Water Resource Area Review

West Linn Public Works Facility

West Linn, Oregon

November 2025

Prepared by:

Harper Houf Peterson Righellis Inc.

ENGINEERS • PLANNERS • LANDSCAPE ARCHITECTS • SURVEYORS • SCIENTISTS

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Prepared for:

City of West Linn Public Works Department
4100 Norfolk Street
West Linn, Oregon 97068

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A. Introduction

Harper Houf Peterson Righellis Inc. (HHPR) has prepared this Water Resource Area (WRA) Plan for the construction of the West Linn Public Works Facility.

The West Linn Public Works Facility project is proposed on an undeveloped hillside north of Interstate 205 (I-205), south of the Barrington Heights residential neighborhood, east of Salamo Road, and west of an existing Oregon Department of Transportation (ODOT) storage yard (Figure 1). The proposed development includes a public works facility, parking lot, and proposed access road connecting the facility to Salamo Road. A previous wetland delineation (WD2009-0342) identified one wetland within the currently proposed development and one stream located in a ravine west of the proposed development within the Study Area (SA). HHPR's qualified biologists prepared a wetland delineation report to document current conditions onsite (WD2025-0055; Appendix B) and identified one stream (Stream 1) and one wetland (Wetland A), which are consistent with features identified by Vigil-Agrimis.

Water Resource Areas are within the project area boundary (Figure 1). Impacts to the Water Resource Areas are proposed, and therefore a Water Resource Protection Area Impact Report is required. The format follows the pertinent sections of the City of West Linn Planning and Community Development Code (WLCDC Chapter 32). For ease of review by the City, key portions of the ordinance language are included, followed by specific responses to the requirements (bolded).

B. Applicant Information

B.1 Applicant

City of West Linn
Engineering Department
22500 Salamo Road
West Linn, OR 97068

B.2 Applicant's Agent

Harper Houf Peterson Righellis Inc. (HHPR)
Attn: Dan Thew
205 SE Spokane Street, STE 200
Portland, OR 97202
Phone: (503) 221-1131
Email: dant@hhpr.com
Site Information

B.3 Site Location

City of West Linn Public Works Facility
East of Salamo Rd & Greene St Intersection
West Linn, OR 97068

B.4 Legal Description

Township 2 South, Range 1 East, Section 35, tax lots 5200 and 5400, ROW

Township 2 South, Range 1 East, Section 36, ROW

B.5 Site Description

The SA is 14.3 acres and extends from Salamo Road right-of-way (ROW) at the western boundary across an upper and lower terrace to the eastern edge of the City-owned parcel (21E35D005400), tax lot 21E35D005200, and a portion of ODOT owned parcel (21E36 ROW).

A series of terraces were excavated during the construction of I-205 in 1969 in order to improve slope stability (WD2009-0342) and have remained undeveloped. The SA includes part of two of these terraces. The lower terrace is between an existing ODOT storage yard to the east and a steep ravine with an unnamed stream at the bottom to the west. The SA extends to the southern boundary of the City-owned parcel that occurs on or near the edge of the lower terrace. South of the SA is a steep cliff that descends to I-205 below.

In the vicinity of the SA there are dense residential neighborhoods upslope to the north and west. Downslope of the SA is I-205, and across that lies a low terrace with wetlands and a water treatment plant along the banks of the Willamette River (Figure 1). The SA is in the Tanner Creek-Willamette River (170900070405) 12 Digit Hydrologic Unit Code (HUC).

Vegetation within the SA is dominated by upland trees, shrubs, grasses, and forbs. Trees and shrubs are scattered throughout the SA, allowing for an open grass/scotch broom (*Cytisus scoparius*) plant community to be dominant throughout most of the SA. The ravine in the western portion of the SA has a full canopy. Vegetation communities are generally made up of the following groups:

- Upland areas with scattered Douglas fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), and black cottonwood (*Populus trichocarpa*) trees, with a shrub layer of Oregon white oak (*Quercus garryana*) saplings, scotch broom (*Cytisus scoparius*), and lesser amounts of Himalayan blackberry (*Rubus armeniacus*), serviceberry (*Amelanchier alnifolia*), beaked hazelnut (*Corylus cornuta*), cascara (*Rhamnus purshiana*), common snowberry (*Symphoricarpos albus*), and Pacific madrone (*Arbutus menziesii*). Grasses including false oat grass (*Arrhenatherum elatius*), velvet grass (*Holcus lanatus*), common bentgrass (*Agrostis capillaris*), and tall fescue (*Schedonorus arundinaceus*), with upland forbs such as Queen Anne's lace (*Daucus carota*), St. John's wort (*Hypericum perforatum*), hairy cat's ear (*Hypochaeris radicata*), bracken fern (*Pteridium aquilinum*), and common teasel (*Dipsacus fullonum*).
- A steep ravine with a canopy of bigleaf maple, cottonwood, and Douglas fir with an understory of dense Himalayan blackberry and some western swordfern (*Polystichum munitum*) and English ivy (*Hedera helix*).

There is an area dominated by wood chips that is almost completely lacking vegetation with only a few Douglas fir and Oregon white oak saplings present.

On November 8, November 18, November 20, and December 4, 2024, HHPR identified and delineated the ordinary high-water mark (OHWM) of one stream (Stream 1) and one wetland. A wetland delineation report (WD2025-0055) was submitted to Oregon Department of State Lands (DSL) for concurrence on January 31, 2025 and concurrence was received on July 2, 2025 (Appendix C). A summary of the resources identified in the delineation is proved in Table 1 below. Existing conditions within the project area are shown in the figures in Appendix B.

Table 1. Water Resources Within the Project Area

Name	Type	Extent in SA	HGM
Wetland A	PEM Wetland	0.66 acres	Slope
Stream 1	Intermittent Stream	225 linear feet	Non-wetland water

C. Project Description

The proposed development includes a public works facility, operations and storage yard, parking lot, and proposed access connecting the facility to Salamo Road.

D. Water Resource Protection Area

West Linn Development Code Chapter 32 establishes protections for water resource areas in order to comply with Title 3, and Title 13 Requirements.

HHPR delineated one wetland (Wetland A) and one watercourse (Stream 1) within the SA (Appendix A, WD2025-0055).

Wetland A is a slope class, palustrine emergent (PEM) wetland located in the eastern portion of the SA on the lower terrace. Wetland A is approximately 28,555 square feet (SF) (0.66 acres).

Stream 1, totaling approximately 225 linear feet (LF) within the SA, is an unnamed intermittent stream. Stream 1 flows from north to south through the SA. Stream 1 daylights out of two corrugated metal culverts downslope of Salamo Road, flows south through a ravine in the western portion of the SA and continues south out of the SA before draining under I-205, and ultimately to the Willamette River via Bernert Creek.

Characteristics of these features are summarized below in Table 2.

Table 2: Water Resource Area Summary

Name	Type	Extent in SA	DSL Jurisdiction	USACE Jurisdiction
Wetland A	PEM Wetland	0.66 acres	Yes	Assumed Yes
Stream 1	Intermittent Stream	225 linear feet	Yes	Yes

Habitat Conservation Areas

City of West Linn does not map any Habitat Conservation Areas (HCA) within the project area. During a preliminary meeting with City of West Linn Planning Department, dated December 20, 2024, the City Planner confirmed that HCA boundaries are present only where mapped and that they do not occur within the project area.

Water Resource Areas

In accordance with CDC 32.060 Table 32-2 the width of the Water Resource Area (WRA) associated with Wetland A is 65 feet from the upland edge of the wetland. Additionally, for the water resource (Stream 1) within a ravine with slopes over 25% to a distinct top of slope require a WRA that extends from the water resource edge to the top of slope, plus an additional 50-feet. These buffer lengths were applied to the north side of Wetland A as there is a steep slope near wetland edge and along the ravine above Stream 1 within the project area. A total of 15,120 SF of permanent impacts will occur within the WRAs. In addition, 1,285 SF of temporary will occur within the WRAs. These areas will be revegetated in accordance with West Linn Development Code.

D.1 Application Submittal Requirements

28.90 SUBMITTAL REQUIREMENTS: APPLICATION

A. An application for a protection area permit shall be initiated by the property owner or the owner's authorized agent. Evidence shall be provided to demonstrate that the applicant has the legal right to use the land above the OLW. The property owner's signature is required on the application form.

B. A prerequisite to the filing of an application is a pre-application conference at which time the Planning Director shall explain the provisions of this chapter and provide appropriate forms as set forth in CDC 99.030(B).

C. An application for a protection area permit shall include the completed application and:

1. Narrative which addresses the approval criteria of CDC 28.110.
2. A site plan, with HCA boundaries shown and by low, moderate, high type shown (CDC 28.120).
3. A grading plan if applicable (CDC 28.130).
4. Architectural drawings if applicable (CDC 28.140).
5. A landscape plan if applicable (CDC 28.150).
6. A mitigation plan if applicable (CDC 28.160).
7. A storm detention and treatment plan and narrative statement pursuant to CDC 92.010(E)

Response: This submittal constitutes the narrative requirement listed above.

32.050 Application

A. An application requesting approval for a use or activity regulated by this chapter shall be initiated by the property owner, or the owner's authorized agent, and shall include an application form and the appropriate deposit or fee as indicated on the master fee schedule.

B. A pre-application conference shall be a prerequisite to the filing of the application.

Response: A pre-application conference was held on March 6, 2025.

C. The applicant shall submit maps and diagrams at 11 by 17 inches and a written narrative addressing the approval criteria and requirements of this chapter, and any additional copies required by the Planning Director.

Response: A site plan is included as part of this submittal.

D. Where review of soil maps, Department of Geology and Mineral Industries (DOGAMI) maps, or on-site inspection by the City Engineer reveals evidence of slope failures or that WRA slopes are potentially unstable or prone to failure, geotechnical studies may be required to demonstrate that the proposed development will not cause, or contribute to, slope failure or increased erosion or sedimentation in the WRA or adversely impact surface or modify groundwater flow or hydrologic conditions. These geotechnical studies shall include all necessary measures to avoid or correct the potential hazard.

Response: A geotechnical report has been prepared for this project addressing slope stability for the proposed development. Refer to the included geotechnical report for further detail.

E. Applications proposing that streets or utilities cross water resources, or any other development that modifies the water resource, shall present evidence in the form of adopted utility master plans or transportation master plans, or findings from a registered Oregon civil engineer, certified engineering geologist or similarly qualified professional to demonstrate that the development or improvements are consistent with accepted engineering practices.

Response: The application does not propose any streets or utilities that cross water resources.

F. Site plan. The applicant shall submit a site plan which contains the following information, as applicable:

1. The name, address, and telephone number of the applicant, the scale (lineal) of the plan, and a north arrow.
2. Property lines, rights-of-way, easements, etc.

3. A storm detention and treatment plan and narrative statement pursuant to CDC 92.010(E).
4. Tables and maps identifying acreage, location and type of development constraints due to site characteristics such as slope, drainage and geologic hazards. For Type I, II, and III lands (refer to definitions in Chapter 02 CDC), the applicant must provide a geologic report, with text, figures and attachments as needed to meet the industry standard of practice, prepared by a certified engineering geologist and/or a geotechnical professional engineer, that includes:
    a. Site characteristics, geologic descriptions and a summary of the site investigation conducted;
    b. Assessment of engineering geological conditions and factors;
    c. Review of the City of West Linn's Natural Hazard Mitigation Plan and applicability to the site; and
    d. Conclusions and recommendations focused on geologic constraints for the proposed land use or development activity, limitations and potential risks of development, recommendations for mitigation approaches and additional work needed at future development stages including further testing and monitoring.

Response: The application includes a site plan, stormwater detention design, preliminary stormwater report with calculations, and geotechnical engineering report that include including the required information.

Boundaries of the WRA, specifically delineating the water resource, and any riparian corridor boundary. If the proposal includes development of a wetland, a wetlands delineation prepared by a professional wetland specialist will be required. The wetland delineation may be required to be accepted or waived through the Department of State Lands (DSL) delineation review process.

Response: HHPR prepared a wetland delineation report (WD2025-0055;Appendix B) that was submitted to DSL for concurrence on January 31, 2025 and concurrence was received on July 2, 2025 (Appendix C). See WD2025-0055 for further details.

5. Location of existing and proposed development, including all existing and proposed structures, accessory structures, any areas of fill or excavation, water resource crossings, alterations to vegetation, or other alterations to the site's natural state.

Response: Figure 1 in Appendix A shows proposed development, grading, alterations to vegetation or other alterations to the site's natural state.

6. Identify the location and square footage of previously disturbed areas, areas that are to be temporarily disturbed, and area to be permanently disturbed or developed.

Response: Figure 1 in Appendix A shows areas of permanent and temporary disturbance as well as proposed buildings and final contours.

7. When an application proposes development within the WRA, an inventory of vegetation within the WRA, sufficient to categorize the existing condition of the WRA, including:
    a. The type and general quality of ground cover, including the identification of dominant species and any occurrence of non-native, invasive species;

Response: During field reconnaissance on November 8, November 18, November 20, and December 4, 2024, HHPR staff documented the condition of WRA area onsite. There are two separate WRA, one associated with Stream 1 and one associated with Wetland A. Within these two WRAs, there are two unique WRA conditions that are described below.

Stream 1: The WRA around Stream 1 is mostly forested with a canopy of black cottonwood and lesser amounts of bigleaf maple and Douglas fir. The understory is dominated by Himalayan blackberry with lesser amounts of English ivy and western swordfern. The forested area extends from OHW and continues above the top of the slope towards the proposed project. The canopy does not extend beyond the top of slope, although the blackberry thickets extend beyond the break in slope and partially onto the terrace. The terrace above the ravine near the edge of the WRA is unvegetated and consists of several inches of woodchips spread over soils. The unvegetated areas do not act as quality habitat due to a lack of food and refuge areas. The unvegetated areas do not provide water quality benefits to the stream because they do not provide shade, erosion control, or water treatment. There are no plant stems to reduce velocity of flowing water, no leaves or branches to reduce velocity of falling rain, and the open areas do not provide ecological niches or refugia.

The dense Himalayan blackberry offers some habitat for foraging wildlife and refugia in the dense thickets, but has minimal structural variability or low ground cover. The dense Himalayan blackberry provide some water quality benefits to the stream in the form of interception of precipitation and stormwater in addition to erosion and sediment control but these functions are limited due in part to the lack of ground cover and minimal structural diversity. The forested area provides potential habitat and water quality benefits, primarily shade for the stream. The understory in this area is dense blackberry thickets which reduce the general condition of the buffer above the stream due to the presence of invasive species and a lack of native species.

Wetland A: The WRA around Wetland A is mostly grass field with scattered trees and shrubs. The portion of the WRA immediately to the west of Wetland A includes a shallow slope dominated by grasses, scotch broom, and Himalayan blackberry.

At the top of the shallow slope to the west, the WRA is unvegetated and several inches of decomposing woodchips have been spread on top of the shallow soils present. North of the wetland, a nearly vertical slope with grasses and scattered trees and shrubs occurs. The WRA extends 50 feet from the top of the steep slope and is dominated by grasses, Queen Anne's lace, and scotch broom with scattered Douglas fir. Few bigleaf maple and Pacific madrone shrubs are present with scattered Himalayan blackberry throughout. The WRA to the north provides moderate habitat and water quality benefits. The trees might provide some shade, but are generally too far away from wetland to provide significant shading. The presence of native trees and shrubs provides some habitat functions in the form of diverse ecological niches and refugia, but the understory is invasive species. The WRA to the north is mostly open, with grassy areas with invasive species dominating. The open spaces are not very diverse and offer limited water quality functions as grasses stabilize the ground during rain events, but retain little water and provide very limited velocity reduction for rain and surface flows. The majority of the WRA impacts will occur in this area north of Wetland A.

Vegetation within the remaining portions of the WRA includes scattered Douglas fir, bigleaf maple, and black cottonwood with lesser amounts of Pacific madrone and Oregon ash. There are areas where dense Himalayan blackberry thickets and scotch broom dominate the WRA with scattered saplings of Oregon white oak, Oregon ash, black cottonwood, and Pacific madrone. The herbaceous layer is dominated by common teasel and non-native pasture grasses including velvet grass, colonial bentgrass, red fescue (*Festuca rubra*), and meadow foxtail (*Alopecurus pratensis*). The buffer is significantly degraded around Wetland A as it is dominated by invasive species, lacks contiguous tree and shrub cover, and consists of primarily weedy species and low grasses. The unvegetated woodchip area does not provide habitat or water quality benefit to Wetland A.

8. Locations of all significant trees as defined by the City Arborist.

Response: Trees are present within the WRA of both Wetland A and Stream 1. Trees occur along the sides of the ravine and to a lesser extent, on terrace above Wetland A. Significant trees are shown in the Tree Protection and Removal Plan.

9. Identify adopted transportation, utility and other plan documents applicable to this proposal.

Response: The City of West Linn Transportation System Plan (TSP) and Utility Plans do not include any proposed public transportation or utility projects through the proposed development.

32.060 APPROVAL CRITERIA (STANDARD PROCESS)

No application for development on property containing a WRA shall be approved unless the approval authority finds that the proposed development is consistent with the following approval criteria, or can satisfy the criteria by conditions of approval:

A. WRA protection/minimizing impacts.

1. Development shall be conducted in a manner that will avoid or, if avoidance is not possible, minimize adverse impact on WRAs.
2. Mitigation and re-vegetation of disturbed WRAs shall be completed per CDC 32.090 and 32.100, respectively.

Response: The proposed project has minimized impacts to WRAs to the extent practicable while maintaining a feasible project. Minimization measures include minimizing areas of vegetation disturbance outside of the WRAs to the greatest extent practicable, utilizing areas of previous disturbance to the maximum extent, and minimizing grading of the steep slopes above Stream 1.

All temporarily disturbed WRAs will be permanently revegetated before completion of the project. The project proposes a total of 15,120 SF of permanent WRA impacts. A total of 7,560 SF of mitigation is proposed to offset the 15,120 SF of cumulative impacts to the various resource areas affected by the project. Responses to standards found in CDC 32.090 and 32.100 are provided below.

B. Storm water and storm water facilities.

1. Proposed developments shall be designed to maintain the existing WRAs and utilize them as the primary method of storm water conveyance through the project site unless:
   a. The surface water management plan calls for alternate configurations (culverts, piping, etc.); or
   b. Under CDC 32.070, the applicant demonstrates that the relocation of the water resource will not adversely impact the function of the WRA including, but not limited to, circumstances where the WRA is poorly defined or not clearly channelized.

      Re-vegetation, enhancement and/or mitigation of the re-aligned water resource shall be required as applicable.
2. Public and private storm water detention, storm water treatment facilities and storm water outfall or energy dissipaters (e.g., rip rap) may encroach into the WRA if:
   a. Accepted engineering practice requires it;
   b. Encroachment on significant trees shall be avoided when possible, and any tree loss shall be consistent with the City's Tree Technical Manual and mitigated per CDC 32.090;
   c. There shall be no direct outfall into the water resource, and any resulting outfall shall not have an erosive effect on the WRA or diminish the stability of slopes; and
   d. There are no reasonable alternatives available.

A geotechnical report may be required to make the determination regarding slope stability.

Response: The proposed development includes a stormwater design that manages stormwater on-site through filtration and detention. The disposal point for the development is near the southwest corner of the site and discharges into the existing ravine WRA. The proposed outfall location is the only reasonable location that directs stormwater into the existing ravine drainageway. If the outfall location were moved outside the WRA, stormwater would be directed toward the Interstate I-205 freeway and cause additional erosion concerns. No stormwater facilities are proposed to be located within the WRA.

3. Roadside storm water conveyance swales and ditches may be extended within rights-of-way located in a WRA. When possible, they shall be located along the side of the road furthest from the water resource. If the conveyance facility must be located along the side of the road closest to the water resource, it shall be located as close to the road/sidewalk as possible and include habitat friendly design features (treatment train, rain gardens, etc.).

Response: The proposed development does not include any roadside stormwater conveyance swales or ditches.

4. Storm water detention and/or treatment facilities in the WRA shall be designed without permanent perimeter fencing and shall be landscaped with native vegetation.

Response: The proposed development does not include any stormwater detention or treatment facilities in the WRA.

F. Roads, driveways and utilities.

1. New roads, driveways, or utilities shall avoid WRAs unless the applicant demonstrates that no other practical alternative exists. In that case, road design and construction techniques shall minimize impacts and disturbance to the WRA by the following methods:

   a. New roads and utilities crossing riparian habitat areas or streams shall be aligned as close to perpendicular to the channel as possible.

   b. Roads and driveways traversing WRAs shall be of the minimum width possible to comply with applicable road standards and protect public safety. The footprint of grading and site clearing to accommodate the road shall be minimized.

   c. Road and utility crossings shall avoid, where possible:

      1. Salmonid spawning or rearing areas;

      2. Stands of mature conifer trees in riparian areas;

3. Highly erodible soils;
4. Landslide prone areas;
5. Damage to, and fragmentation of, habitat; and
6. Wetlands identified on the WRA Map.

2. Crossing of fish bearing streams and riparian corridors shall use bridges or arch-bottomless culverts or the equivalent that provides comparable fish protection, to allow passage of wildlife and fish and to retain the natural stream bed.
3. New utilities spanning fish bearing stream sections, riparian corridors, and wetlands shall be located on existing roads/bridges, elevated walkways, conduit, or other existing structures or installed underground via tunneling or boring at a depth that avoids tree roots and does not alter the hydrology sustaining the water resource, unless the applicant demonstrates that it is not physically possible or it is cost prohibitive. Bore pits associated with the crossings shall be restored upon project completion. Dry, intermittent streams may be crossed with open cuts during a time period approved by the City and any agency with jurisdiction.
4. No fill or excavation is allowed within the ordinary high water mark of a water resource, unless all necessary permits are obtained from the City, U.S. Army Corps of Engineers and Oregon Department of State Lands (DSL).
5. Crossings of fish bearing streams shall be aligned, whenever possible, to serve multiple properties and be designed to accommodate conduit for utility lines. The applicant shall, to the extent legally permissible, work with the City to provide for a street layout and crossing location that will minimize the need for additional stream crossings in the future to serve surrounding properties.

Response: The proposed development includes portions of vehicular access lanes for service and emergency vehicles that are within the WRA. Due to the site's steep topography constraints, these portions of the vehicular access lanes are unable to be relocated outside of the WRA. The vehicular access is of the minimum required width for emergency access. No impacts to fish bearing streams or below ordinary high-water mark are proposed. No new utilities are proposed within the impacts, except for the proposed stormwater outfall in the southwest portion of the site.

G. Passive recreation. Low impact or passive outdoor recreation facilities for public use including, but not limited to, multi-use paths and trails, not exempted per CDC 32.040(B)(2), viewing platforms, historical or natural interpretive markers, and benches in the WRA, are subject to the following standards:

1. Trails shall be constructed using non-hazardous, water permeable materials with a maximum width of four feet or the recommended width under the applicable American Association of State Highway and Transportation

Officials (AASHTO) standards for the expected type and use, whichever is greater.

2. Paved trails are limited to the area within 20 feet of the outer boundary of the WRA, and such trails must comply with the storm water provisions of this chapter.
3. All trails in the WRA shall be set back from the water resource at least 30 feet except at stream crossing points or at points where the topography forces the trail closer to the water resource.
4. Trails shall be designed to minimize disturbance to existing vegetation, work with natural contours, avoid the fall line on slopes where possible, avoid areas with evidence of slope failure and ensure that trail runoff does not create channels in the WRA.
5. Foot bridge crossings shall be kept to a minimum. When the stream bank adjacent to the foot bridge is accessible (e.g., due to limited vegetation or topography), where possible, fences or railings shall be installed from the foot bridge and extend 15 feet beyond the terminus of the foot bridge to discourage trail users and pets from accessing the stream bank, disturbing wildlife and habitat areas, and causing vegetation loss, stream bank erosion and stream turbidity. Bridges shall not be made of continuous impervious materials or be treated with toxic substances that could leach into the WRA.
6. Interpretive facilities (including viewpoints) shall be at least 10 feet from the top of the water resource's bankfull flow/OHW or delineated wetland edge and constructed with a fence between users and the resource. Interpretive signs may be installed on footbridges.

Response: The proposed development does not include any low impact or passive recreation facilities, trails, bridges, or facilities within the WRA.

H. Daylighting Piped Streams.

1. As part of any application, covered or piped stream sections shown on the WRA Map are encouraged to be "daylighted" or opened. Once it is daylighted, the WRA will be limited to 15 feet on either side of the stream. Within that WRA, water quality measures are required which may include a storm water treatment system (e.g., vegetated bioswales), continuous vegetative ground cover (e.g., native grasses) at least 15 feet in width that provides year round efficacy, or a combination thereof.
2. The re-opened stream does not have to align with the original piped route but may take a different route on the subject property so long as it makes the appropriate upstream and downstream connections and meet the standards of subsections (H)(3) and (4) of this section.
3. A re-aligned stream must not create WRAs on adjacent properties not owned by the applicant unless the applicant provides a notarized letter signed by the

adjacent property owner(s) stating that the encroachment of the WRA is permitted.

4. The evaluation of proposed alignment and design of the reopened stream shall consider the following factors:
    a. The ability of the reopened stream to safely carry storm drainage through the area without causing significant erosion.
    b. Continuity with natural contours on adjacent properties, slope on site and drainage patterns.
    c. Continuity of adjacent vegetation and habitat values.
    d. The ability of the existing and proposed vegetation to filter sediment and pollutants and enhance water quality.
    e. Provision of water temperature conducive to fish habitat.
5. Any upstream or downstream WRAs or riparian corridors shall not apply to, or overlap, the daylighted stream channel.
6. When a stream is daylighted the applicant shall prepare and record a legal document describing the reduced WRA required by subsections (H)(1) and (5) of this section. The document will be signed by a representative of the City and recorded at the applicant's expense to better ensure long term recognition of the reduced WRA and reduced restrictions for the daylighted stream section.

Response: Not applicable. The project does not involve any in water work, nor work within previously piped streams.

I. The following habitat friendly development practices shall be incorporated into the design of any improvements or projects in the WRA to the degree possible:
    1. Restore disturbed soils to original or higher level of porosity to regain infiltration and storm water storage capacity.
    2. Apply a treatment train or series of storm water treatment measures to provide multiple opportunities for storm water treatment and reduce the possibility of system failure.
    3. Incorporate storm water management in road rights-of-way.
    4. Landscape with rain gardens to provide on-lot detention, filtering of rainwater, and groundwater recharge.
    5. Use multi-functional open drainage systems in lieu of conventional curb-and-gutter systems.
    6. Use green roofs for runoff reduction, energy savings, improved air quality, and enhanced aesthetics.
    7. Retain rooftop runoff in a rain barrel for later on-lot use in lawn and garden watering.

8. Disconnect downspouts from roofs and direct the flow to vegetated infiltration/filtration areas such as rain gardens.
9. Use pervious paving materials for driveways, parking lots, sidewalks, patios, and walkways.
10. Reduce sidewalk width to a minimum four feet. Grade the sidewalk so it drains to the front yard of a residential lot or retention area instead of towards the street.
11. Use shared driveways.
12. Reduce width of residential streets and driveways, especially at WRA crossings.
13. Reduce street length, primarily in residential areas, by encouraging clustering.
14. Reduce cul-de-sac radii and use pervious and/or vegetated islands in center to minimize impervious surfaces.
15. Use previously developed areas (PDAs) when given an option of developing PDA versus non-PDA land.
16. Minimize the building, hardscape and disturbance footprint.
17. Consider multi-story construction over a bigger footprint. (Ord. 1623 § 1, 2014; Ord. 1635 § 19, 2014; Ord. 1647 § 5, 2016; Ord. 1662 § 7, 2017)

Response: The proposed impacts to the WRA are the minimum impacts required for site circulation of emergency vehicles and usage of the site. No habitat-friendly amenities are proposed within the WRA.

32.090 MITIGATION PLAN

A. A mitigation plan shall only be required if development is proposed within a WRA (including development of a PDA). (Exempted activities of CDC 32.040 do not require mitigation unless specifically stated. Temporarily disturbed areas, including TDAs associated with exempted activities, do not require mitigation, just grade and soil restoration and re-vegetation.) The mitigation plan shall satisfy all applicable provisions of CDC 32.100, Re- Vegetation Plan Requirements.

Response: Mitigation is required in accordance with CDC 28.160.

B. Mitigation shall take place in the following locations, according to the following priorities (subsections (B)(1) through (4) of this section):
    1. On-site mitigation by restoring, creating or enhancing WRAs.
    2. Off-site mitigation in the same sub-watershed will be allowed, but only if the applicant has demonstrated that:
        a. It is not practicable to complete mitigation on-site, for example, there is not enough area on-site;

b. The mitigation will provide equal or superior ecological function and value.

3. Off-site mitigation outside the sub-watershed will be allowed, but only if the applicant has demonstrated that:

   a. It is not practicable to complete mitigation on-site, for example, there is not enough area on-site; and

   b. The mitigation will provide equal or superior ecological function and value.

4. Purchasing mitigation credits though DSL or other acceptable mitigation bank.

Response: Mitigation will occur onsite as enhancement to existing WRAs adjacent Wetland A (Figure 1).

C. Amount of mitigation.

1. The amount of mitigation shall be based on the square footage of the permanent disturbance area by the application. For every one square foot of non-PDA disturbed area, on-site mitigation shall require one square foot of WRA to be created, enhanced or restored.

2. For every one square foot of PDA that is disturbed, on-site mitigation shall require one half a square foot of WRA vegetation to be created, enhanced or restored.

Response: Permanent impacts to WRAs will occur in the form of grading and construction of roadway, parking lot, storage area, and the main building. Permanent impacts will be located in Previously Disturbed Areas (PDA) as the entire project area was altered or modified before January 1, 2006. The entire hillside was cut into two benched terraces as part of the I-205 construction during the late 1960s and early 1970s (WD2009-0342). This alteration removed native soils which were replaced with fill material.

The area of total permanent impacts to WRAs is 15,120 SF. The proposed impacts will be within PDAs. Therefore, the required amount of mitigation is equal to:

0.5 x (15,120 SF) = 7,560 SF

The applicant has proposed a total of 7,560 SF of mitigation in the form of enhancing existing WRA; therefore, the standard is met.

3. For any off-site mitigation, including the use of DSL mitigation credits, the requirement shall be for every one square foot of WRA that is disturbed, two square feet of WRA shall be created, enhanced or restored. The DSL mitigation credits program or mitigation bank shall require a legitimate bid on the cost of on-site mitigation multiplied by two to arrive at the appropriate dollar amount.

Response: Not applicable. Mitigation will occur onsite. Mitigation credits will not be used to fulfill any portion of the required mitigation.

E. A mitigation plan shall contain the following information:

1. A list of all responsible parties including, but not limited to, the owner, applicant, contractor, or other persons responsible for work on the development site.

Response: The responsible parties are provided below. Mitigation plantings will be installed by contractors who have not been selected at this time.

Property Owner: **City of West Linn – Engineering Department**
22500 Salamo Rd,
West Linn, OR 97068

Planning Consultant: SEA

Natural Resources: Harper Houf Peterson Righellis Inc.
205 SE Spokane Street, Suite 200
Portland, Oregon 97202
Contact: Dan Thew
Phone: 503-221-1131
Email: dant@hhpr.com

Landscape Architect: Harper Houf Peterson Righellis Inc.
205 SE Spokane Street, Suite 200
Portland, Oregon 97202
Contact: Dan Chin
Phone: 503-221-1131
Email: danchin@hhpr.com

2. A map showing where the specific adverse impacts will occur and where the mitigation activities will occur.

Response: Figure 1 shows the impact areas and proposed mitigation areas.

3. A re-vegetation plan for the area(s) to be mitigated that meets the standards of CDC 32.100.
4. An implementation schedule, including timeline for construction, mitigation, mitigation maintenance, monitoring, and reporting. All in-stream work in fish bearing streams shall be done in accordance with the Oregon Department of Fish and Wildlife.

Response: The revegetation plan is shown in Figure 1 in Attachment A. Mitigation will be installed during or after construction and will be conducted as soon as practicable based on the construction schedule. Construction of the proposed project is anticipated to begin in 2025. Monitoring of the mitigation area will be performed in the first year after planting to document survival of plant species,

establish photo points, and vegetation assessment plots. Monitoring shall occur each year until the mitigation requirements are met.

5. Assurances shall be established to rectify any mitigation actions that are not successful within the first three years. This may include bonding or other surety. (Ord. 1623 § 1, 2014)

Response: An annual monitoring report documenting the survival of the mitigation plantings will be submitted to the City of West Linn by December 31 of each monitoring year. Plants that die shall be replaced in kind as needed to ensure the minimum 80% of the required quantity of 76 trees and 378 shrubs survive during the monitoring period. No in-stream work is proposed to occur as part of this project.

32.100 RE-VEGETATION PLAN REQUIREMENTS

A. In order to achieve the goal of re-establishing forested canopy, native shrub and ground cover and to meet the mitigation requirements of CDC 32.090 and vegetative enhancement of CDC 32.080, tree and vegetation plantings are required according to the following standards:

1. All trees, shrubs and ground cover to be planted must be native plants selected from the Portland Plant List.

Response: Only native species will be installed in the revegetation plantings. All species proposed for planting were selected from the Portland Plant List. A list of species to be planted is provided in Figure 2 in Appendix A.

2. Plant size. Replacement trees must be at least one-half inch in caliper, measured at six inches above the ground level for field grown trees or above the soil line for container grown trees (the one-half inch minimum size may be an average caliper measure, recognizing that trees are not uniformly round), unless they are oak or madrone which may be one gallon size. Shrubs must be in at least a one-gallon container or the equivalent in ball and burlap and must be at least 12 inches in height.

Response: All trees will be a minimum one-half inch caliper, and all shrubs will be at least one-gallon container or equivalent ball and burlap and at least 12 inches in height.

3. Plant coverage.

a. Native trees and shrubs are required to be planted at a rate of five trees and 25 shrubs per every 500 square feet of disturbance area (calculated by dividing the number of square feet of disturbance area by 500, and then multiplying that result times five trees and 25 shrubs, and rounding all fractions to the nearest whole number of trees and shrubs; for example, if there will be 330 square feet of disturbance area, then 330 divided by 500 equals 0.66, and 0.66 times five equals 3.3, so three trees must be planted, and 0.66 times 25 equals 16.5, so 17 shrubs must be

planted). Bare ground must be planted or seeded with native grasses or herbs. Non-native sterile wheat grass may also be planted or seeded, in equal or lesser proportion to the native grasses or herbs.

b. Trees shall be planted between eight and 12 feet on center and shrubs shall be planted between four and five feet on center, or clustered in single species groups of no more than four plants, with each cluster planted between eight and 10 feet on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.

4. Plant diversity. Shrubs must consist of at least two different species. If 10 trees or more are planted, then no more than 50 percent of the trees may be of the same genus.

Response: Trees and shrubs will be planted in accordance with the density requirements above. A total of 7,560 SF of mitigation will be revegetated. The total quantity of shrubs required is equal to (7,560/500)*25= 378, and the total required number of trees is equal to (7,560/500)*5=75.6 The mitigation plan proposes to plant 76 trees and 378 shrubs. Planting Plan will include the following:

Table 3. Native Plants to be planted in Mitigation Area.

Species	Plant Form	Size Range	Minimum Spacing	Quantity
		Trees		
Big Leaf Maple (*Acer macrophyllum*)	Container / bare root	½ caliper min	8 to 12 ft o.c.	25
Oregon White Oak (*Quercus garryana*)	Container / bare root	½ caliper min	8 to 12 ft o.c.	25
Douglas Fir (*Pseudotsuga menziesii*)	Container / bare root	½ caliper min	8 to 12 ft o.c.	26
Total				76
		Shrubs		
Red elderberry (*Sambucus racemosa*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	60
Vine maple (*Acer circinatum*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	65
Western flowering dogwood (*Cornus nuttallii*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	55
Common snowberry (*Symphoricarpos albus*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	75
Service berry (*Amelanchier alnifolia*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	60
Osoberry (*Oemleria cerasiformis*)	Container / bare root	½ caliper min	4 to 5 ft o.c.	63
Total				378
		Herbs/Grasses		
Seed mix*	Seed	1 lb per 1,000 SF		7.5 lbs
* Seed mix to consist of one or more of the following species, depending on availability: Native Red Fescue - *Festuca rubra var rubra* California Brome - *Bromus carinatus* Blue Wildrye - *Elymus glaucus* Large Leaf Lupine - *Lupinus polyphyllus*				

5. Invasive vegetation. Invasive non-native or noxious vegetation must be removed within the mitigation area prior to planting.

Response: All invasive non-native or noxious weeds within mitigation areas will be removed or treated prior to planting mitigation areas.

6. Tree and shrub survival. A minimum survival rate of 80 percent of the trees and shrubs planted is expected by the third anniversary of the date that the mitigation planting is completed.

Response: A minimum 80 percent survival of trees and shrubs planted will be achieved within three years of mitigation construction.

7. Monitoring and reporting. Monitoring of the mitigation site is the ongoing responsibility of the property owner. Plants that die must be replaced in kind.

Response: Plants will be replaced in kind up to the minimum needed in order to achieve 80 percent survival at the end of the monitoring period.

8. To enhance survival of tree replacement and plantings, the following practices are required:

    a. Mulching. Mulch new plantings a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth.

Response: Mulch will be applied to new plantings within the mitigation area at the time of installation.

    b. Irrigation. Water new plantings one inch per week between June 15th to October 15th, for the three years following planting.

Response: New plantings will be irrigated to ensure survival beyond the monitoring period.

    c. Weed control. Remove, or control, non-native or noxious vegetation throughout maintenance period.

Response: Weeds will be monitored and controlled as needed throughout the maintenance period.

    d. Planting season. Plant bare root trees between December 1st and February 28th, and potted plants between October 15th and April 30th.

Response: Trees and shrubs will be planted between October 15 and April 30.

    e. Wildlife protection. Use plant sleeves or fencing to protect trees and shrubs against wildlife browsing and resulting damage to plants.

Response: Plant sleeves will be utilized on trees and shrubs to minimize damage from wildlife browsing.

B. When weather or other conditions prohibit planting according to schedule, the applicant shall ensure that disturbed areas are correctly protected with erosion control measures and shall provide the City with funds in the amount of 125 percent of a bid from a recognized landscaper or nursery which will cover the cost of the plant materials, installation and any follow up maintenance. Once the planting conditions are favorable the applicant shall proceed with the plantings and receive the funds back from the City upon completion, or the City will complete the plantings using those funds. (Ord. 1623 § 1, 2014).

Response: The applicant is committed to conducting the required mitigation as soon as site conditions are conducive. In the unlikely event that mitigation areas cannot be installed on schedule, the applicant will provide the necessary revegetation funds described above.

Appendix A: Figures

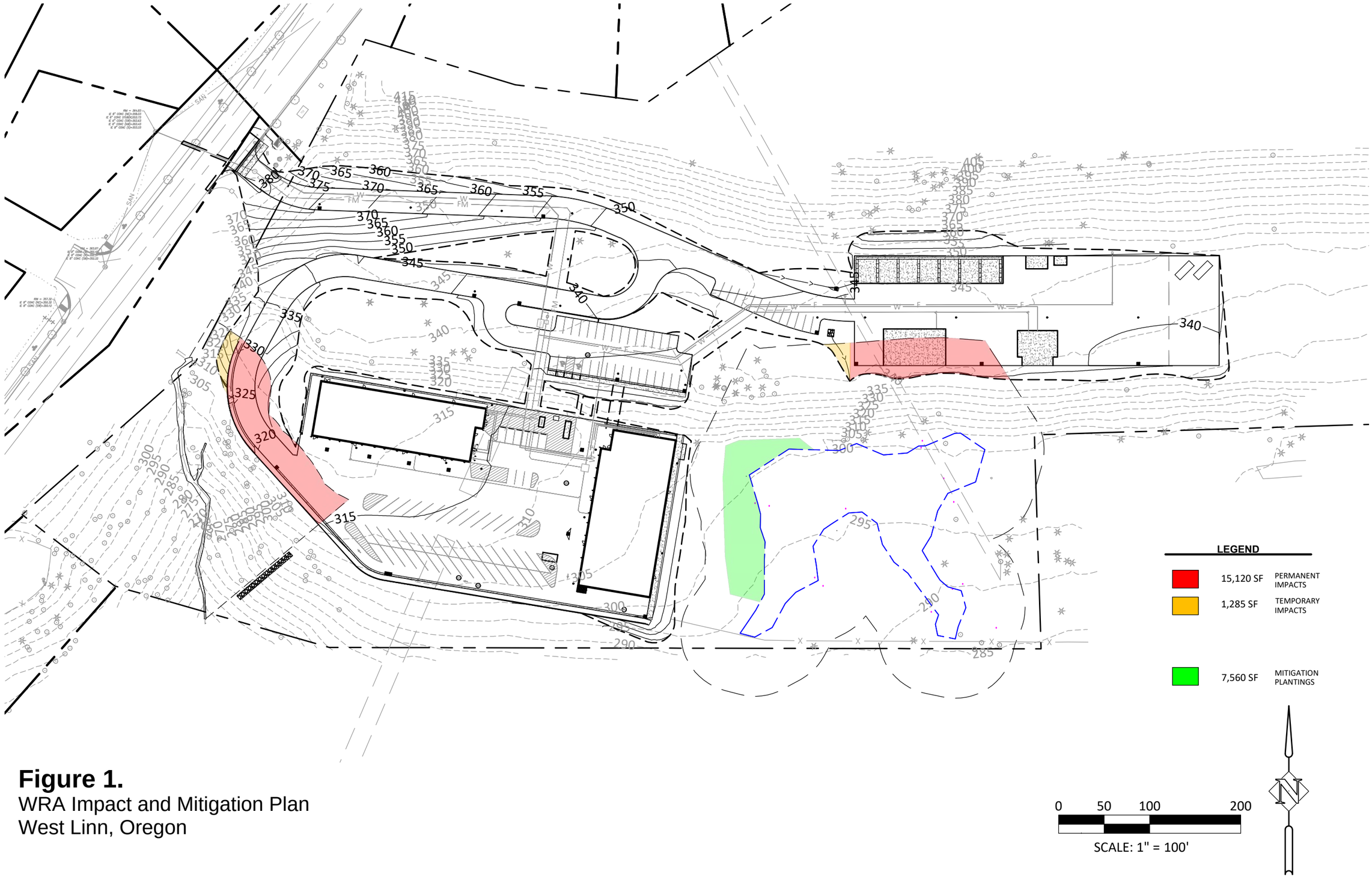

Figure 1.
WRA Impact and Mitigation Plan
West Linn, Oregon

Species	Plant Form	Size Range	Minimum Spacing	Quantity
Trees				
Big Leaf Maple (Acer macrophyllum**)**	**Container / bare root**	**½ caliper min**	**8 to 12 ft o.c.**	**25**
Oregon White Oak (Quercus garryana**)**	**Container / bare root**	**½ caliper min**	**8 to 12 ft o.c.**	**25**
Douglas Fir (Pseudotsuga menziesii**)**	**Container / bare root**	**½ caliper min**	**8 to 12 ft o.c.**	**26**
Total				**76**
Shrubs				
Red elderberry (Sambucus racemosa**)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**60**
Vine maple (Acer circinatum**)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**65**
Western flowering dogwood (Cornus ***nuttallii*****)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**55**
Common snowberry (Symphoricarpos albus**)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**75**
Service berry (Amelanchier alnifolia**)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**60**
Osoberry (Oemleria cerasiformis**)**	**Container / bare root**	**½ caliper min**	**4 to 5 ft o.c.**	**63**
Total				**378**
Herbs/Grasses				
Seed mix*	**Seed**	**1 lb per 1,000 SF**		**7.5 lbs**
*** Seed mix to consist of one or more of the following species, depending on availability:** **Native Red Fescue -** Festuca rubra var rubra **California Brome -** Bromus carinatus **Blue Wildrye -** Elymus glaucus **Large Leaf Lupine -** Lupinus polyphyllus				

Figure 2.

Planting Schedule
West Linn, Oregon