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath areas of proposed structures and pavement should be removed and the excavations backfilled with engineered fill.

Undocumented fill was encountered in the northeast portion of the Ross Property, in TP-8, TP-9 and TP-10; and HA-3, at depths of about 4.5 to 5 feet bgs. There is potential for old fills to be present on site in areas beyond our explorations. Where encountered beneath proposed structures, pavements, or other settlement-sensitive improvements, undocumented fill should be removed down to firm inorganic native soils and the removal area backfilled with engineered fill (see below). HGSI should observe removal excavations (if any) prior to fill placement to verify that overexcavations are adequate and an appropriate bearing stratum is exposed.

In construction areas, once stripping has been verified, the area should be ripped or tilled to a depth of 12 inches, moisture conditioned, and compacted in-place prior to the placement of engineered fill. Exposed subgrade soils should be evaluated by HGSI. For large areas, this evaluation is normally performed by

proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. The depth of overexcavation, if required, should be evaluated by HGSI at the time of construction.

Engineered Fill

In general, we anticipate that on-site soils will be suitable for use as engineered fill in dry weather conditions, provided they are relatively free of organics and are properly moisture conditioned for compaction. Imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 90 percent of the maximum dry density determined by ASTM D1557 (Modified Proctor) or equivalent. On-site soils may be wet or dry of optimum; therefore, we anticipate that moisture conditioning of native soil will be necessary for compaction operations.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should conform to ASTM D2922 and D3017, or D1556. Engineered fill should be periodically observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing.

Fill Slope Keying and Benching

Engineered fill placed on slopes requires keying and benching. We recommend that cut and fill slopes for the project be planned no steeper than 2H:1V. Fill slopes constructed over sloping ground should be constructed in accordance with the Fill Slope Detail, Figure 4. For fill slopes constructed at 2H:1V or flatter, and comprised of engineered fill placed and compacted as recommended herein, we anticipate that adequate factors of safety against global failure will be maintained.

Prior to placing compacted fill against the existing natural slopes, all loose undocumented fill, topsoil, and soft soils must first be removed. Adequate benching must be maintained. Fill slope keyways should be constructed with a minimum depth of 2 feet and minimum width of H/3 (10 feet minimum), where H equals the vertical height between the base and top of the fill slope. Both benches and keyways should be roughly horizontal in the down slope direction. A subdrain should be incorporated in the fill slope keyway, and HGSI should observe the keyway excavations prior to the placement of fill.

Measures should be taken to prevent surficial instability and/or erosion of embankment material. This can be accomplished by conscientious compaction of the embankment fills all the way out to the slope face, by maintaining adequate drainage, and planting the slope face as soon as possible after construction. To achieve the specified relative compaction at the slope face, it may be necessary to overbuild the slopes several feet, and then trim back to design finish grade. In our experience, compaction of slope faces by "track-walking" is generally ineffective and is therefore not recommended.

Wet Weather Earthwork

The on-site soils are moisture sensitive and may be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will probably require

expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than about 7 percent fines. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;
- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Bales of straw and/or geotextile silt fences should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, HGSI should be contacted to provide additional recommendations and field monitoring

Spread Footing Foundations

Shallow, conventional isolated or continuous spread footings may be used to support the proposed structures, provided they are founded on competent native soils, or compacted engineered fill placed directly upon the competent native soils. We recommend a maximum allowable bearing pressure of 2,000 pounds per square foot (psf) for designing spread footings bearing on undisturbed native soils or engineered fill. The recommended maximum allowable bearing pressure may be increased by a factor of 1.33 for short term transient conditions such as wind and seismic loading. Exterior footings should be founded at least 18 inches below the lowest adjacent finished grade. Minimum footing widths should be determined by the project engineer/architect in accordance with applicable design codes.

Assuming construction is accomplished as recommended herein, and for the foundation loads anticipated, we estimate total settlement of spread foundations of less than about 1 inch and differential settlement between two adjacent load-bearing components supported on competent soil of less than about ½ inch. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.5 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 390 pounds per cubic foot (pcf), assuming footings are cast against dense, natural soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a

safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

Footing excavations should be trimmed neat and the bottom of the excavation should be carefully prepared. Loose, wet or otherwise softened soil should be removed from the footing excavation prior to placing reinforcing steel bars. HGSI should observe foundation excavations prior to placing crushed rock, to verify that adequate bearing soils have been reached. Due to the high moisture sensitivity of on-site soils, construction during wet weather may require overexcavation of footings and backfill with compacted, crushed aggregate.

Below-Grade Cantilever Concrete Retaining Walls

Recommendations are provided below for design of concrete retaining walls. Footings for below-grade cantilever concrete walls should be designed using the 2,000 psf allowable soil bearing pressure recommended in the *Spread Footing Foundations* section. Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

Table 2 below provides recommended lateral earth pressure values for unrestrained and restrained walls, for both level backfill conditions and 2H:1V (Horizontal:Vertical) sloping ground conditions at the top of the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

Table 2. Recommended Lateral Earth Pressures for Below-Grade Structural Walls

Earth Pressure Condition	Level at Top of Wall	2H:1V Slope at Top of Wall
Active (unrestrained wall)	35	54
At-rest (restrained wall)	55	74

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude 5H, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 390 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and HGSI should be contacted for additional recommendations.

A coefficient of friction of 0.5 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build up. This can be accomplished by placing a 12-inch wide zone of crushed drain rock containing less than 5 percent fines against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a sump to remove water from the crushed drain rock zone. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging. The above drainage measures are intended to remove water from behind the wall to prevent hydrostatic pressures from building up. Additional drainage measures may be specified by the project architect or structural engineer, for damp-proofing or other reasons.

HGSI should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as recommended in the *Site Preparation* section. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content, and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock. For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 200 kcf (115 pci) should be assumed for the soils anticipated at subgrade depth. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of crushed rock of 8 inches beneath the slab.

Interior slab-on-grade floors should be provided with an adequate moisture break. The capillary break material should consist of ODOT open graded aggregate per ODOT Standard Specifications 02630-2. The minimum recommended thickness of capillary break materials on re-compacted soil subgrade is 8 inches. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction, and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 90% of its maximum dry density as determined by ASTM D1557 or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. A commonly applied vapor barrier system consists of a 10-mil polyethylene vapor barrier placed directly over the capillary break material. Other damp/vapor barrier systems may also be feasible. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection, radon and mold prevention issues, which are outside HGSI's area of expertise.

Perimeter Footing Drains

Due to the potential for perched surface water above fine grained deposits such as those encountered at the site, we recommend the outside edge of perimeter footings be provided with a drainage system consisting of 3-inch minimum diameter perforated PVC pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining sand and gravel or 1"- ¼" drain rock. The drain pipe and surrounding drain rock should be

wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. Water collected from the footing drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. The footing drains should include clean-outs to allow periodic maintenance and inspection.

Down spouts and roof drains should collect roof water in a system separate from the footing drains in order to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Seismic Design

Structures should be designed to resist earthquake loading in accordance with the methodology described in the current Oregon Residential Specialty Code (ORSC). We recommend Site Class D (Stiff Soils) be used for design per the ORSC. Design values determined for the site using the ASCE 7-16 Hazard Tool are summarized on Table 3, for Risk Category II.

Table 3. Recommended Earthquake Ground Motion Parameters (ASCE 7-16)

Parameter	Value
Location (Lat, Long), degrees	45.3211, -122.7494
Mapped Spectral Acceleration Values (MCE, Site Class B):	
Short Period, S_s	0.82 g
1.0 Sec Period, S_1	0.381 g
Design Values for **Site Class D** (Stiff Soils):	
Peak Ground Acceleration PGA_M	0.458
F_a	1.172
$SD_s = 2/3 \times F_a \times S_s$	0.641 g
Seismic Design Category (2021 ORSC)	D_0

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to earthquake shaking. Soil liquefaction is generally limited to loose, granular soils located below the water table. Following development, on-site soils will consist predominantly of stiff to very stiff silt which are not considered susceptible to liquefaction. Therefore, it is our opinion that special design or construction measures are not required to mitigate the effects of liquefaction.

Excavating Conditions and Utility Trench Backfill

We anticipate that on-site soils can be excavated using conventional heavy equipment such as scrapers and trackhoes to depths of 13 feet and likely greater. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Perched groundwater conditions often occur over fine-grained native deposits such as those beneath the site, particularly during the wet season. If encountered, the contractor should be prepared to implement an appropriate dewatering system for installation of the utilities. At this time, we anticipate that dewatering systems consisting of ditches, sumps and pumps would be adequate for control of groundwater where encountered during construction conducted during the dry season. Regardless of the dewatering system used, it should be installed and operated such that in-place soils are prevented from being removed along with the groundwater.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

Utility trench backfill should consist of ¾"-0 crushed rock, compacted to at least 95% of the maximum dry density obtained by Modified Proctor (ASTM D1557) or equivalent. Initial backfill lift thick nesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Stormwater Infiltration Facilities

Based on results of the soil infiltration testing, soils on site exhibit low infiltration rates especially in the presence of perched water or static groundwater. Infiltration rates ranged from 0.6 to 1.2 inches/hour as summarized on Table 1. We recommend shallow systems in the range of 2 to 5 feet bgs be designed using an infiltration rate of **0.6 inches/hour**. This is slightly less than the average test value of 1.0 inches/hour, but we feel 0.3 inches/hour is more representative of overall site conditions. Also, please note that the potential for infiltration of stormwater will be reduced during the wet season due to saturated soils / perched water conditions over much of the site. We do not believe the site is well suited for use of deeper infiltration facilities such as dry wells due to the very low-permeability site soils, and perched water conditions.

The designer should select an appropriate infiltration value based on our test results and the location of the proposed infiltration facility. The recommended infiltration rates do not incorporate a factor of safety. For the design infiltration rate, we recommend a factor of safety of at least 2.0. Greater factors of safety may be required by the governing agency.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw, bio-bags, silt fences, or other appropriate technology. Where used, erosion control devices should be in place and remain in place throughout site preparation and construction. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets.

UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and his/her consultants for use in design of this project only. This report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, HGSI should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, HGSI executed these services in accordance with generally accepted professional principles and practices in the field of geotechnical engineering at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

HARDMAN GEOTECHNICAL SERVICES INC.

Scott L. Hardman, P.E., G.E.
Geotechnical Engineer

Attachments: References
Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – DOGAMI LiDAR Mapping
Figure 4 – Fill Slope Detail
Logs of Test Pits TP-1 through TP-11
Logs of Hand Auger Borings HA-1 through HA-6
Infiltration Test Data Plots (3 Pages)
ASCE Seismic Design Hazards Report (3 Pages)

REFERENCES

Hardman Geotechnical Services Inc., 2021, *Geotechnical Evaluation of Landslide Hazards and Slope Stability; Proposed Underground Utility Easement; Frog Pond West-West; Martin, George and Ross Properties; Wilsonville, Oregon*; consultant report dated October 28.

Madin, I.P., 1990, Earthquake hazard geology maps of the Portland metropolitan area, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report 0-90-2, scale 1:24,000, 22 p.

Schlicker, H.G. and Finlayson, C.T., 1979, Geology and geologic hazards of northwest Clackamas County, Oregon Department of Geology and Mineral Industries, Bulletin 99, 1:24,000

Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, Vol. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.

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VICINITY MAP

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2856	FIGURE 1

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SITE PLAN AND EXPLORATION LOCATIONS

Legend

TP-X Backhoe Test Pit Designation and Approximate Location

Base Map by Portland Maps

Project: Frog Pond West West Wilsonville, Oregon	Project No. 20-2642	FIGURE 2

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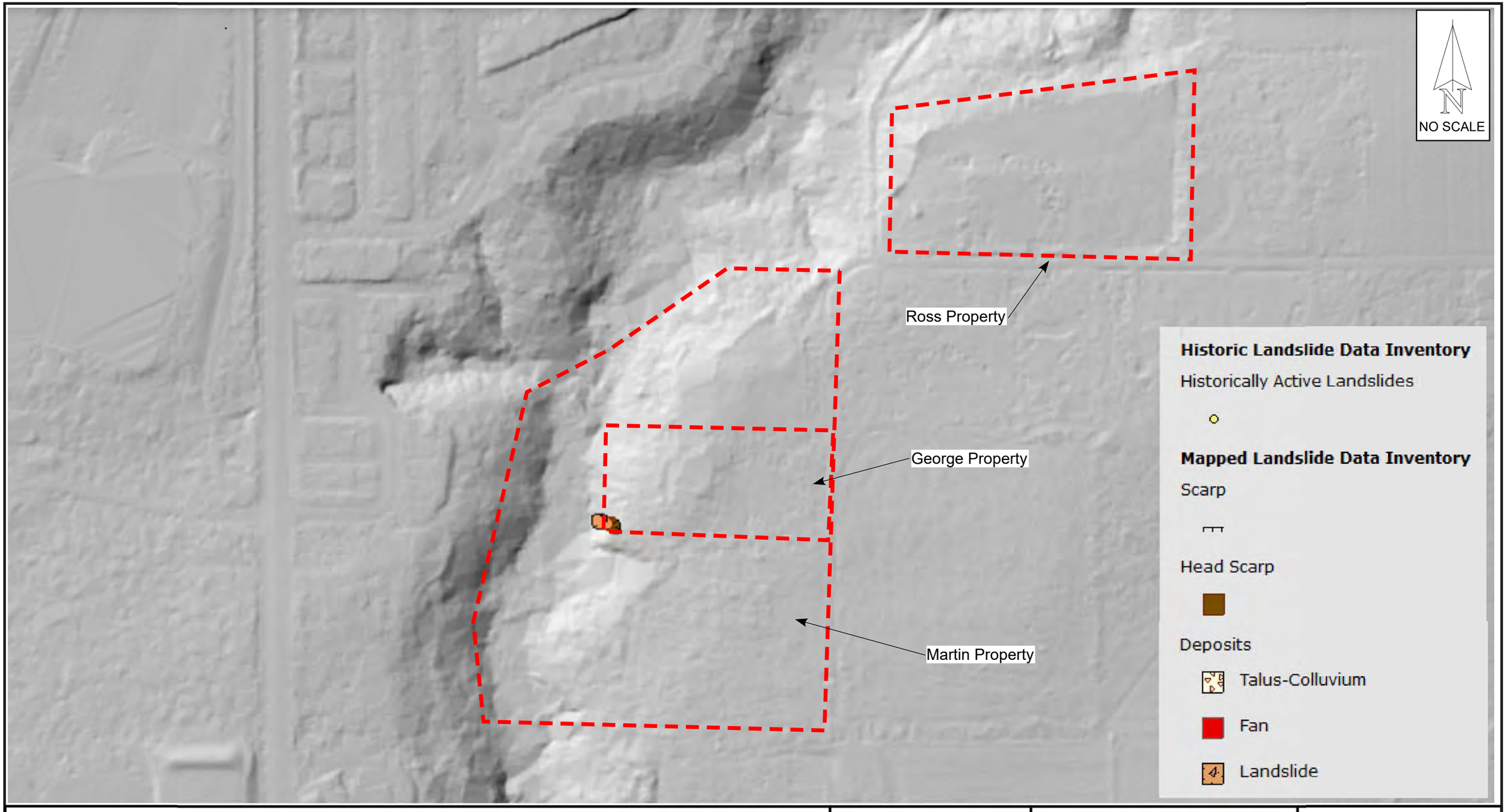
DOGAMI LiDAR MAPPING



LEGEND

Approximate Site Boundary

Base Map from DOGAMI SLIDO Website

Project No. 21-2824

Frog Pond West-West
Wilsonville, Oregon

FIGURE 3

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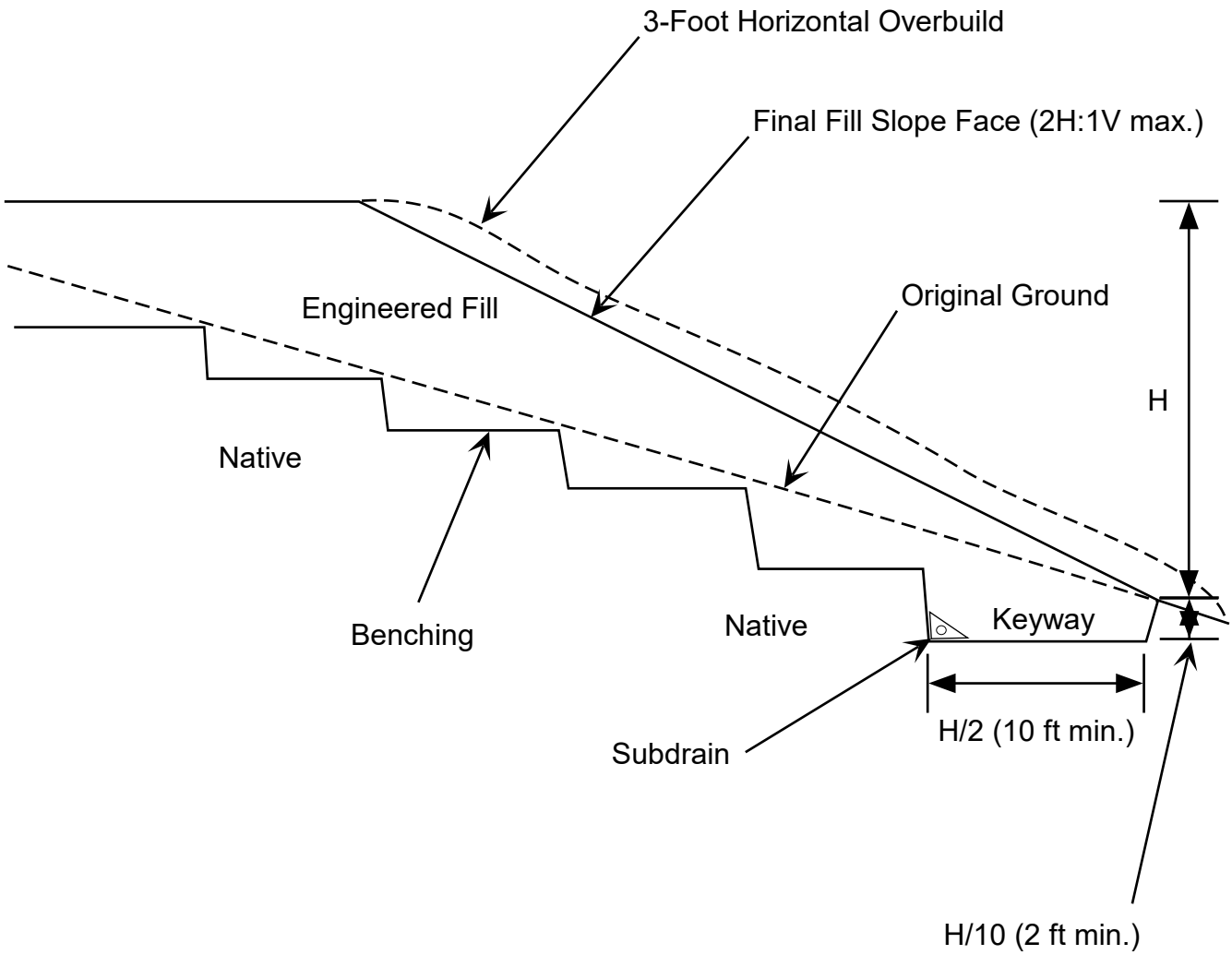
FILL SLOPE DETAIL

TYPICAL KEYWAY, BENCHING & FILL SLOPE DESIGN



Recommended subdrain is minimum 3-inch-diameter ADS Heavy Duty grade (or equivalent), perforated plastic pipe enveloped in a minimum of 3 cubic feet per lineal foot of 2" to 1/2" open-graded gravel drain rock wrapped with geotextile filter fabric (Mirafi 140N or equivalent).

Project: Frog Pond West-West Wilsonville, Oregon	Project No. 21-2824	FIGURE 4

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Soft, Organic SILT, dark brown, moist, many roots throughout (topsoil)
2	3.0 3.5					Stiff, Clayey SILT, light yellowish brown with black and orange mottling, moist, weathered (Colluvium)
3	>4.5					Very stiff to hard, Clayey SILT, yellowish brown with trace mottling in upper portion of unit only, slightly moist, unweathered and intact
4	>>4.5					
5						
6						
7						
8						Very difficult excavating at 8 feet due to hard materials.
9						Test pit terminated at 8 feet No caving of pit side walls No groundwater or seepage encountered
10						
11						
12						
13						
14						
15						
16						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 10/22/2021

Logged By: SLH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Soft, Organic SILT, dark brown, moist, abundant grass roots (topsoil)
1						Dense, silty angular gravel, gray, moist (old driveway or pull-out area)
2						Very stiff to hard, Clayey SILT, yellowish brown with trace mottling in upper portion of unit only, slightly moist, unweathered and intact
8						Grades to Clayey Silt with some fine sand at 8 feet
10						Test pit terminated at 10 feet No caving of pit sidewalls No groundwater or seepage encountered

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Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 10/22/2021
Logged By: SLH
Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
3						
4						
5	4.2					Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, heavily micaceous. [Willamette Formation]
6						
7						
8		☒	S-1			
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
11						Saturated, medium stiff, brown, sandy SILT (ML) with clay, heavily micaceous. [Willamette Formation]
13					▽	*Test Pit terminated at 13 feet* *Seepage observed in the bottom of the test pit* *No caving*

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☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown and light grey, silty CLAY (CL), orange and dark brown mottling. [Willamette Formation]
2	3.0					
3						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling. [Willamette Formation]
4						
5						
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						
3						
4						
5						
6						Sandiness increasing with depth
7						
8						Moist, stiff, brown, sandy SILT (ML), orange and dark brown mottling, slightly micaceous. [Willamette Formation]
9						
10						
11						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021
Logged By: CSH
Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown and light grey, silty CLAY (CL), orange and dark brown mottling. [Willamette Formation]
2						
3						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling. [Willamette Formation]
4						
5						
6						
7						
8						
9						Very moist to saturated, medium stiff, brown, silty fine grained SAND (SM), heavily micaceous. [Willamette Formation]
10					▽	
11						
12						
						Test Pit terminated at 12 feet *Seepage observed around 10 feet bgs* *No caving*
13						
14						
15						
16						

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☒ S-# — Soil Sample Depth Interval and Designation

▽ — Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, brown silt interbedded with dark brown silt and organics. Strata matrix is disturbed and there are some crushed rock fragments. [Undocumented Fill]
3						
4						Decomposing grass layer and buried topsoil
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 9**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, brown silt interbedded with dark brown silt and organics. Strata matrix is disturbed and there are some crushed rock fragments. [Undocumented Fill]
3						
4	1.8					Decomposing grass layer and buried topsoil
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
6						
7						
8						
9						
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
11						
12						
13						
14						
15						
16						

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S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 10**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, dark brown silt with organics and fractured rock. [Undocumented Fill]
5						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, micaceous. [Willamette Formation]
10						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*

HGSI HARDMAN GEOTECHNICAL SERVICES INC.
Practical Cost-Effective Geotechnical Solutions
10110 SW Nimbus Ave., Suite B-5
Portland, OR 97223
(503) 530-8076

LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF BACKHOE TEST PIT

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Test Pit No. **TP - 11**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						
3						
4						
5						
6						Sandiness increasing with depth
7						
8						Moist, stiff, brown, sandy SILT (ML), orange and dark brown mottling, slightly micaceous. [Willamette Formation]
9						
10						
11						*Test Pit terminated at 10 feet* *No groundwater or seepage encountered* *No caving*
12						
13						
14						
15						
16						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Excavated: 12/3/2021

Logged By: CSH

Surface Elevation: Unknown

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
1						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
4						Moist, stiff to very stiff, brown, sandy SILT (ML) with clay, orange and dark brown mottling, heavily micaceous. [Willamette Formation]
5						*Boring terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021

Logged By: CSH

Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
1						Moist, medium stiff, brown and light grey, clayey SILT (ML), orange and dark brown mottling. [Willamette Formation]
2						
3						Moist, stiff to very stiff, brown, sandy SILT (ML), micaceous. [Willamette Formation]
4						
5						
6						*Boring terminated at 6 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics with grass and roots in the top 6 inches. [Topsoil]
2						Moist, soft, dark brown silt with organics and fractured rock. [Undocumented Fill]
3						
4						
5						Moist, stiff to very stiff, brown, sandy SILT (ML) [Willamette Formation]
6						*Boring terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
0						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
1						Moist, medium stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
2						Dry, very stiff, light brown, sandy SILT (ML), orange and dark brown mottling. [Willamette Formation]
3						
4						
5						
6						*Test Pit terminated at 6 feet* *No groundwater or seepage encountered* *No caving*
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021
Logged By: CSH
Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Moist, soft, dark brown, SILT (OL), heavy organics [Topsoil]
2						Moist, medium stiff, brown, clayey SILT (ML) with sand, orange and dark brown mottling. [Willamette Formation]
3						
4						
5						*Test Pit terminated at 5 feet* *No groundwater or seepage encountered* *No caving*
6						
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 12/9/2021

Logged By: CSH

Surface Elevation:

LOG OF HAND AUGER BORING

Project: Frog Pond West West Wilsonville, Oregon	Project No. 21-2824	Boring No. **HA - 6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Interval	Sample Designation	Moisture Content (%)	Groundwater	Material Description
1						Slightly Moist, Medium Dense, Poorly Graded, Subangular, 1"-0" GRAVEL (GP) in Dark Brown Silty Matrix, Top 3" Highly Organic with Grass Roots *[Undocumented Fill]*
2						*Boring refusal on gravel at 1.1 feet (13 inches)* *No groundwater or seepage encountered* *No caving*
3						
4						
5						
6						
7						
8						
9						
10						

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LEGEND

S-# Soil Sample Depth Interval and Designation

Water Level at Time of Excavation

Date Bored: 11/09/2021

Logged By: CSH

Surface Elevation:

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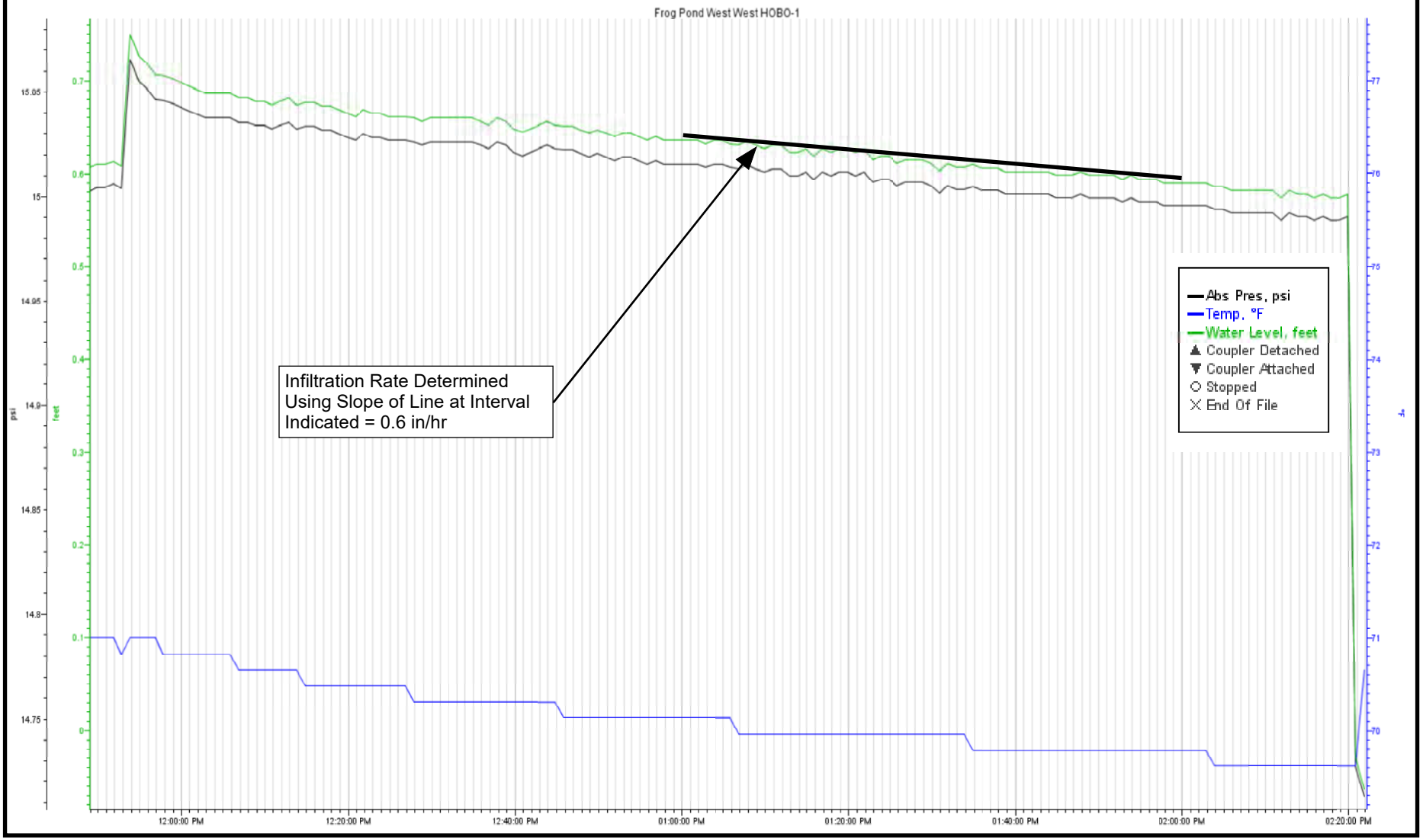
INFILTRATION TEST DATA



Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-1 Depth: 5 Feet

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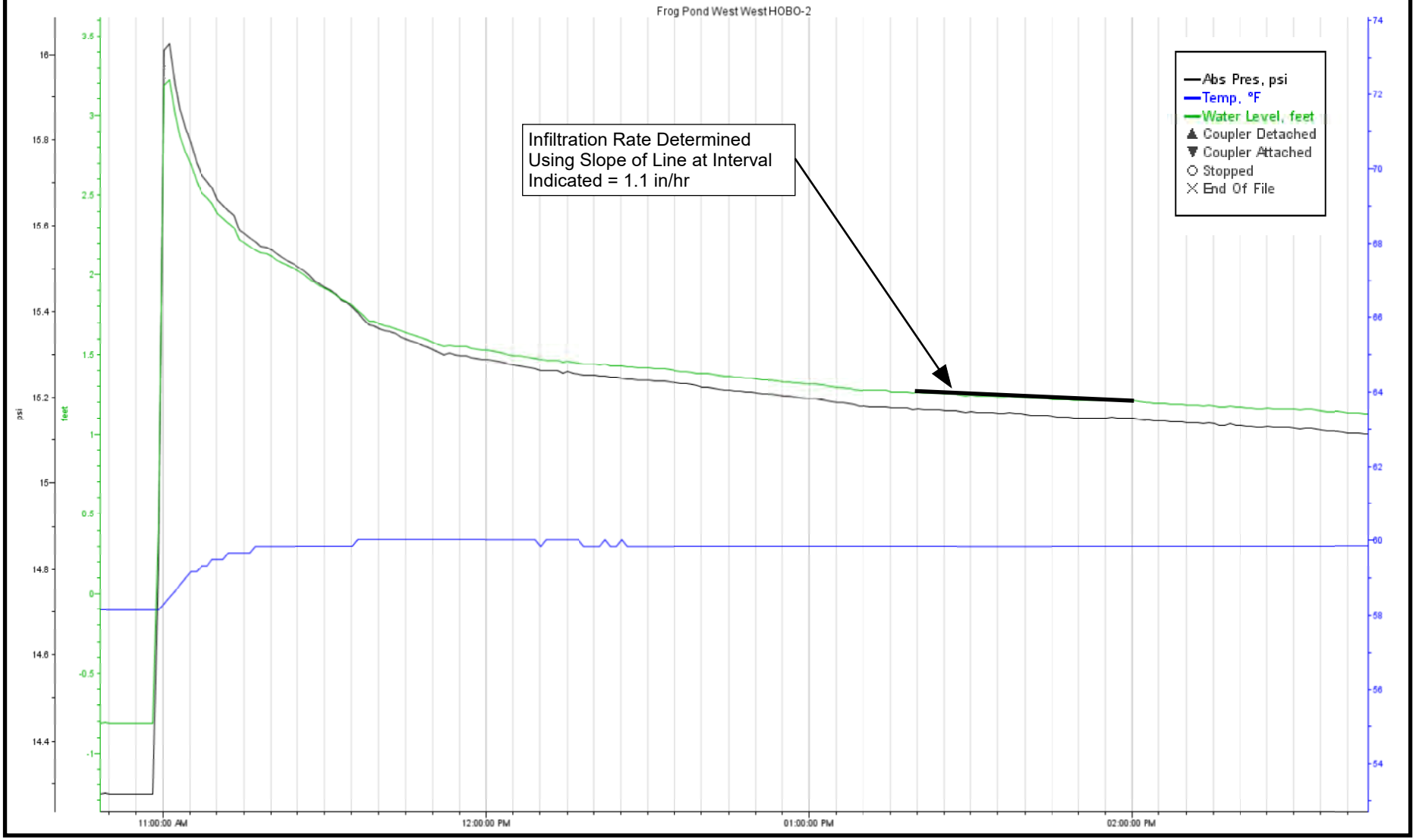
INFILTRATION TEST DATA



Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-2 Depth: 6 Feet

HARDMAN GEOTECHNICAL SERVICES INC.
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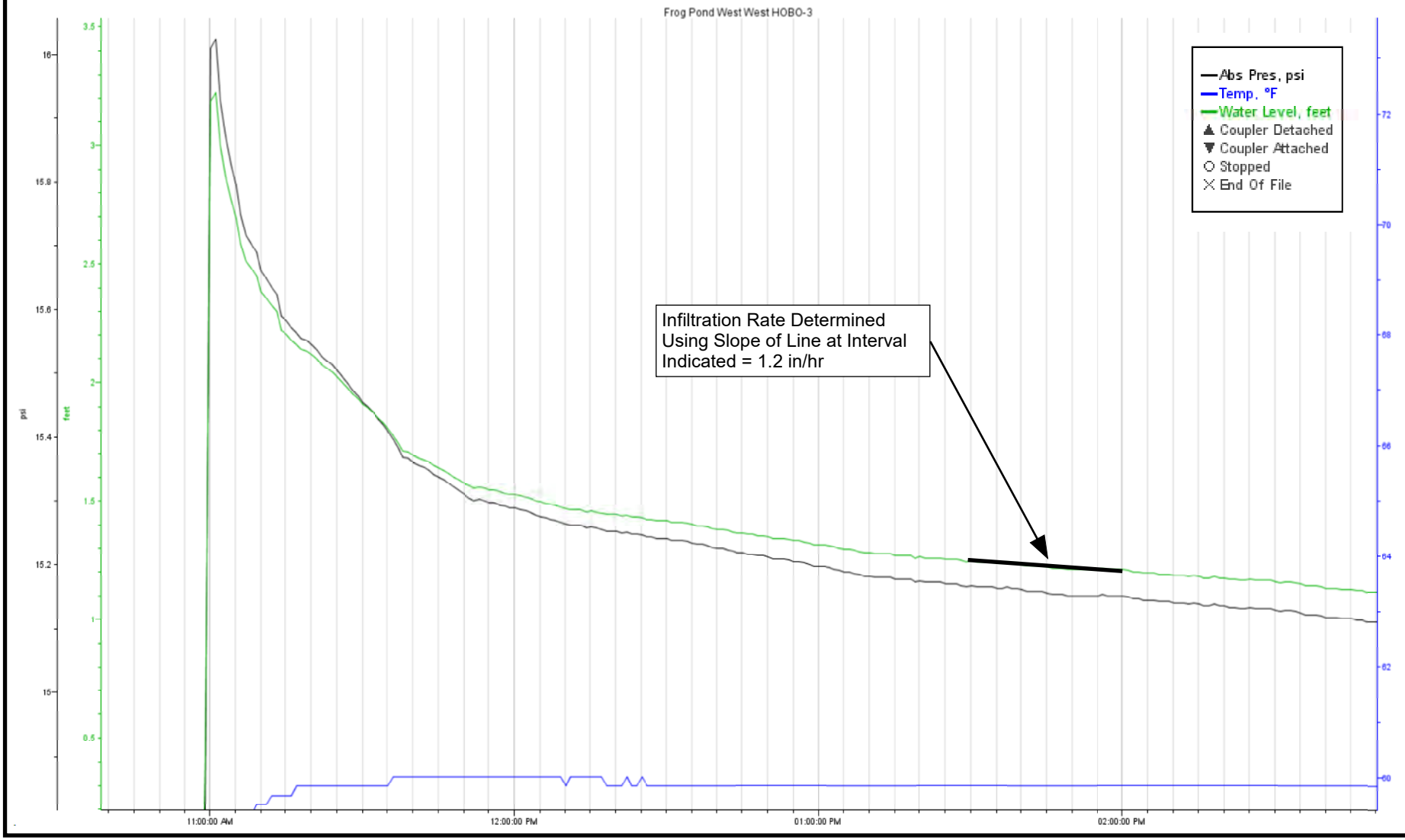
INFILTRATION TEST DATA



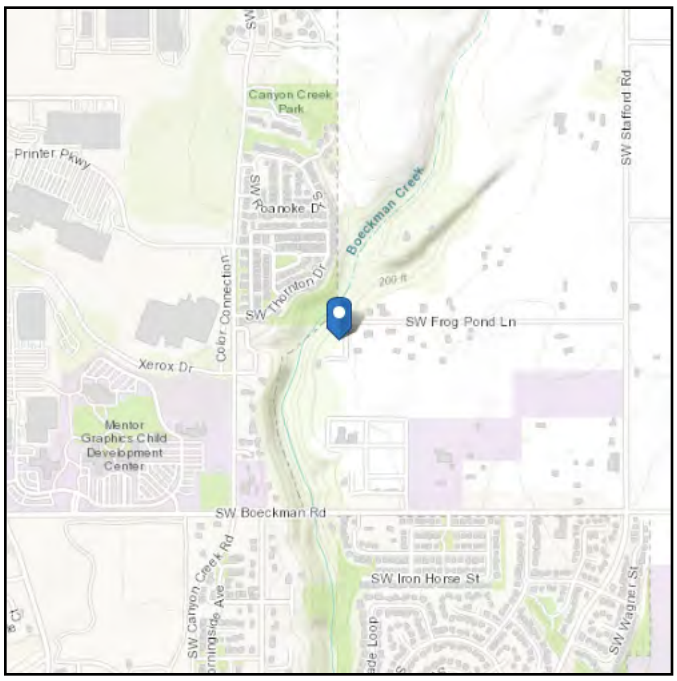
Project: Frog Pond West West Wilsonville, Oregon	Date Tested: 12/7/2021 Tested By: CSH Project No: 21-2824	Boring: HA-3 Depth: 6 Feet

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 216.52 ft (NAVD 88)
Latitude: 45.3218
Longitude: -122.754



Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.82	S_{D1} :	N/A
S_1 :	0.381	T_L :	16
F_a :	1.172	PGA :	0.373
F_v :	N/A	PGA_M :	0.458
S_{MS} :	0.961	F_{PGA} :	1.227
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.641	C_v :	1.21

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Tue Dec 14 2021

Date Source: USGS Seismic Design Maps

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Appendix G

Stafford Meadows PUD recorded CC&Rs and Bylaws

AFTER RECORDING, RETURN TO:

524

Michelle D. Da Rosa LLC
Attorney at Law
205 SE Spokane Street, Suite 300
Portland, OR 97202

Clackamas County Official Records
Sherry Hall, County Clerk

2019-002161

$358.00

02201725201900021610520524

01/15/2019 09:08:53 AM

PD-COV Cnt=3 Stn=2 COUNTER3
$260.00 $10.00 $16.00 $62.00 $10.00

DECLARATION OF PROTECTIVE COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS FOR STAFFORD MEADOWS

WEST HILLS LAND DEVELOPMENT LLC

Declarant

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DECLARATION OF PROTECTIVE COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS FOR STAFFORD MEADOWS

THIS DECLARATION is made this 15 day of January, 2019 by **WEST HILLS LAND DEVELOPMENT LLC**, an Oregon limited liability company ("**Declarant**").

RECITALS

A. Declarant has recorded the plat of "**Stafford Meadows**" in the plat records of Clackamas County, Oregon as Plat No. 4558. Declarant is the only owner of the land so platted.

B. Declarant desires to subject the Lots and Tracts described in Section 2.1 to the conditions, restrictions and charges set forth in this instrument for the benefit of such property, and its present and subsequent owners, and to establish such property under the Oregon Planned Community Act, ORS 94.550 to 94.783, as the first phase of a Class I planned development to be known as Stafford Meadows.

NOW, THEREFORE, Declarant hereby declares that the property described in Section 2.1 will be held, sold and conveyed subject to the following easements, covenants, restrictions and charges, which run with such property and are binding on all parties having or acquiring any right, title, or interest in such property or any part thereof, unless otherwise provided herein, and inure to the benefit of all such persons.

Article 1

DEFINITIONS

As used in this Declaration, the terms set forth below have the following meanings:

1.1 "**Additional Property**" means any land, whether or not owned by Declarant, that is made subject to this Declaration as provided in Section 2.2.

1.2 "**Architectural Review Committee" or "the Committee**" means the committee appointed pursuant to Article 7.

1.3 "**Assessments**" means all assessments and other charges, fines and fees imposed by the Association on an Owner in accordance with this Declaration, the Bylaws of the Association, or the provisions of the Oregon Planned Community Act, including, without limitation, General Assessments, Special Assessments, Emergency Assessments, Limited Common Area Assessments, Working Fund Assessments and Individual Assessments as described in Article 10.

1.4 "**Association**" means the nonprofit corporation formed to serve as the Owners association as provided in Article 8, and its successors and assigns.

1.5 "**Board of Directors" or "the Board**" means the duly appointed or elected board of directors of the Association, which is invested with the authority to operate the Association and to appoint the officers of the Association. Prior to the Turnover Meeting, Declarant will appoint the Board of Directors. After the Turnover Meeting, the Board will be elected by the Owners.

1.6 "**Bylaws**" means the duly adopted bylaws of the Association as the same may hereafter be amended or replaced.

1.7 "**City of Wilsonville Development Agreements**" mean the following agreements between Declarant and the City of Wilsonville dated effective the same date as this Declaration and recorded in the Records of Clackamas County, Oregon:

-Sanitary Sewer Pipeline Easement Agreement (Tracts "B" and "C", Plat of "Stafford Meadows");

-Stormwater Pipeline Easement Agreement (Tracts "B", "C", and "D", Portions of Tracts "F" and "G", Portion of Lot 11, Plat of "Stafford Meadows");

-Conservation Easement, which affects a portion of Tract F as legally described in the exhibits in the Conservation Easement);

-Storm Drainage Easement Agreement (Tract "G", Plat of "Stafford Meadows");

-Water Pipeline Easement Agreement (Tract "I", Portion of Tract "H", Plat of "Stafford Meadows");

-Public Access Easement Agreement (Tracts "A", "B", "C", "D", "E", "H", "I", AND "J", Portions of Lots 1-6, Plat of "Stafford Meadows").

1.8 "**Common Areas**" means those lots or tracts designated as such on any plat of the Property, or in this Declaration or any declaration annexing Additional Property to Stafford Meadows, including any Improvements thereon, and also includes Limited Common Areas, Common Easement Areas, Limited Common Easement Areas, and any Lots converted to Common Areas as provided in Section 3.2.

1.9 "**Common Easement Areas**" means the easements established for the benefit of all property within Stafford Meadows pursuant to this Declaration or any plat or declaration annexing Additional Property to Stafford Meadows.

1.10 "**Common Maintenance Areas**" means the Common Areas and any other areas designated as such in Section 9.1 of this Declaration or in any declaration annexing Additional Property to Stafford Meadows as being maintained by the Association.

1.11 "**Declarant**" means West Hills Land Development LLC, and its successors and assigns if such successor or assignee should acquire Declarant's interest in the remainder of the Property, or less than all of such property if a recorded instrument executed by Declarant assigns to the transferee all of Declarant's rights under this Declaration, and any member or affiliate of West Hills Land Development LLC. Any such successor declarant will succeed to all of the rights and

obligations of the Declarant under this Declaration, including, without limitation, the obligation to complete any Improvements required by City of Wilsonville as part of its subdivision approval.

1.12 "**Design Guidelines**" means the guidelines adopted from time to time by the Architectural Review Committee pursuant to Article 7.

1.13 "**Emergency Assessments**" means the Assessments described in Section 10.4(c).

1.14 "**Front Yard**" means the front yards and side yards of Lots, which are not enclosed by a fence and street frontage planter strips for all Lots, street trees and entry monuments, if any.

1.15 "**General Assessments**" means the Assessments described in Section 10.4(a).

1.16 "**General Plan of Development**" means Declarant's general plan of development of the Property as approved by Clackamas County, as the same may be amended from time to time.

1.17 "**Home**" means a building or a portion of a building located upon a Lot within the Property and designated for separate residential occupancy together with any permitted accessory dwelling unit.

1.18 "**Improvement**" means every structure or improvement of any kind, including, but not limited to, a fence, wall, driveway, swimming pool, storage shelter, mailbox and newspaper receptacle, landscaping and any other product of construction efforts on or in respect to the Property.

1.19 "**Individual Assessments**" means the Assessments described in Section 10.4(d).

1.20 "**Initial Property**" means the real property referred to in Section 2.1.

1.21 "**Limited Common Areas**" means those Common Areas established for the exclusive use or enjoyment of certain Lots as designated in this Declaration or in any declaration annexing property to Stafford Meadows including Limited Common Easement Areas.

1.22 "**Limited Common Area Assessments**" means the Assessments described in Section 10.4(d).

1.23 "**Limited Common Easement Areas**" means those Limited Common Area easements established for the exclusive use or enjoyment of certain Lots as designated in this Declaration or in the Plat or any declaration annexing property to Stafford Meadows.

1.24 "**Lot**" means a platted or partitioned lot within the Property, with the exception of any lot marked on the Plat as being common or open space or so designated in this Declaration or the declaration annexing such property to Stafford Meadows. Lots do not include Common Areas or Public Areas.

1.25 "**Mortgage**" means a mortgage or a trust deed, "**Mortgagee**" means a mortgagee or a beneficiary of a trust deed, and "**Mortgagor**" means a mortgagor or a grantor of a trust deed.

1.26 "**Occupant**" means the occupant of a Home who is the Owner, lessee or any other Person authorized by the Owner to occupy the premises.

1.27 "**Operations Fund**" means the fund described in Section 10.6.

1.28 "**Owner**" means the Person or Persons, including Declarant, owning any Lot in the Property, but does not include a tenant or holder of a leasehold interest or a contract vendor or other Person holding only a security interest in a Lot. If a Lot is Sold under a recorded real estate installment sale contract, the purchaser (rather than the seller) will be considered the Owner unless the contract specifically provides to the contrary. If a Lot is subject to a written lease with a term in excess of one year and the lease specifically so provides, then upon filing a copy of the lease with the Board of Directors, the lessee (rather than the fee owner) will be considered the Owner during the term of the lease for the purpose of exercising any rights related to such Lot under this Declaration. The rights, obligations and other status of being an Owner commence upon acquisition of the ownership of a Lot and terminate upon disposition of such ownership, but termination of ownership does not discharge an Owner from obligations incurred prior to termination.

1.29 "**Person**" means a human being, a corporation, partnership, limited liability company, trustee or other legal entity.

1.30 "**Plat**" means the plat of Stafford Meadows recorded in the plat records of Clackamas County, Oregon as Document No. _____ and any annexation plat, as the same may be amended.

1.31 "**Public Areas**" means areas or easement areas dedicated to the public or established for public use in any plat of the Property, or so designated in this Declaration or the declaration annexing such property to Stafford Meadows.

1.32 "**Reserve Fund**" means the fund described in Section 10.7.

1.33 "**Rules and Regulations**" means those policies, procedures, rules and regulations adopted by the Association pursuant to the authority granted in this Declaration, as the same may be amended from time to time.

1.34 "**Sold**" means that legal title has been conveyed or that a contract of sale has been executed and recorded under which the purchaser has obtained the right to possession.

1.35 "**Special Assessments**" means the Assessments described in Section 10.4(b)

1.36 "**Stafford Meadows**" means the Initial Property and any Additional Property annexed to this Declaration.

1.37 "**The Property**" means Stafford Meadows.

1.38 "**This Declaration**" means all of the easements, covenants, restrictions and charges set forth in this instrument, together with any rules or regulations promulgated hereunder, as the same may be amended or supplemented from time to time in accordance with the provisions hereof, including the provisions of any supplemental declaration annexing property to Stafford Meadows.

1.39 "**Turnover Meeting**" means the meeting called by Declarant pursuant to Section 8.7, at which Declarant will turn over administrative responsibility for the Property to the Association.

1.40 "**Working Fund Assessments**" means the Assessments described in Section 10.4(f).

Article 2

PROPERTY SUBJECT TO THIS DECLARATION

2.1 **Initial Property.** Declarant hereby declares that all of the real property located in the City of Wilsonville described below is owned and will be owned, conveyed, hypothecated, encumbered, used, occupied and improved subject to this Declaration:

> All real property within that certain plat entitled "**Stafford Meadows,**" filed in the plat records of Clackamas County, Oregon, as Document No. 2019-002153, except Lot 24 and Tracts A, K and L.

2.2 **Annexation of Additional Property**. Declarant may from time to time and in its sole discretion annex to Stafford Meadows as "Additional Property" any real property now or hereafter acquired by it and may also from time to time and in its sole discretion permit other holders of real property to annex the real property owned by them to Stafford Meadows. The annexation of such Additional Property is accomplished as follows:

(a) The Owner or Owners of such real property will record a declaration that is executed by or bear the approval of Declarant and will, among other things, describe the real property to be annexed; establish land classifications for the Additional Property; establish any additional limitations, uses, restrictions, covenants and conditions that are intended to be applicable to such Additional Property; and declare that such property is held and will be held, conveyed, hypothecated, encumbered, used, occupied and improved subject to this Declaration.

(b) The Additional Property described in any such annexation thereby becomes a part of Stafford Meadows and subject to this Declaration, and the Declarant and the Association will have and accept and exercise administration of this Declaration with respect to such Additional Property.

(c) Notwithstanding any provision apparently to the contrary, a declaration with respect to any Additional Property may:

(1) modify or exclude any then-existing restrictions and establish such new land classifications and such limitations, uses, restrictions, covenants and conditions with respect to such Additional Property as Declarant may deem to be appropriate for the development of the Additional Property; and

(2) with respect to existing land classifications, modify or exclude any then-existing restrictions and establish additional or different limitations, uses, restrictions, covenants and conditions with respect to such property as Declarant may deem to be appropriate for the development of such Additional Property.

(d) There is no limitation on the number of Lots or Homes that Declarant may create or annex to Stafford Meadows except as may be established by applicable ordinances of Clackamas County. Similarly, there is no limitation on the right of Declarant to annex common property, except as may be established by Clackamas County.

(e) Declarant does not agree to build any specific future Improvement but does not choose to limit Declarant's right to add additional Improvements.

(f) Nothing in this Declaration establishes any duty or obligation on Declarant to annex any property to this Declaration, and no owner of property excluded from this Declaration has any right to have such property annexed to this Declaration or Stafford Meadows.

(g) Upon annexation to Stafford Meadows, additional Lots so annexed will be entitled to voting rights as set forth in Section 8.3.

(h) The formula to be used for reallocating the common expenses if additional Lots are annexed and the manner of reapportioning the common expenses if additional Lots are annexed during a fiscal year are set forth in Section 10.5.

2.3 **Improvements.** Declarant does not agree to build any Improvements on the Property other than as required by City of Wilsonville, but may elect, at Declarant's option, to build additional Improvements.

2.4 **Withdrawal of Property.** Property may be withdrawn from Stafford Meadows only by duly adopted amendment to this Declaration, except that Declarant may withdraw all or a portion of the Initial Property or any Additional Property annexed pursuant to a declaration described in Section 2.2 at any time prior to the sale of the first Lot in the plat of the Initial Property or, in the case of Additional Property, prior to the sale of the first Lot in the property annexed by the supplemental declaration, subject to the prior approval of City of Wilsonville. Such withdrawal will be by a declaration executed by Declarant and recorded in the deed records of Clackamas County, Oregon. If a portion of the Property is withdrawn, all voting rights otherwise allocated to Lots being withdrawn will be eliminated, and the common expenses will be reallocated among the remaining Lots.

2.5 **Dedications.** Declarant reserves the right to dedicate any portions of the Property then owned by Declarant to any governmental authority, quasi-governmental entity or entity qualifying under Section 501(c)(3) of the Internal Revenue Code or similar provisions, from time to time, for such purposes as Declarant may deem to be appropriate, including, without limitation, for utility stations, equipment, fixtures and lines; streets and roads; sidewalks; trails; open space; recreational facilities; schools; fire, police, security, medical and similar services; and such other purposes as Declarant and such governmental authority or quasi-governmental entity determine to be appropriate from time to time. Any consideration received by Declarant as a result of such dedication or by reason of any condemnation or any conveyance in lieu of condemnation will belong solely to Declarant.

2.6 **Conversion of Lots to Common Areas**. Declarant may elect to build common facilities on one or more Lots and designate such Lots, or any portion thereof, as Common Areas by a supplemental declaration recorded in the deed records of Clackamas County, Oregon. The supplemental declaration must be executed by Declarant. Additionally, Declarant reserves the right over the Common Areas (excluding the Common Easement Areas) to make boundary line

adjustments between any Lot (before the Lot has been sold to someone other than the Declarant or a successor declarant) and an adjacent Common Area by a supplemental declaration and plat recorded in the deed records of Clackamas County, Oregon, notwithstanding that such an adjustment may convert a Lot or a portion thereof to Common Area, or a Common Area, or portion thereof, into a Lot or portion of a Lot. This reserved conversion right will expire upon turnover of the Association to the members by the Declarant as provided for in the Bylaws.

2.7 **Subdivisions**. Declarant reserves the right to subdivide any Lots in the Additional Property then owned by it upon receiving all required approvals from the applicable governing authority. If any two or more Lots are so subdivided or subject to condominium ownership, they will be deemed separate Lots for the purposes of allocating assessments under the Declaration. No other Owner of any Lot in the Additional Property may subdivide any Lot without the prior written approval of Declarant prior to the Turnover Meeting and thereafter by the Architectural Review Committee, which consent may be granted or denied at the sole discretion of Declarant or the Committee, as applicable.

2.8 **Consolidations**. Declarant has the right to consolidate any two or more Lots in the Additional Property then owned by it upon receipt of any required approvals from the applicable governing authority. No other Owner may consolidate any Lots without the prior written approval of Declarant before the Turnover Meeting and thereafter by the Architectural Review Committee, which may be granted or denied at the sole discretion of Declarant or the Committee, as applicable. An approved consolidation will be effected by the recording of a supplemental declaration stating that the affected Lots are consolidated, which declaration must be executed by the Owner(s) of the affected Lots and by the chairperson of the Association. Once so consolidated, the consolidated Lot may not thereafter be partitioned, nor may the consolidation be revoked except as provided in Section 2.7 above. Any Lots consolidated pursuant to this section will be considered one Lot thereafter for the purposes of the Declaration, including voting rights and allocation of Assessments.

Article 3

LAND CLASSIFICATIONS

3.1 **Land Classifications Within Initial Property**. All land within the Initial Property is included in one or another of the following classifications:

(a) Lots, which consist of Lots 1 through 23 and Lots 25 through 44, inclusive, of the plat of the Initial Property.

(b) Common Areas, including the areas marked as Tracts D, E, F, G, H, I, and J, on the plat of the Initial Property, plus the Limited Common Areas, Common Easement Areas, and Limited Common Easement Areas, all of which are to be owned and maintained by the Association pursuant to the terms and conditions of this Declaration. Tract D is a pedestrian, bicycle, and emergency vehicular access area; Tract F is a natural resource area; Tract G is a stormwater treatment area subject to an easement in favor of the City of Wilsonville; Tracts E, H, I and J are open space areas that are subject to public pedestrian and bicycle access easements, with E and H being landscape buffers along S.W. Boeckman Road.

(c) Common Easement Areas, inclusive, public pedestrian access easements, public utility easements, storm drainage easements, clean water service and storm facility easement areas, sight distance easements, wall maintenance easements in favor of the Association, and any other easements established on the plat of the Initial Property or in any recorded document for entrance signage, monuments, or landscaping over Lots.

(d) Tract B is a Limited Common Area for ingress and egress over a shared driveway to and from Lots 1 and 6, which is subject to a wall maintenance; Tract C is a Limited Common Area for ingress and egress over a shared driveway to and from Lots 2, 3, 4, and 5.

(e) There are no Limited Common Easement Areas in the Initial Property.

3.2 **Conversion of Lots to Common Areas**. Declarant may elect to build common facilities on one or more Lots and designate such Lots as Common Areas by a declaration recorded in the deed records of Clackamas County, Oregon. Such declaration must be executed by Declarant as Owner of the Lots.

3.3 **Subdivisions**. Declarant reserves the right to subdivide any Lots then owned by it upon receiving all required approvals from City of Wilsonville. If a Lot or Lots are so subdivided, the new lots will be deemed separate Lots for the purposes of allocating Assessments under this Declaration. No other Owner of any Lot in the Property may subdivide any Lot without the prior written approval of the Declarant prior to the Turnover Meeting, and thereafter, by the Architectural Review Committee, which consent may be granted or denied at the sole discretion of the Declarant or the Committee, as applicable.

3.4 **Consolidations**. Declarant has the right to consolidate any two or more Lots then owned by it upon receipt of any required approvals from City of Wilsonville. No other Owner may consolidate any Lots without the prior written approval of the Declarant prior to the Turnover Meeting and thereafter by the Architectural Review Committee, which may be granted or denied at the sole discretion of the Declarant or Committee, as applicable. An approved consolidation will be effected by the recording of a supplemental declaration stating that the affected Lots are consolidated, which declaration must be executed by the Owner(s) of the affected Lots and by the president of the Association. Once so consolidated, the consolidated Lot may not thereafter be partitioned, nor may the consolidation be revoked except as provided in Section 3.3. Any Lots consolidated pursuant to this section will be considered one Lot thereafter for the purposes of this Declaration, including voting rights and allocation of Assessments.

Article 4

PROPERTY RIGHTS IN COMMON AREAS

4.1 **Owners' Easements of Enjoyment**. Subject to the provisions of this Article 4, every Owner and his or her invitees have a right and easement of enjoyment in and to the Common Areas, which easement is appurtenant to and passes with the title to every Lot. The use of the Limited Common Easement Areas, however, are limited to the Owners and invitees of the Lots designated in the declaration establishing the Limited Common Easement Area.

4.2 **Title to Common Areas.** Except for portions dedicated to the public or any governmental authority and otherwise provided in this Section 4.2, title to the Common Areas, except the Common Easement Areas and Limited Common Easement Areas, will be conveyed to the Association by Declarant AS IS, but free and clear of monetary liens, on or before the Turnover Meeting. The Association, upon such conveyance, will assume all obligations to maintain, insure, and otherwise assume the obligations of the Declarant in respect of the Common Areas set forth in this Agreement or the Plat or any agreement entered by Declarant with City of Wilsonville in respect of such tracts. Title to Common Easement Areas and Limited Common Easement Areas, if any, subject to the easements set forth in this Declaration or the supplemental declaration creating such areas, rests in the Owners of the respective Lots within which such areas are located, or to the public if part of dedicated street rights-of-way.

4.3 **Extent of Owners' Rights.** The rights and easements of enjoyment in the Common Areas created hereby are subject to the following and to all other provisions of this Declaration:

(a) **Association Easements.** Declarant grants to the Association for the benefit of the Association and all Owners of Lots within the Property the following easements over, under and upon the Common Maintenance Areas:

(1) An easement for underground installation and maintenance of power, gas, electric, water and other utility and communication lines and services installed by Declarant or with the approval of the Board of Directors of the Association and any such easement shown on any plat of the Property.

(2) An easement for construction, maintenance, repair, and use of such areas, including any common facilities on the Common Area tracts.

(3) An easement for access for regular upkeep, maintenance, modification and replacement of the Front Yard landscaping and related irrigation equipment, including drainage systems, if any, and for making emergency repairs to the landscaping and related equipment and settings in the Front Yards of the Lots necessary for the public safety or to prevent damage to the Common Maintenance Areas or to another Lot, or to enforce this Declaration or the Rules and Regulations, or with the approval of the Board of Directors of the Association; and notwithstanding that such areas of Lots are not regular Common Maintenance Areas, an easement for access to unfenced yard landscaping and irrigation controllers on Lots to enforce this Declaration or the Rules and Regulations, including but not limited to standards for Lot maintenance thereunder.

(4) An easement for the purpose of making repairs to any existing structures on Common Areas.

(b) **Public and Utility Easements.**

The Common Areas are subject to the public and utility easements established the Plat. In addition, the public is hereby granted access easements over all sidewalks, pedestrian accesses and trails in the Common Areas within the Property as designated on the Plat. In addition, Declarant or the Association may (and, to the extent required by law will) grant or assign such easements to municipalities or other utilities performing utility services and to communication

companies, and the Association may grant free access thereon to police, fire and other public officials, and to employees of utility companies and communications companies serving the Property.

(c) **Use of the Common Areas.** The Common Areas will be used for the purposes set forth in any plat of the Property; Common Area tracts identified on any plat of the Property may not be partitioned or otherwise divided into parcels for residential use; and, no private structure of any type will be constructed on the Common Areas. Except as otherwise provided in this Declaration, the Common Areas are reserved for the use and enjoyment of all Owners. No private use may be made of the Common Areas except as otherwise provided in this Declaration. No Owner may place or cause to be placed on the Common Areas any trash, structure, equipment, furniture, package, or object of any kind. Nothing in this Declaration prevents the placing of a sign or signs upon the Common Areas by Declarant or the Association identifying the Property or identifying pathways or items of interest, signs restricting certain uses, or warning, traffic or directional signs, provided that such signs are approved by the Architectural Review Committee and comply with any applicable sign ordinances. The Board of Directors has authority to abate any trespass or encroachment upon the Common Areas at any time, by any reasonable means and with or without having to bring legal proceedings. A declaration annexing Additional Property may provide that the Owners of such Additional Property do not have the right to use a particular Common Area or facility located on such Common Area, in which event such Common Area will automatically become a "Limited Common Area" assigned to the Lots that have access thereto.

(d) **Alienation of the Common Areas.** The Association may not by act or omission seek to abandon, partition, subdivide, encumber as security for a debt, sell, transfer or convey the Common Areas owned directly or indirectly by the Association for the benefit of the Lots unless the holders of at least 80 percent of the Class A voting rights and the Class B Member (as defined in Section 8.3), if any, have given their prior written approval and unless approved by City of Wilsonville. Such approvals will not be required for dedications under Section 2.5. The Association, upon approval in writing of at least two-thirds of the Class A voting rights and the Class B Member, if any, and if approved by order or resolution of City of Wilsonville, may dedicate or convey any portion of the Common Areas to a park district or other public body. Any sale, transfer, conveyance or encumbrance permitted by this Declaration may provide that the Common Area may be released from any restrictions imposed by this Declaration if the request for approval of the action also includes approval of the release.

(e) **Leases, Easements, Rights-of-Way, Licenses and Similar Interests and Vacations of Roadways**. Notwithstanding the provisions of Section 4.3(d), the Association may execute, acknowledge and deliver leases, easements, rights-of-way, licenses and other similar interests affecting the Common Areas and consent to vacation of roadways within and adjacent to the Common Areas, subject to such approvals as are required by ORS 94.665(4) and (5).

(f) **Limitations on Use.** Use of the Common Areas is subject to the following:

(1) The provisions of this Declaration and any applicable supplemental declaration;

(2) Any restrictions or limitations contained in any deed or other instrument conveying such property to the Association;

(3) Easements reserved or granted in this Declaration or any supplemental declaration;

(4) The Common Areas may not be used for the construction of residential structures at any time.

(5) The Board's right to:

(A) adopt Rules and Regulations regulating use and enjoyment of the Common Areas, including rules limiting the number of guests who may use the Common Areas;

(B) suspend the right of an Owner to use the Common Areas as provided in this Declaration;

(C) dedicate or transfer all or any part of the Common Areas, subject to such approval requirements as may be set forth in this Declaration;

(D) impose reasonable membership requirements and charge reasonable admission or other use fees for the use of any recreational facility situated upon the Common Areas;

(E) permit use of any recreational facilities situated on the Common Areas by Persons other than Owners, their families, lessees and guests with or without payment of use fees established by the Board;

(F) designate areas and facilities of Common Areas as Public Areas; and

(G) provide certain Owners the rights to the exclusive use of those portions of the Common Areas designated as Limited Common Areas.

4.4 **Delegation of Use.** Any Owner may extend the Owner's right of use and enjoyment of the Common Areas to the members of the Owner's family, lessees and social invitees, as applicable, subject to reasonable regulation by the Board of Directors. An Owner who leases the Owner's Home will be deemed to have assigned all such rights to the lessee of such Home for the period of the lease.

4.5 **Easements Reserved by Declarant.** So long as Declarant owns any Lot, Declarant reserves an easement for itself and its successor and assigns (including any builder who purchased more than one Lot from Declarant for purposes of development), over, under and across the Common Areas to carry out sales and rental activities necessary or convenient for the sale or rental of Lots, including, without limitation, advertising and "For Sale" signs. Declarant, for itself and its successors and assigns, hereby retains a right and easement of ingress and egress over, in, upon, under and across the Common Areas and the right to store materials thereon and to make such other use thereof as may be reasonably necessary or incident to the construction of the Improvements on the Property or other real property owned by Declarant; provided, however, that no such rights may be exercised by Declarant in such a way as to unreasonably interfere with the occupancy of, use of, enjoyment of or access to an Owner's Lot by the Owner or the Owner's family, tenants, employees, guests, or invitees.

4.6 **Easement to Serve Other Property.** Declarant reserves for itself and its duly authorized agents, successors, assigns and Mortgagees, and the developers of Improvements in all future phases of Stafford Meadows, a perpetual easement over the Common Areas for the purposes of enjoyment, use, access and development of the property, even if such property is never made subject to this Declaration, including but not limited to, reservations for the benefit of real property in the vicinity of the Property that is owned by or that may be owned in the future by West Hills Land Development LLC, its successors and assigns, for so long as the same reserves annexation rights to the Property. This easement includes, but is not limited to, a right of ingress and egress over the Common Areas for construction, utilities, water and sanitary sewer lines, communication lines, drainage facilities, irrigation systems and signs, and ingress and egress for the benefit of other portions of Stafford Meadows and any Additional Property that becomes subject to this Declaration or any property in the vicinity of the Property or Additional Property that is then owned by Declarant or an affiliate thereof. Declarant agrees that such users are responsible for any damage caused to the Common Areas resulting from their actions in connection with development of such property. If the easement is exercised for permanent use by such property and such property or any portion thereof benefiting from such easement is not made subject to this Declaration, Declarant, its successors or assigns will enter a reasonable agreement with the Association to share the cost of any maintenance of such facilities. The allocation of costs in any such agreement will be based on the relative extent of use of such facilities and the number of dwelling units in such property compared to the number of Homes in the Property.

4.7 **Limited Common Areas.** If any Limited Common Areas are included in an annexation declaration, the respective Limited Common Areas will be subject to a reciprocal access easement for the use by the Owners of the benefited Lots for vehicular access and utilities and communication lines serving such Lots. Such areas will be operated, maintained, replaced, and improved by the Association, but the entire cost thereof, including reserves for future maintenance, repairs, and replacements, will be assessed on an equal basis as Limited Common Area Assessments to the Owners of Lots to which such Limited Common Areas pertain.

Article 5

PROPERTY RIGHTS IN LOTS

5.1 **Use and Occupancy.** The Owner of a Lot in the Property is entitled to the exclusive use and benefit of such Lot, except as otherwise expressly provided in this Declaration, but the Lot is bound by, and each Owner and Declarant must comply with, the restrictions contained in Article 6, all other provisions of this Declaration and the provisions of any supplement or amendment to this Declaration.

5.2 **Easements Reserved.** In addition to any utility and drainage easements shown on any recorded plat, Declarant hereby reserves the following easements for the benefit of Declarant and the Association:

(a) **Adjacent Common Maintenance Area.** The Owner of any Lot that includes a Common Maintenance Area or adjoins or blends together visually with any Common Maintenance Area must, as the Association so requires, permit the Association to enter upon the Lot to perform the maintenance of such Common Maintenance Area. The Owner and Occupant of each Lot is

responsible for controlling such Owner's or Occupant's pets so they do not harm or otherwise disturb Persons performing such maintenance on behalf of the Association.

(b) **Utility Easements.** Easements for installation and maintenance of utilities and drainage facilities may be reserved over portions of certain Lots, as shown on any recorded plat. Within the utility easement areas, the Architectural Review Committee will not permit any structure, planting or other material to be placed or permitted to remain on the easement area if such structure, planting or other material may damage or interfere with the installation or maintenance of utilities, change the direction of flow of drainage systems or drainage infiltration facilities in the easements, or obstruct or retard the flow of water through drainage channels in the easements and/or to the extent not permitted in the City of Wilsonville Development Agreements. The easement area of each Lot and all Improvements in it will be maintained continuously by the Owner of the Lot, except for those Improvements for which a public authority or utility company is responsible, and except Common Maintenance Areas, which are maintained by the Association.

(c) **Construction on Adjoining Lot.** Declarant hereby reserves for the benefit of Declarant and its assigns a temporary easement over each Lot for access to the adjoining Lot for construction purposes, including temporary placement of ladders or scaffolding. Declarant will restore the Lot to its condition as it existed prior to such access and will be responsible for any damage to the Lot. Declarant hereby reserves for the benefit of Declarant and its assigns a temporary easement over each Lot Declarant then-currently owns to accommodate uses related to portions of the Property being used for the 2019 "Street of Dreams" event.

(d) **Utility Inspection and Repairs.** Each utility and communication service provider and its agents or employees have authority to access all Lots, but not Improvements constructed thereon, and the Common Areas on which communication, power, gas, drainage, sewage or water facilities may be located for installing, operating, maintaining, improving or constructing such facilities; reading meters; inspecting the condition of pipes, lines and facilities; and completing repairs. The Owner of any such Lot will be given advance notice if possible. In the case of an emergency, as determined solely by the utility or communication service provider, no prior notice will be required.

(e) **Easements for Encroachments.** Declarant grants reciprocal appurtenant easements of encroachment, and for maintenance and use of any permitted encroachment, between each Lot and any adjacent Common Areas and between adjacent Lots due to the unintentional placement or settling or shifting of the Improvements constructed, reconstructed or altered thereon (in accordance with the terms of this Declaration and the Design Guidelines) to a distance of not more than three feet, as measured from any point on the common boundary along a line perpendicular to such boundary. However, in no event will an easement for encroachment exist if such encroachment occurred due to willful and knowing conduct on the part of, or with the knowledge and consent of, the Person claiming the benefit of such easement.

(f) **Easements for Maintenance, Emergency and Enforcement.** Upon request given to the Owner and any Occupant, any Person authorized by the Association may enter a Lot to perform necessary maintenance, repair, or replacement of any property for which the Association has maintenance, repair or replacement responsibility under this Declaration, to make emergency repairs to a Lot that are necessary for the public safety or to prevent damage to Common Areas or to another Lot, or to enforce this Declaration or the Rules and Regulations. Requests for entry must be made in advance and for a reasonable time, except in the case of any emergency, when

the right of entry is immediate. An emergency entry does not constitute a trespass or otherwise create a right of action in the Owner of the Lot.

(g) **Future Easements.** Declarant reserves the nonexclusive right and power to grant and record such specific easements as may be necessary, in the sole discretion of Declarant, in connection with the development of any of the Property. The location of any such easement is subject to the written approval of the Owner of the burdened Lot, which approval will not unreasonably be withheld, delayed or conditioned.

Article 6

GENERAL USE RESTRICTIONS

6.1 **Structures Permitted.** No structures may be erected or permitted to remain on any Lot except a single Home and structures normally accessory thereto that have been constructed by Declarant or have first been approved by the Architectural Review Committee pursuant to Article 7. A Home will be deemed a permitted improvement on a Lot under this Section 6.1 notwithstanding that a Home may include within its exterior walls an independent living area with a separate outside entrance. This provision does not exclude construction of a private greenhouse or storage unit, or an accessory dwelling unit as defined by City of Wilsonville ordinances, provided that the location, size and design of such structures are in conformity with the applicable ordinances and permit requirements of City of Wilsonville, are compatible in design and style with the Home constructed on the Lot, and have been approved by the Committee.

6.2 **Residential Use.** Lots must only be used for residential purposes. Except with the consent of the Board of Directors, no trade, craft, business, profession, commercial or similar activity of any kind will be conducted on any Lot, nor may any goods, equipment, vehicles, materials, or supplies used in connection with any trade, service or business be kept or stored on any such Lot. The mere parking on a Lot of a vehicle bearing the name of a business will not, in itself, constitute a violation of this provision. Nothing in this Section 6.2 will be deemed to prohibit (a) activities relating to the sale of Homes; (b) the right of Declarant or any contractor or home builder to construct Improvements on any Lot, to store construction materials and equipment on such Lots in the normal course of construction, and to use one or more Homes as sales offices or model homes for purposes of sales in Stafford Meadows; and (c) the right of the Owner of a Lot to maintain his or her professional personal library, keep his or her personal business or professional records or accounts, handle his or her personal business or professional telephone calls or confer with business or professional associates, clients or customers in his or her Home by appointment only or to operate a registered or certified family child care home pursuant to ORS 329A.250 to 329A.500. The Board will not approve commercial activities otherwise prohibited by this Section 6.2 unless the Board determines that only normal residential activities would be observable outside of the Home and that the activities would not be in violation of applicable law. The Board may specify acceptable activities in the Rules and Regulations.

6.3 **Offensive or Unlawful Activities.** No noxious or offensive activities may be carried out upon the Property, nor will anything be done or placed on the Property that interferes with or jeopardizes the enjoyment of the Property, or that is a source of annoyance to Owners or Occupants. Occupants will use extreme care about creating disturbances, making noises or using musical instruments, radios, televisions, amplifiers and audio equipment that may disturb other Occupants.

No unlawful use may be made of the Property or any part thereof, and all valid laws, zoning ordinances and regulations of all governmental bodies having jurisdiction over the Property must be observed. Owners and other Occupants must not engage in any abusive or harassing behavior, either verbal or physical, or any form of intimidation or aggression directed at other Owners, Occupants, guests or invitees, or directed at the managing agent, its agents or employees, or vendors.

6.4 **Animals.** No animals, livestock, or poultry of any kind may be raised, bred, kept or permitted within any Lot other than seeing eye horses and a reasonable number of ordinary household pets that are not kept, bred, or raised for commercial purposes and that are reasonably controlled so as not to be a nuisance. The Board of Directors has the authority to determine what is an "ordinary household pet." Any unrestrained or barking dog constitutes a nuisance. Any inconvenience, damage or unpleasantness caused by such pets are the responsibility of their respective Owners. No animal is permitted to roam the Property unattended, and each dog must be kept on a leash while outside a Lot. The construction or installation of dog-runs and doghouses are subject to prior review and approval by the Architectural Review Committee pursuant to Article 7. An Owner or Occupant may be required to remove a pet upon receipt of the third written notice from the Board of violations of any rule, regulation or restriction governing pets within the Property.

6.5 **Maintenance of Structures.** Each Owner must maintain the Owner's Lot and Improvements thereon, including sidewalks adjacent to the Owner's Lot, and walkways and the driveway, in a clean and attractive condition, in good repair and in such fashion as not to create a fire or other hazard. Such maintenance includes, without limitation, exterior painting or staining, repair, replacement and care for roofs, gutters, downspouts, exterior building surfaces, walks, lights, perimeter fences and other exterior Improvements and glass surfaces. All repainting or re-staining, any change in type of roof or roof color and any exterior remodeling or changes are subject to prior review and approval by the Architectural Review Committee. Damage caused by fire, flood, storm, earthquake, riot, vandalism or other causes are likewise the responsibility of each Owner and must be restored within a reasonable time. Any change in appearance must first be approved by the Committee.

6.6 **Landscape Installation.** All landscaping on a Lot must be completed within a reasonable time not to exceed 90 days from the date of occupancy of the Home constructed on a Lot. In the event of undue hardship due to weather conditions, this provision may be extended for a reasonable length of time upon approval of the Architectural Review Committee. Landscape plans will be submitted to the Committee for approval. Landscaping in the Front Yards must not be changed by an Owner without the approval of the Committee. Notwithstanding such limitations, an Owner may utilize planting pots or other free standing, movable planters within the Front Yard of his or her Lot; provided that the planters and plants growing in the planters are properly maintained. The Board of Directors may regulate the number and type of such planters.

6.7 **Maintenance of Landscaping.** In any every portion of the Owner's Lot other than the Front Yard, the Owner will keep all shrubs, trees, grass and plantings of every kind on the Owner's Lot, neatly trimmed, properly cultivated, and free of trash, weeds and other unsightly material. Following initial installation by the Declarant or builder the Association will be responsible for maintenance and irrigation of landscaping of the Front Yard of Lots, including the irrigation equipment and controllers. No Owner or Occupant of one of these Lots may alter, change or tamper with the irrigation equipment, controllers or settings in a Front Yard the Association maintains, which settings belong to the Association.

6.8 **Boundary Fences**. The responsibility for and cost of maintenance, repair and replacement of fencing on boundary lines between Lots will be shared by the Owners on either side of the fence in accordance with ORS Chapter 96; provided, however, that the Association is responsible for the maintenance of any fencing or walls adjacent to Tracts E and H the cost of which will be a common expense.

6.9 **Fences, Hedges and Walls.** No fence, hedge, structure, wall, or retaining wall may be constructed or exist anywhere on any Lot without prior approval of the Architectural Review Committee and in accordance with its Design Guidelines. No planting or structure obstructing vision at driveways or intersections is permissible or may be maintained. Installation and maintenance of retaining walls that are required and approved by the Committee due to topographic conditions of a given Lot are the sole and absolute responsibility of the individual Lot Owner, are to be aesthetically incorporated into the landscaping of the Lot, and are not the responsibility of the Association.

6.10 **Pest and Weed Control.** No Owner will permit any thing or condition to exist upon any portion of the Property that will induce, breed or harbor infectious plant or animal diseases or noxious insects or vermin. Each Owner must control noxious weeds on the Owner's Lot.

6.11 **Parking.** Except as may otherwise be provided in the Rules and Regulations, parking in excess of 24 hours of boats, trailers, motorcycles, mobile homes, campers or other recreational vehicles or equipment, regardless of weight, are not be allowed on any part of the Property or on public streets within the Property unless within areas designated for such purposes by the Board of Directors or within the confines of an enclosed garage and approved by the Architectural Review Committee before construction or screened from view in a manner approved by the Committee. No portion of the vehicle may project beyond the screened area. If there is no rear fencing and the vehicle could be seen from outside the Lot other than from the front road, the vehicle must also be screened from view from that direction. Vehicles may not be used for storage of materials for more than 48 hours without approval from the Committee. No motor vehicle of any type may constructed, reconstructed, or repaired in such a manner as will be visible from neighboring property, nor may any vehicle be occupied for residential purposes while located within the Property. The Rules and Regulations may restrict the amount of noise vehicles may generate. The parking of vehicles is prohibited on any public or private street within the Property if posted or marked "No Parking" or if curbs are painted to restrict parking. Blocking a Common Area tract established under any plat of the Property, a roadway, Limited Common Area driveway, or alley is prohibited. No parking is permitted in Common Areas unless so posted.

6.12 **Vehicles in Disrepair.** No Owner will permit any vehicle that is in an extreme state of disrepair or not currently licensed to be abandoned or to remain parked on the Owner's Lot (unless screened from view) or on the Common Area or any street for a period in excess of 48 hours. A vehicle will be deemed in an "extreme state of disrepair" when the Board of Directors determines that its presence reasonably offends the Occupants of the area due to its appearance or continued inoperability. Should any Owner fail to remove such vehicle within five days following the date on which notice is mailed to him or her by the Association, the Association may have the vehicle removed from the Property and charge the expense of such removal to the Owner.

6.13 **Signs.** No signs may be erected or maintained on any Lot except that not more than one "For Sale" sign placed by the Owner, Declarant or a licensed real estate agent, not exceeding 24 inches high and 36 inches long, may be temporarily displayed within the Front Yard of any Lot or

inside of a first floor, front street facing window of a Home located on a Lot, and two such signs may be placed on a Lot during the course of initial construction of a dwelling on such Lot. "For Rent" and "For Lease" signs are prohibited. The restrictions contained in this paragraph do not prohibit the temporary placement of "political" signs on any Lot by the Owner, subject to reasonable regulations adopted by the Architectural Review Committee relating to size and length of display.

6.14 **Rubbish, Trash and Outside Storage.** No part of the Property may be used as a dumping ground for trash or rubbish of any kind, and no rubbish, refuse or garbage is allowed to accumulate. All garbage and other waste must be kept in appropriate sanitary containers for proper disposal and out of public view, except the night before and during garbage pickup days. Yard rakings, dirt, and other material resulting from landscaping work will not be dumped onto Lots, streets, or Common Maintenance Areas. Storage areas, and the storage of machinery and equipment are prohibited on any Lot, unless obscured from view of neighboring property and streets by an appropriate screen or enclosure approved by the Architectural Review Committee. Tarps and covers are prohibited except as otherwise provided in the Rules and Regulations and the Design Guidelines. Should any Owner or Occupant responsible for its generation fail to remove any such materials within 10 days following the date on which notice is mailed to the Owner or Occupant by the Board of Directors, the Association may have the materials removed and charge the expense of such removal to the Owner.

6.15 **Construction.** The construction of any building on any Lot, including painting and all exterior finish, must be completed within eight months from the beginning of construction so as to present a finished appearance when viewed from any angle, and the Home will not be occupied until so completed. In the event of undue hardship due to weather conditions or other causes beyond the reasonable control of the Owner, this time period may be extended for a reasonable length of time upon approval from the Architectural Review Committee. The building area must be kept reasonably clean and in workmanlike order, free of litter, during the construction period with a garbage can or other garbage disposal facility on the site during such period. Debris may not be deposited on any other Lot. All construction debris, stumps, trees, etc. must be periodically removed from each Lot by the builder or Owner, and such debris will not be dumped in any area within the Property unless approved by the Committee. The Rules and Regulations may impose reasonable limitations on the hours during which construction activities may take place. If construction has not commenced upon any Lot within one year after an Owner has acquired it, other than Declarant or an affiliate of Declarant, the Owner must install the sidewalk and landscape the area within 20 feet from the curb. The Owner will irrigate and maintain this area. The Committee may waive this requirement if it determines that construction will commence within a reasonable time. In any case, all unimproved or unoccupied Lots will be kept in a neat and orderly condition, free of brush, vines, weeds and other debris, and grass thereon must be cut or mowed at sufficient intervals to prevent creation of a nuisance or fire hazard.

6.16 **Temporary Structures.** No incomplete building or structure of a temporary character, nor any trailer, basement, tent, shack, garage, barn, or other outbuilding may be used on any Lot at any time as a residence either temporarily or permanently.

6.17 **Recreational Equipment.** Unless approved by the Architectural Review Committee or permitted by the Design Guidelines, no playground, athletic or recreational equipment or structures, including without limitation, permanently installed basketball backboards, hoops and related supporting structures, will be placed, installed or utilized on any Lot in view from any street,

sidewalk or Common Area within the Property. Portable basketball backboards, hoops, soccer goal nets, and related supporting structures may be used during daylight hours, so long as such equipment is stored out of view from any street, sidewalk, or Common Area within the Property.

6.18 **Service Facilities.** Service facilities (garbage containers, fuel tanks, clotheslines, etc.) will be screened so that the elements screened are not visible at any time from the street or a neighboring property. The Architectural Review Committee may develop guidelines for clotheslines that are consistent with the green sustainability objectives of Stafford Meadows. All telephone, power, natural gas, cable television and other communication lines will be placed underground, except as otherwise mandated by local jurisdictions or public utility companies.

6.19 **Antennas and Satellite Dishes.** Exterior antennas, satellite receivers, and transmission dishes are prohibited, except to the extent expressly mandated by rules adopted by the Federal Communication Commission. Specifically, ham radio antennas, cell towers, satellite dishes one meter or larger, television antennas or on masts 12 feet or higher and multi-point distribution antennas are prohibited. To the extent permitted by Federal Communication Commission rules, the Board of Directors may require all other antennas and dishes to be hidden from view from streets and adjoining dwellings. Other communication devices will not be permitted to be placed upon any Lot except in accordance with rules established by the Architectural Review Committee in accordance with Section 7.3.

6.20 **Exterior Lighting or Noisemaking Devices.** Except with the consent of the Architectural Review Committee, no exterior lighting or noisemaking devices may be installed or maintained on any Lot, other than as originally installed by the builder of the home and security alarms and fire alarms. Seasonal holiday lighting and decorations are permissible if consistent with any applicable Rules and Regulations and if installed not more than 30 days before and removed within 30 days after the celebrated holiday. The Committee may regulate the shielding or hours of use of lighting in order to reduce annoyance to neighboring properties. The location of air conditioning compressors must be approved by the Committee prior to installation.

6.21 **Subdividing or Partitioning Lots.** Except as otherwise provided in this Declaration, no Lot may be subdivided or partitioned, nor may its Lot lines be adjusted, without the approval of Clackamas County and the Architectural Review Committee.

6.22 **Grades, Slopes and Drainage.** Each Owner of a Lot accepts the burden of the established drainage pattern and grades, slopes and courses related thereto over any Lot or Common Area, and will not in any manner alter, modify or interfere with such drainage pattern, grades, slopes and courses, any public vegetated swale or rain garden, without the prior approval of the Architectural Review Committee, and then only to the extent and in the manner specifically approved. No structure, plantings or other materials may be placed or permitted to remain on or within any grades, slopes or courses, nor may any other activities be undertaken that may damage or interfere with established slope ratios, create erosion or sliding problems, or obstruct, change the direction of or retard the flow of water through drainage channels.

6.23 **Garages.** All garage doors must remain closed except to permit entrance and exit and in connection with outside activities. Garages will be used primarily for parking of vehicles, and only secondarily for storage, and must not be used as office or living space without the prior approval of the Architectural Review Committee.

6.24 **Windows, Decks, Porches and Outside Walls.** To preserve the attractive appearance of the Property, the Association may regulate the nature of items that may be placed in or on windows, decks, porches, and the outside walls so as to be visible from the street or Common Areas, including, without limitation, window air conditioners and fans. Window coverings, curtains, shutters, drapes or blinds, other than those of commercially produced quality, are not permitted to be visible from any public or private street, pathway, Common Area or adjacent property. No aluminum foil, reflective film, or similar treatment may be placed on windows or glass doors. Garments, rugs, laundry and other similar items may not be hung from windows, facades, porches or decks.

6.25 **Air Conditioning Units.** Window or portable air conditioning units are prohibited.

6.26 **Firearms and Fireworks**. Firearms may not be discharged within Stafford Meadows at any time. Firearms are to be unloaded at all times while in Stafford Meadows. Weapons including "BB" guns, pellet guns, dart guns, paint-ball guns and any other weapon capable of firing a projectile are considered firearms. Oregon statutory law prohibits the use of certain types of fireworks. Only fireworks considered legal are allowed. Owners and their guests must clean up any fireworks discharged in Stafford Meadows.

6.27 **Nonbiodegradable Substances.** No motor oil, paint or other caustic or nonbiodegradable substance may be deposited in any street drain, sewer system or on the grounds within Stafford Meadows Any fine levied by a governmental agency and/or costs associated with the cleanup of any nonbiodegradable substance for any spill that is caused by any Owner or their guests will be the responsibility of the offending Owner.

6.28 **Leasing and Rental of Homes**. A Home may not be leased or rented for a period of less than 30 days. All leases of a Home must be by written agreement specifying that: (i) the tenant is subject to all provisions of the Declaration, Bylaws and Rules and Regulations; and (ii) failure to comply with any provision of the Declaration, Bylaws or Rules and Regulations constitutes a default under the rental agreement. The Owner must provide each tenant a copy of the Declaration, Bylaws and Rules and Regulations. The Owner is responsible for any violations by tenants and is directly responsible for either correcting or eliminating such violations or causing tenant to do the same.

6.29 **Rules and Regulations.** In addition, the Association from time to time may adopt, modify, or revoke such nondiscriminatory Rules and Regulations governing the conduct of Persons and the operation and use of the Property as it may deem necessary or appropriate to ensure the peaceful and orderly use and enjoyment of the Property. A copy of the Rules and Regulations, upon adoption, and a copy of each amendment, modification or revocation thereof, must be delivered by the Board of Directors promptly to each Owner. The Rules and Regulations may be adopted by the Board, except as may be otherwise provided in the Bylaws of the Association.

Article 7

ARCHITECTURAL REVIEW COMMITTEE

7.1 **Architectural Review.** No Improvement may be commenced, erected, placed or altered on any Lot, including without limitation re-landscaping, until the construction or landscaping plans, respectively, and specifications showing the nature, shape, heights, materials, colors and proposed location of the Improvement or landscaping, have been submitted to and approved in

writing by the Architectural Review Committee, except that construction by Declarant or any affiliate of Declarant will be presumed to have been approved and is thereby exempt from this review. Such exception for Declarant and such builders' construction will include without limitation the construction of buildings, hedges, walls, and fences. The building plans to be submitted will consist of one complete set of plans and specifications in the usual form showing insofar as appropriate, (i) size and dimensions of the Improvements; (ii) exterior design; (iii) approximate exterior color scheme; (iv) location of Improvements on the Lot, including setbacks, driveway and parking areas; and (v) location of existing trees to be removed. These plans and specifications must be left with the Committee until 60 days after notice of completion has been received by the Committee. This is for determining whether, after inspection by the Committee, the Improvement complies substantially with the plans and specifications that were submitted and approved. The Committee is not responsible for determining compliance with structural and building codes, zoning codes, or any other governmental regulations, all of which are the responsibility of the applicant. The procedure and specific requirements for review and approval of construction may be set forth in Design Guidelines adopted from time to time by the Committee. The Committee may charge a reasonable fee to cover the cost of processing an application. In all cases in which the Committee's consent is required by this Declaration, the provisions of this Article 7 apply, except that this Article 7 does not apply to construction by Declarant or any affiliate of Declarant.

7.2 **Committee Decision.** The Architectural Review Committee will render its decision with respect to a construction proposal within 30 working days after it has received all material required by it with respect to the application. In the event the Committee fails to render its approval or disapproval within 45 working days after the Committee has received all material required by it with respect to the proposal, or if no suit to enforce this Declaration has been commenced within one year after completion thereof, approval will not be required and the related provisions of this Declaration will be deemed to have been fully complied with.

7.3 **Committee Discretion.** The Architectural Review Committee may withhold consent to any proposed work if the Committee finds the proposed work would be inappropriate for the particular Lot or incompatible with the Design Guidelines or design standards that the Committee intends for Stafford Meadows. It is the intent and purpose of this Declaration to ensure quality of workmanship and materials, to ensure harmony of external design with the existing Improvements and with respect to topography and finished grade elevations, and to ensure compliance with the setback requirements contained in the conditions of approval of Clackamas County. Considerations such as siting, shape, size, color, design, materials, height, screening, impairment of the view from other Lots or other effect on the enjoyment of other Lots or the Common Area, disturbance of existing terrain and vegetation, and any other factors that the Committee reasonably believes to be relevant may be considered by the Committee in determining whether or not to consent to any proposed work. Regulations on siting of television antennas and satellite receiving dishes must be in conformance with any applicable Federal Communications Commission rules.

7.4 **Design Guidelines**.

(a) **Adoption of Design Guidelines**. Declarant or the Architectural Review Committee will prepare Design Guidelines, which may contain general provisions applicable to all of the Property as well as specific provisions that vary from Neighborhood to Neighborhood or any portions of a Neighborhood or Neighborhoods or as to types of use or Improvements. The Design Guidelines will interpret and implement the provisions of this Declaration for architectural review and

establish guidelines for architectural design, placement of buildings, color schemes, exterior finishes and materials and similar features that may be used in Stafford Meadows; provided, however that the Design Guidelines will not be in derogation of the minimum standards established by this Declaration. The Design Guidelines are not the exclusive basis for decisions of the Committee, and compliance with the Design Guidelines does not guarantee approval of any application. Regulations on siting of television antennas and satellite receiving dishes will be in conformance with any applicable Federal Communications Commission rules. The Design Guidelines may not unreasonably restrict solar energy systems in violation of ORS 105.880 or electrical vehicle charging stations in conflict with ORS 94.762.

(b) **Publication of Design Guidelines**. The Architectural Review Committee must make the Design Guidelines available to Owners and builders who seek to engage in development or construction within the Property. In Declarant's discretion, the Design Guidelines may be recorded, in which event the recorded version, as it may be amended from time to time, will control in the event of any dispute as to which version of the Design Guidelines was in effect at any particular time.

(c) **Amendment of Design Guidelines**. Declarant has sole and full authority to amend the Design Guidelines during the Development Period notwithstanding a delegation of reviewing authority to the Architectural Review Committee unless Declarant also delegates the power to amend to the Committee. Upon delegation of Declarant's right to amend, the Committee will have the authority to amend the Design Guidelines with the consent of the Board of Directors. Any amendments to the Design Guidelines will be prospective only and will not apply to require modifications to or removal of structures previously approved once the approved construction or modification has commenced. There is no limitation on the scope of amendments to the Design Guidelines, and such amendments may remove requirements previously imposed or otherwise make the Design Guidelines less restrictive.

7.5 **Membership: Appointment and Removal.** The Architectural Review Committee will consist of as many Persons as Declarant may from time to time appoint. Declarant, at its discretion, may appoint a single Person to serve as the Committee and may remove any member of the Committee from office at any time and may appoint new or additional members at any time. The Association will keep on file at its principal office a list of the names and addresses of the members of the Committee. Declarant may at any time delegate to the Board of Directors of the Association the right to appoint or remove members of the Committee. In such event, or in the event Declarant fails to appoint an Architectural Review Committee, the members of the Committee will be appointed by, and serve on behalf of, the Board, or if the Board fails to appoint such members, then the Board will serve as the Committee. The term of office for each member appointed by the Board will be one year unless lengthened by the Board at the time of appointment or unless the Board serves as the Committee, in which case the terms of the members will be the same as their terms as Board members. The Board may appoint any or all of its members to the Committee and is not required to appoint non-Board members. The Board may appoint one or more members to the Committee who are not Owners, but who have special expertise regarding the matters that come before the Committee. In the sole discretion of the Board, such non-Owner members of the Committee may be paid for such services, the cost of which may be paid by the applicants or treated as a common expense, as determined by the Board.

7.6 **Majority Action.** Except as otherwise provided in this Declaration, a majority of the members of the Architectural Review Committee has the power to act on behalf of the Committee, without the necessity of a meeting and without the necessity of consulting the remaining members of the Committee. The Committee may render its decision only by written instrument setting forth the action taken by the consenting members.

7.7 **Liability.** Neither the Architectural Review Committee nor any member thereof is liable to any Owner, Occupant, builder or developer for any damage, loss or prejudice suffered or claimed on account of any action or failure to act of the Committee or a member of the Committee, and the Association will indemnify the Committee and its members therefrom, provided only that the member has, in accordance with the actual knowledge possessed by him or her, acted in good faith.

7.8 **Nonwaiver.** Consent by the Architectural Review Committee to any matter proposed to it or within its jurisdiction will not be deemed to constitute a precedent or waiver impairing its right to withhold approval as to any similar matter thereafter proposed or submitted to it for consent.

7.9 **Appeal.** At any time after Declarant has delegated appointment of the members of the Architectural Review Committee to the Board of Directors pursuant to Section 7.5, any Owner adversely affected by action of the Committee may appeal such action to the Board. Appeals must be made in writing within 10 days of the Committee's action and must contain specific objections or mitigating circumstances justifying the appeal. If the Board is already acting as the Committee, the appeal will be treated as a request for a rehearing, in which case the Board will meet and receive evidence and argument on the matter. A final, conclusive decision will be made by the Board within 15 working days after receipt of such notification.

7.10 **Effective Period of Consent.** The Architectural Review Committee's consent to any proposed work will automatically be revoked one year after issuance unless construction of the work has been substantially commenced in the judgment of the Committee and thereafter diligently pursued, or unless the Owner has applied for and received an extension of time from the Committee.

7.11 **Estoppel Certificate.** Within 20 business days after written request is delivered to the Architectural Review Committee by any Owner, and upon payment to the Committee of a reasonable fee fixed by the Committee to cover costs, the Committee will provide such Owner with an estoppel certificate executed by a member of the Committee and acknowledged, certifying with respect to any Lot owned by the Owner, that as of the date of the certificate either (a) all Improvements made or done upon or within such Lot by the Owner comply with this Declaration or (b) such Improvements do not so comply, in which event the certificate must also identify the noncomplying Improvements and set forth with particularity the nature of such noncompliance. Any purchaser from the Owner, and any Mortgagee or other encumbrancer, is entitled to rely on such certificate with respect to the matters set forth therein, such matters being conclusive as between Declarant, the Committee, the Association and all Owners, and such purchaser or Mortgagee.

7.12 **Enforcement.** If during or after the construction the Architectural Review Committee finds that the work was not performed in substantial conformance with the approval granted, or that the required approval was not obtained, the Committee will notify the Owner in writing of the noncompliance, specifying the particulars of the noncompliance. The Committee may require conforming changes to be made or that construction be stopped. The cost of any required changes will be borne by the Owner. The Committee has the power and authority to order any manner

of changes or complete removal of any Improvement, alteration, or other activity for which prior written approval from the Committee is required and has not been obtained or waived in writing. If an Owner fails to comply with an order of the Committee, then, subject to the Owner's right of appeal under Section 7.9, either the Committee or the Board of Directors may enforce compliance in accordance with the procedures set forth in Section 11.1.

Article 8

ASSOCIATION

Declarant has organized, or before conveyance of the first Lot will organize, an association of all of the Owners within Stafford Meadows. Such Association, and its successors and assigns, will be organized as an Oregon nonprofit corporation under the name "**Stafford Meadows Homeowners Association**," and will have such property, powers and obligations as are set forth in this Declaration for the benefit of the Property and all Owners of Lots located therein.

8.1 **Organization.** Declarant will, before the first Lot is conveyed to an Owner, organize the Association as a nonprofit corporation under the general nonprofit corporation laws of the State of Oregon. The Articles of Incorporation of the Association will provide for its perpetual existence, but in the event the Association is at any time dissolved, whether inadvertently or deliberately, it will automatically be succeeded by an unincorporated association of the same name. In that event, the unincorporated association will have all the property, powers and obligations of the incorporated association existing immediately prior to dissolution. To the greatest extent possible, any successor unincorporated association will be governed by the Articles of Incorporation and Bylaws of the Association as if they had been made to constitute the governing documents of the unincorporated association and will be served by the members of the Board of Directors and the officers who served immediately prior to dissolution.

8.2 **Membership.** Every Owner of one or more Lots within the Property must, immediately upon creation of the Association and thereafter during the entire period of such Owner's ownership of one or more Lots within the Property, be a member of the Association. Such membership commences, exists, and continues simply by virtue of such ownership; expires automatically upon termination of such ownership; and need not be confirmed or evidenced by any certificate or acceptance of membership.

8.3 **Voting Rights.** The Association has two classes of voting membership:

Class A. Class A Members are all Owners with the exception of the Class B Member and are entitled to one vote for each Lot owned. When more than one Person holds an interest in any Lot, all such Persons are members. The vote for such Lot is exercised as they among themselves determine, but in no event will more than one vote be cast with respect to any Lot.

Class B. The Class B Member is Declarant, who is entitled to three votes for each Lot owned by Declarant. The Class B Membership will cease and be converted to Class A Membership on the happening of any of the following events, whichever occurs earlier:

(1) When all of the Lots in the final phase of development of Stafford Meadows have been Sold and conveyed to Owners other than a successor Declarant; or

(2) At such earlier time as Declarant may elect in writing to terminate Class B Membership.

8.4 **General Powers and Obligations**. The Association has, exercises and performs all of the following powers, duties, and obligations:

(a) The powers, duties and obligations granted to the Association by this Declaration.

(b) The powers and obligations of a nonprofit corporation pursuant to the general nonprofit corporation laws of the State of Oregon.

(c) The powers, duties and obligations of a homeowners association pursuant to the Oregon Planned Community Act.

(d) Any additional or different powers, duties and obligations necessary or desirable for carrying out the functions of the Association pursuant to this Declaration or otherwise promoting the general benefit of the Owners within the Property.

The powers and obligations of the Association may from time to time be amended, repealed, enlarged or restricted by changes in this Declaration made in accordance with the provisions of this Declaration, accompanied by any required changes in the Articles of Incorporation or Bylaws of the Association made in accordance with such instruments and with the nonprofit corporation laws of the State of Oregon.

8.5 **Specific Powers and Duties**. The powers and duties of the Association include, without limitation, all of the following:

(a) **Maintenance and Services.** The Association will provide maintenance and services for the Property as provided in Article 9 and other provisions of this Declaration.

(b) **Insurance.** The Association will obtain and maintain in force policies of insurance as determined by the Board of Directors and in accordance with any requirements in this Declaration or the Bylaws of the Association.

(c) **Rulemaking.** The Association will make, establish, promulgate, amend and repeal Rules and Regulations as provided in Section 0.

(d) **Assessments.** The Association will adopt budgets and impose and collect Assessments as provided in Article 10.

(e) **Enforcement.** The Association will perform such acts, whether or not expressly authorized by this Declaration, as may be reasonably necessary to enforce the provisions of this Declaration and the Rules and Regulations adopted by the Association, including, without limitation, enforcement of the decisions of the Architectural Review Committee. Nothing in this Declaration may be construed as requiring the Association to take any specific action to enforce violations.

(f) **Employment of Agents, Advisers and Contractors.** The Association, through its Board of Directors, may employ the services of any Person as manager; hire employees to manage, conduct and perform the business, obligations and duties of the Association; employ professional counsel and obtain advice from such Persons such as, but not limited to, landscape architects, architects, planners, attorneys and accountants; and contract for or otherwise provide for all services necessary or convenient for the management, maintenance and operation of the Property; provided, however, the Board may not incur or commit the Association to incur legal fees in excess of $5,000 for any specific litigation or claim matter or enter into any contingent fee contract or any claim in excess of $100,000 unless the Owners have enacted a resolution authorizing the incurring of such fees by a vote of 75 percent of the total voting rights of the Association. These limitations are not applicable to legal fees incurred in defending the Association or the Board from claims or litigation brought against them. The limitations set forth in this paragraph (f) will increase by 10 percent on each fifth anniversary of the recording of this Declaration.

(g) **Borrow Money.** The Association may borrow and repay money for the purpose of performing its duties under this Declaration; provided, however, that such borrowing in any calendar year may not exceed 20 percent of the estimated budgeted expenses of the Association for that calendar year unless the owners have enacted a resolution authorizing the project by a majority of the voting rights of the members. The Association may pledge Association income to secure such borrowing, and, subject to Section 4.3(d), encumber the Common Areas as security for the repayment of such borrowed money.

(h) **Acquire and Hold Title to Property.** The Association may acquire and hold title to real and personal property and interests therein, and must accept any real or personal property, leasehold or other property interests within Stafford Meadows conveyed to the Association by Declarant.

(i) **Transfers, Dedications, Encumbrances and Easements.** Except as otherwise provided in Sections 4.3(d) and 4.3(e), the Association may sell, transfer or encumber and grant easements upon all or any portion of the Common Area, or other real property to which it then holds title, to a Person, whether public or private, and dedicate or transfer all or any portion of such Common Area or property to any public agency, authority or utility for public purposes.

(j) **Create Classes of Service and Make Appropriate Charges.** The Association may, in its sole discretion, create various classes of service and make appropriate Individual Assessments or charges therefor to the users of such services, including, but not limited to, reasonable admission and other fees for the use of any and all recreational facilities situated on the Common Areas, without being required to render such services to those of its members who do not assent to such charges and to such related Rules and Regulations as the Board deems proper. In addition, the Board has the right to discontinue any service upon nonpayment of Assessments or to eliminate any service for which there is no demand or for which there are inadequate funds to maintain the same.

(k) **Restoring Damaged Improvements.** In the event of damage to or destruction of Common Areas or other property that the Association insures, the Board of Directors or its duly authorized agent must file and adjust all insurance claims and obtain reliable and detailed estimates of the cost of repairing or restoring the property to substantially the condition in which it existed prior to the damage, allowing for changes or Improvements necessitated by changes in

applicable building codes. If a decision is made not to restore the damaged Improvements, and no alternative Improvements are authorized, the affected property will be cleared of all debris and ruins and thereafter will be maintained by the Association in a neat and attractive, landscaped condition. If insurance proceeds are insufficient to cover the costs of reconstruction, the Board may levy Special Assessments to cover the shortfall against those Owners responsible for the premiums for the applicable insurance coverage. Any insurance proceeds remaining after paying the costs of repair or reconstruction, or after such settlement as is necessary and appropriate, will be retained by the Association for the benefit of all or some of the Owners, as appropriate, and placed in a capital Improvements account. This is a covenant for the benefit of Mortgagees and may be enforced by the Mortgagee of any affected Lot.

(l) **Security.** The Association may, but is not obligated to, maintain or support certain activities within Stafford Meadows designed to make the Property more enjoyable or safer than it otherwise might be. **Neither the Association, Declarant nor any managing agent will be considered insurers or guarantors of security or safety within the Property, nor will either be held liable for any loss or damage by reason of failure to provide adequate security or ineffectiveness of security or safety measures undertaken. No representation or warranty is made that any system or measure, including any mechanism or system for limiting access to the Property, cannot be compromised or circumvented, nor that any such system or measure undertaken will in all cases prevent loss or provide the detection or protection for which it is designed or intended. Each Owner acknowledges and agrees that the Association, the Board of Directors and any managing agent are not insurers and that each Person using the Property assumes all risks for personal injury and loss or damage to property resulting from acts of third parties.**

(m) **Services.** The Association may provide or contract for such services as the Board of Directors may reasonably deem to be of benefit to the Property, including, without limitation, landscape services, garbage and trash removal and security services.

(n) **Implied Rights and Obligations.** The Association may exercise any other right or privilege reasonably to be inferred from the existence of any right or privilege expressly given to the Association under this Declaration or reasonably necessary to effectuate any such right or privilege.

8.6 **Liability.** Neither a member of the Board of Directors nor an officer of the Association or member of the Architectural Review Committee or any other committee established by the Board will be liable to the Association, any Owner or any third party for any damage, loss or prejudice suffered or claimed on account of any action or failure to act in the performance of his or her duties, so long as the individual acted in good faith; believed that the conduct was in the best interests of the Association, or at least was not opposed to its best interests; and, in the case of criminal proceedings, had no reason to believe the conduct was unlawful. In the event any member of the Board or any officer or committee member of the Association is threatened with or made a party to any proceeding because the individual was or is a director, officer, or committee member of the Association, the Association will defend the individual against such claims and indemnify the individual against liability and expenses incurred to the maximum extent permitted by law.

8.7 **Interim Board; Turnover Meeting.** Declarant has the right to appoint an interim board of one to three directors, who will serve as the Board of Directors of the Association until

replaced by Declarant or until their successors take office at the Turnover Meeting following termination of Class B Membership. Declarant will call a meeting of the Association for the purpose of turning over administrative responsibility for the Property to the Association not later than 90 days after termination of the Class B Membership in accordance with Section 8.3. At the Turnover Meeting the interim directors will resign and their successors will be elected by the Owners, as provided in this Declaration and in the Bylaws of the Association. If Declarant fails to call the Turnover Meeting required by this Section 8.7, any Owner or Mortgagee of a Lot may call the meeting by giving notice as provided in the Bylaws.

8.8 **Contracts Entered into by Declarant or Before Turnover Meeting.** Notwithstanding any other provision of this Declaration, any management contracts, service contracts or employment contracts entered into by Declarant or the Board of Directors on behalf of the Association before the Turnover Meeting will have a term of not more than three years. In addition, any such contract must provide that it may be terminated without cause or penalty by the Association or Board upon not less than 30 days' notice to the other party given not later than 60 days after the Turnover Meeting. The limitations contained in this Section 8.8 do not apply to those contracts referred to in ORS 94.700(2).

8.9 **Bylaws.** The Bylaws of the Association and any amendment or modification of the Bylaws will be recorded in the Deed Records of Clackamas County, Oregon. On behalf of the Association, the Declarant will adopt and record the initial Bylaws as provided in ORS 94.625.

Article 9

MAINTENANCE

9.1 **Common Maintenance Areas.** The Common Maintenance Areas include the Common Areas, Limited Common Areas, Common Easement Areas, and the Front Yards of Lots in Stafford Meadows, and the wall maintenance areas designated on the Plat, until such maintenance is assumed by the local jurisdiction, if ever.

9.2 **Maintenance and Lighting of Common Maintenance Areas.** The Association is responsible for exterior lighting, if any, in the Common Areas and will perform all maintenance upon the Common Maintenance Areas, including, but not limited to, entrance monuments, gates, fences, walls in Common Areas or bordering the Common Areas (including without limitation any fence or wall along S.W. Boeckman Road, and any public vegetated swale along any roadway in the Property), signs, parking areas, pathways, bicycle paths, unless the maintenance thereof is assumed by a public body. Sidewalks, notwithstanding the public easement over them, are the Lot Owner's responsibility to maintain, repair, and replace and to keep free of leaves, ice, and snow. The Association is responsible for maintenance and irrigation of landscaping in the Front Yards and the walls constructed in the wall maintenance easement areas designated on the Plat, and for the design and any modification thereof.

(a) In the Front Yards, irrigation systems, including related controllers, monitors, and equipment, belong to the Lot Owner. Landscaping irrigation settings will be set by the Association and no Owner may tamper with or change such settings. The Association has the right of access to each such controller, monitor, or other equipment wherever located on a Lot. The cost of water for irrigation of the Front Yards is the responsibility of the Association and will be a common

expense. Rain gardens are part of the Property's overall stormwater treatment plan, whether located in the public right of way or on a portion of a Lot; any rain garden located on any Lot will be the responsibility of the Association to maintain as part of the Lot's Front Yard landscaping, which must be performed so that the rain garden area works for its intended stormwater collection and filtering functions. The Association will also maintain and irrigate the area of the street right-of-way between the curb and the sidewalk. Such areas will be maintained in attractive condition and in a good and workmanlike manner to render them fit for the purposes for which they are intended. The maintenance of Front Yards by the Association does not include maintenance of special features, which are the Owner's responsibility, including but not limited to decorative water features (ponds, streams, waterfalls, etc.), bridges, gazebos, foot paths, putting greens, or any other Improvement other than ordinary landscaping, which are the responsibility of the Lot Owner. Front Yard maintenance expenses borne by the Association will be Individual Expenses to be determined by the board of directors according to Section 10.3 below.

(b) The Association is hereby assigned and assumes the City of Wilsonville Development Agreements in respect of all the Property thereunder that subjected to this Declaration. Except to the extent of the Declarant's obligations to install, construct, and for the stated bond period therein, inspect and maintain, certain improvements on the affected Common Areas, this assignment and assumption includes Declarant's on-going maintenance, repair, inspection, and replacement obligations under the City of Wilsonville Development Agreements.

9.3 **Maintenance of Shared Irrigation Systems and Utility Facilities.** The Association will perform or contract to perform maintenance of (i) all irrigation systems and facilities within Common Maintenance Areas, and (ii) any private utilities serving a Common Area (other than Common Easement Areas), except to the extent such maintenance is performed by the utilities furnishing such services. The Association is not liable for any interruption or failure of such services. Each Owner is responsible for maintaining utility lines within his or her Lot other than those serving the Common Maintenance Areas.

9.4 **Owner's Responsibility.** Except as otherwise provided in this Declaration or by written agreement with the Association, all maintenance of the Lots and Improvements, including landscaping for which the Association is not responsible, walkways, and the driveway thereon as provided in Section 6.5 and 6.7 will be the sole responsibility of the Lot Owner, who will maintain the Lot in a neat and attractive condition in accordance with the community-wide standard of Stafford Meadows. Sidewalks, notwithstanding the public easement over them, are the Lot Owner's responsibility to maintain, repair, and replace and to keep free of leaves, ice, and snow. The Association may, in the discretion of the Board of Directors, assume the maintenance responsibilities of such Owner if, in the opinion of the Board, the level and quality of maintenance being provided by such Owner does not satisfy such standard. Before assuming such maintenance responsibilities, the Board will notify the Owner in writing of its intention to do so, and if such Owner has not commenced and diligently pursued remedial action within 15 days after mailing of such written notice, then the Association may proceed. The expenses of such maintenance by the Association will be reimbursed to the Association by the Owner, together with interest as provided in Section 11.3. Such charges will be an Individual Assessment and lien on the Lot as provided in Sections 10.4(d) and 11.1.

9.5 **Damage Liability.** Any damage to any Common Maintenance Area by Owners or their children, agents, visitors, friends, relatives, tenants, Occupants or service personnel, to the extent

not covered by the Association's insurance (including any deductible), will be assessed to such Owners as an Individual Assessment.

9.6 **Maintenance Plan.** Declarant will initially prepare and thereafter the Board of Directors must implement, review, and update a maintenance plan (the "**Maintenance Plan**") for the maintenance, repair and replacement of all property for which the Association has maintenance, repair or replacement responsibility under this Declaration or the Bylaws or the Oregon Planned Community Act. The Maintenance Plan will describe the maintenance, repair or replacement to be conducted; include a schedule for maintenance, repair or replacement; be appropriate for the size and complexity of the maintenance, repair and replacement responsibility of the Association; and address issues that include, but are not limited to, warranties and the useful life of the items of which the Association has maintenance, repair or replacement responsibility. The Board must review and update the Maintenance Plan as necessary. Changes or updates to the Maintenance Plan will be based on advice of competent experts or consultants. For a period of 10 years following recording of the Declaration, any changes to the Maintenance Plan without the approval of the Declarant and the original general contractor may void any applicable warranty and will release them from liability for any damage resulting from such change.

Article 10

ASSESSMENTS

10.1 **Purpose of Assessments.** The Association may levy Assessments. The Assessments levied by the Association must be used exclusively to promote the recreation, health, safety and welfare of the Owners and Occupants of the Property and for the improvement, operation and maintenance of the Common Maintenance Areas.

10.2 **When Lots Become Subject to Assessment.** Upon the first sale of each Lot to a purchaser other than (i) Declarant, (ii) another developer or builder in a bulk sale of Lots, (iii) a successor declarant, or (iv) an affiliate of Declarant, the Lot Sold becomes subject to assessment and the Owner will pay General Assessments, Special Assessments, Emergency Assessments, Limited Common Area Assessments, and if any, Individual Assessments.

10.3 **Allocation of Assessments.** Except as may otherwise be provided in an applicable supplemental declaration annexing Additional Property to this Declaration, all Lots subject to assessment will pay an equal share of the General Assessments, Special Assessments, and Emergency Assessments. The cost of Front Yard maintenance, including landscaping upkeep, repair and operation of irrigation systems, and water for irrigation, will be Individual Expenses, which will be reasonably determined by the board of directors based on the size and features of any given Lot's Front Yard and categories of corresponding assessments for the Front Yard maintenance performed by the Association. The board has the authority to create categories of Lots based on their size and Front Yard features, including without limitation that some Lots will have private rain gardens in their Front Yards and others will not, for the purpose of creating categories of Lots in respect of the Front Yard assessments; in other words, notwithstanding that Front Yard maintenance costs will be assessed as Individual Assessments, Front Yards may be lumped together by size and feature for simplification of assessment invoicing. If the irrigation water is not separately metered on a Lot, the board of directors will reasonably estimate irrigation as between Lots sharing a landscaping water meter and allocate the water costs accordingly or according to categories of Lots for Front Yard assessment.

10.4 **Type of Assessments.** The Association is authorized to levy the following types of Assessments:

(a) **General Assessments.** The Association will levy General Assessments for the common expenses incurred by or on behalf of the Association in accordance with this Declaration. The Board of Directors will from time to time and at least annually prepare an operating budget for the Association, taking into account the current costs of maintenance and services and future needs of the Association, any previous over-assessment and any common profits of the Association. The budget must take into account the number of Lots subject to assessment as of the first day of the fiscal year for which the budget is prepared and the number of Lots reasonably anticipated to become subject to assessment during the fiscal year. The budget may be based upon a greater number of Lots than those reasonably anticipated to be subject to assessment during the fiscal year if the Declarant agrees to subsidize the Association for any shortfall in the Operations Fund. The budget will provide for such reserve or contingency funds as the Board deems necessary or as may be required by law, but not less than the reserves required by Section 10.7. General Assessments for such operating expenses and reserves will then be apportioned among the Lots as provided in Section 10.3. The Board may revise the budget and adjust the General Assessment from time to time during the year. Within 30 days after the adoption of a final budget by the Board, the Board will send a copy of the final budget to each Owner. If the Board fails to adopt a budget, the last adopted budget continues in effect. The manner of billing and collection of Assessments is as provided in the Bylaws.

(b) **Special Assessments.** The Board of Directors may levy during any fiscal year a Special Assessment, applicable to that year only, for the purpose of deferring all or any part of the cost of any construction or reconstruction, unexpected repair, or acquisition or replacement of a described capital Improvement, or for any other one-time expenditure not to be paid for out of General Assessments. Special Assessments for acquisition or construction of new capital Improvements or additions that in the aggregate in any fiscal year exceed an amount equal to 15 percent of the budgeted gross expenses of the Association for the fiscal year may be levied only if approved by a majority of the voting rights voting on such matter, together with the written consent of the Class B Member, if any. Prior to the Turnover Meeting, any Special Assessment for acquisition or construction of new capital Improvements or additions must be approved by not less than 50 percent of the Class A voting rights, together with the written consent of the Class B Member. Special Assessments will be apportioned as provided in Section 10.3 and may be payable in lump sum or in installments, with or without interest or discount, as determined by the Board.

(c) **Emergency Assessments.** If the General Assessments levied at any time are or will become inadequate to meet all expenses incurred under this Declaration for any reason, including nonpayment of any Owner's Assessments on a current basis, the Board of Directors will immediately determine the approximate amount of such inadequacy and issue a supplemental budget, noting the reason therefor, and levy an Emergency Assessment for the amount required to meet all such expenses on a current basis. Emergency Assessments will be apportioned as set forth in Section 10.3 and payable as determined by the Board.

(d) **Limited Common Area Assessments**. General Assessments, Special Assessments and Emergency Assessments relating to maintenance, upkeep, repair, replacement or improvements to Limited Common Areas will be assessed exclusively and on an equal basis to the Lots having the right to use such Limited Common Areas.

(e) **Individual Assessments.** Any common expense or any part of a common expense benefiting fewer than all of the Lots may be assessed as Individual Assessments exclusively against the Lots benefited. Individual Assessments include, without limitation, charges for services provided under Sections 8.5(j), 9.2(a), and 10.4(a) and any loss or cost incurred by the Association that the Board of Directors determines is the fault of one or more Owners and not paid by insurance. Individual Assessments also include default Assessments levied against any Lot to reimburse the Association for costs incurred in bringing such Lot or its Owner into compliance with the provisions of this Declaration or the Rules and Regulations of the Association and for fines or other charges imposed pursuant to this Declaration for violation thereof. Unless otherwise provided by the Board, Individual Assessments will be due 30 days after the Board has given written notice thereof to the Owners subject to the Individual Assessments.

(f) **Working Fund Assessments.** Upon the first sale of a Lot to a purchaser other than a successor Declarant and upon any subsequent sale of such Lot, the purchaser will pay to the Association a Working Fund Assessment equal to two times the monthly General Assessment then applicable to the Lot. The Board of Directors may deposit Working Fund Assessments either in the Operations Fund or in the Reserve Fund, at the discretion of the Board.

10.5 **Assessment of Additional Property.** When Additional Properties are annexed to Stafford Meadows, the Lots included therein become subject to Assessments from the date of such annexation to the extent provided in Section 10.2. The Board of Directors, however, at its option may elect to recompute the budget based upon the additional Lots subject to Assessment and additional Common Areas and recompute General Assessments for all Lots, including the new Lots, for the balance of the fiscal year. Notwithstanding any provision of this Declaration apparently to the contrary, a declaration annexing Additional Property may provide that such Additional Property does not have the right to use a particular Common Area or facility located thereon, in which case such Additional Property will not be assessed for the costs of operating, maintaining, repairing, replacing or improving such Common Area or facility.

10.6 **Operations Fund.** The Association will keep all funds received by it as Assessments, other than reserves described in Section 10.7 or Working Fund Assessments deposited in the Reserve Fund, separate and apart from its other funds, in an Operations Fund in a bank account in the name of the Association. The Association will use such fund for the purpose of promoting the recreation, health, safety and welfare of the residents within the Property and in particular for the improvement and maintenance of properties, services and facilities devoted to this purpose and related to the use and enjoyment of the Common Maintenance Areas and the Lots, including but not limited to:

(a) Payment of the cost of operation, maintenance, utilities, services, repairs, and replacements for the Common Maintenance Areas.

(b) Payment of the cost of insurance maintained by the Association.

(c) Payment of taxes assessed against the Common Areas and any Improvements thereon.

(d) Payment of the cost of other services that the Association deems to be of general benefit to the Owners, including, but not limited to, accounting, legal, and secretarial services.

10.7 **Reserve Fund.**

(a) **Establishment of Account.** Declarant, on behalf of the Association, will conduct an initial reserve study as described in Section 10.7(c) and establish a Reserve Fund in a bank account in the name of the Association to fund major maintenance, repair or replacement of any common properties that will normally require replacement in whole or in part in more than one and less than 30 years; for exterior painting if the Common Maintenance Areas or other property to be maintained by the Association includes exterior painted surfaces; and for other items, whether or not involving Common Maintenance Areas, if the Association has responsibility to maintain the items, including items required by the Maintenance Plan established pursuant to Section 9.6. The Reserve Fund need not include those items that can reasonably be funded from the general budget or other funds of the Association or for those items for which one or more, but less than all, Owners are responsible for maintenance and replacement under the provisions of this Declaration or the Bylaws. Nothing in this Section 10 prohibits prudent investment of the Reserve Fund.

(b) **Funding of Reserve Fund.** The Reserve Fund will be funded by Assessments against the individual Lots assessed for maintenance of the items for which the Reserve Fund is being established, which sums will be included in the regular General Assessment for the Lot and the Limited Common Area Assessments, if applicable. The Board, however, may borrow funds from the Reserve Fund to meet high seasonal demands on the regular operating funds or to meet other temporary expenses that will later be paid from General Assessments, Special Assessments, or Emergency Assessments. The Reserve Fund also includes Working Fund Assessments to the extent so allocated by the Board of Directors pursuant to Section 10.4(f). The Reserve Fund will be established in the name of the Association. The Association is responsible for administering the Reserve Fund and making periodic payments into the account. The Board of Directors or the Owners may not vote to eliminate funding the Reserve Account unless the Board determines that the Reserve Account will be adequately funded for the following year, except that after the Turnover Meeting the Board, with the approval of all Owners, may, on an annual basis, elect not to fund the Reserve Fund for the following year. Assessments paid into the Reserve Fund are the property of the Association and are not refundable to sellers or Owners of Lots. Sellers of the Lots, however, may treat their outstanding share of the Reserve Fund as a separate item in any sales agreement.

(c) **Reserve Studies.** The reserve portion of the initial Assessment determined by Declarant will be based on a reserve study described in this paragraph (c) or other sources of information. The Board of Directors will annually conduct a reserve study, or review and update an existing study, to determine the Reserve Fund requirements, and may adjust the amount of payments as indicated by the study or update and provide other reserve items that the Board, in its discretion, may deem appropriate. The reserve study will:

(1) Identify all items for which reserves are to be established;

(2) Include the estimated remaining useful life of each item as of the date of the reserve study; and

(3) Include for each item, as applicable, an estimated cost of maintenance, repair and replacement at the end of its useful life.

(d) **Use of Reserve Fund.** If a Reserve Fund is required, the Reserve Fund will be used only for the purposes for which the reserves have been established and kept separate from other funds. After the Turnover Meeting, however, the Board of Directors may borrow funds from the Reserve Fund to meet high seasonal demands on the regular operating funds or to meet unexpected increases in expenses if the Board has adopted a resolution, which may be an annual continuing resolution, authorizing the borrowing of funds. Not later than the adoption of the budget for the following year, the Board will adopt by resolution a written payment plan providing for repayment of the borrowed funds within a reasonable period. Assessments paid into the Reserve Fund are the property of the Association and are not refundable to sellers or Owners of Lots. Sellers of the Lots, however, may treat their outstanding share of the Reserve Fund as a separate item in any sales agreement.

10.8 **Declarant's Subsidy.** Declarant may, but is not be obligated to, reduce the General Assessments for any fiscal year by payment of a subsidy (in addition to any other amounts then owed by Declarant), which may be either a contribution, an advance against future Assessments due from Declarant or a loan, in Declarant's discretion. Any such subsidy will be disclosed as a line item in the income portion of the Association's budget. Payment of such subsidy in any year will not obligate Declarant to continue payment of such subsidy in future years unless otherwise provided in a written agreement between the Association and Declarant.

10.9 **Commencement of Assessment Obligation; Time of Payment.** The obligation to pay Assessments under this Declaration commences as to each Lot on the first day of the month after such Lot becomes subject to Assessment. The first annual General Assessment levied on each Lot will be adjusted according to the number of months remaining in the fiscal year at the time Assessments commence for such Lot.

10.10 **Payment of Assessments.** Assessments must be paid in such manner and on such dates as the Board of Directors may establish. Unless the Board otherwise provides, the General Assessment is due and payable in advance on the first day of each fiscal year. If any Owner is delinquent in paying any Assessments or other charges levied on his or her Lot, the Board may require the outstanding balance on all Assessments to be paid in full immediately. Until the Turnover Meeting, any obligation of Declarant to pay Assessments may be satisfied in the form of cash or by "in kind" contributions of services or materials, or by a combination of these.

10.11 **Creation of Lien and Personal Obligation of Assessments.** Declarant, for each Lot owned by it within the Property, hereby covenants, and each Owner of any Lot by acceptance of a conveyance thereof, whether or not so expressed in any such conveyance, will be deemed to covenant to pay to the Association all Assessments or other charges as may be fixed, established and collected from time to time in the manner provided in this Declaration or the Association Bylaws. Such Assessments and charges, together with any interest, late charges, expenses or attorneys' fees imposed pursuant to Article 11, are a charge on the land and a continuing lien upon the Lot against which each such Assessment or charge is made. Such Assessments, charges, and other costs are also the personal obligation of the Person who was the Owner of such Lot at the time when the Assessment or charge fell due. Such liens and personal obligations will be enforced in the manner set forth in Article 11.

10.12 **Voluntary Conveyance.** In a voluntary conveyance of a Lot the grantee will be jointly and severally liable with the grantor for all unpaid Assessments against the grantor of the Lot up to

the time of the grant or conveyance, without prejudice to the grantee's right to recover from the grantor the amounts paid by the grantee therefor. However, upon request of an Owner or Owner's agent for the benefit of a prospective purchaser, the Board of Directors will make and deliver a written statement of the unpaid Assessments against the prospective grantor of the Lot effective through a date specified in the statement, and the grantee in that case will not be liable for any unpaid Assessments against the grantor not included in the written statement.

10.13 **No Waiver.** Failure of the Board of Directors to fix Assessment amounts or rates or to deliver or mail each Owner an Assessment notice will not be deemed a waiver, modification or release of any Owner from the obligation to pay Assessments. In such event, each Owner will continue to pay Assessments on the same basis as during the last year for which an Assessment was made, if any, until a new Assessment is levied, at which time the Association may retroactively assess any shortfalls in collections.

10.14 **No Option to Exempt.** No Owner may exempt himself or herself from liability for Assessments by nonuse of Common Areas, abandonment of his or her Lot, or any other means. The obligation to pay Assessments is a separate and independent covenant on the part of each Owner. No diminution or abatement of Assessments or set-off may be claimed or allowed for any alleged failure of the Association or Board of Directors to take some action or perform some function required of it, or for inconvenience or discomfort arising from the making of repairs or Improvements, or from any other action it takes.

10.15 **Certificate.** Upon written request, the Association must furnish to any Owner liable for any type of Assessment a certificate in writing signed by an Association officer setting forth whether such Assessment has been paid. Such certificate is conclusive evidence of payment. The Association may require the advance payment of a reasonable processing fee for the issuance of such certificate.

Article 11

ENFORCEMENT

11.1 **Violation of General Protective Covenants.** If an Owner constructs or permits to be constructed on his or her Lot an Improvement contrary to the provisions of this Declaration, or violates any provisions of this Declaration, the Bylaws, or the Rules and Regulations, then the Association acting through the Board of Directors will notify the Owner in writing of any such specific violations. If the Owner is unable, is unwilling, or refuses to comply with the Association's specific directives for remedy or abatement, or the Owner and the Association cannot agree to a mutually acceptable solution within the framework and intent of this Declaration, after notice and opportunity to be heard and within 14 days after issuing written notice to the Owner, then the Association acting through the Board has the right to do any or all of the following:

(a) Assess reasonable fines against such Owner, based upon a resolution adopted by the Board of Directors that is delivered to each Lot, mailed to the mailing address of each Lot or mailed to the mailing address designated by the Owner of each Lot in writing, which fines constitute Individual Assessments for purposes of this Declaration;

(b) Enter the offending Lot and remove the cause of such violation, or alter, repair or change the item that is in violation of this Declaration in such a manner as to make it conform thereto, in which case the Association may assess such Owner for the entire cost of the work done, which amount will be payable to the Operations Fund as an Individual Assessment, provided that no items of construction will be altered or demolished in the absence of judicial proceedings;

(c) Cause any vehicle parked in violation of this Declaration or of the Rules and Regulations to be towed and impounded at the Owner's expense;

(d) Suspend the voting rights, any utility services paid for out of Assessments and the right to use the Common Areas for the period that the violations remain unabated, provided that the Association does not deprive any Owner of access to and from the Owner's Lot in the absence of a lien foreclosure or court order to such effect; and

(e) Bring suit or action against the Owner on behalf of the Association and other Owners to enforce this Declaration.

11.2 **Default in Payment of Assessments; Enforcement of Lien.** If an Assessment or other charge levied under this Declaration is not paid within 30 days after its due date, such Assessment or charge becomes delinquent and bears interest from the due date at the rate set forth below. In such event the Association may exercise any or all of the following remedies:

(a) The Association may suspend such Owner's voting rights, any utility or communication service paid for out of Assessments and right to use the Common Areas until such amounts, plus other charges under this Declaration, are paid in full, and may declare all remaining periodic installments of any General Assessment immediately due and payable. In no event, however, will the Association deprive any Owner of access to and from the Owner's Lot in the absence of a lien foreclosure or court order to such effect.

(b) The Association has a lien in accordance with ORS 94.709 against each Lot for any Assessment levied against the Lot, including any fines or other charges imposed under this Declaration or the Bylaws against the Owner of the Lot, and may foreclose such lien in the manner provided in ORS 94.709.

(c) The Association may bring an action to recover a money judgment for unpaid Assessments under this Declaration without foreclosing or waiving the lien described in Section 11.2(b). Recovery on any such action, however, operates to satisfy the lien, or the portion thereof, for which recovery is made.

(d) The Association has any other remedy available to it by law or in equity.

11.3 **Interest, Late Charges and Expenses.** Any amount not paid to the Association when due in accordance with this Declaration bears interest from the due date until paid at a rate that is the greater of 12 percent per annum or such other rate as may be established by the Board of Directors, but not to exceed the lawful rate of interest under the laws of the state of Oregon. A late charge may be charged for each delinquent Assessment in an amount established from time to time by resolution of the Board, which resolution is delivered to each Lot, mailed to the mailing address of each Lot or mailed to the mailing address designated by the Owner in writing, together with all

expenses incurred by the Association in collecting such unpaid Assessments, including attorneys' fees (even if suit is not instituted). In the event the Association files a notice of lien, the lien amount also includes the recording fees associated with filing the notice, and a fee for preparing the notice of lien, established from time to time by resolution of the Board.

11.4 **Costs and Attorneys' Fees.** In the event of any suit or action to enforce this Declaration, the Bylaws, the Rules and Regulations, or the Oregon Planned Community Act, or to collect any money due hereunder or to foreclose a lien, the prevailing party in such suit or act will be entitled to recover all costs and expenses incurred by it in connection with such suit or action, including a foreclosure title report, and will recover such amount as the court may determine to be reasonable as attorneys' fees at trial and upon any appeal or petition for review thereof or in connection with any bankruptcy proceedings or special bankruptcy remedies.

11.5 **Assignment of Rents.** As security for the payment of all obligations owing to the Association pursuant to this Section 11.5, each Owner hereby grants to the Association the right to collect the rents, issues and profits of the Owner's Lot; provided, however, that the Owner will retain the right, prior to any default by such Owner in performance of the Owner's obligations under this Declaration, to collect and retain such rents, issues and profits as they become due and payable. Upon any such default, the Association may, at any time after 10 days written notice to the Owner, either in person, by agent or by a receiver to be appointed by a court of competent jurisdiction, and without regard to the adequacy of any security for such indebtedness, in its own name sue for or otherwise collect such rents, issues and profits, including those past due and unpaid, and apply them, less costs and expenses of operation and collection, including reasonable attorneys' fees, in payment of such indebtedness to the Association, and in such order as the Association may determine. Such action will not cure nor waive any default under this Declaration or invalidate any act done pursuant to this Declaration. The assignment of rents and powers described in this Section 11.5 does not affect, and will in all respects be subordinated to, the rights and powers of the holder of any first or second Mortgage on any Lot to do the same or similar acts

11.6 **Nonexclusiveness and Accumulation of Remedies.** An election by the Association to pursue any remedy provided for violation of this Declaration will not prevent concurrent or subsequent exercise of another remedy permitted under this Declaration. The remedies provided in this Declaration are not exclusive but are in addition to all other remedies, including actions for damages and suits for injunctions and specific performance, available under applicable law to the Association. In addition, any aggrieved Owner may bring an action against another Owner or the Association to recover damages or to enjoin, abate, or remedy any violation of this Declaration by appropriate legal proceedings.

11.7 **Enforcement by Clackamas County.** The provisions of this Declaration relating to preservation and maintenance of Common Areas will be deemed to be for the benefit of Clackamas County as well as the Association and Owners of Lots, and Clackamas County may enforce such provisions by appropriate proceedings at law or in equity, or may cause such maintenance to be performed, the costs of which will become a lien upon the Property.

Article 12

DISPUTE RESOLUTION

12.1 **Mediation.**

(a) Except as otherwise provided in this Section 12.1, before initiating litigation, arbitration, or an administrative proceeding in which the Association and an Owner have an adversarial relationship, the party that intends to initiate litigation, arbitration or an administrative proceeding will offer to use any dispute resolution program available within Clackamas County, Oregon that is in substantial compliance with the standards and guidelines adopted under ORS 36.175. The written offer must be hand-delivered or mailed by certified mail, return receipt requested, to the address, contained in the records of the Association, for the other party.

(b) If the party receiving the offer does not accept the offer within 10 days after receipt of the offer, such acceptance to be made by written notice, hand-delivered or mailed by certified mail, return receipt requested, to the address, contained in the records of the Association, for the other party, the initiating party may commence the litigation, arbitration or administrative proceeding. The notice of acceptance of the offer to participate in the program must contain the name, address, and telephone number of the body administering the dispute resolution program.

(c) If a qualified dispute resolution program exists within Clackamas County, Oregon and an offer to use the program is not made as required under Section 12.1(a), then litigation, arbitration or an administrative proceeding may be stayed for 30 days upon a motion of the noninitiating party. If the litigation, arbitration or administrative action is stayed under this Section 12.1(c), both parties must participate in the dispute resolution process.

(d) Unless a stay has been granted under Section 12.1(c), if the dispute resolution process is not completed within 30 days after receipt of the initial offer, the initiating party may commence litigation, arbitration or an administrative proceeding without regard to whether the dispute resolution is completed.

(e) Once made, the decision of the court, arbitrator or administrative body arising from litigation, arbitration or an administrative proceeding may not be set aside on the grounds that an offer to use a dispute resolution program was not made.

(f) The requirements of this Section 12.1 do not apply to circumstances in which irreparable harm to a party will occur due to delay or to litigation, arbitration, or an administrative proceeding initiated to collect Assessments, other than Assessments attributable to fines.

12.2 **Arbitration.** Any claim, controversy or dispute by or among Declarant (including members, officers, directors, shareholders and affiliates of Declarant), Association, the Architectural Review Committee, or one or more Owners, or any of them, arising out of or related to this Declaration, the Bylaws, the Rules and Regulations, or the Property will be first subject to mediation as described in Section 12.1 or otherwise, and if not timely settled by mediation will be resolved by arbitration in accordance with this Article 12. The decisions and award of the arbitrator are final, binding and nonappealable. The arbitration will be conducted in the Portland, Oregon, metropolitan area or at such other location as may be agreed upon by the parties, pursuant to the arbitration statutes

of the state of Oregon, and any arbitration award may be enforced by any court with jurisdiction. Filing for arbitration will be treated the same as filing in court for purposes of meeting any applicable statute of limitations or for purposes of filing a notice of pending action ("lis pendens").

12.3 **Selection of Arbitrator.** The arbitration will be conducted by a single arbitrator selected by mutual agreement of the parties. The arbitrator selected must be neutral and unbiased, except to the extent the arbitrator's prior relationship with any party is fully disclosed and consented to by the other party or parties. If the parties are unable to agree upon the arbitrator within 10 days after a party's demand for arbitration, upon application of any party, the presiding judge of the Circuit Court of Clackamas County, Oregon will designate the arbitrator.

12.4 **Consolidated Arbitration.** Upon demand by any party, claims between or among the parties and third parties will be submitted in a single, consolidated arbitration. Notwithstanding the provisions of this Article 12, in the event any claim, controversy or dispute involves a claim by either party against a third party who is not required to and does not voluntarily agree to submit such claim to arbitration, then either party may elect to have the matter determined by a court of law in a consolidated proceeding, rather than by arbitration. In such case, the parties hereby waive trial by jury and agree that the matter will be determined by a judge sitting without a jury.

12.5 **Discovery.** The parties to the arbitration are entitled to such discovery as would be available to them in an action in Clackamas County Circuit Court. The arbitrator has all of the authority of the court incidental to such discovery, including, without limitation, authority to issue orders to produce documents or other materials, to issue orders to appear and submit to deposition, and to impose appropriate sanctions, including, without limitation, award against a party for failure to comply with any order.

12.6 **Evidence.** The parties to the arbitration may offer such evidence as they desire and will produce such additional evidence as the arbitrator may deem necessary for an understanding and determination of the dispute. The arbitrator will determine the admissibility of the evidence offered. All evidence will be taken in the presence of the arbitrator and all of the parties, except when any of the parties is absent in default or has waived its right to be present.

12.7 **Excluded Matters.** Notwithstanding the foregoing, the following matters are not subject to mediation or arbitration under this Article 12 (but are subject to the applicable provisions of Section 12.8): (a) actions relating to the collection of fees, Assessments, fines and other charges imposed or levied by the Association (other than disputes as to the validity or amount of such fees, Assessments, fines or charges, which disputes will be subject to mediation/arbitration as provided above); and (b) actions to enforce any order, decision or award rendered by arbitration pursuant to this Article 12. The filing of a lis pendens or the application to any court for the issuance of any provisional process or similar remedy described in the Oregon or Federal Rules of Civil Procedure will not constitute a waiver of the right or duty to utilize the procedures specified in this Article 12.

12.8 **Costs and Attorneys' Fees.** The fees of any mediator and the costs of mediation will be divided and paid equally by the parties. Each party will pay its own attorneys' fees and costs in connection with any mediation. The fees of any arbitrator and the costs of arbitration will be paid by the nonprevailing party or parties; if none, such fees and costs will be divided and paid equally by the parties. Should any suit, action or arbitration be commenced in connection with any dispute related to or arising out of this Declaration, the Bylaws, the Rules and Regulations, or the Oregon Planned

Community Act to obtain a judicial construction of any provision of this Declaration, the Bylaws or the Rules and Regulations; to rescind this Declaration; or to enforce or collect any judgment or decree of any court or any award obtained during arbitration, the prevailing party will be entitled to recover its costs and disbursements, together with such investigation, expert witness and attorneys' fees incurred in connection with such dispute as the court or arbitrator may adjudge reasonable, at trial, in the arbitration, upon any motion for reconsideration, upon petition for review, and on any appeal of such suit, action or arbitration proceeding. The determination of who is the prevailing party and the amount of reasonable attorneys' fees to be paid to the prevailing party will be decided by the arbitrator (with respect to attorneys' fees incurred before and during the arbitration proceeding) and by the court or courts, including any appellate or review court, in which such matter is tried, heard or decided, including a court that hears a request to compel or enjoin arbitration or that hears exceptions made to an arbitration award submitted to it for confirmation as a judgment (with respect to attorneys' fees incurred in such proceedings).

12.9 **Survival.** The mediation and arbitration agreement set forth in this Article 12 will survive the transfer by any party of its interest or involvement in the Property and any Lot therein and will survive the termination of this Declaration.

Article 13

MORTGAGEES

The following provisions are for the benefit of holders, insurers and guarantors of first Mortgages on Lots. The provisions of this Article 13 apply to both this Declaration and to the Bylaws, notwithstanding any other provisions contained therein.

13.1 **Subordination of Lien to Mortgages.** The lien of the Assessments or charges provided for in this Declaration are subordinate to the lien of any Mortgage on such Lot which was made in good faith and for value and which was recorded prior to the recordation of the notice of lien. Sale or transfer of any Lot does not affect the Assessment lien, but the sale or transfer of any Lot that is subject to any Mortgage or deed of trust pursuant to a decree of foreclosure or nonjudicial sale thereunder extinguishes any lien of an Assessment, notice of which was recorded after the recording of the Mortgage. Such sale or transfer, however, does not release the Lot from liability for any Assessments or charges thereafter becoming due or from the lien of such Assessments or charges.

13.2 **Reimbursement of First Mortgagees.** First Mortgagees of Lots may, jointly or singly, pay taxes or other charges which are in default and which may or have become a charge against any Common Areas and may pay overdue premiums on hazard insurance policies or secure new hazard insurance coverage on the lapse of a policy, for such Common Area. First Mortgagees making such payments are owed immediate reimbursement therefor from the Association.

13.3 **Notification of First Mortgagee.** If a first Mortgagee has requested such notice in writing from the Association, the Board will notify such Mortgagee of any individual Lot of any default in performance of this Declaration by the Owner which is not cured within 60 days after notice of default to the Owner.

13.4 **Notice to Association.** Upon request, each Owner is obligated to furnish to the Association the name and address of the holder of any Mortgage encumbering such Owner's Lot.

Article 14

AMENDMENT AND REPEAL

14.1 **How Proposed.** Amendments to or repeal of this Declaration will be proposed by either a majority of the Board of Directors or by Owners holding 30 percent or more of the Association's voting rights. The proposed amendment or repeal must be reduced to writing and will be included in the notice of any meeting at which action is to be taken thereon or attached to any request for consent to the amendment or repeal.

14.2 **Approval Required.** This Declaration, or any provision thereof, as from time to time in effect with respect to all or any part of the Property, may be amended or repealed by the vote or written consent of Owners representing not less than 75 percent of the voting rights, without regard to any weighted vote for the Class B Member, together with the written consent of the Class B Member, if such Class B Membership has not been terminated as provided in this Declaration. In no event will an amendment under this section create, limit or diminish special Declarant rights without Declarant's written consent, or change the boundaries of any Lot or any uses to which any Lot is restricted under this Declaration or change the method of determining liability for common expenses, the method of determining the right to common profits or the method of determining voting rights of any Lot unless the Owners of the affected Lots unanimously consent to the amendment. Declarant may not amend this Declaration to increase the scope of special Declarant rights reserved in this Declaration after the sale of the first Lot unless Owners representing 75 percent of the total vote, other than Declarant, agree to the amendment. To the extent any amendment relates to the preservation or maintenance of the Common Areas or private utility lines, a City of Wilsonville Development Agreement, or the existence of an entity responsible for accomplishing the same, such amendment must be approved by the planning department of City of Wilsonville.

14.3 **Recordation.** Any such amendment or repeal becomes effective only upon recordation in the Deed Records of Clackamas County, Oregon of a certificate of the president and secretary of the Association setting forth in full the amendment, amendments or repeal so approved and certifying that such amendment, amendments or repeal have been approved in the manner required by this Declaration and ORS 94.590, and acknowledged in the manner provided for acknowledgment of deeds.

14.4 **Regulatory Amendments.** Notwithstanding the provisions of Section 14.2, until the Turnover Meeting has occurred, Declarant has the right to amend this Declaration or the Bylaws of the Association to comply with the requirements of the Federal Housing Administration; the United States Department of Veterans Affairs; the Farmers Home Administration of the United States; the Federal National Mortgage Association; the Government National Mortgage Association; the Federal Home Mortgage Loan Corporation; any department, bureau, board, commission or agency of the United States or the state of Oregon; or any corporation wholly owned, directly or indirectly, by the United States or the state of Oregon that insures, guarantees or provides financing for a planned community or lots in a planned community. After the Turnover Meeting, any such amendment must be approved by the Association in accordance with the approval provisions of this Declaration or the Bylaws, as applicable.

Article 15

MISCELLANEOUS PROVISIONS

15.1 **No Implied Obligations.** Nothing in this Declaration may be construed to require Declarant or any successor Declarant to subject Additional Property to this Declaration or to improve or develop any of the Property or to do so for any particular uses.

15.2 **Right to Approve Additional Covenants.** No Person may record any declaration of covenants, conditions and restrictions, declaration of condominium or similar instrument affecting any portion of the Property without Declarant's prior written consent. Any attempted recordation without such consent will result in such instrument being void and of no force or effect unless subsequently approved in writing by Declarant.

15.3 **Notice of Sale or Transfer of Title.** Any Owner selling or otherwise transferring title to his or her Lot must give the Association written notice within seven days after the transfer of the name and address of the purchaser or transferee, the date of such transfer of title and such other information as the Association may reasonably require. The transferor continues to be jointly and severally responsible with the transferee for all obligations of the Owner of the Lot, including Assessment obligations, until the date upon which such notice is received by the Board, notwithstanding the transfer of title.

15.4 **Exclusive Rights to Use Name of Development.** No Person may use the name "Stafford Meadows" or any derivative of such name in any printed, digital (i.e., internet) or other promotional or commercial material without Declarant's prior written consent. However, an Owner may use the name "Stafford Meadows" where such term is used solely to specify that the Owner's property is located within the Property. In no event will any Owner enter into an agreement with any third party for the sale, rental, or management of the Owner's Lot if such agreement purports to grant any right to such third party to use the name "Stafford Meadows" or any derivative of such name in violation of this provision.

15.5 **Lessees and Other Invitees.** Lessees, employees, invitees, licensees, contractors, family members, guests, and other Persons entering the Property under rights derived from an Owner must comply with all of the provisions of this Declaration restricting or regulating the Owner's use, improvement or enjoyment of his or her Lot and other areas within the Property. The Owner is responsible for obtaining such compliance and will be liable for any failure of compliance by such Persons in the same manner and to the same extent as if the failure had been committed by the Owner.

15.6 **Nonwaiver.** Failure by the Association or by any Owner to enforce any covenant or restriction contained in this Declaration will in no event be deemed a waiver of the right to do so thereafter.

15.7 **Construction and Severability.** This Declaration will be liberally construed as an entire document to accomplish the purposes hereof as stated in the introductory paragraphs hereof. Nevertheless, each provision of this Declaration will be deemed independent and severable, and the invalidity or partial invalidity of any provision will not affect the validity or enforceability of the remaining part of that or any other provision.

15.8 **Terminology and Captions.** As used in this Declaration, the singular includes the plural and the plural the singular, and the masculine and neuter each include the masculine, feminine and neuter, as the context requires. All captions used in this Declaration are intended solely for convenience of reference and in no way limit any of the provisions of this Declaration.

15.9 **Notices.** All notices to the Association or to the Board of Directors will be sent care of the manager or, if there is no manager, to the principal office of the Association or to such other address as the Board may designate from time to time. All notices to any Owner will be sent to such address as may have been designated by such Owner from time to time, in writing, to the Board or, if no address has been designated, to the Owner's Lot. In the discretion of the Board, any notice, information or other written material required to be given to an Owner or director under this Declaration or the Bylaws or pursuant to the Oregon Planned Community Act, may be given by electronic mail, facsimile or other form of electronic communication acceptable to the Board, except for the following notices: failure to pay an Assessment, foreclosure of an Association lien under ORS 94.709, or an action the Association may take against an Owner. An Owner or director may decline to receive notice by electronic mail, facsimile or other form of electronic communication and may direct the Board to provide notice in any other manner permitted under this Declaration or the Bylaws or the Oregon Planned Community Act.

15.10 **Private Agreement.** This Declaration and the covenants and agreements contained herein constitute a private agreement among the Owners of Lots in Stafford Meadows. This Declaration does not restrict City of Wilsonville's authority to adopt or amend its development regulations. It is the duty of every Person engaged in development or remodeling of a Lot and/or Improvement in Stafford Meadows to know the requirements of this Declaration and the covenants

and agreements contained herein. There may be conflicting requirements between this Declaration and regulations of City of Wilsonville. In the event there is a conflict between a regulation of City of Wilsonville and this Declaration, any question regarding which provision controls will be directed to the Architectural Review Committee. In each case, Clackamas County will limit its review of a development application to the requirements of its regulations and will not be liable for any approvals or permits that are granted in compliance with the regulations of City of Wilsonville, Clackamas County, the state of Oregon or any other jurisdiction, but that are not in compliance with this Declaration. Declarant, the Committee and the Association, or any one of them, will not be liable for any approvals that are granted in compliance with this Declaration, but that are not in compliance with the regulations of City of Wilsonville, Clackamas County, the State of Oregon or any other jurisdiction.

IN WITNESS WHEREOF, Declarant has executed this Declaration on the date set forth above.

WEST HILLS LAND DEVELOPMENT LLC,
an Oregon limited liability company

Walter E. Remmers, Member

STATE OF OREGON)
)ss.
COUNTY OF Multnomah)

The foregoing instrument was acknowledged before me this 12th day of December, 2018, by Walter E. Remmers, member of West Hills Land Development LLC, an Oregon limited liability company, on its behalf.

Notary Public for Oregon
My commission expires: March 01, 2022

OFFICIAL STAMP
ZACHARY TYEE TAYLOR
NOTARY PUBLIC-OREGON
COMMISSION NO. 971627
MY COMMISSION EXPIRES MARCH 01, 2022

23P

AFTER RECORDING RETURN TO:

Michelle D. Da Rosa LLC
Attorney at Law
205 SE Spokane Street, Suite 300
Portland, OR 97202
Zachary Taylor

Clackamas County Official Records
Sherry Hall, County Clerk

2019-002824

$203.00

01/17/2019 12:56:31 PM

PD-BYL Cnt=1 Stn=54 COUNTER2
$115.00 $16.00 $62.00 $10.00

BYLAWS OF STAFFORD MEADOWS HOMEOWNERS ASSOCIATION

Attached hereto are the initial Bylaws of Stafford Meadows Homeowners Association adopted January 18, 2019 by the Declarant pursuant to the Declaration of Protective Covenants, Conditions, Restrictions and Easements for Stafford Meadows recorded 1/15, 2019 in the Records of ~~Washington~~ Clackamas County, Oregon, as Document No. 2019-002161.

WEST HILLS LAND DEVELOPMENT LLC,
an Oregon limited liability company

By: _____
Walter E. Remmers, member

Address: 3330 NW Yeon, Suite 200
Portland, OR 97210

STATE OF OREGON)
)ss.
COUNTY of Multnomah)

This instrument was acknowledged before me this 12th day of December, 2018, by Walter E. Remmers, member of West Hills Land Development LLC, an Oregon limited liability company, on its behalf.

_____
Notary Public for Oregon
My commission expires March 1, 2022

OFFICIAL STAMP
ZACHARY TYEE TAYLOR
NOTARY PUBLIC-OREGON
COMMISSION NO. 971627
MY COMMISSION EXPIRES MARCH 01, 2022

BYLAWS OF

STAFFORD MEADOWS HOMEOWNERS ASSOCIATION

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BYLAWS OF

STAFFORD MEADOWS HOMEOWNERS ASSOCIATION

Article 1

DEFINITIONS

1.1 **Association**. "Association" means Stafford Meadows Homeowners Association, a nonprofit corporation organized and existing under the laws of the State of Oregon.

1.2 **Articles of Incorporation**. "Articles of Incorporation" means the Articles of Incorporation of the Association.

1.3 **Declaration**. The "Declaration" means the recorded Declaration of Protective Covenants, Conditions, Restrictions and Easements for Stafford Meadows, as the same may be subsequently amended or supplemented pursuant to the terms thereof.

1.4 **Incorporation by Reference**. Except as otherwise provided herein, the terms that are defined in Article 1 of the Declaration are used in these Bylaws as therein defined.

Article 2

MEMBERSHIP

2.1 **Membership.** Every Owner of one or more Lots within the Property will, immediately upon creation of the Association and thereafter during the entire period of such ownership, be a member of the Association. Such membership commences, exists and continues simply by virtue of such ownership, expires automatically upon termination of such ownership, and need not be confirmed or evidenced by any certificate or acceptance of membership. The Association has two classes of membership, Class A and Class B, as set forth in the Declaration.

2.2 **Membership List**. The Secretary will maintain at the principal office of the Association a membership list showing the name and address of the Owner of each Lot. The Secretary may accept as satisfactory proof of such ownership a duly executed and acknowledged conveyance, a title insurance policy, or other evidence reasonably acceptable to the Board of Directors.

Article 3

MEETINGS AND VOTING

3.1 **Place of Meetings.** Meetings of the members of the Association will be held at such reasonable place convenient to the members as may be designated in the notice of the meeting

3.2 **Turnover Meeting.** Declarant will call the first meeting of the Owners to organize the Association within 90 days after termination of the Class B Membership as provided in Section

3.7 below. Notice of such meeting will be given to all Owners as provided in Section 3.5. If a quorum of the Owners is present, the Owners will elect not fewer than the number of directors sufficient to constitute a quorum of the Board of Directors. If the Declarant fails to call the meeting, the meeting may be called and notice given by any Owner or Mortgagee of a Lot. The expense of giving notice will be paid or reimbursed by the Association. In the event of a lack of quorum at such Turnover Meeting, it may be adjourned as provided in Section 3.6. Nothing in this section may be construed as preventing Declarant from calling the Turnover Meeting before such date or from calling informal, informational meetings of the Owners.

3.3 **Annual Meeting.** The annual meeting of the members for the election of directors and for the transaction of such other business as may properly come before the meeting will be held at a reasonable hour and on a reasonable day as may be established by the Board of Directors or, if the Board fail to designate a date by the first day of September, then at 7:30 p.m. on the second Thursday in October. The first annual meeting will be held within one year after the date of the Turnover Meeting.

3.4 **Special Meetings.** A special meeting of the Association may be called at any time by the President or by a majority of the Board of Directors. A special meeting will be called by the president or secretary upon receipt of a written request stating the purpose of the meeting from members having at least 30 percent of the voting rights entitled to be cast at such meeting. Business transacted at a special meeting will be confined to the purposes stated in the notice of meeting.

3.5 **Notice of Meeting**.

(a) Written or printed notice stating the place, day and hour of the meeting, the items on the agenda, including the general nature of any proposed amendment to the Declaration or these Bylaws, any budget changes, any proposal to remove a director or officer and, in case of a special meeting, the purpose or purposes for which the meeting is called, will be delivered not less than 10 or more than 50 days before the date of the meeting. Such notice will be given either personally, by mail or, to the extent permitted by law, by electronic mail, facsimile or other form of electronic communication acceptable to the Board of Directors, by or at the direction of the President, the Secretary, or the persons calling the meeting, to each member entitled to vote at such meeting and to all Mortgagees who have requested such notice. For a period of 10 years following recording of the Declaration, notices of meetings (including agendas) must also be given to Declarant (or any designee of Declarant specified in any written notice to the Association) in the same manner as given to Owners, and Declarant or a representative of Declarant will be entitled to attend such meetings. If mailed, such notice will be deemed to be delivered when deposited in the United States mail, with postage fully prepaid thereon, addressed to the member at his or her most recent address as it appears on the records of the Association or to the mailing address of his or her Lot.

(b) When a meeting is adjourned for 30 days or more, or when a redetermination of the Persons entitled to receive notice of the adjourned meeting is required by law, notice of the adjourned meeting will be given as for an original meeting. In all other cases, no notice of the adjournment or of the business to be transacted at the adjourned meeting need be given other than by announcement at the meeting at which such adjournment is taken.

3.6 **Quorum.** At any meeting of the Association, members having at least 25 percent of the voting rights entitled to be cast at such meeting, present in person, by proxy or by absentee ballot,

if permitted by the Board of Directors, constitutes a quorum, except when a larger quorum is required by the Declaration. When a quorum is once present to organize a meeting, it cannot be broken by the subsequent withdrawal of a member or members. If any meeting of members cannot be organized because of a lack of quorum, the members who are present, either in person or by proxy, may adjourn the meeting from time to time not less than 48 hours or more than 30 days from the time the original meeting was called until a quorum is present, in which case, at the re-scheduled meeting at least 10 percent of the voting rights entitled to be case at such meeting, present in person, or by proxy, or by absentee ballot (if permitted by the Board of Directors) will constitute a quorum, or half the number of a larger quorum required by the Declaration. If the notice of a meeting of the Association provided that if the meeting fails to meet the 25%-quorum requirement then the quorum will be reduced to 10 percent, then a meeting may continue with a quorum of 10 percent of the voting rights entitled to be cast at such meeting are present in person, or by proxy, or by absentee ballot (if permitted by the Board of Directors).

3.7 **Voting Rights**. The Association has two classes of voting membership:

Class A. Class A Members are all Owners with the exception of the Class B Member and is entitled to one vote for each Lot owned. When more than one Person holds an interest in any Lot, all such Persons will be members. The vote for such Lot is exercised as they among themselves determine, but in no event will more than one vote be cast with respect to any Lot.

Class B. The Class B Member is the Declarant, who is entitled to three votes for each Lot owned by Declarant. The Class B Membership ceases and is converted to Class A Membership on the happening of either of the following events, whichever occurs earlier:

(1) When all of the Lots in the final phase of development of Stafford Meadows have been Sold and conveyed to Owners other than a successor Declarant; or

(2) At such earlier time as Declarant may elect in writing to terminate Class B Membership.

3.8 **Fiduciaries and Joint Owners**. An attorney-in-fact, executor, administrator, guardian, conservator or trustee may vote or grant consent with respect to any Lot owned or held in a fiduciary capacity, whether or not the specific right has been transferred to his or her name; provided that such Person satisfies the Secretary that he or she is the attorney-in-fact, executor, administrator, guardian, conservator or trustee, holding such Lot in a fiduciary capacity. Whenever any Lot is owned by two or more Persons jointly, according to the records of the Association, the vote of such Lot may be exercised by any one of the Owners, in the absence of protest by a co-Owner. In the event of disagreement among the co-Owners, the vote of such Lot will be disregarded completely in determining the proportion of votes given with respect to such matter, unless a valid court order establishes the authority of a co-Owner to vote.

3.9 **Tenants and Contract Vendors**. Unless otherwise expressly stated in the rental agreement or lease, all voting rights allocated to a Lot are exercised by the Owner. Unless otherwise stated in the contract, all voting rights allocated to a Lot are exercised by the vendee of any recorded land sale contract on the Lot.

3.10 **Casting of Votes and Consents**. The voting rights or consent of an Owner may be cast in person at a meeting of the Association or, at the discretion of the Board of Directors, by proxy in accordance with paragraph (a) of this Section, by absentee ballot in accordance with paragraph (b) of this Section, by written ballot in accordance with paragraph (c) of this Section, or by any other method specified in the Declaration, these Bylaws or the Oregon Planned Community Act.

(a) **Proxies**. A proxy must be dated and signed by the Owner and it is not valid if it is undated or purports to be revocable without notice; such proxy terminates one year after its date unless the proxy specifies a shorter term. The Board of Directors may not require that a proxy be on a form prescribed by the Board. An Owner may not revoke a proxy given pursuant to this paragraph except by actual notice of revocation to the person presiding over a meeting of the Association or to the Board if a vote is being conducted by written ballot in lieu of a meeting. A copy of a proxy in compliance with this paragraph provided to the Association by facsimile, electronic mail or other means of electronic communication utilized by the Board is valid.

(b) **Absentee Ballots**. An absentee ballot, if authorized by the Board of Directors, will set forth each proposed action and provide an opportunity to vote for or against each proposed action. All solicitations for votes by absentee ballot must include instructions for delivery of the completed absentee ballot, including the delivery location and instructions about whether the ballot may be canceled if the ballot has been delivered according to the instructions. An absentee ballot will be counted as an Owner present for the purpose of establishing a quorum. Even if an absentee ballot has been delivered to an Owner, the Owner may vote in person at a meeting if the Owner has returned the absentee ballot and canceled the absentee ballot, if cancellation is permitted in the instructions given under this paragraph.

(c) **Ballot Meetings**. At the discretion of the Board of Directors, any action that may be taken at any annual, regular or special meeting of the Association may be taken without a meeting by written ballot to the extent and in the manner provided in ORS 94.647

(d) **Electronic Ballots**. To the extent authorized by the Board of Directors and permitted by the Oregon Planned Community Act, any vote, approval or consent of an owner may be given by electronic ballot.

(e) **Mortgages**. An Owner may pledge or assign such Owner's voting rights to a Mortgagee. In such a case, the Mortgagee or its designated representative will be entitled to receive all notices to which the Owner is entitled under these Bylaws and to exercise the Owner's voting rights from and after the time that the Mortgagee will give written notice of such pledge or assignment to the Board of Directors. Any first Mortgagee may designate a representative to attend all or any meetings of the Association.

3.11 **Majority Vote**. The vote of a majority of the voting rights entitled to be cast by the members present or represented by absentee ballot or proxy, at a meeting at which a quorum is present, is necessary for the adoption of any matter voted upon by the members, unless a greater proportion is required by law, by the Declaration, by the Articles of Incorporation, or by these Bylaws.

3.12 **Rules of Order**. Unless other rules of order are adopted by resolution of the Association or the Board of Directors, all meetings of the Association are to be conducted according to the latest edition of *Robert's Rules of Order*, published by Robert's Rules Association.

Article 4

DIRECTORS: MANAGEMENT

4.1 **Number and Qualification.** The affairs of the Association will be governed by a Board of Directors of three or five individuals. All directors, other than interim directors appointed by Declarant, must be Owners or co-Owners of Lots. For purposes of this section, an officer, employee or agent of a corporation, a member, manager, employee or agent of a limited liability company, or a partner, employee or agent of a partnership may serve on the Board if such corporation, limited liability company or partnership is an Owner or co-Owner of a Lot. In addition, a trustee may serve on the Board if the trustee holds legal title to a Lot for the benefit of the owner of the beneficial interest in the Lot; and an executor, administrator, guardian, conservator or other individual appointed by a court to serve in a fiduciary capacity for an Owner of a Lot, or an officer or employee of an entity if an entity is appointed, may serve on the Board.

4.2 **Interim Directors.** Upon the recording of the Declaration, Declarant will appoint an interim board of one to three directors, who serve until replaced by Declarant or until their successors have been replaced by the Owners as provided below.

4.3 **Transitional Advisory Committee.** Unless the Turnover Meeting has already been held, Declarant will call a meeting of the Owners for the purpose of forming a Transitional Advisory Committee. The meeting must be called within 60 days after the date Declarant conveys 50 percent or more of the Lots then existing in Stafford Meadows to Owners other than a successor Declarant. The committee will consist of two or more Owners elected by the Owners other than Declarant and not more than one representative of Declarant. The members serve until the Turnover Meeting. The Transitional Advisory Committee is advisory only, and its purpose is to enable ease of transition from administrative control of the Association by Declarant to control by the Owners. The committee will have access to any information, documents and records that Declarant must turn over to the Owners at the time of the Turnover Meeting. If Declarant fails to call the meeting to elect a Transitional Advisory Committee within the time specified, the meeting may be called and notice given by any Owner. If the Owners fail to elect a Transitional Advisory Committee at the meeting called for such purpose, Declarant will have no further obligation to form the committee.

4.4 **Election and Tenure of Office.**

(a) At the Turnover Meeting, the interim directors will resign and the members will elect three directors, two to serve for two years and one to serve for one year. The nominees receiving the greatest number of votes serve for two years. In the event of a tie, term selection will be by random means. Thereafter, the successors to each director serve for terms of two years each.

(b) Upon a majority vote of the voting rights entitled to be cast by the members present or represented by absentee ballot or proxy at a meeting or ballot meeting at which a quorum is present, the Board of Directors may be increased from three directors to five directors. At the next annual meeting or a special meeting called for such purpose, two additional directors will be elected, one to serve for a two-year term and one to serve for a one- year term. Term selection will be in the same manner as provided in paragraph (a) above.

(c) All directors hold office until their respective successors have been elected by the members. Election is by plurality.

4.5 **Vacancies**.

(a) A vacancy in the Board of Directors will exist upon the death, resignation or removal of any director, or if the authorized number of directors is increased, or if the members fail at any annual or special meeting of members at which any director or directors are to be elected to elect the full authorized number of directors to be voted for at that meeting.

(b) Vacancies in the Board of Directors caused by any reason other than the removal of a director by a vote of the Association will be filled by vote of the majority of the remaining directors, even though they may constitute less than a quorum, or by a sole remaining director. Each person so elected will serve as a director until a successor is elected to fill the unexpired term at the next annual meeting of the Association or the next special meeting of the Association called for that purpose. Vacancies in interim directors are filled by Declarant.

4.6 **Removal of Directors.** At any regular or special meeting of the Association duly called, any one or more of the directors, other than interim directors, may be removed with or without cause by a majority vote of the members present in person or by proxy, and a successor may be elected at that meeting to fill the vacancy thus created. The members must vote on the removal of each director separately. The notice and agenda of any such meeting will state that such removal is to be considered, and any director whose removal has been proposed must be given an opportunity to be heard at that meeting and prior to the vote. A removed director remains a director until the vacancy has been filled.

4.7 **Powers.** The Board of Directors has all the powers and duties necessary for the administration of the affairs of the Association, except such powers and duties as by law or by the Declaration or by these Bylaws may not be delegated to the Board by the Owners. The Board may delegate responsibilities to committees or a managing agent but must retain ultimate control and supervision. The powers and duties to be exercised by the Board include, but not be limited to, those set forth in Section 8.5 of the Declaration and the following:

(a) Carry out the program for maintenance, upkeep, repair and replacement of any property required to be maintained by the Association as described in the Declaration and these Bylaws.

(b) Determine the amounts required for operation, maintenance and other affairs of the Association, and the making of such expenditures.

(c) Prepare a budget for the Association, and assessment and. collection of the Assessments.

(d) Employ and dismiss such personnel as may be necessary for such maintenance, upkeep and repair.

(e) Employ legal, accounting or other personnel for reasonable compensation to perform such services as may be required for the proper administration of the Association; provided,

however, the Board of Directors may not incur or commit the Association to incur legal fees in excess of $5,000 for any specific litigation or claim matter or enter into any contingent fee contract on any claim in excess of $100,000 unless the Owners have enacted a resolution authorizing the incurring of such fees by a vote of 75 percent of the total voting rights. These limitations are not applicable to legal fees incurred in defending the Association or the Board from claims or litigation brought against them. The limitations set forth in this paragraph will increase by ten percent on each fifth anniversary of the recording of the Declaration. To the extent required by the Oregon Planned Community Act, the Board will notify the Owners before instituting litigation or administrative proceedings. With regard to any pending litigation involving the Association, the Board will periodically report to the Owners the status (including settlement offers), progress and method of funding such litigation. Nothing in this paragraph may be construed as requiring the Board to disclose any privileged communication between the Association and its counsel.

(f) Open bank accounts on behalf of the Association and designating the signatories required therefor.

(g) Prepare and file, or cause to be prepared and filed, any required income tax returns or forms for the Association.

(h) Purchase Lots at foreclosure or other judicial sales in the name of the Association or its designee.

(i) Sell, lease, mortgage, vote the votes appurtenant to (other than for the election of directors), or otherwise deal with Lots acquired by the Association or its designee.

(j) Obtain insurance or bonds pursuant to the provisions of these Bylaws and review such insurance coverage at least annually.

(k) Make additions and improvements to, or alterations of, the Common Areas, or modify, close, remove, eliminate or discontinue use of any common facility, including any improvement or landscaping, except that any such modification, closure, removal, elimination or discontinuance (other than on a temporary basis) of any swimming pool, spa or recreational or community building must be approved by a majority vote of the members at a meeting or by written ballot held or conducted in accordance with these Bylaws.

(l) From time to time adopt, modify, or revoke such rules and regulations governing the details for the operation of the Association, the conduct of Persons and the operation and use of the Property as the Board of Directors may deem necessary or appropriate to ensure the peaceful and orderly use and enjoyment of the Property. Such action may be overruled or modified by vote of not less than 75 percent of the voting rights of each class of members present, in person or by proxy, at any meeting, the notice of which will have stated that such modification or revocation of rules and regulations will be under consideration.

(m) Enforce by legal means the provisions of the Declaration, these Bylaws and any rules and regulations adopted hereunder.

(n) In the name of the Association, maintain a current mailing address of the Association, file annual reports with the Oregon Secretary of State, and maintain and keep current the information required to enable the Association to comply with ORS 94.670(7).

(o) Subject to Section 8.8 of the Declaration, enter into management agreements with professional management firms.

4.8 **Meetings**.

(a) Meetings of the Board of Directors will be held at such place as may be designated from time to time by the Board or other Persons, calling the meeting.

(b) Annual meetings of the Board of Directors will be held within 30 days following the adjournment of the annual meetings of the members.

(c) Special meetings of the Board of Directors for any purpose or purposes may be called at any time by the President or by any two directors.

Unless other rules of order are adopted by resolution of the Association or the Board of Directors, all meetings of the Board will be conducted according to the latest edition of *Robert's Rules of Order*, published by Robert's Rules Association.

4.9 **Open Meetings**.

(a) All meetings of the Board of Directors must be open to Owners except that, in the discretion of the Board, the Board may close the meeting to Owners other than Board members and meet in executive session to consult with legal counsel or to consider personnel matters, including salary negotiations and employee discipline, negotiation of contracts with third parties or collection of unpaid assessments. Except in the case of an emergency, the Board will vote in an open meeting on whether to meet in executive session. If the Board votes to meet in executive session, the presiding officer will state the general nature of the action to be considered and; as precisely as possible, when and under what circumstances the deliberations can be disclosed to Owners. The statement, motion or decision to meet in the executive session must be included in the minutes of the meeting, and any contract or action considered in executive session does not become effective unless the Board, following the executive session, reconvenes in open meeting and votes on the contract or action, which is reasonably identified in the open meeting and included in the minutes.

(b) Meetings of the Board of Directors may be conducted by telephonic communication or by other means of communication that allows all members of the Board participating to hear each other simultaneously or otherwise to be able to communicate during the meeting, except that if a majority of the Lots are principal residences of the occupants, then: (i) for other than emergency meetings, notice of each Board's meeting must be posted at a place or places on the property at least three days before the meeting, or notice will be provided by a method otherwise reasonably calculated to inform the Owners of such meeting; and (ii) only emergency meetings of the Board may be conducted by telephonic communication. The meeting and notice requirements of this section may not be circumvented by chance, social meetings, or any other means.

4.10 **Notice of Meetings**.

(a) Notice of the time and place of meetings will be given to each director orally, or delivered in writing personally, by mail or to the extent permitted by the Oregon Planned Community Act, by electronic mail, facsimile or other form of electronic communication acceptable to the Board of Directors, at least 24 hours before the meeting. Notice is sufficient if received at the required time or if mailed or sent electronically not less than 72 hours before the meeting. If mailed, the notice will be directed to the address shown on the Association's records or to the director's actual address ascertained by the person giving the notice. Such notice need not be given for an adjourned meeting if such time and place is fixed at the meeting adjourned. For a period of 10 years following recording of the Declaration, notices of meetings (including agendas) must also be given to Declarant in the same manner as given to the directors.

(b) Attendance of a director at a meeting constitutes a waiver of notice of such meeting except when a director attends a meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened.

4.11 **Quorum and Vote**.

(a) A majority of the directors constitutes a quorum for the transaction of business. A minority of the directors, in the absence of a quorum, may adjourn from time to time but may not transact any business.

(b) The action of a majority of the directors present at any meeting at which there is a quorum is the act of the Board of Directors unless a greater number is required by law, the Declaration, the Articles of incorporation or these Bylaws.

(c) A director who is present at a meeting of the Board of Directors at which action is taken on any Association matter is presumed to have assented to the action unless the director votes against the action or abstains from voting on the action because the director claims a conflict of interest. When action is taken on any matter at a meeting of the Board, the vote or abstention of each director present must be recorded in the minutes of the meeting. Directors may not vote by proxy or by secret ballot at meetings of the Board, except that officers may be elected by secret ballot.

4.12 **Right Of Declarant To Disapprove Actions.** So long as Declarant or any affiliate of Declarant owns any property within Stafford Meadows, directly or indirectly, in whole or in part, Declarant has a right to disapprove any action, policy or program of the Association, the Board of Directors and any committee which, in the sole judgment of the Declarant, would tend to impair the rights of Declarant or builders under the Declaration or these Bylaws, or interfere with development, construction or marketing of any portion of the Property, or diminish the level of services being provided by the Association. This right to disapprove is in addition to, and not in lieu of, any right to approve or disapprove specific actions of the Association, the Board or any committee as may be granted to the Class B Member or Declarant in the Declaration or these Bylaws.

(a) The Declarant must be given written notice of all meetings of the Association, the Board of Directors or any committee thereof and of all proposed actions of the Association, the Board or any committee thereof to be approved at such meetings or by written request in lieu of a meeting. Such notice will be given by certified mail, return receipt requested, or by personal delivery

at the address it has registered with the Secretary of the Association, which notice complies with the requirements for Board meetings set forth in these Bylaws and which notice will, except in the case of the regular meetings held pursuant to the Bylaws, set forth with reasonable particularity the agenda to be followed at such meeting.

(b) The Declarant must be given the opportunity at any such meeting to join in or to have its representatives or agents join in discussion from the floor of any prospective action, policy, or program which would be subject to the right of disapproval set forth herein. The Declarant, its representatives or agents may make its concerns, thoughts, and suggestions known to the Board of Directors and/or the members of the subject committee.

(c) No action, policy or program subject to the right of disapproval set forth herein become effective or be implemented until and unless the requirements of subsections (a) and (b) above have been met and the time period set forth in subsection (d) below has expired.

(d) The Declarant, acting through any officer or director, agent or authorized representative, may exercise its right to disapprove at any time within 10 days following the meeting at which such action was proposed or, in the case of any action taken by written consent in lieu of a meeting, at any time within 10 days following receipt of written notice of the proposed action. This right to disapprove may be used to block proposed actions but does not include a right to require any action or counteraction on behalf of any committee, the Board of Directors, or the Association unless such action or counteraction countermands an action, policy or program that was not properly noticed and implemented. The Declarant will not use its right to disapprove to reduce the level of services which the Association is obligated to provide or to prevent capital repairs or any expenditure required to comply with applicable laws and regulations.

4.13 **Liability**. Neither a member of the Board of Directors nor an officer of the Association or a member of the Architectural Review Committee or any other committee established by the Board will be liable to the Association, any Owner or any third party for any damages, loss or prejudice suffered or claimed on account of any action or failure to act in the performance of his or her duties, so long as the individual acted in good faith, believed that the conduct was in the best interests of the Association, or at least was not opposed to its best interests; and in the case of criminal proceedings, had no reason to believe the conduct was unlawful. In the event any member of the Board or any officer or committee member of the Association is made a party to any proceeding because the individual is or was a director, officer or committee member of the Association, the Association will defend such individual against such claims and indemnify such individual against liability and expenses incurred to the maximum extent permitted by law.

4.14 **Compensation**. No director will receive any compensation from the Association for acting as such.

4.15 **Executive, Covenants and Other Committees**. Subject to law, the provisions of the Declaration and these Bylaws, the Board of Directors, may appoint an Executive Committee, a Covenants Committee to be responsible for covenant enforcement as provided in Section 4.16 and such other standing or temporary committees as may be necessary from time to time consisting of Owners and at least one member of the Board and having such powers as the Board may designate. Such committees hold office at the pleasure of the Board.

4.16 **Enforcement Procedures**. The Association has the power, as provided in the Declaration, to impose sanctions for any violation of the Declaration, these Bylaws or the Rules and Regulations. To the extent specifically required by the Declaration, the Board of Directors must comply with the following procedures prior to the imposition of sanctions:

(a) **Notice.** The Board of Directors or its delegate must serve the alleged violator with written notice describing (i) the nature of the alleged violation, (ii) the proposed sanction to be imposed, (iii) a statement that the alleged violator will have 14 days to present a written request for a hearing before the Board or a Covenants Committee appointed by the Board, if any; and (iv) a statement that the proposed sanction may be imposed as contained in the notice unless a hearing is requested within 14 days of the notice.

(b) **Response.** The alleged violator must respond to the notice of the alleged violation in writing within such 14 day period, regardless of whether the alleged violator is challenging the imposition of the proposed sanction. If the alleged violator cures the alleged violation and notifies the Board of Directors in writing within such 14 day period the Board may, but is not obligated to, waive the sanction. Such waiver does not constitute a waiver of the right to sanction future violations of the same or other provisions by any Person. If a timely request for a hearing is not made, the sanction stated in the notice will be imposed; provided, however, that the Board or Covenants Committee may, but is not obligated to, suspend any proposed sanction if the violation is cured within the 14 day period. Any response or request for a hearing must be delivered to the Association's manager, President or Secretary, or as otherwise specified in the notice of violation.

(c) **Proof of Notice.** Prior to the effectiveness of sanctions imposed pursuant to this section, proof of proper notice must be placed in the minutes of the Board of Directors or Covenants Committee, as applicable. Such proof will be deemed adequate if a copy of the notice, together with a statement of the date and manner of delivery, is entered by the officer, director, or agent who delivered such notice. The notice requirement will be deemed satisfied if the alleged violator or its representative requests and appears at the hearing.

(d) **Hearing.** If a hearing is requested within the allotted 14 day period, the hearing will be held before the Board of Directors or the Covenants Committee, as applicable. The alleged violator will be afforded a reasonable opportunity to be heard. The minutes of the meeting must contain a written statement of the results of the hearing (i.e., the decision) and the sanction, if any, to be imposed.

(e) **Appeal.** Following a hearing before the Covenants Committee, if applicable, the violator must have the right to appeal the decision to the Board of Directors. To exercise this right, the violator must deliver a written notice of appeal to the Association's manager, President or Secretary within 10 days after the hearing date.

(f) **Enforcement Policies.** The Board of Directors, by Resolution, may adopt additional policies and procedures governing enforcement of the Declaration, these Bylaws or the Rules and Regulations.

Article 5

OFFICERS

5.1 **Designation and Qualification.** The officers of the Association are the President, the Secretary, the Treasurer, and such Vice Presidents and subordinate officers as the Board of Directors will from time to time appoint. The President must be a member of the Board, but the other officers need not be directors. Any two offices, except the offices of President and Secretary, may be held by the same person.

5.2 **Election and Vacancies.** The officers of the Association are appointed annually by the Board of Directors at the organization meeting of each new Board to serve for one year and until their respective successors are elected. If any office becomes vacant by reason of death, resignation, removal, disqualification or any other cause, the Board will appoint a successor to fill the unexpired term at any meeting of the Board.

5.3 **Removal and Resignation.**

(a) Any officer may be removed upon the affirmative vote of a majority of the directors whenever, in their judgment, the best interests of the Association will be served thereby. The removal of an officer will be without prejudice to the contract rights, if any, of the officer so removed.

(b) Any officer may resign at any time by giving written notice to the Board of Directors, the President or the Secretary of the Association. Any such resignation takes effect upon receipt of such notice or at any later time specified therein. Unless otherwise specified therein, the acceptance of such resignation is not necessary to make it effective, provided, however, that the Board may reject any postdated resignation by notice in writing to the resigning officer. The effectiveness of such resignation will not prejudice the contract rights, if any, of the Association against the officer so resigning.

5.4 **President.** The President is the chief executive officer of the Association and, subject to the control of the Board of Directors, has powers of general supervision, direction and control of the business and affairs of the Association. He or she presides at all meetings of the members and of the Board. He or she is an ex officio member of all the standing committees, including the executive committee, if any, has the general powers and duties of management usually vested in the office of president of a nonprofit corporation, and has such other powers and duties as may be prescribed by the Board or these Bylaws.

5.5 **Vice Presidents.** The Vice Presidents, if any, performs such duties as the Board of Directors prescribe. In the absence or disability of the President, the President's duties and powers are performed and exercised by the Senior Vice President as designated by the Board.

5.6 **Secretary.**

(a) The Secretary keeps or causes to be kept a book of minutes of all meetings of directors and members showing the time and place of the meeting, whether it was regular or special,

and if special, how authorized, the notice given, the names of those present at directors' meetings, the number of memberships present or represented at members' meetings and the proceedings thereof.

(b) The Secretary gives or causes to be given such notice of the meetings of the members and of the Board of Directors as is required by these Bylaws or by law. The Secretary keeps the seal of the Association, if any, and affixes it to all documents requiring a seal, and has such other powers and perform such other duties as may be prescribed by the Board or these Bylaws.

(c) If there are no Vice Presidents, then in the absence or disability of the President, the President's duties and powers are performed and exercised by the Secretary.

5.7 **Treasurer.** The Treasurer keeps and maintains, or causes to be kept and maintained, adequate and correct accounts of the properties and business transactions of the Association, including accounts of its assets, liabilities, receipts and disbursements. The books of accounts must at all reasonable times be open to inspection by any director. The Treasurer deposits or causes to be deposited all moneys and other valuables in the name and to the credit of the Association with such depositories as may be designated by the Board of Directors. The Treasurer disburses or causes to be disbursed the funds of the Association as may be ordered by the Board, renders to the President and directors, whenever they request it, an account of all of the Treasurer's transactions as Treasurer and of the financial condition of the Association, and has such other powers and perform such other duties as may be prescribed by the Board or these Bylaws.

5.8 **Compensation of Officers.** No officer who is a member of the Board of Directors will receive any compensation from the Association for acting as an officer, unless such compensation is authorized by a resolution duly adopted by the members. The Board may fix any compensation to be paid to other officers.

Article 6

ASSESSMENTS, RECORDS AND REPORTS

6.1 **Assessments.** As provided in the Declaration, the Association, through its Board of Directors, will do the following:

(a) Assess and collect from every Owner Assessments in the manner described in the Declaration.

(b) Keep all funds received by the Association as Assessments, other than reserves described in the Declaration, in the Operations Fund and keep all reserves collected pursuant to the Declaration in the Reserve Fund and use such funds only for the purposes described in the Declaration. All assessments will be deposited and maintained in the name of the Association in one or more separate federally insured accounts, including certificates of deposit, at a financial institution as defined in ORS 706.008, other than an extranational institution. Such funds may be used to purchase obligations of the United States government. All expenses of the Association are paid from the Association's bank account.

(c) From time to time, and at least annually, prepare a budget for the Association, estimating the common expenses expected to be incurred with adequate allowance for reserves based

upon the reserve study required by the Declaration and determine whether the General Assessment should be increased or decreased. Within 30 days after adopting a proposed annual budget, the Board of Directors will provide a summary of the budget to all Owners. If the Board fails to adopt a budget, the last adopted annual budget continues in effect.

(d) Fix the amount of the General Assessment against each Lot at least 30 days in advance of each General Assessment period. Written notice of any Assessment will be sent to every Owner subject thereto and to any first Mortgagee requesting such notice. The due dates will be established by the Board of Directors, which may fix a regular flat Assessment payable on a monthly, quarterly, semiannual or annual basis. The Board will cause to be prepared a roster of the Lots showing Assessments applicable to each Lot. The roster will be kept in the Association office and subject to inspection by any Owner or Mortgagee during regular business hours. Within 10 business days after receiving a written request, and for a reasonable charge, the Association will furnish to any Owner or Mortgagee a recordable certificate setting forth the unpaid Assessments against such Owner's Lot. Such certificate is binding upon the Association, the Board, and every Owner as to the amounts of unpaid Assessments.

(e) When Additional Properties are annexed, the Board of Directors will assess any Lots included therein in accordance with Section 10.5 of the Declaration.

(f) Enforce the Assessments in the manner provided in the Declaration.

(g) Keep records of the receipts and expenditures affecting the Operations Fund and Reserve Fund and make the same available for examination by members and their Mortgagees at convenient hours, maintain an Assessment roll showing the amount of each Assessment against each Owner, the amounts paid upon the account and the balance due on the Assessments, give each member written notice of each Assessment at least 30 days before the time when such Assessments will become due and payable; and for a reasonable charge, promptly provide any Owner or Mortgagee who makes a request in writing with a written certificate of such Owner's unpaid Assessments.

6.2 **Records**. The Association will keep within the State of Oregon correct and complete financial records sufficiently detailed for proper accounting purposes, keep minutes of the proceedings of its members, Board of Directors and committees having any of the authority of the Board, and retain all documents, information and records turned over to the Association by Declarant. All documents, information and records delivered to the Association by Declarant pursuant to ORS 94.616 will be kept within the State of Oregon.

6.3 **Statement of Assessments Due.** The Association will provide, within 10 business days after receipt of a written request from an Owner, a written statement that provides: (a) the amount of assessments due from the Owner and unpaid at the time the request was received, including regular and special assessments, fines and other charges, accrued interest, and late-payment charges; (b) the percentage rate at which interest accrues on assessments that are not paid when due; and (c) the percentage rate used to calculate the charges for late payment or the amount of a fixed-rate charge for late payment. The Association is not required to comply with this section if the Association has commenced litigation by filing a complaint against the Owner and the litigation is pending when the statement would otherwise be due.

6.4 **Inspection of Books and Records**. Except as otherwise provided in ORS 94.670(5), during normal business hours or under other reasonable circumstances, the Association must make reasonably available for examination and, upon written request, available for duplication, by Owners, lenders, and holders of any Mortgage of a Lot that make the request in good faith for a proper purpose, current copies of the Declaration, Articles, Bylaws, Rules and Regulations, amendments or supplements to such documents and the books, records, financial statements and current operating budget of the Association. The Association will maintain a copy, suitable for purposes of duplication, of each of the following: (a) the Declaration, these Bylaws, the Rules and Regulations and any amendments or supplements to them, (b) the most recent financial statement of the Association, and (c) the current operating budget of the Association. The Association, within 10 business days after receipt of a written request by an Owner, will furnish copies of such documents to the requesting Owner. Upon written request, the Association will make such documents, information and records available to such Persons for duplication during reasonable hours. The Board of Directors, by resolution, may adopt reasonable rules governing the frequency, time, location, notice and manner of examination and duplication of Association records and the imposition of a reasonable fee for furnishing copies of such documents, information or records. The fee may include reasonable personnel costs for furnishing the documents, information or records.

6.5 **Payment of Vouchers**. The Treasurer or managing agent will pay all vouchers for all budgeted items and for any nonbudgeted items, up to $1,000 signed by the President, managing agent, manager or other person authorized by the Board of Directors. Any voucher for nonbudgeted items in excess of $1,000 requires the authorization of the President or a resolution of the Board.

6.6 **Execution of Documents**. The Board of Directors may, except as otherwise provided in the Declaration, Articles of Incorporation; or these Bylaws, authorize any officer or agent to enter into any contract or execute any instrument in the name of and on behalf of the Association. Such authority may be general or confined to specific instances. Unless so authorized by the Board, no officer, agent, or employee has any power or authority to bind the Association by any contract or engagement, to pledge its credit, or to render it liable for any purpose or for any amount.

6.7 **Reports and Audits**. An annual financial statement consisting of a balance sheet and an income and expense statement for the preceding year will be rendered by the Board of Directors to all Owners and to all Mortgagees who have requested the same within 90 days after the end of each fiscal year. Commencing with the fiscal year following the Turnover Meeting, if the General Assessments exceed $75,000 for the year, then the Board will cause such financial statements to be reviewed within 300 days after the end of the fiscal year by an independent certified public accountant licensed in Oregon in accordance with the Statements on Standards for Accounting and Review Services issued by the American Institute of Certified Public Accountants, or if the General Assessments are $75,000 or less, will cause such review within 300 days after receipt of a petition requesting such review signed by at least a majority of owners. The Board need not cause such a review to be performed if so directed by an affirmative vote of at least 60 percent of the Owners, not including votes of Declarant with respect to Lots owned by Declarant. From time to time, the Board, at the expense of the Association, may obtain an audit of the books and records pertaining to the Association and furnish copies thereof to the members. At any time an Owner or holder of a Mortgage may, at their own expense, cause an audit or inspection to be made of the books and records of the Association.

Article 7

INSURANCE

7.1 **Types of Insurance.** For the benefit of the Association and the Owners, the Board of Directors will obtain and maintain at all times, and pay for out of the Operations Fund, the following insurance:

(a) **Property Damage Insurance.**

(1) The Association will maintain a policy or policies of insurance covering loss or damage from fire, with standard extended coverage and "all risk" endorsements, and such other coverages as the Association may deem desirable.

(2) The amount of the coverage will be for not less than 100 percent of the current replacement cost of the improvements on the Common Areas (exclusive of land, foundation, excavation and other items normally excluded from coverage), subject to a reasonable deductible not to exceed $10,000.

(3) The policy or policies will include all fixtures and building service equipment to the extent that they are part of the Common Areas and all personal property and supplies belonging to the Association.

(b) **Liability Insurance**.

(1) The Association will maintain comprehensive general liability insurance coverage insuring the Declarant, the Association, the Board of Directors, and the managing agent, against liability to the public or to Owners and their invitees or tenants, incident to the operation, maintenance, ownership or use of the Common Areas, including legal liability arising out of lawsuits related to employment contracts of the Association. There may be excluded from such policy or policies coverage of an Owner (other than as a member of the Association or Board) for liability arising out of acts or omissions of such Owner and liability incident to the ownership and/or use of the part of the Property as to which such Owner has the exclusive use or occupancy.

(2) Limits of liability under such insurance will not be less than $1,000,000 on a combined single-limit basis.

(3) Such policy or policies will be issued on a comprehensive liability basis and provide a cross-liability endorsement wherein the rights of named insureds under the policy or policies are not prejudiced as respects his, her or their action against another named insured.

(c) **Workers' Compensation Insurance.** The Association will maintain workers' compensation insurance to the extent necessary to comply with any applicable laws.

(d) **Fidelity Insurance**.

(1) The Board of Directors will cause the Association to maintain blanket fidelity insurance for all officers, directors, trustees and employees of the Association and all other

Persons handling or responsible for funds of, or administered by, the Association. In the event that the Association has retained a management agent, the Board may require such agent to maintain fidelity insurance for its officers, employees and agents handling or responsible for funds of, or administered on behalf of, the Association. The cost of such insurance, if any, is borne by the Association.

(2) The total amount of fidelity insurance coverage required will be based upon the best business judgment of the Board of Directors.

(3) Such fidelity insurance will name the Association as obligee and contain waivers by the insurers of all defenses based upon the exclusion of Persons serving without compensation from the definition of "employees" or similar terms or expressions. The insurance will provide that it may not be canceled or substantially modified (including cancellation for nonpayment of premium) without at least 10 days' prior written notice to the Association.

(e) **Director's and officers' liability insurance.** The Association will maintain a policy of directors' and officers' liability insurance with coverage in the amount of not less than $1,000,000 subject to a reasonable deductible, which deductible is the responsibility of the Association. Such insurance will cover both interim and regular directors and will include coverage for claims brought by the Association, Owners and/or third parties, including, without limitation, claims arising out of construction defects or failure to maintain adequate reserves. Directors and officers will be accepting such positions in reliance upon such insurance protection being maintained by the Association. Therefore, in the event the Association fails to carry such insurance or amends these Bylaws to delete or reduce these insurance requirements, the Association and Owners will be deemed to have released such claims and deemed to have covenanted not to sue or prosecute any claims against its current or former directors or officers that would have been insured under such a policy.

7.2 **Insurance by Lot Owners.** Each Owner are responsible for obtaining, at his or her own expense, homeowner's insurance covering the improvements on the Owner's Lot and liability resulting from use or ownership of the Lot, unless the Association agrees otherwise. The insurance coverage maintained by the Association may not be brought into contribution with the insurance obtained under this section by the Owners.

7.3 **Planned Community Act Requirements.** The insurance maintained by the Association must comply with the requirements of the Oregon Planned Community Act, ORS 94.550 to 94.780.

Article 8

GENERAL PROVISIONS

8.1 **Seal.** The Board of Directors may, by resolution, adopt a corporate seal.

8.2 **Notice.** All notices to the Association or to the Board of Directors will be sent care of the managing agent, or if there is no managing agent, to the principal office of the Association or to such other address as the Board of Directors may hereafter designate from time to time. All notices to members will be sent to the member's unit or to such other address as may have been designated by the member from time to time in writing to the Board of Directors.

8.3 **Waiver of Notice.** Whenever any notice to any member or director is required by law, the Declaration, the Articles of Incorporation, or these Bylaws, a waiver of notice in writing signed at any time by the Person entitled to notice is equivalent to the giving of the notice.

8.4 **Action Without Meeting.** Any action that the law, the Declaration, the Articles of Incorporation or the Bylaws require or permit the members or directors to take at any meeting may be taken without a meeting or ballot meeting if a consent in writing setting forth the action so taken is signed by all of the members or directors entitled to vote on the matter. The consent, which will have the same effect as a unanimous vote of the members or directors, will be filed in the records of minutes of the Association.

8.5 **Conflicts.** These Bylaws are intended to comply with the Oregon Planned Community Act, the Oregon Nonprofit Corporation Law, the Declaration and the Articles of Incorporation. In case of any irreconcilable conflict, such statutes and documents control over these Bylaws.

Article 9

AMENDMENTS TO BYLAWS

9.1 **How Proposed**. Amendments to these Bylaws must be proposed by either a majority of the Board of Directors or by members holding at least 30 percent of the voting rights entitled to be cast for such amendment. The proposed amendment must be reduced to writing and must be included in the notice of any meeting at which action is to be taken thereon or he attached to any request for consent to the amendment.

9.2 **Adoption**.

(a) A resolution adopting a proposed amendment may be proposed by either the Board of Directors or by the members and may be approved by the membership at a meeting called for such purpose, or by written consent of the members. Members not present at the meeting considering such amendment may express their approval in writing or by proxy. Any resolution must be approved by members holding a majority of the voting rights, together with the written consent of the Class B Member, if any. Amendment or repeal of any provision of these Bylaws that is also contained in the Declaration must be approved by the same voting requirement for amendment of such provision of the Declaration.

(b) Notwithstanding the provisions of the preceding paragraph, until the Turnover Meeting has occurred, Declarant has the right to amend these Bylaws in order to comply with the requirements of the Federal Housing Administration, the United States Department of Veterans Affairs, the Farmers Home Administration of the United States, the Federal National Mortgage Association, the Government National Mortgage Association, the Federal Home Mortgage Loan Corporation, any department, bureau, board, commission or agency of the United States or the State of Oregon, or any corporation wholly owned, directly or indirectly, by the United States or the State of Oregon that insures, guarantees or provides financing for a planned community or lots in a planned community. After the Turnover Meeting, any such amendment must be approved as provided in Section 9.2(a).

9.3 **Execution and Recording**. An amendment will not be effective until certified by the President and Secretary of the Association as being adopted in accordance with these Bylaws and ORS 94.625 and recorded in the Deed Records of Clackamas County, Oregon.

Appendix H

Example Building Elevations

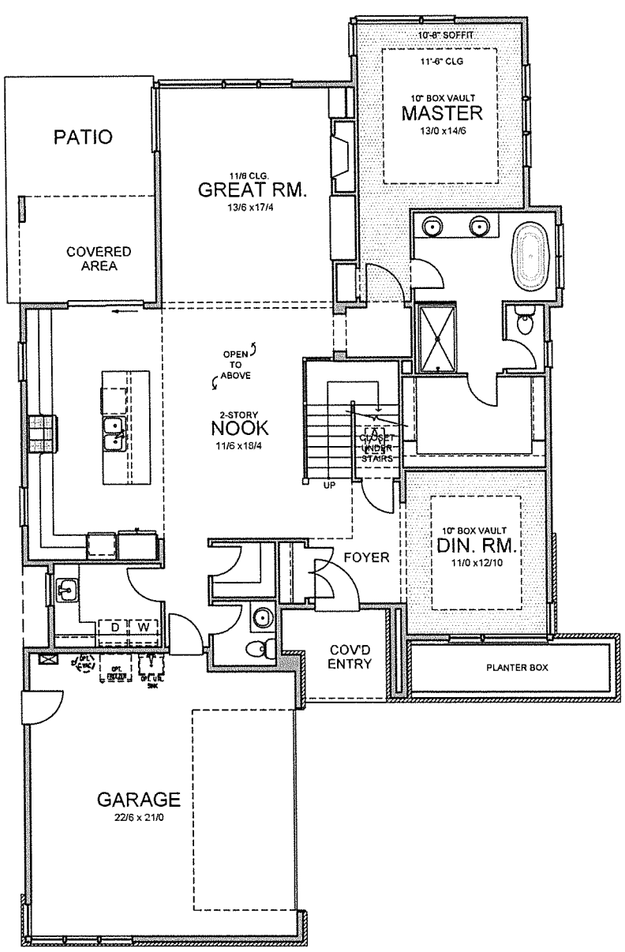
WEST HILLS
HOMES NORTHWEST

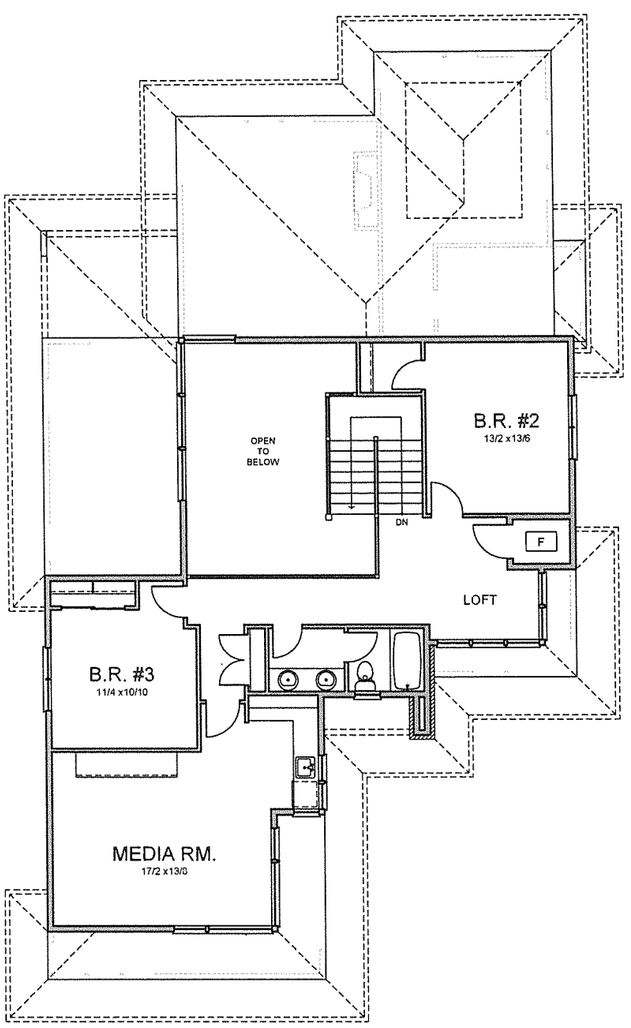
2746 BAYBERRY
PRAIRIE (2-CAR)

M. FLR.	=	1,685 S.F.
U. FLR.	=	1,061 S.F.
TOTAL	=	2,746 S.F.
GARAGE	=	499 S.F.

PDX E ORE
EVERETT
CUSTOM HOMES

3-BEDROOMS
2.5-BATHS
MEDIA
2-CAR GARAGE

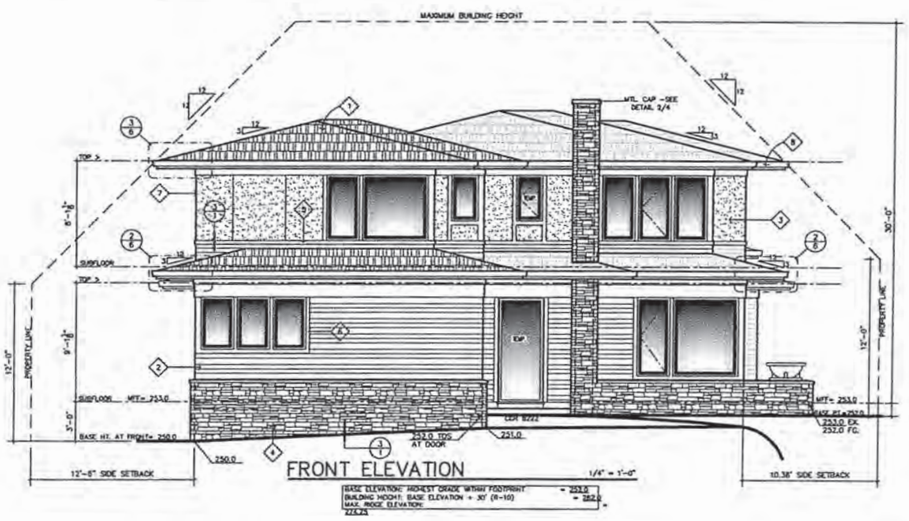




REV: 5/2/17 DDR

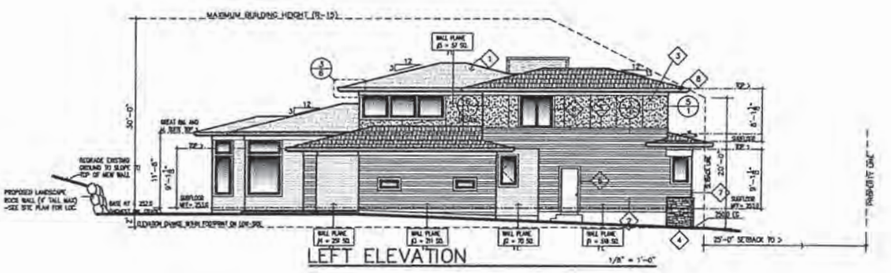
MAIN LEVEL FLOOR PLAN (9' & 11/6 CLG.)

UPPER LEVEL FLOOR PLAN (8' CLG.)

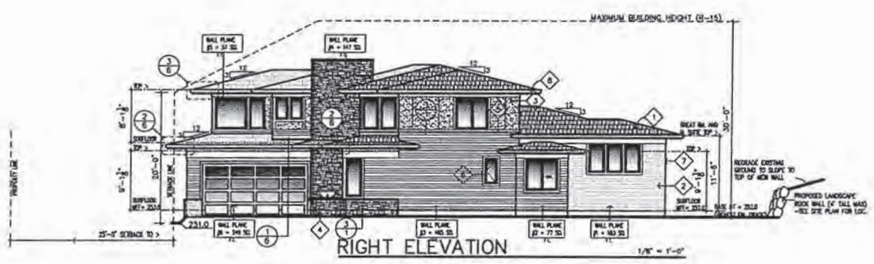


FRONT ELEVATION 1/4" = 1'-0"

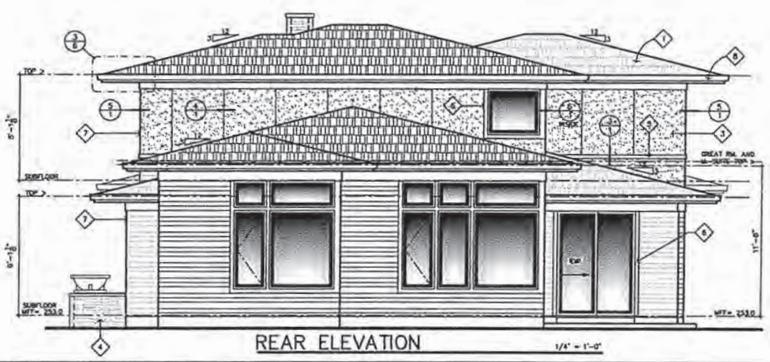
BASE ELEVATION: HIGHEST GRADE WITHIN FOOTPRINT = 253.0
BUILDING HEIGHT: EAVE ELEVATION + 30' (R-10) = 282.0
MAX. RIDGE ELEVATION: 283.24



LEFT ELEVATION 1/8" = 1'-0"



RIGHT ELEVATION 1/8" = 1'-0"



REAR ELEVATION 1/4" = 1'-0"

NOTE:

FOR ALL STRUCTURAL INFORMATION REFER TO THE (S) SHEETS

WEST HILLS HOMES NORTHWEST

FOR

EVERETT CUSTOM HOMES

3330 NW YEON AVE STE 100
PORTLAND, OREGON 97210
PHONE (503) 726-7060

3/13/17. PRELIM. LAYOUT	DDR
4/3/17. PRELIM. ENG. CHK.	DDR
5/1/17. FINAL ENG. CHK.	DDR
5/2/17. PUBLISH PLAN	DDR

PLAN 2746 BAYBERRY PRAIRIE 2-CAR GARAGE LEFT

MAIN LEVEL:	1,685 SQ FT
UPPER LEVEL:	1,061 SQ FT
GRAND TOTAL:	2,746 SQ FT
GARAGE:	499 SQ FT

SHEET#

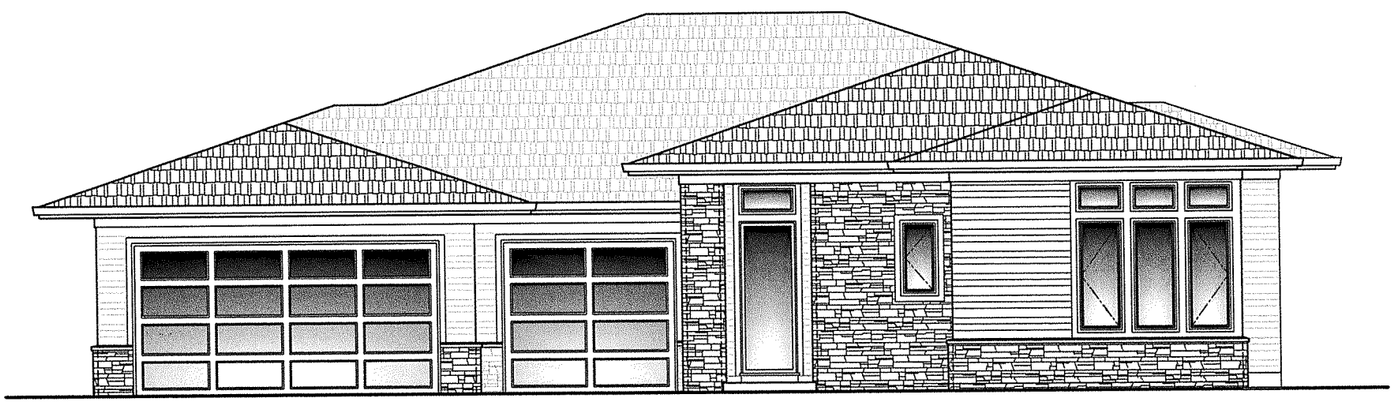
JOB#

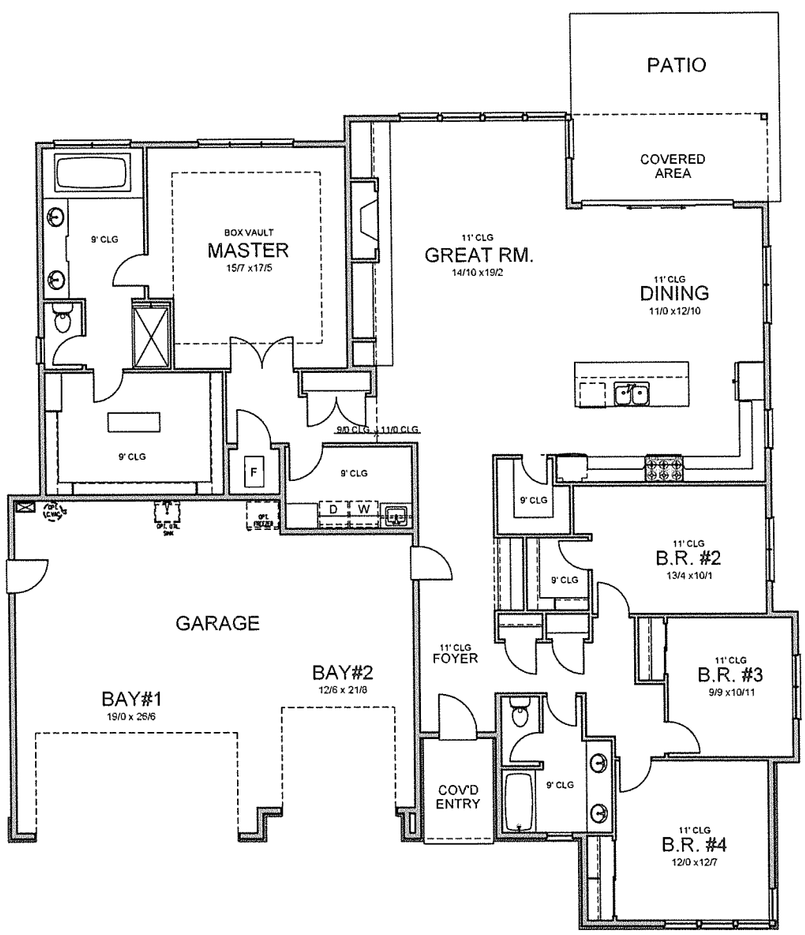
WEST HILLS
HOMES NORTHWEST

2480 ESLINGER PRAIRIE		
M. FLR.	=	2,480 S.F.
TOTAL	=	2,480 S.F.
GARAGE	=	826 S.F.

PDX ORE
EVERETT
CUSTOM HOMES

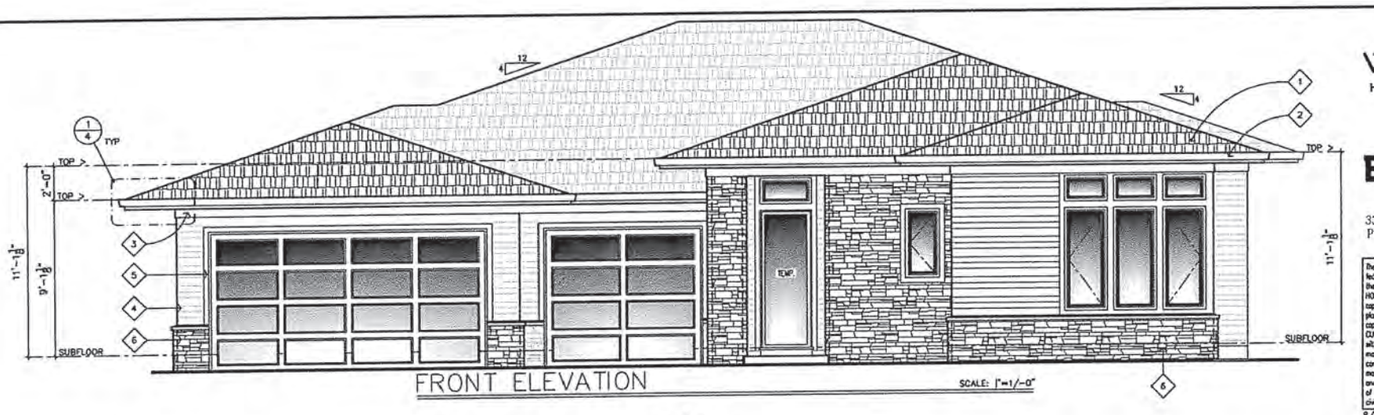
4-BEDROOMS
2-BATHS
3-CAR GARAGE



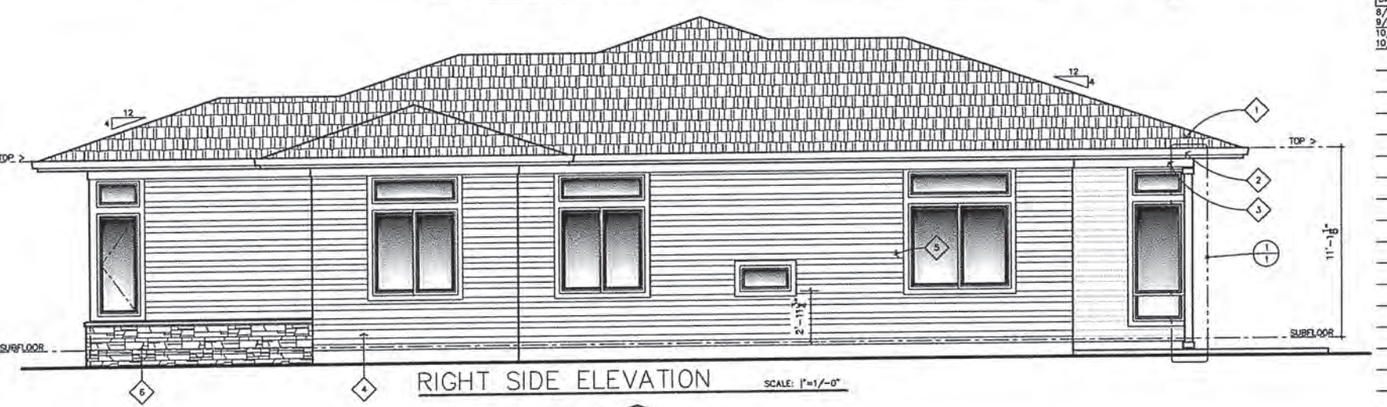


MAIN LEVEL FLOOR PLAN (9' & 11' CLG'S.)

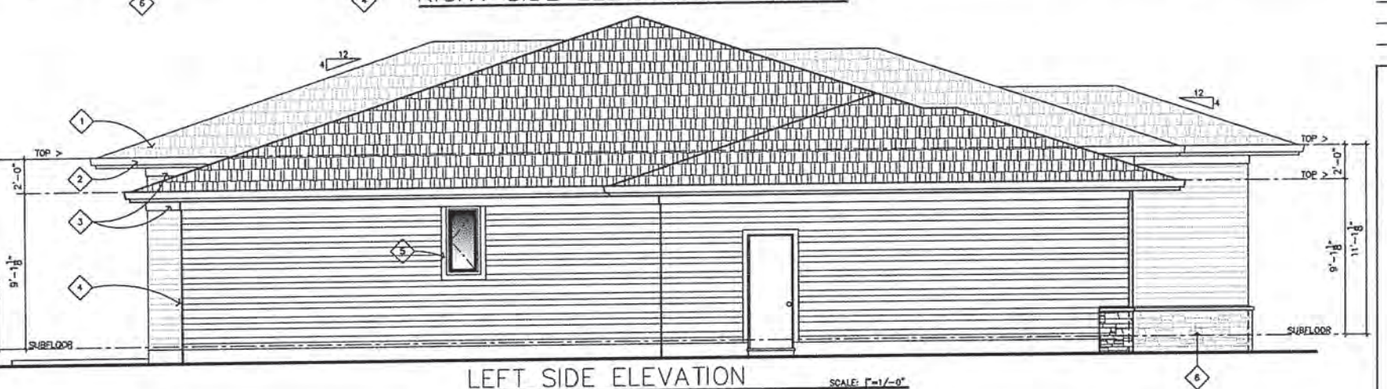
REV: 10/20/17 DDR



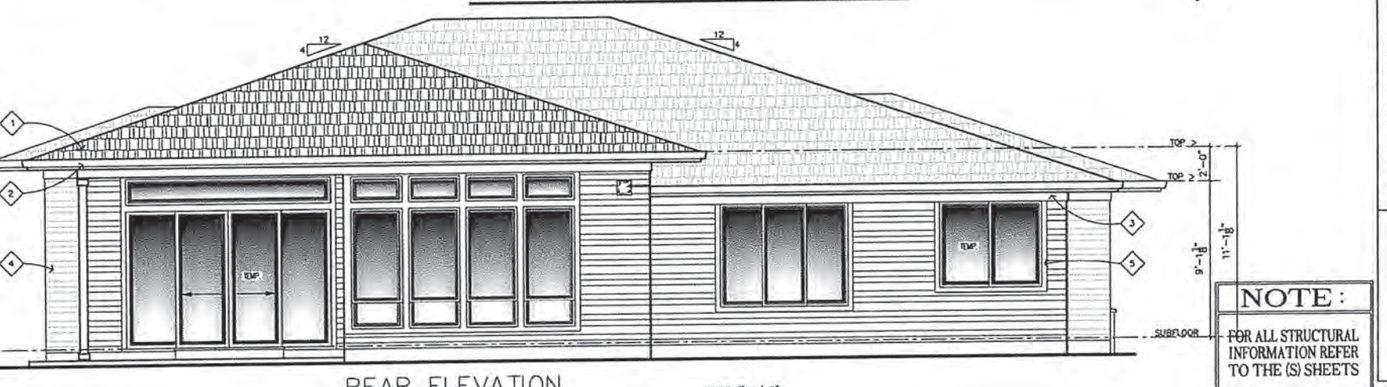
FRONT ELEVATION SCALE: 1"=1/-0"



RIGHT SIDE ELEVATION SCALE: 1"=1/-0"



LEFT SIDE ELEVATION SCALE: 1"=1/-0"



REAR ELEVATION SCALE: 1"=1/-0"

NOTE:
FOR ALL STRUCTURAL INFORMATION REFER TO THE (S) SHEETS

WEST HILLS
HOMES NORTHWEST

FOR

EVERETT
CUSTOM HOMES

3330 NW YEON AVE STE 100
PORTLAND, OREGON 97210
PHONE (503) 726-7060

8/18/17,	PRELIM. LAYOUT	DDR
9/7/17,	PRELIM. ENG. CHK.	DDR
10/20/17,	FIN. ENG. CHK.	DDR
10/20/17,	PUBLISH PLAN	DDR

PLAN 2480
ESLINGER
PRAIRIE
GARAGE LEFT

MAIN LEVEL:	2,480 SQ FT
GRAND TOTAL:	2,480 SQ FT
GARAGE:	826 SQ FT

SHEET#

JOB#

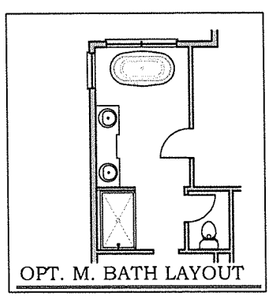
WEST HILLS
HOMES NORTHWEST

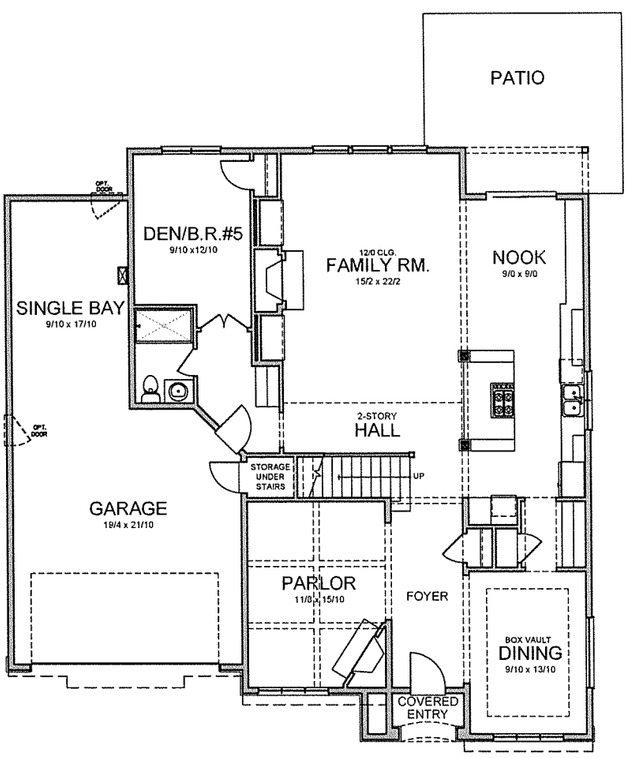
3557 DUNTHORPE
FRENCH

M. FLR.	=	1,605 S.F.
U. FLR.	=	1,917 S.F.
BONUS	=	451 S.F.
TOTAL	=	3,973 S.F.
GARAGE	=	636 S.F.

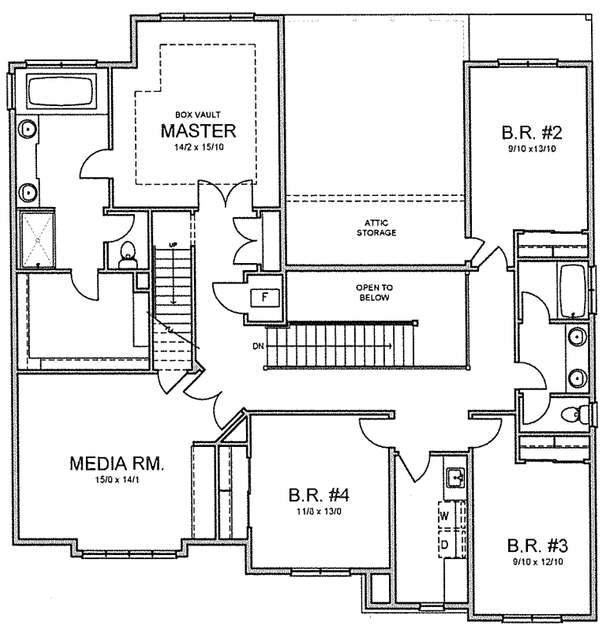
PDX E ORE
EVERETT
CUSTOM HOMES

5-BEDROOMS
3-BATHS
MEDIA, BONUS
TANDEM 3-CAR GARAGE

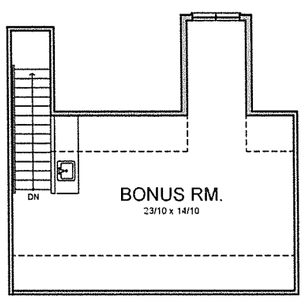




MAIN LEVEL FLOOR PLAN (9' CLG.)

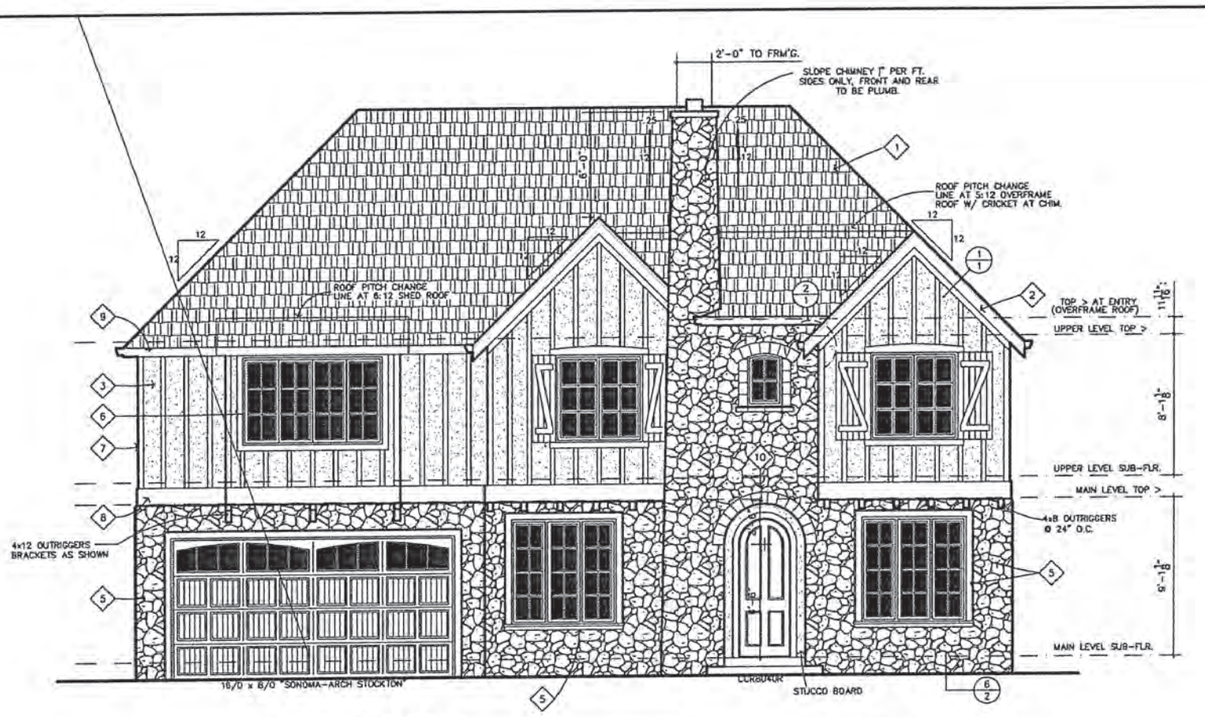


UPPER LEVEL FLOOR PLAN (8' CLG.)

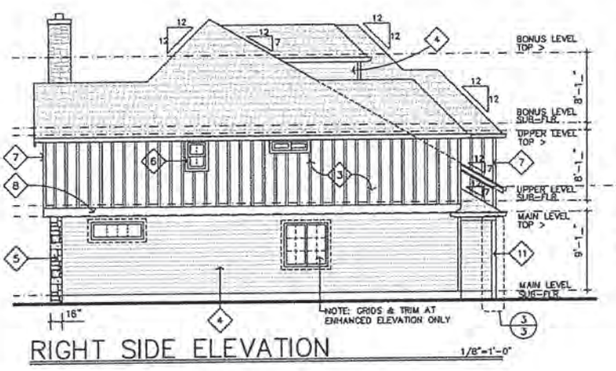


BONUS LVL FLOOR PLAN

REV. 3/9/17 DDR



FRONT ELEVATION 1/4"=1'-0"

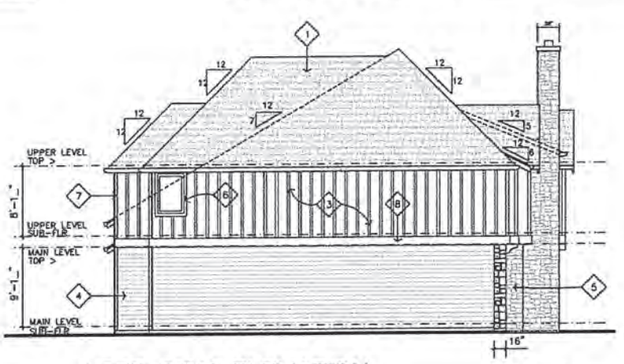


RIGHT SIDE ELEVATION 1/8"=1'-0"

REAR ELEVATION 1/8"=1'-0"

ELEVATION KEYNOTES

1. ROOFING (TYPICAL): 30 YEAR HEAVY WEIGHT FIBERGLASS COMPOSITION ROOFING.
2. VERGE BOARD TYPICAL: RS 1x3 TRIM ON 2x8 VERGE BOARD. PROVIDE 5/4x8 (@ SHINGLES AND LAP SIDING) OR 1x8 (@ PANEL SIDING) TRIM BOARD FLAT ON WALL AND BUTT TO UNDERSIDE OF ROOF SHEATHING FOLLOWING GABLE END VERGE BOARD.
3. SIDING (TYPICAL): HARDIE STUCCO BRD. SIDING W/ 1 x 3 BATTENS SPACED AT 16" O.C.
4. SIDING (TYPICAL WHERE SHOWN): HARDIE-BOARD LAP SIDING.
5. CULTURED STONE (TYPICAL): INSTALL STONE, SILL & TRIM STONE WHERE SHOWN ON ELEV'S. INSTALL PER MANUFACTURER'S RECOMENDATIONS. SEE VENEER DETAILS 3/1, 4/1, 5/3 FOR INFO.
6. WINDOW TRIM: 5/4 X 4 AROUND ALL WINDOWS AND DOORS AT FRONT AND ALL WINDOWS AT PANEL AND BATTEN SIDING. NO WINDOW TRIM AT LAP SIDING UNLESS AT ENHANCED ELEVATIONS. FLASH ABOVE ALL HORIZONTAL TRIM.
7. 5/4 X 4 CORNER TRIM AT LAP SIDING, 1 X 4 CORNER TRIM AT PANEL SIDING.
8. HORIZONTAL TRIM: 5/4 X 12 W/ 26 GA. "Z" FLASHING OVER TOP AND INTEGRATED W/ WRB.
9. GUTTERS (TYP-U.N.O.): 6" FASCIA STYLE, 26 GA. STEEL GUTTER WITH 2"x3" STEEL DOWNSPOUTS. ALL GUTTERS TO BE SPIKED A MIN. OF 24" O.C. ALL JOINTS TO BE SCREWED AND SEALED WITH "ALOCO" GUTTER SEAL OR EQUIV. CONNECT ALL DOWNSPOUTS TO RAIN DRAINS WHERE PROVIDED.
10. 6X8 TRIMSTONE PER MFR.
11. P.T. 6x6 POST -RATED FOR BURIAL. SEE DETAIL 5/3



LEFT SIDE ELEVATION 1/8"=1'-0"

NOTE:

FOR ALL STRUCTURAL INFORMATION REFER TO THE (S) SHEETS

WEST HILLS HOMES NORTHWEST

FOX E OAK

EVERETT
CUSTOM HOMES

3330 NW YEON AVE STE 100
PORTLAND, OREGON 97210
PHONE (503) 726-7060

10/27/15	EOH-WALK-THROUGH EPOT FOR FUTURE SUB.	DDR
3/9/17	EOH UPDATE FH-29, FH-33	DDR
3/27/17	EOH UPDATE FH-29, FH-33	DDR
3/9/17	EOH FOLDER TRANSFER	DDR

PLAN 3557
DUNTHORPE
FRENCH
GARAGE LEFT

MAIN LEVEL:	1505 SQ FT
UPPER LEVEL:	1917 SQ FT
TOTAL:	3422 SQ FT
BONUS:	451 SQ FT
GRAND TOTAL:	3973 SQ.FT.
GARAGE:	836 SQ FT

JOB NO:

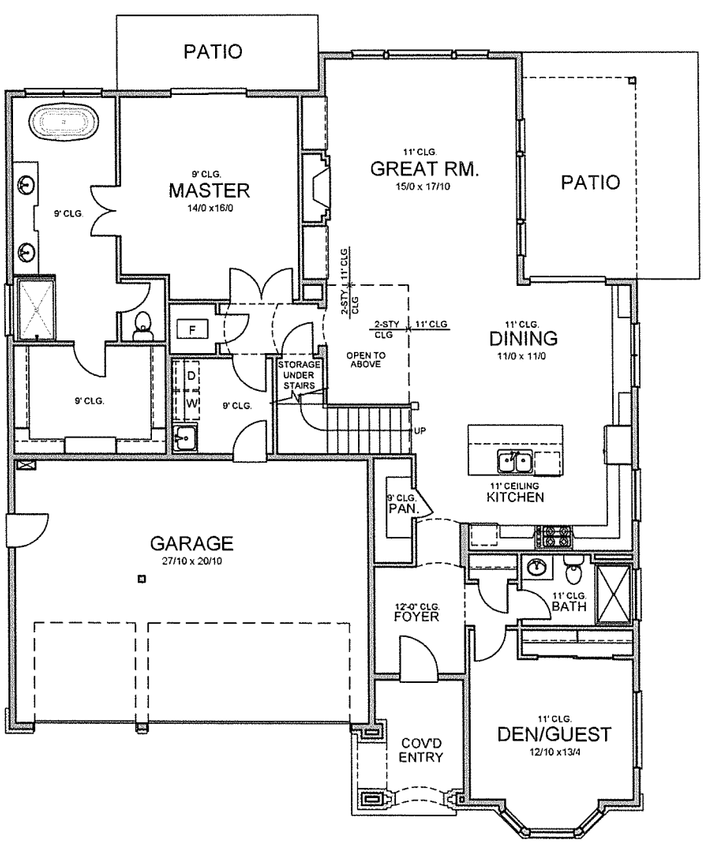
WEST HILLS
HOMES NORTHWEST

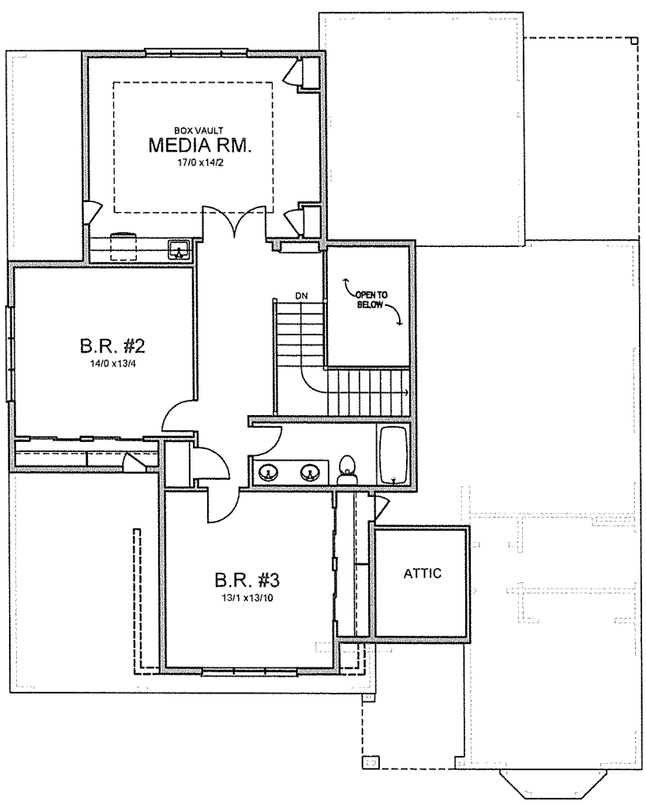
2957 WESTLAKE
ENGLISH (PH-23)

M. FLR.	=	1,877 S.F.
U. FLR.	=	1,080 S.F.
TOTAL	=	2,957 S.F.
GARAGE	=	615 S.F.

PDX ORE
EVERETT
CUSTOM HOMES

4-BEDROOMS
3-BATHS
MEDIA
3-CAR GARAGE

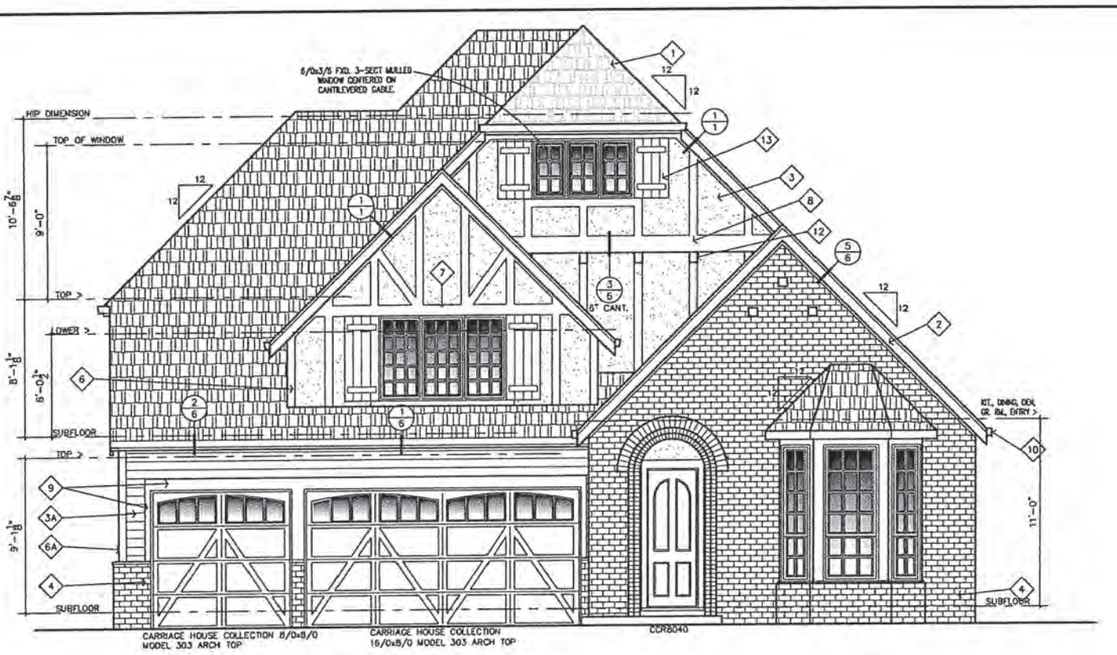




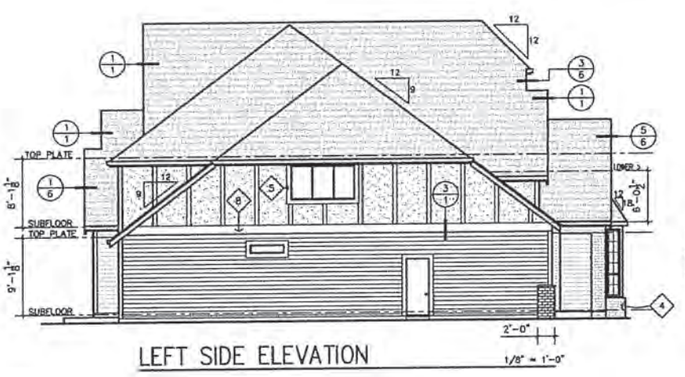
MAIN LEVEL FLOOR PLAN (9'/11'/12' CLG'S.)

UPPER LEVEL FLOOR PLAN (8' CLG.)

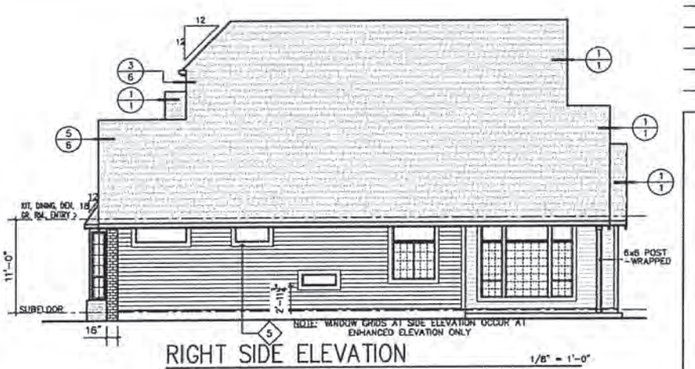
REV: 9/21/17 DDR



FRONT ELEVATION 1/4" = 1'-0"



LEFT SIDE ELEVATION 1/8" = 1'-0"



RIGHT SIDE ELEVATION 1/8" = 1'-0"

REAR ELEVATION 1/8" = 1'-0"

NOTE:

FOR ALL STRUCTURAL INFORMATION REFER TO THE (S) SHEETS

WEST HILLS HOMES NORTHWEST

FOR EVERETT CUSTOM HOMES

3330 NW YEON AVE STE 100
PORTLAND, OREGON 97210
PHONE (503) 726-7060

4/11/17, ECH CONVERSION	DDR
5/5/17, PREUM ENG. CHK.	DDR
6/8/17, FIN. ENG. CHK.	DDR
8/8/17, PUBLISH PLAN	DDR
9/22/17, PH-23 FRAME-WALK CHG. P.C. #1 IMPLEMENTED	DDR

PLAN 2957
WESTLAKE ENGLISH
GARAGE LEFT

MAIN LEVEL:	1,877 SQ FT
UPPER LEVEL:	1,080 SQ FT
GRAND TOTAL:	2,957 SQ FT
GARAGE:	815 SQ FT

SHEET #

JOB #

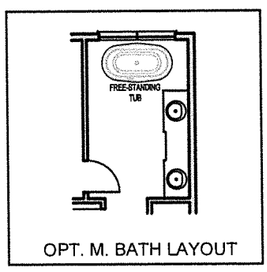
WEST HILLS
HOMES NORTHWEST

3017 BROOKLYN FRENCH

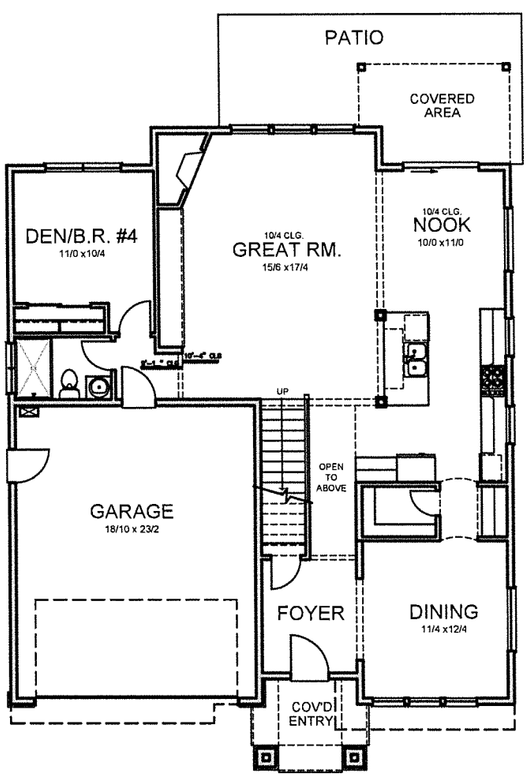
M. FLR.	=	1,268 S.F.
U. FLR.	=	1,772 S.F.
TOTAL	=	3,040 S.F.
GARAGE	=	466 S.F.

PDX E ORE
EVERETT
CUSTOM HOMES

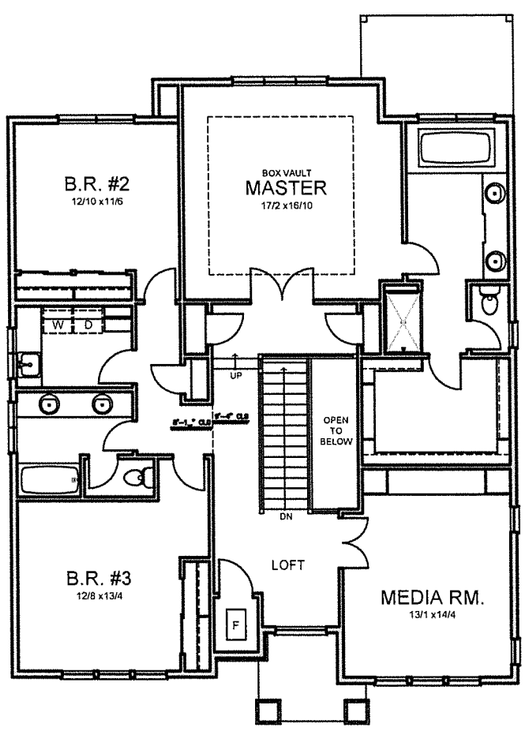
4-BEDROOMS
3-BATHS
MEDIA
2-CAR GARAGE



OPT. M. BATH LAYOUT

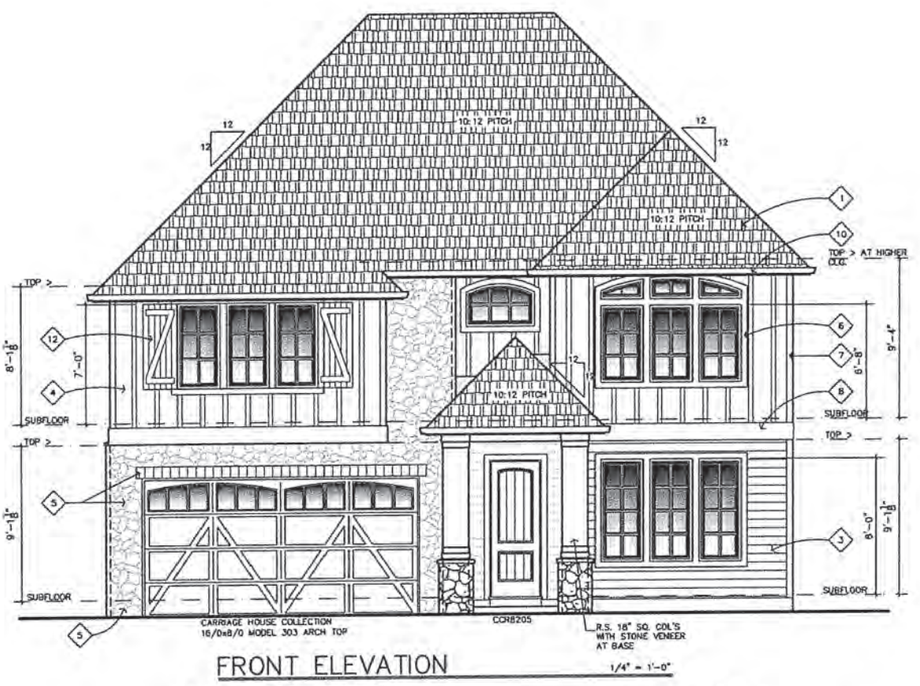


MAIN LEVEL FLOOR PLAN

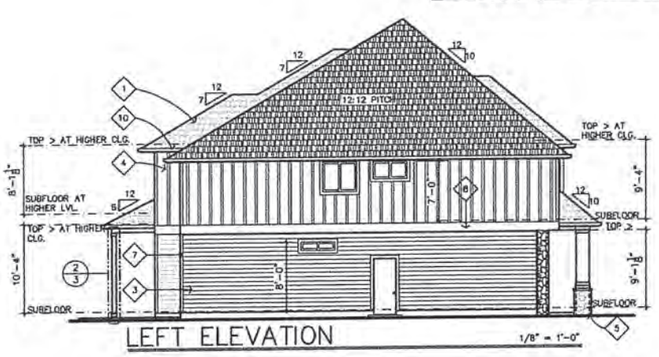


UPPER LEVEL FLOOR PLAN

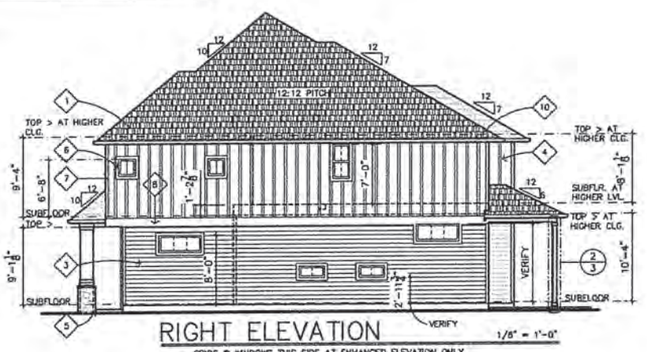
REV: 11/2/17 DDR



FRONT ELEVATION 1/4" = 1'-0"

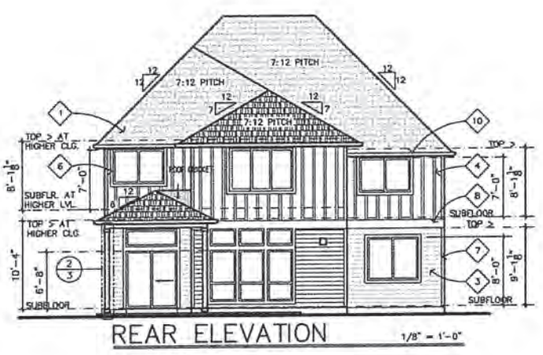


LEFT ELEVATION 1/8" = 1'-0"



RIGHT ELEVATION 1/8" = 1'-0"

GRIDS ⊙ WINDOWS THIS SIDE AT ENHANCED ELEVATION ONLY



REAR ELEVATION 1/8" = 1'-0"

NOTE :

FOR ALL STRUCTURAL INFORMATION REFER TO THE (S) SHEETS

WEST HILLS HOMES NORTHWEST

FOR

EVERETT CUSTOM HOMES

3330 NW YEON AVE STE 100
PORTLAND, OREGON 97210
PHONE (503) 726-7060

4/7/16,	PRELIM. LAYOUT	DDR
4/18/16,	PRELIM. ENG CHK.	DDR
6/7/16,	FINAL ENG CHK.	DDR
6/1/16,	PUBLISH PLAN	DDR
8/30/16,	PC#1 IMPLEMENTED	DDR
12/9/16,	PC#2 IMPLEMENTED	DDR
11/2/17,	PC#3 IMPLEMENTED	DDR

PLAN 3017 BROOKLYN FRENCH GARAGE LEFT

MAIN LEVEL:	1,268 SQ FT
UPPER LEVEL:	1,772 SQ FT
GRAND TOTAL:	3,040 SQ FT
GARAGE:	466 SQ FT

SHEET#

JOB#

Appendix I

Service Provider Letter from Republic Services
dated January 31, 2022

REPUBLIC SERVICES

January 31, 2022

Keith Buisman

Re: Otak, Frog Pond Terrace
Wilsonville, OR 97070

Dear Keith,

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

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

Your proposed plan for a turnaround for both fire and waste hauling between lots 16 and 17 along the new interior street SW Woodbury Loop, and sign(s) posting "NO PARKING AT ANY TIME" is approved. The option of using grasscrete or similar surface that allows for vegetation is approved provided it can support the weight of our collection trucks with a GVW of 58,000 lbs.

Your proposal for Lots 14-19 to require homeowners to locate their receptacles closer to the turnaround as shown on the plan is approved.

Your proposal for Lots 8, 9, 10, and 13 to require homeowners to locate their receptacles closer to SW Woodbury Loop as shown on the plan is approved.

It is understood that the turnaround will be removed, and the easement extinguished upon future extension of interior street to the east where a loop would be created.

All affected lots pickup requirements will be addressed with specific recorded CC&Rs against the lots with compliance and enforcement by the HOA. Any future changes to service to be approved by Republic Services (e.g. interior street is extended east to create full loop).

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

Sincerely,

Kelly Herrod
Operations Supervisor
Republic Services Inc.

Appendix J

Tualatin Valley Fire and Rescue Permit #2022-0009
and Approved Fire Service Plan
dated January 26, 2022

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: West Hills Land Development

Address:3330 NW Yeon Ave Suite 200 Portland, OR 97210

Phone: (503) 641-7342

Email: dan@westhillsdevelopment.com

Site Address: 7480 and 7500 SW Frog Pond Ln

City: Wilsonville, OR 97070

Map & Tax Lot #: (3S 1W 12D TL 2800 and 2801)

Business Name: N/A

Land Use/Building Jurisdiction: Wilsonville

Land Use/ Building Permit # N/A

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
19 ~~12~~-lot single family detached subdivision

Permit/Review Type (check one):

X 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 # 2022-0009

Permit Type: SPP-COW

Submittal Date: 1/26/22

Assigned To: OFM Arn

Due Date: 1/27/22

Fees Due: Ø

Fees Paid: Ø

Approval/Inspection Conditions
(For Fire Marshal's Office Use Only)

This section is for application approval only

0430 1/26/2022
Fire Marshal or Designee Date

Conditions: See attached Fire Service Plans.

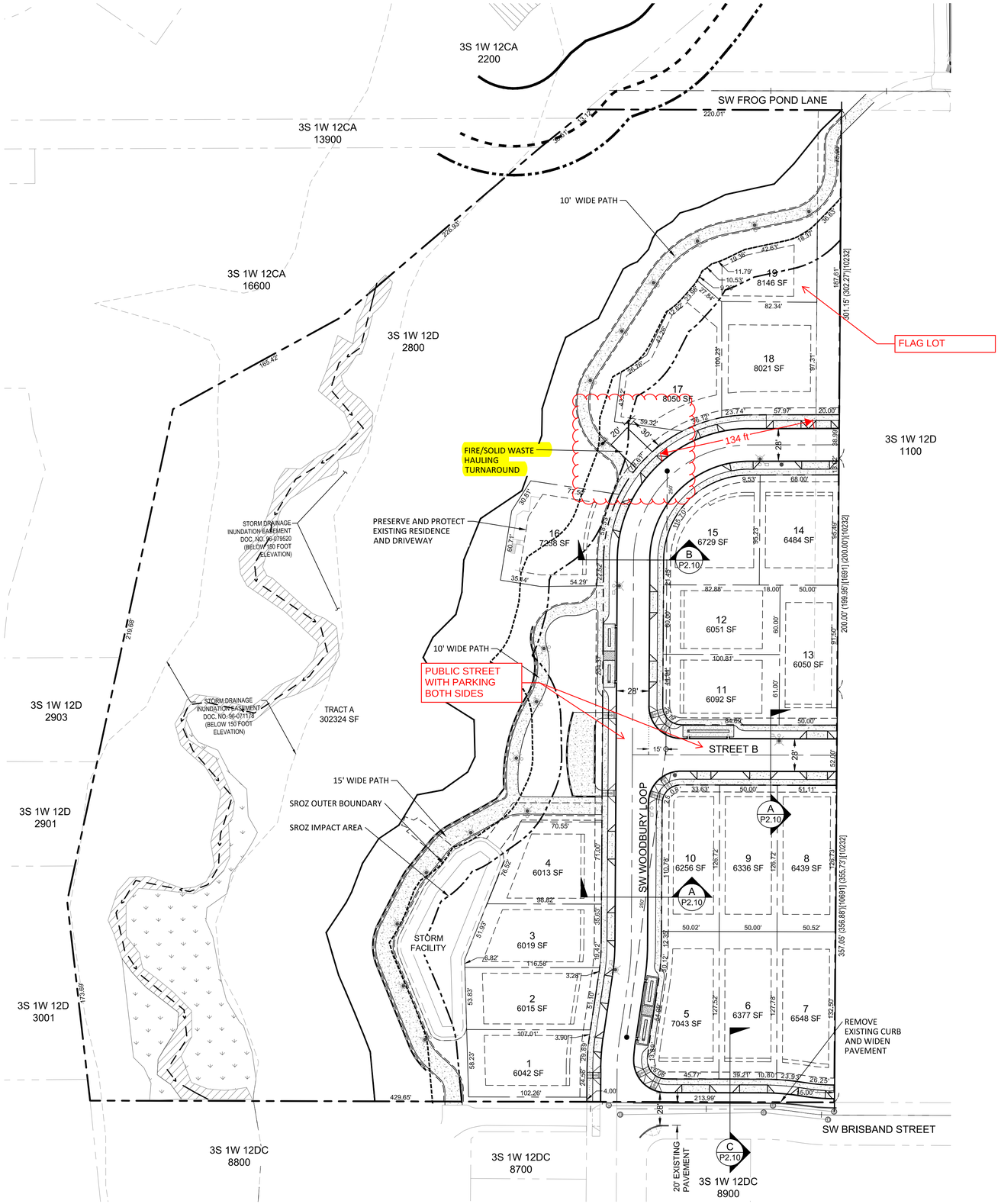
See Attached Conditions: ☐ Yes ☐ No

Site Inspection Required: ☒ Yes ☐ No

This section used when site inspection is required

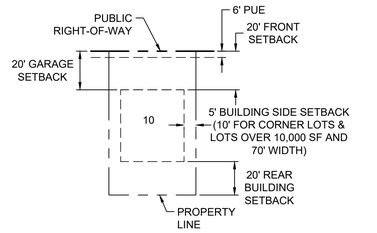
Inspection Comments:

Final TVFR Approval Signature & Emp ID Date

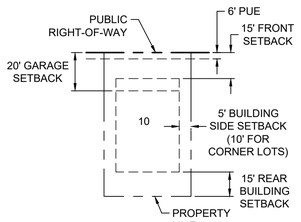


LEGEND

- PROPERTY LINE
- CENTER LINE
- LOT LINE
- LOT SETBACK
- LOT NUMBER / NAME — 16
- EASEMENT LINE
- STANDARD CURB
- SIDEWALK
- RETAINING WALL
- INTERSECTION SIGHT DISTANCE — [x'], x'=DESIGN SPEED(MPH)X10'/MPH
- TYPICAL STREET CROSS SECTION (SEE SHEET P2.10) — A, P2.10
- LIDA SWALE
- DRIVEWAY
- CURB RAMP



R10 FRONT LOADED SINGLE FAMILY BUILDING SETBACKS
LOTS 17, 18, 19 NTS



R7 FRONT LOADED SINGLE FAMILY BUILDING SETBACKS
LOTS 1 - 16 NTS

LOT AREA	
LOT	AREA
1	6,042 SF
2	6,015 SF
3	6,019 SF
4	6,013 SF
5	7,043 SF
6	6,377 SF
7	6,548 SF
8	6,439 SF
9	6,336 SF
10	6,256 SF
11	6,092 SF
12	6,051 SF
13	6,050 SF
14	6,484 SF
15	6,729 SF
16	7,238 SF
17	8,050 SF
18	8,021 SF
19	8,146 SF

TRACT/ROW AREA	
TRACT	AREA
ROW	47,691 SF
TRACT A	302,324 SF

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 # 2022-0009

EXHIBIT FP-1

Otak
Otak, Inc.
808 SW Third Avenue, Ste. 800
Portland, OR 97204
503. 287. 6825
www.otak.com

PRELIMINARY

STAMP

WEST HILLS LAND DEVELOPMENT
CONSULTANT

FROG POND TERRACE
19 DETACHED SINGLE FAMILY LOTS
CITY OF WILSONVILLE, OREGON

PRELIMINARY SITE PLAN

TITLE

#	DATE	DESCRIPTION

REVISIONS

NAVD88
DATUM

OTAK CAD — KJB
DRAWN BY — CHECKED BY

LAND USE SUBMITTAL
STATUS

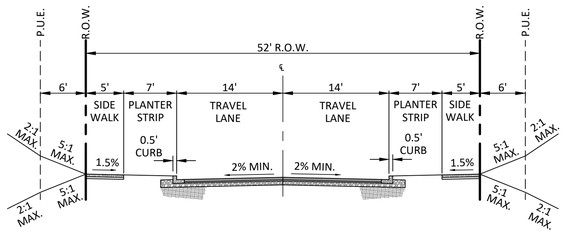
JANUARY 31, 2022
DATE

20015
PROJECT NUMBER

P2.00

If this drawing is not 22" x 34", it has been reduced/enlarged. Scale accordingly.

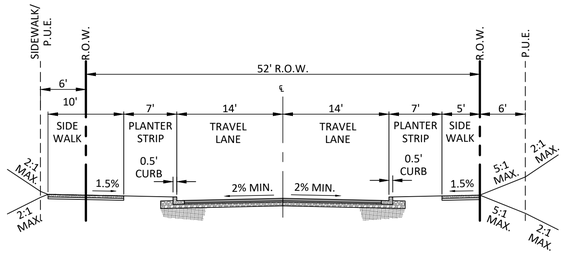
Plotted: Jan 26, 2022 - 5:34pm keith.buisman L:\Project\20000\20015\CADD\ACAD\Dwg\Frog Pond - Terrace\P20015P200.dwg Layout Name - P2.00



SW WOODBURY LOOP AND STREET B
(LOCAL STREET - PARKING ON BOTH SIDES)

A

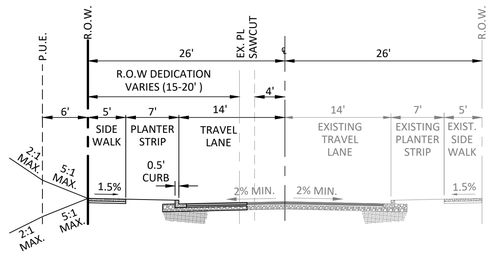
SCALE: 1" = 10'-0"



SW WOODBURY LOOP
(LOCAL STREET - PARKING ON BOTH SIDES)

B

SCALE: 1" = 10'-0"



SW BRISBAND ST
(LOCAL STREET - PARKING ON BOTH SIDES)

C

SCALE: 1" = 10'-0"

STREET CROSS SECTIONS

SEE SHEET P2.00 FOR SECTION LOCATIONS

EXHIBIT FP-2

Otak

Otak, Inc.
808 SW Third Avenue, Ste. 800
Portland, OR 97204
503. 287. 6825
www.otak.com

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WEST HILLS LAND DEVELOPMENT
CONSULTANT

FROG POND TERRACE
19 DETACHED SINGLE FAMILY LOTS
CITY OF WILSONVILLE, OREGON

PRELIMINARY STREET CROSS SECTIONS

#	DATE	DESCRIPTION

REVISIONS

NAVD88
DATUM

OTAK CAD — KJB
DRAWN BY — CHECKED BY

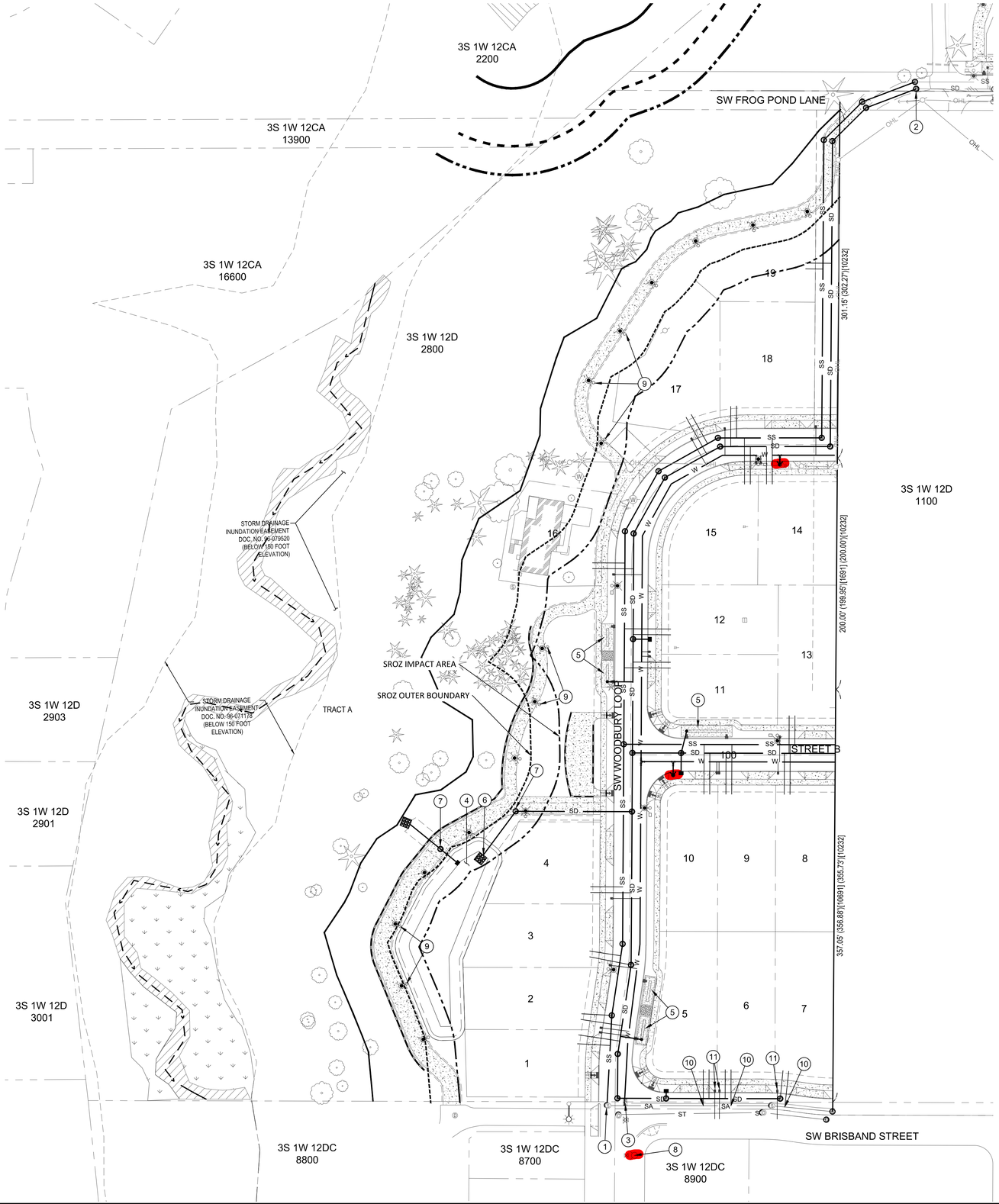
LAND USE SUBMITTAL
STATUS

JANUARY 31, 2022
DATE

20015
PROJECT NUMBER

P2.10

Plotted: Jan 28, 2022 - 5:34am keith.buisman I:\Projects\20000\20015\CAD\ACAD\Dwg\Frog Pond - Terrace\P20015P210.dwg Layout Name - P2.10



UTILITY KEY NOTES

1. CONNECT TO EXISTING SANITARY SEWER.
2. CONNECT TO STORM SEWER TO BE CONSTRUCTED WITH FROG POND OVERLOOK.
3. CONNECT TO EXISTING WATER LINE.
4. PROPOSED RAIN GARDEN (CITY STD. DWG. ST-6020)
5. PROPOSED VEGETATECD SWALE (CITY STD. DWG. ST-6045 W/ 12" WIDE CONCRETE STEP-OFF WALK ADJACENT TO PAVEMENT.
6. STORM SEWER OUTFALL TO RAIN GARDEN.
7. PROPOSED WATER QUALITY MANHOLE.
8. EXISTING FIRE HYDRANT.
9. PROPOSED PATHWAY LIGHT POLE (12' POLE HEIGHT WITH HOUSE SIDE SHIELD).
10. CONNECT TO EXISTING SANITARY SEWER WITH NEW SERVICE LATERAL.
11. CONNECT TO EXISTING WATER LINE WITH NEW WATER SERVICE.

LEGEND

SITE	PROPOSED
PROJECT BOUNDARY	
STORM DRAIN MANHOLE	D
STORM DRAIN CLEAN OUT	ⓒ
LIDA FLOW CONTROL STRUCTURE (BEEHIVE: CITY STANDARD DWG. ST-6120)	●
CATCH BASIN	■
STORM DRAIN MAIN	SD
STORM DRAIN LATERAL	SD
SANITARY SEWER MANHOLE	S
SANITARY SEWER CLEAN OUT	ⓢ
SANITARY SEWER MAIN	SS
SANITARY SEWER LATERAL	SS
WATER VALVE	⋈
WATER BLOW-OFF	
WATER METER	
WATER FIRE HYDRANT	
WATER MAIN	W
WATER LATERAL	
STREET LIGHT PGE OPTION "B" LED WITH WESTBROOKE 35W LED AND 18' DECORATIVE ALUMINUM POLE (20' MOUNTING HEIGHT W/ 4' MAST ARM)	

0 50 100
SCALE IN FEET

EXHIBIT FP-3

Otak
Otak, Inc.
808 SW Third Avenue, Ste. 800
Portland, OR 97204
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www.otak.com

PRELIMINARY

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WEST HILLS
LAND DEVELOPMENT
CONSULTANT

FROG POND TERRACE
19 DETACHED SINGLE FAMILY LOTS
CITY OF WILSONVILLE, OREGON

PRELIMINARY UTILITY PLAN

TITLE

#	DATE	DESCRIPTION

REVISIONS

NAVD88
DATUM

OTAK CAD — DRAWN BY
KJB — CHECKED BY

LAND USE SUBMITTAL
STATUS

JANUARY 31, 2022
DATE

20015
PROJECT NUMBER

P4.00

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