Natural Resource Assessment
18300 & 18450 NW West Union Road
Portland, Oregon

(Township 1 North, Range 1 West, Section 19BC,
Tax lots 500 & 600, Washington County)

Prepared for

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PHS Project Number: 6689
May 19, 2021 (Revised)

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1.0 INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a natural resource assessment on two parcels located along the south side of NW West Union Road in Portland, Oregon (Township 1 North, Range 1 West, Section 19BC, Tax lots 500 & 600, Washington County); see Figure 1 for limits of the study area. All figures are in Appendix A. This project involves the construction of an eco-friendly gas/service station.

This report presents the definitions and the methodology used to assess the natural resources within the project site as required by Clean Water Services (CWS) design and construction standards (R&O 19-5, as Amended by R&O 19-22). The field component of the natural resource assessment for this site was completed on July 25, 2017.

2.0 EXISTING CONDITIONS

The study area is located along the south side of NW West Union Road at 18300 and 18450 NW West Union Road, west of NW Deerfield Drive, and east of NW 185th Avenue in Portland, Washington County, Oregon. The site consists of tax lots 500 and 600 and is bounded to the south by a wetland floodplain associated with Springville Creek, a tributary to Bethany Lake located west of NW 185th Avenue. The south end of the proposed development site sits approximately 8 - 10 feet above the floodplain. Land use around the study area includes residential, commercial, open space, and agriculture. The study area is relatively level, with site elevations ranging from approximately 183 feet National Geodetic Vertical Datum (NGVD) in the northern portions of the site along NW West Union Road, to approximately 178 feet NGVD along the southern edge of the site.

The west end of the study area (tax lot 600) is located at the southeast corner of NW 185th Avenue and NW West Union Road and includes the remnants of a restaurant building that is no longer present and an asphalt/graveled parking lot. The remaining central and eastern portions of the site (tax lot 500) consist of an asphalt/graveled parking lot associated with the previously present restaurant at the west end; a vacant single-family residence with a driveway that extends onto NW West Union Road; and a graveled lot at the east end of the site, with an outbuilding, storage yard, and a driveway that extends onto NW West Union Road.

With the exception of a scattering of landscaped trees within the southwestern and south-central portions of the site, the property lacks overstory vegetation and structure. A few, small Ponderosa pine (*Pinus ponderosa*) are located along the southern edge of the property at the west end of the site; a shore pine (*Pinus contorta*) is located on the west side of the vacant house in the central portion of the property; and a row of three large conifers, one Douglas fir (*Pseudotsuga menziesii*) and two Western red cedars (*Thuja plicata*) are located along the southern property line, east of the vacant house. The remaining site vegetation consists of fallow fields, primarily composed of weedy grasses and forbs, including tall fescue (*Schedonorus arundinaceus*), orchard grass (*Dactylis glomerata*), common velvet grass (*Holcus lanatus*), brome (*Bromus sp.*), sweet vernal grass (*Anthoxanthum odoratum*), Queen Anne's lace (*Daucus carota*), common dandelion (*Taraxacum officinale*), white moth mullein (*Verbascum blattaria*), chicory (*Cichorium intybus*), garden vetch (*Vicia sativa*), and colonial bentgrass (*Agrostis capillaris*); also present are Himalayan blackberry (*Rubus armeniacus*) thickets.

Four driveways allow for access onto and off of the site; one is located at the northeast corner of tax lot 600 in the western portion of the site, which allows access onto the asphalt/graveled parking lot; a second driveway, just to the east of the first one, also allows access onto the asphalt/graveled parking lot; a paved third driveway extends from the vacant house in the central portion of the site onto NW West Union Road; and a fourth driveway located at the east end of the site allows for access from the asphalt/graveled lot/storage yard at the east end of the site onto NW West Union Road.

3.0 DISCUSSION OF WATER QUALITY SENSITIVE AREAS

Wetland

With the exception of a small wetland area (537 sf / 0.01 acre) within the very eastern tip of the site, no other wetland or waters of the state/US are present on the property. This small wetland is an extension of a larger wetland area located off-site to the south. The larger wetland area is a floodplain wetland associated with Springville Creek, a tributary to Bethany Lake, which is located west of NW 185th Avenue. The Cowardin class is palustrine, emergent, persistent, seasonally flooded (PEM1C) and the Hydrogeomorphic (HGM) class is Slope. We have requested a wetland determination from the Oregon Department of State Lands (DSL) on our findings and will submit the determination response to CWS upon receipt from DSL.

4.0 VEGETATED CORRIDOR ASSESSMENT

4.1 Vegetated Corridor Width Determination

The only portion of the site that has wetland is the very eastern tip of the study area; however, the large wetland area to the south of the site is within 200 feet of the southern property boundary, and therefore, the slope adjacent to the sensitive area/wetland was assessed in order to determine the width of the vegetated corridor (VC). The location of the VC, adjacent slopes, VC widths, and wetland/upland sample points are shown on Figure 2; plant community, VC sample point location and photograph locations are shown on Figure 3.

The vegetated corridor widths on the proposed development site are determined to be as follows:

Table 1. Summary of VC Width

Sensitive Area	VC Width	Justification
Wetland	Variable 10 to 50 feet	• Wetland size is greater than 0.5 acre • Not Isolated • Adjacent slopes are <25%

The slopes adjacent to wetland are less than 25%, and therefore, the adjacent VC width should be 50 feet; however, because the subject site is already developed, with the southern portion of the site including remnants/foundation of a restaurant, parking lots, a vacant house, an outbuilding, and a storage yard, the VC is truncated along the edges of the existing development. As such, the VC width varies from approximately 10 to 50 feet.

The proposed development will remove the vacant house and outbuilding from the central and eastern portions of the site. The southern portions of the vacant house and outbuilding are located within the 50-foot VC setback, and therefore, these portions of the vacant house and outbuilding are included within the VC. Areas to the west, south and east of the outbuilding consist of impermeable compacted gravel and concrete that will be included as part of the proposed development, and as such, these areas are excluded from the VC.

4.2 Vegetated Corridor Plant Community

There is one plant community located within the subject site, Plant Community A. Plant Community A (8,953 square feet / 0.20 acres) is located along the north side of the southern property boundary and primarily consists of fallow fields along the southern edges of the asphalt/graveled areas, and within the back and side yards of the vacant house. Vegetation in Plant Community A is predominantly composed of weedy grasses and forbs including such species as sweet vernal grass, common velvet grass, Colonial bentgrass (*Agrostis capillaris*), tall fescue, Queen Anne's lace, orchard grass, California brome (*Bromus carinatus*), chicory, common dandelion, moth mullein, hairy cat's ear (*Hypochaeris radicata*), and garden vetch (*Vicia sativa*); Himalayan blackberry and Scotch broom (*Cytisus scoparius*) were also observed in this area, as well as a few trees, Ponderosa pine in the southwestern corner of the site, and shore pine, Douglas fir and Western red cedar on the west and east sides of the vacant house in the central portion of the property.

See Appendix B for wetland/upland data sheets, and Appendix C for plant species and percent cover as documented within the plant community. Appendix C also includes photographs of the sensitive area/wetland and the VC. See Figure 3 for photo point locations.

4.3 Vegetated Corridor Plant Community Condition

Table 2 shows the percent composition of native versus non-native species, and tree canopy cover in accordance with Clean Water Services' standards.

Table 2. Summary of Plant Community

		Plant Community
Corridor Condition		**A**
Good	>80% cover of native plants, and >50% tree canopy	
Marginal	50% - 80% cover of native plants, and 26-50% tree canopy	
Degraded	<50% cover of native plants, and < 25% tree canopy	**8% natives; 0% tree canopy**

The condition of the VC is defined by the percentages of native species and canopy cover. Plant Community A has 8% native species and 0% tree canopy, and therefore, it is in "Degraded" corridor condition.

5.0 PROPOSED PROJECT

The proposed project consists of redeveloping an already existing developed site by constructing an eco-friendly gas/service station "West Union Chevron Extra Mile". One of the major goals of the service station is to get as close as possible in achieving "net zero energy use". Some of the key features of this service station in attaining this goal are quite unique in this type of industry and include the following: the use of existing geothermal heat transfer to heat the station during the winter; installing eco-roofs, which can intercept rainwater which in turn will decrease the rate of storm run-off and associated erosion, while also capturing carbon dioxide in the air, and providing a noise buffer; the use of solar panels; and low-energy, mercury-free halogen bulbs to provide the lighting needs of the station.

The proposed development will include a service station store, a fuel pump island with five fuel dispensers, electric vehicle (EV) charging stations, associated parking, stormwater treatment, and landscaping along the perimeter (Figure 4). The site is comprised of two tax lots, which will be consolidated into one. Access onto and off-of the site will be from NW West Union Road, in the western and central potions of the site. The stormwater plan will adhere to the design and construction standards of CWS. Stormwater from impervious surfaces will be directed into an on-site underground detention/treatment system, which will connect to an existing storm sewer system beneath NW West Union Road.

5.1 Vegetated Corridor Encroachments and Mitigation

A total of approximately 6,673 square feet / 0.15 acres of permanent vegetated corridor encroachment will result from the construction of the proposed service station (Figure 4). In addition, two areas of temporary VC encroachment will occur; 376 square feet of VC encroachment will occur in the southwestern portion of the site for connection to an existing sanitary manhole for the site's wastewater conveyance, and 170 square feet of temporary VC encroachment will result from the installation of a storm drain pipe and manhole in the eastern portion of the site. Installation of the manhole is an allowable use under CWS Section 3.05.5.c. and complies with Section 3.05.5 Utility Infrastructure criteria. Placement of the manhole is an allowable permanent encroachment, and therefore, no mitigation is required. Once the sanitary connection, and storm drain pipe and manhole have been installed, these areas will be restored and re-vegetated to good corridor condition with native herbs and shrubs, such as California brome (*Bromus carinatus*), Blue wild-rye (*Elymus glaucus*), and Western sword fern (*Polystichum munitum*). No impacts of any kind are proposed for the wetland.

The outbuilding and associated asphalt/graveled parking area and storage yard that are located in the eastern portion of the site, will be removed/graded and planted with native trees and shrubs, which will result in creating 6,713 square feet / 0.15 acres of on-site vegetated corridor in an area where vegetated corridor currently does not exist. The proposed VC creation area will not only meet the required 1:1 replacement mitigation ratio but will exceed it with 40 sf of additional VC creation. (Table 3 and Figure 5). This complies with the standard CWS requirement under Section 3.08.2.a. The on-site mitigation areas will be created and enhanced to "good" quality condition in accordance with CWS Section 3.14.2. Temporary encroachment areas will also be enhanced to "good" quality condition at the end of the construction period. Enhancement will include the removal of any invasive non-native species by hand and comply with Appendix A: Planting Requirements (R&O 17-5).

Table 3. Replacement Mitigation

Location of Replacement Mitigation	Permanent Encroachment Square Feet / Acreage	Mitigation Ratio	VC Mitigation Area Square Feet / Acreage
On-site	6,673 / 0.15	1:1	6,713 / 0.15

5.2 Vegetated Corridor Enhancement and Mitigation, and Wetland Enhancement

There will be three areas of remaining vegetated corridor, 2,240 square foot / 0.05 acres located within the southwestern portion of the site, and two areas totaling 1,613 square feet / 0.04 acres in the eastern portion of the site. All three of these areas are in degraded corridor condition, and therefore, will be enhanced to good corridor condition by removing and controlling undesirable vegetation and revegetating these areas with native species of trees and shrubs. Enhancement of these areas, in addition to the proposed VC creation area, will result in a total of 10,566 square feet / 0.24 acres of contiguous good condition vegetated corridor, which is an increase in the area and improvement of the vegetated corridor condition than is currently present (Figure 5). Within the planting areas, bare areas greater than 25 square feet will be seeded with a native seed mix. Trees and shrubs to be installed in the mitigation and enhancement areas will be in compliance with the spacing, density, and native species requirements per CWS Current Design & Construction Standards - R&O 17-5 Appendix A "Planting Requirements". The proposed plantings will also be in compliance with BPA corridor standards for height requirements. Table 4 (Figure 5) lists native plants suitable for installation throughout the vegetated corridor. The plant species were chosen for 1) their suitability to the soils and hydrology of the site, 2) their natural occurrence in the area and 3) their local availability.

Table 4. Proposed Native Vegetation for VC Mitigation and Enhancement Areas

Botanical Name	Common Name	Size	Quantity
***TREES (104 Total)**			
*Acer macrophyllum***	Big-leaf maple	2 gallon	24
*Arbutus menziesii***	Pacific madrone	2 gallon	20
Cornus nuttallii	Pacific dogwood	2 gallon	20
Rhamnus purshiana	Cascara	2 gallon	18
*Thuja plicata***	Western red cedar	2 gallon	22
***SHRUBS (522 Total)**			
Cornus stolonifera	Red-osier dogwood	1 gallon	124
Mahonia aquifolium	Tall Oregon grape	1 gallon	84
Polystichum munitum	Western sword fern	1 gallon	140
Rosa nutkana	Nootka rose	1 gallon	70
Symphoricarpos albus	Snowberry	1 gallon	104
GRASS SEED (Native Seed Mix)			
Bromus carinatus	California brome	Seed	1# per 1,000 SF
Elymus glaucus	Blue wild-rye		

*Plant locations to be determined by landscape architect incorporated into landscape plan.

**To be planted only within central and western two-thirds of VC planting area, not along north edge of property nor eastern end of VC planting area (per BPA corridor standards).

Restoration and enhancement will be consistent with Clean Water Services' standards. The overall goal will be to enhance the corridor to "good" condition, as required by Clean Water Services. Plant locations to be determined by the landscape architect and incorporated into the landscape plan. The vegetated corridor will be contained in a conservation tract and easement and shall not be part of any parcel to be used for future development.

In addition to the replacement mitigation described above, the applicant will also enhance the degraded wetland at the east end of the site by removing invasive non-native species and planting native species of shrubs and herbs (Table 5, Figure 5). The enhancement of degraded wetland will provide a public benefit to water quality. Several large boulders that are present within the eastern end of the site will be left in the VC creation and enhancement areas and will further uplift the natural resources on site by providing enhanced habitat for smaller animals, such as herptiles. Per THPRD's request, the applicant will also install a fence along the southern property line of the development site, adjacent to the gas station building and parking lot and repair/fill-in a gap in the sidewalk along the south side of NW West Union Road just beyond the east end of the development site (Figure 5).

Table 5. Proposed Wetland Enhancement Plants

Botanical Name	Common Name	Size	Quantity
***SHRUBS (30 Total)**			
Cornus stolonifera	Red-osier dogwood	1 gallon	10
Rosa pisocarpa	Clustered rose	1 gallon	10
Spiraea douglasii	Douglas's spiraea	1 gallon	10
Herbaceous (Native Seed Mix)			
Deschampsia elongate	Slender hairgrass	Seed	1# per 1,000 SF
Glyceria occidentalis	Western manna-grass		

*****Plant locations to be determined by landscape architect and incorporated into landscape plan.

5.3 Alternatives Analysis

As discussed above, the proposed project consists of redeveloping an existing developed site by constructing an eco-friendly service station within the Bethany area at the southeast corner of NW 185th Avenue and NW West Union Road. As the proposed development plan will encroach into a VC that is in "Degraded" corridor condition and exceeds 30% of the depth of the VC or 40% of the length of the VC, a Tier 2 Alternatives Analysis is required. The elimination of a portion of the VC will meet all Tier 2 Alternative Analysis criteria through the following:

1. The proposed encroachment area is mitigated in accordance with Section 3.08.

Mitigation for permanent impacts to the VC will be achieved through on-site VC replacement mitigation, as outlined in Section 3.08 of CWS Design and Construction Standards. The mitigation criteria are intended to protect water quality for public benefit. Additional public benefit, in excess of the mitigation requirement, will be achieved through additional enhancement of a degraded wetland in the eastern end of the site that is connected to a larger offsite wetland area to the south of the site. Temporary encroachments will be mitigated in place through re-vegetation to comply with Section 3.05.5.

2. **The enhancement mitigation protects the functions and values of the Vegetated Corridor and Sensitive Area.**

The VC to be impacted is in "degraded" corridor condition and there will be no impact to sensitive areas (wetland), which are located on- and offsite. The applicant will utilize CWS' replacement mitigation standard, as outlined in Section 3.08 of CWS Design and Construction Standards, to mitigate for the proposed encroachment. All proposed on-site enhancements will protect the functioning of adjoining VC and sensitive areas.

3. **Enhancement of the replacement area, if not already in Good Corridor Condition, and either the remaining Vegetated Corridor on the site or the first 50 feet of width closest to the resource, whichever is less, to a Good Corridor Condition.**

Due to necessary design elements in the site plan, a portion of the VC will be impacted. The proposed replacement mitigation area will be enhanced to "good" corridor condition, as will temporary encroachment areas and required enhancement areas in accordance with CWS standards. The proposed replacement area was identified based upon the location and limits of the existing VC and existing development.

4. **A District Stormwater Connection Permit is likely to be issued based on proposed plans.**

The applicant reasonably expects to obtain a District Stormwater Connection Permit based on proposed plans for the project.

5. **Location of the development and site planning minimizes incursion into the Vegetated Corridor.**

Encroachment into the on-site vegetated corridor has been minimized to the maximum extent practicable. However, due to the severely limiting unconventional wedge shape of the subject site, vegetated corridor encroachments are necessary for the construction of the building as proposed, to accommodate access roads and movement areas near the fuel pump island, parking areas, and other required infrastructure within the developable portions of the site. Section 5.3 #6, below, details the reasons why this property was chosen for the proposed development, and why encroachment into the vegetated corridor is necessary.

6. **No practicable alternative to the location of the development exists that will not disturb the Sensitive Area or Vegetated Corridor.**

The proposed site was chosen for several reasons, including the absence of and need for such a facility in a highly populated and traveled area north of US Highway 26; the lack of readily available sites of sufficient size and appropriate zoning to accommodate the necessary infrastructure for a service station; the ease of travel to and from other parts of the region; and recognizing the potential of redeveloping a vacant site that has continued to deteriorate over the years into more and more of an eyesore in a highly visible location, subject to illegal dumping of garbage onto the site and into the vegetated corridor and wetland area to the south. These are some of the reasons that led the applicant to choose the proposed development site as the preferred site.

Due to the unconventional, narrow wedge shape of the site, and the presence of a wetland in the eastern end of the site, the western half of the site is the only appropriate area

available for a service station store, a minimum of five fuel dispensers, EV charging stations, the required turning radius for vehicles to safely move into and out of the site, and a maintained access driveway allowing for safe access onto and off of NW West Union Road.

Four alternatives were considered for the site.

Alternative 1: "No build" alternative. The no build alternative would mean that the service station would not be constructed, and the existing vacant lot would continue to deteriorate with weedy vegetation and be subject to ongoing illegal dumping of garbage onto the site and into the vegetated corridor and wetland area to the south, remaining an eyesore in a highly visible location; and leaving a rapidly growing area to travel further to refuel their vehicles, and thus generate more pollutants associated with auto travel.

Alternative 2: Alternative 2 (Figure 6) would have maximized the buildable area by filling in the wetland in the eastern end of the site. This alternative would have resulted in completely eliminating the onsite sensitive area (wetland) and Vegetated Corridor but would have provided additional services to customers, including additional parking and car wash.

Alternative 3: Alternative 3 (Figure 7) had a larger building footprint to accommodate a slightly larger sales floor and a fuel pump island with six fuel dispensers (capable of fueling twelve cars). The larger footprint building has been trending out of necessity of the consumer demanding fresh produce options, more varieties of beverages, health and beauty items, transgender restrooms, ADA space, and other conveniences. Additionally, the building size and shape provided for the economical installation and use of the solar electrical equipment and the geothermal heating/cooling systems. This option would have eliminated the Vegetated Corridor on the west and south end of the site to accommodate the larger footprints of the building and fuel pump island. This alternative provided a much more balanced economic model for fuel stations of this type.

Alternative 4: Alternative 4 (Figure 5) is the preferred alternative, which was designed by minimizing VC impacts to the greatest extent practicable while keeping the project feasible. In this alternative, wetland impact is completely avoided and VC impacts are further reduced by reducing the building footprint and locating it further to the north, and by reducing the fuel pump island from an island with six fuel dispensers to an island with five dispensers (only capable of fueling ten cars). This alternative allows us to maintain the onsite wetland and VC areas. VC creation and enhancement will be maximized in the eastern portion of the site, an area of VC enhancement will also occur within the southwestern portion of the site. In addition, the presence of the proposed service station will provide 24/7 surveillance of the site, which will deter illegal dumping of garbage into the VC and wetland areas. This alternative comes at the cost of eliminating customer amenities for a customer service-related business.

7. The proposed encroachment provides public benefits.

The proposed removal of the existing degraded structures and compacted, impermeable surfaces, and replacing these areas with native vegetation, and providing stormwater treatment for the site will improve water quality and provide a public benefit to water quality. The applicant will create 6,713 square feet / 0.15 acres of vegetated corridor, where none currently exists, and enhance 3,853 square feet / 0.09 acres of vegetated corridor that is presently in "degraded" corridor condition to "good" corridor condition. This will result in a total of 10,566 square feet /

0.24 acres of "good" condition vegetated corridor adjacent to a large wetland floodplain associated with Springville Creek, and as such, the public and the sensitive area will benefit from project implementation. The current corridor contains some invasive species likely to dominate the VC further without enhancement. Increasing the native vegetation within the existing VC is a direct benefit to water quality, native plant communities, and an improvement for local residents.

5.4 Discussion of Wetland and Vegetated Corridor Functions and Values

As a requirement of the Tier 2 analysis, a functions and values assessment is required for the sensitive areas on site. The functions and values of the sensitive area, as well as the adjoining VC, were assessed within the study area using the HGM Classification Judgmental Assessment Method.

Water quality and quantity

Precipitation, overland flow and groundwater are the main sources of hydrology for the small wetland area that is located within the very eastern tip of the site, and which is part of a larger wetland area located offsite to the south that is a floodplain wetland associated with Springville Creek. Precipitation, overland flow and runoff from impervious surfaces are the main contributors to hydrology within the VC. Any chemicals or nutrients in the wetland are from surface runoff from adjacent uplands. There is no potential for standing water within the VC as the sloped terrain does not retain hydrology for prolonged duration. Major inorganic nutrients, such as nitrogen, phosphorus and ammonium nitrate, are likely partially removed due to the VC's dense herbaceous vegetation, which uplifts water quality to the sensitive area. It is likely the VC is a nutrient sink, allowing plants to take up and hold nutrients during the summer months. Substrate surrounding the sensitive area primarily consists of compacted, impermeable gravel and asphalt, which likely allows runoff to enter the sensitive area especially during storm events. There is no complex micro topography on the site and any long-term saturation is concentrated to a single part of the site, within the wetland.

Fish and Wildlife

The sensitive area is densely vegetated and does not provides fish habitat; however, because it is connected to a larger wetland area, it is capable of providing habitat for small mammals and other types of wildlife, including herptiles. The adjacent VC does not provide fish habitat but contains enough woody debris, native and non-native trees and shrubs that likely provide habitat for small mammals, birds and herptiles. The VC does not contain areas of long-term standing water, which decreases the likelihood of suitable breeding habitat for amphibians; however, it is located adjacent to a larger wetland area, which seasonally may contain enough water to provide suitable breeding habitat for amphibians, which in turn may travel through parts of the VC that are located along the edge of the onsite wetland. Adjoining uplands are mostly impermeable surfaces consisting of compacted gravel and modified substrate or fill. Despite heavy traffic along adjacent roads, larger species such as beaver, rodents, coyote, and deer are likely to occasionally utilize the VC due to its location adjacent to a larger wetland area, which is part of the Springville Creek corridor.

Native Plant Communities and Species Diversity

A few large trees are present within the VC but vegetation within the VC primarily consists of overgrown non-native groundcover and invasive shrubs, such as Himalayan blackberry (Appendix C). Species diversity and structure in the sensitive area and in the VC are generally

low, and according to CWS' regulations, the VC to be impacted on the site is considered to be in "degraded" condition due to a dominance of invasive and non-native species, and lack of canopy cover.

Recreation and Education

Recreation and educational opportunities are not known to occur at this location.

6.0 REFERENCES

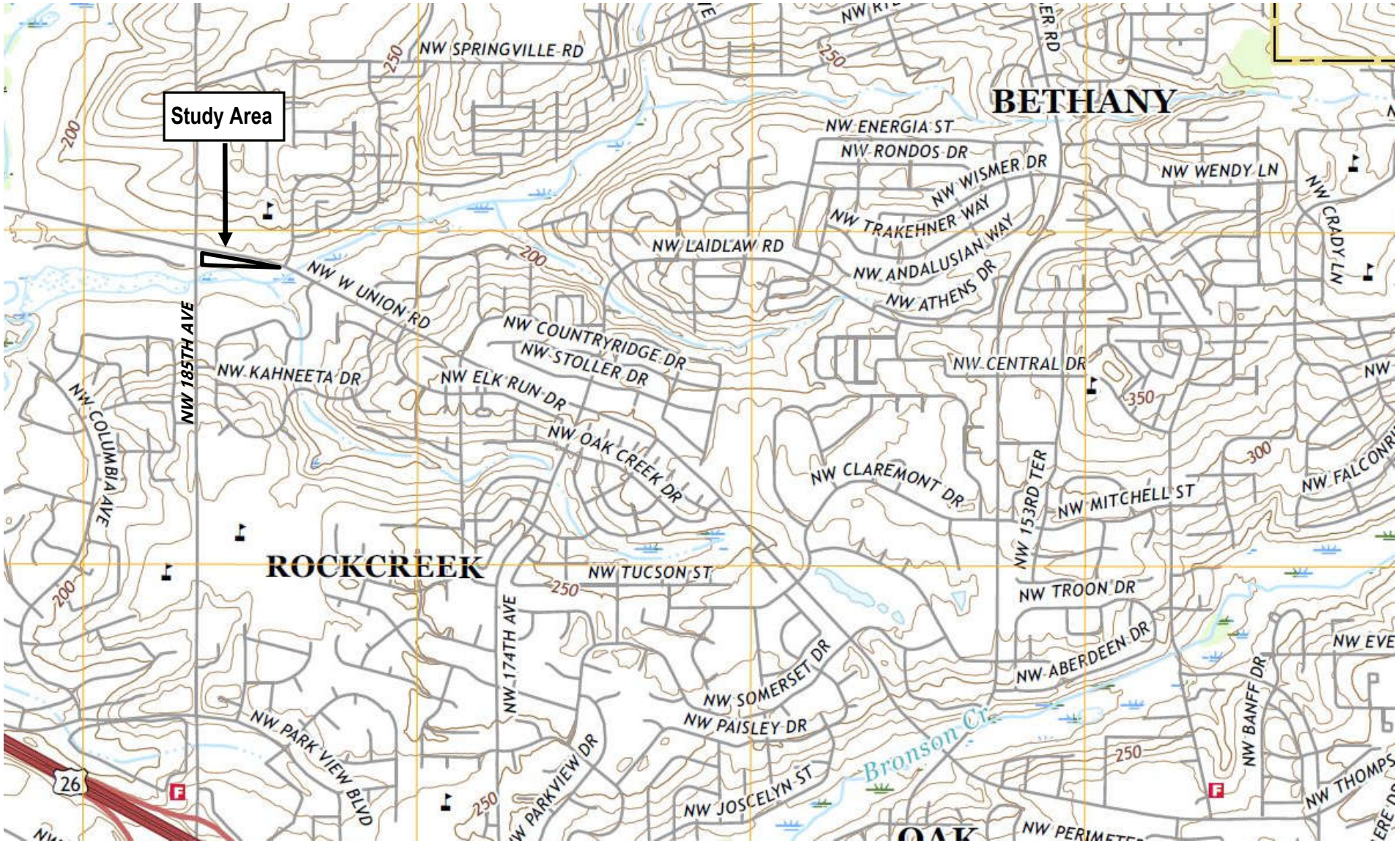
Adamus, P.R. 2001. *Guidebook for Hydrogeomorphic (HGM)–based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles*. Oregon Division of State Lands, Salem, OR.

Clean Water Services, 2019. *Design and Construction Standards (R&O 19-05, as Amended by R&O 19-22)*.

US Geologic Survey, 2017. *7.5-minute topographic map, Linnton, Oregon quadrangle*.

Appendix A

Figures



#6689
10/26/2019

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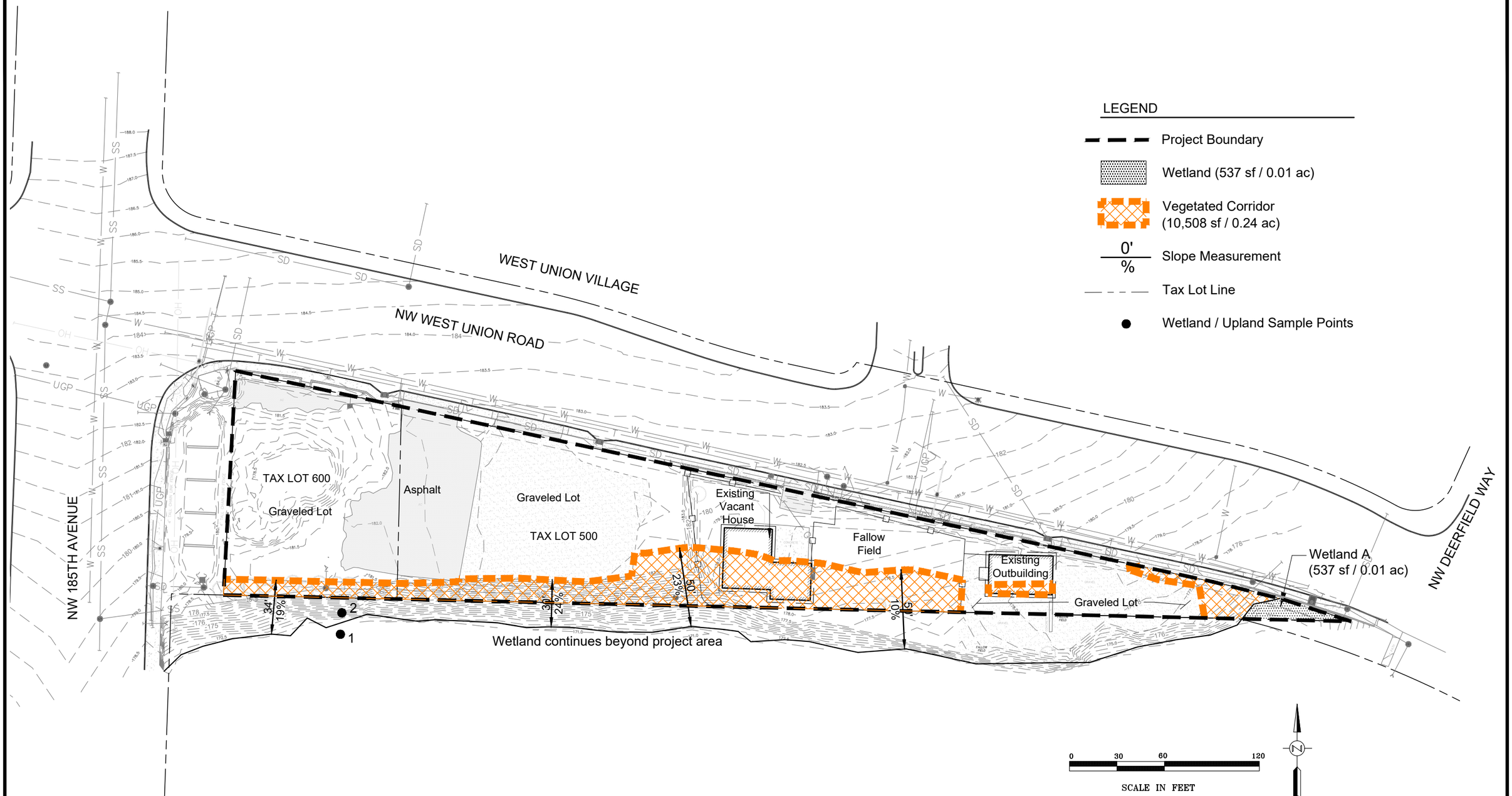
General Location and Topography
18300 & 18450 NW West Union Road - Portland, Oregon
United States Geological Survey (USGS), Linnton, Oregon, 7.5 Quadrangle, 2017
(viewer/nationalmap.gov/basic)

FIGURE
1



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Survey provided by 3J Consulting (2017).
Survey accuracy is sub-centimeter.

Existing Conditions
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE
2

2-2-2021

X:\Project Directories\6600\6689 West Union Chevron (old # 5410, 6261)\AutoCAD\PlotDwgs\Fig2 ExCond.dwg, 2/2/2021 1:45:11 PM

LEGEND

- Project Boundary
- Wetland (537 sf / 0.01 ac)
- Vegetated Corridor (10,508 sf / 0.24 ac)
- Plant Community A (Degraded) (8,953 sf / 0.20 ac)
- Tax Lot Line
- Wetland / Upland Sample Points
- Vegetation Sample Point
- Photo Point

WEST UNION VILLAGE

NW WEST UNION ROAD

NW 185TH AVENUE

NW DEERFIELD WAY

TAX LOT 600

Graveled Lot

Asphalt

Graveled Lot

TAX LOT 500

Existing Vacant House

Fallow Field

Existing Outbuilding

Graveled Lot

Wetland A (537 sf / 0.01 ac)

A

B

C

D

1

2

Wetland continues beyond project area

0 30 60 120

SCALE IN FEET

Survey provided by 3J Consulting (2017).
Survey accuracy is sub-centimeter.

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Vegetated Corridor Plant Community
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE 3

2-2-2021

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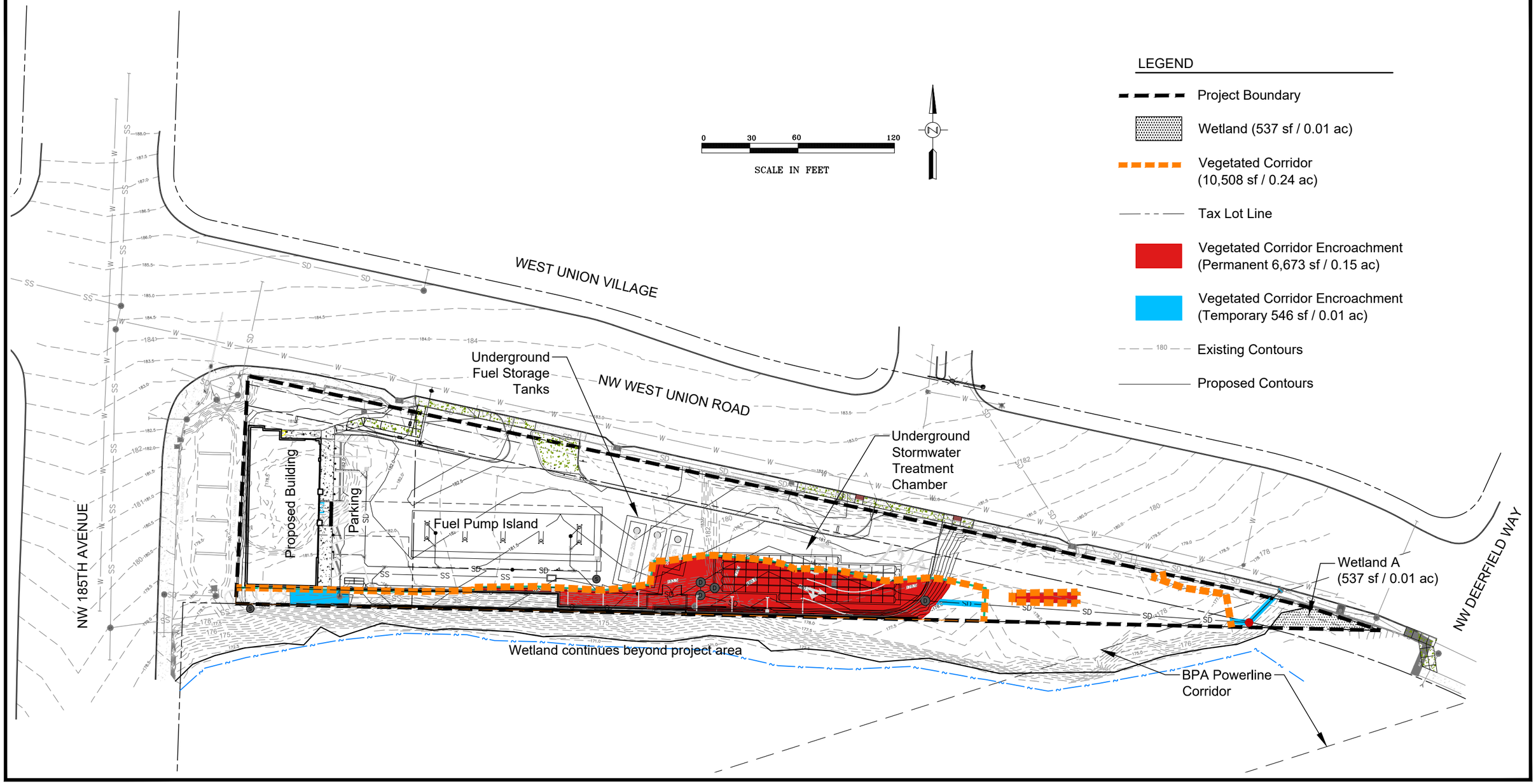

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Base provided by 3J Consulting (2017).

Site Plan with Vegetated Corridor Encroachments
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE
4

5-18-2021

X:\Project Directories\6600\6689 West Union Chevron (old # 5410, 6261)\AutoCAD\PlotDwgs\Fig4 Site Plan.dwg, 5/18/2021 11:03:24 AM

Proposed Wetland Enhancement Plants

Botanical Name	Common Name	Size	Quantity
***SHRUBS (30 Total)**			
Cornus stolonifera	Red-osier dogwood	1 gallon	10
Rosa pisocarpa	Clustered rose	1 gallon	10
Spiraea douglasii	Douglas's spiraea	1 gallon	10
HERBACEOUS (Native Seed Mix)			
Deschampsia elongata	Slender hairgrass	Seed	1# per 1,000 SF
Glyceria occidentalis	Western manna-grass		

*Plant locations to be determined by landscape architect and incorporated into landscape plan.

Proposed Vegetated Corridor Enhancement / Creation Plants

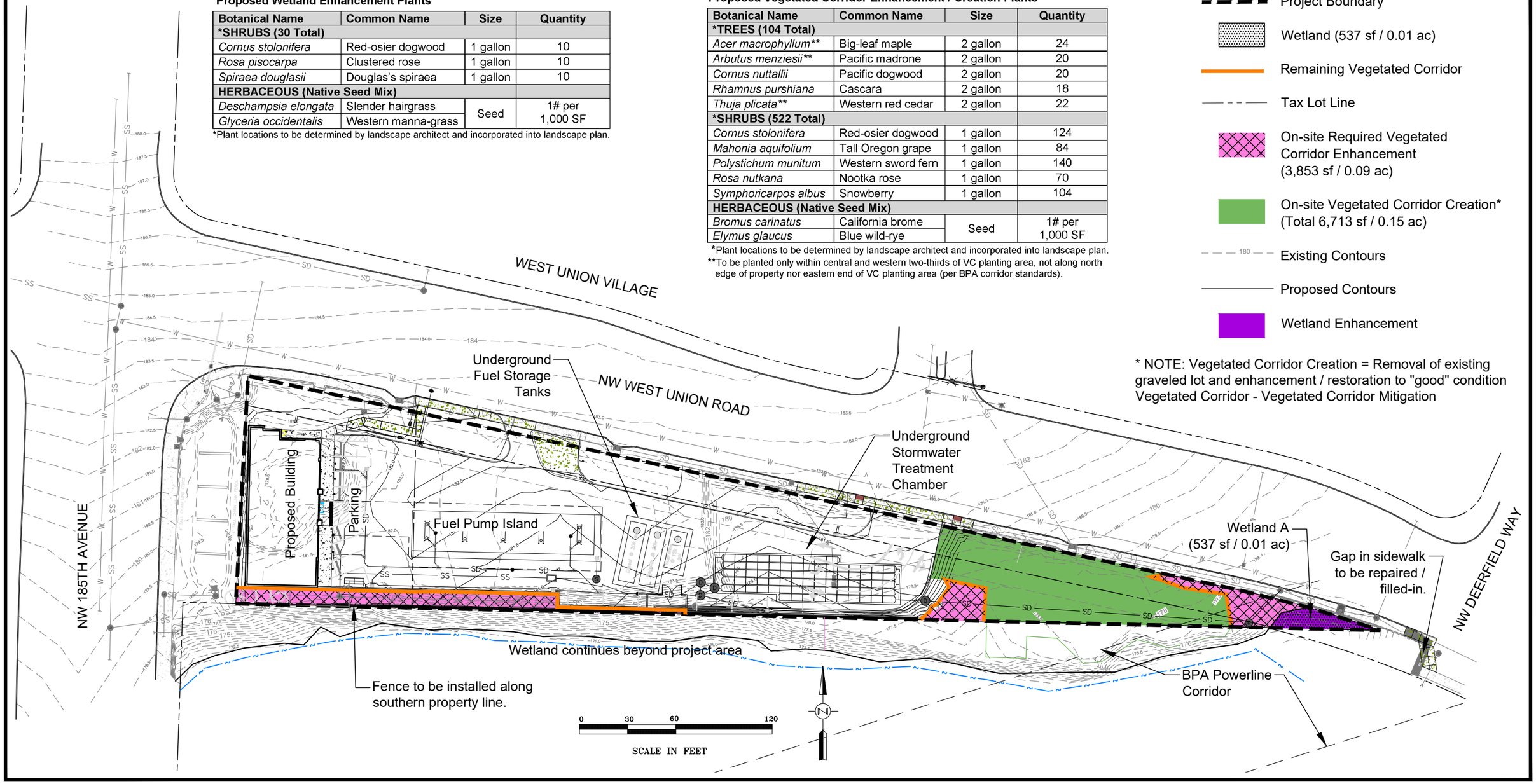
Botanical Name	Common Name	Size	Quantity
***TREES (104 Total)**			
*Acer macrophyllum***	Big-leaf maple	2 gallon	24
*Arbutus menziesii***	Pacific madrone	2 gallon	20
Cornus nuttallii	Pacific dogwood	2 gallon	20
Rhamnus purshiana	Cascara	2 gallon	18
*Thuja plicata***	Western red cedar	2 gallon	22
***SHRUBS (522 Total)**			
Cornus stolonifera	Red-osier dogwood	1 gallon	124
Mahonia aquifolium	Tall Oregon grape	1 gallon	84
Polystichum munitum	Western sword fern	1 gallon	140
Rosa nutkana	Nootka rose	1 gallon	70
Symphoricarpos albus	Snowberry	1 gallon	104
HERBACEOUS (Native Seed Mix)			
Bromus carinatus	California brome	Seed	1# per 1,000 SF
Elymus glaucus	Blue wild-rye		

*Plant locations to be determined by landscape architect and incorporated into landscape plan.
**To be planted only within central and western two-thirds of VC planting area, not along north edge of property nor eastern end of VC planting area (per BPA corridor standards).

LEGEND

- Project Boundary
- Wetland (537 sf / 0.01 ac)
- Remaining Vegetated Corridor
- Tax Lot Line
- On-site Required Vegetated Corridor Enhancement (3,853 sf / 0.09 ac)
- On-site Vegetated Corridor Creation* (Total 6,713 sf / 0.15 ac)
- Existing Contours
- Proposed Contours
- Wetland Enhancement

* NOTE: Vegetated Corridor Creation = Removal of existing graveled lot and enhancement / restoration to "good" condition Vegetated Corridor - Vegetated Corridor Mitigation



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Base provided by 3J Consulting (2017).

Site Plan with Vegetated Corridor Mitigation and Enhancement and Wetland Enhancement
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE 5

5-18-2021

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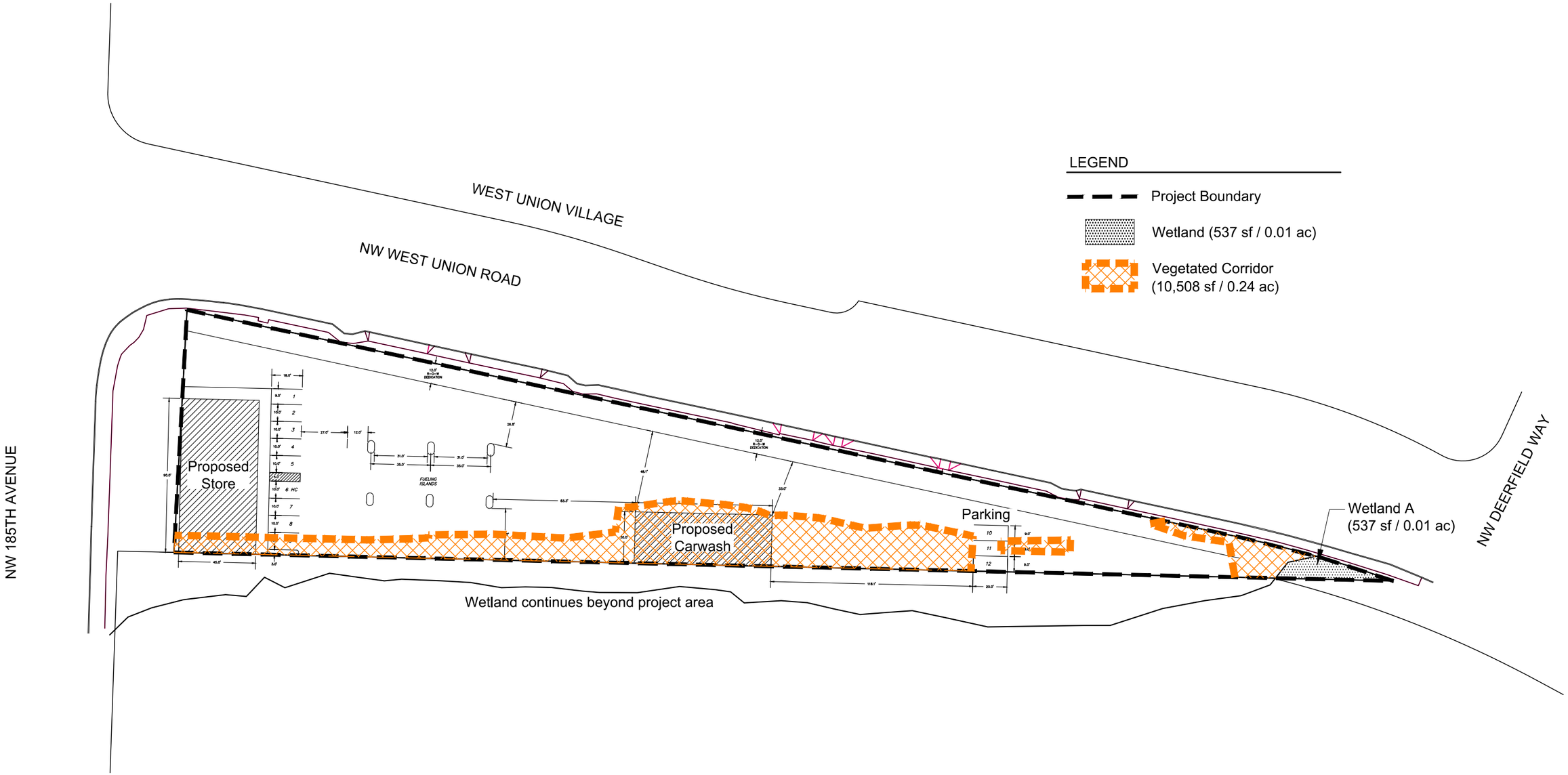

Alternative plan provided by 3J Consulting (2017).

Alternative 2 Site Plan
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE
6

2-1-2021

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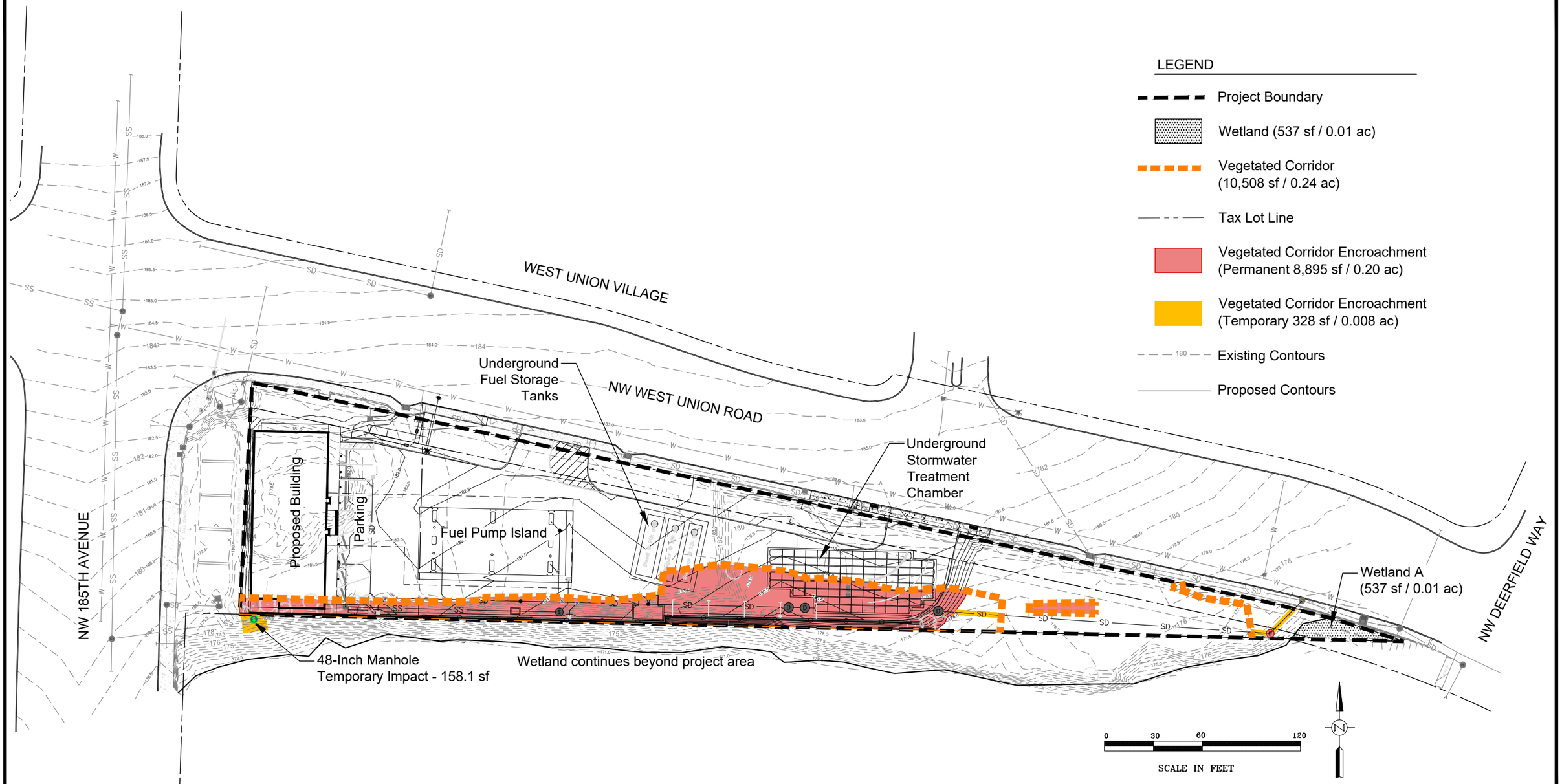
Phone: (503) 570-0800 Fax (503) 570-0855

X:\Project Directories\6600\6689 West Union Chevron (old # 5410, 6261)\AutoCAD\PlotDwgs\Fig7 AltSitePlan.dwg, 2/1/2021 7:15:56 PM



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Base provided by 3J Consulting (2017).

Alternative 3 Site Plan with Vegetated Corridor Encroachments
18300 & 18450 NW West Union Road - Portland, Oregon

FIGURE 7

2-2-2021

Appendix B

Wetland Determination Data Sheets

PHS # 6689

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 18300, 18450 NW West Union Rd City/County: Portland/Washington Sampling Date: 7/25/2017

Applicant/Owner: CJRW, LLC State: OR Sampling Point: 1

Investigator(s): CT/CR Section, Township, Range: Section 19BC, Township 1N, Range 1W

Landform (hillslope, terrace, etc.): Floodplain Terrace Local relief (concave, convex, none): None Slope (%): <5%

Subregion (LRR): LRR A Lat: 45.557419 Long: -122.883333 Datum: WGS84

Soil Map Unit Name: Verboort Silty Clay Loam NWI Classification: PEM1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No		

Remarks:

VEGETATION - Use scientific names of plants.

		absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)				
1				
2				
3				
4				
		0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	
Herb Stratum (plot size: 10)				
1	*Leersia oryzoides*	95	X	OBL
2	*Impatiens capensis*	5		FACW
3	*Holcus lanatus*	5		FAC
4	*Polygonum persicaria*	2		FACW
5				
6				
7				
8				
		107	= Total Cover	
Woody Vine Stratum (plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL PHS # 6689 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
0-18	2.5Y 3/1	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Depleted Below Dark Surface (A11)
- X 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 X **No** ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ____ Salt Crust (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- 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	X	No	____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 0

Wetland Hydrology Present? Yes X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PHS # 6689

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 18300, 18450 NW West Union Rd | City/County: Portland/Washington | Sampling Date: 7/25/2017

Applicant/Owner: CJRW, LLC | State: OR | Sampling Point: 2

Investigator(s): CR/CT | Section, Township, Range: Section 19BC, Township 1N, Range 1W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): <25%

Subregion (LRR): LRR A | Lat: 45.557444 | Long: -122.866944 | Datum: WGS84

Soil Map Unit Name: Aloha Silt Loam | NWI Classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks)

Are vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ____ Soil ____ or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS -- Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	Is Sampled Area within a Wetland?	Yes	No X
Hydric Soil Present?	Yes	No X			
Wetland Hydrology Present?	Yes	No X			

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Alnus rubra*	5	X	FAC
2			
3			
4			
	5	= Total Cover	
Sapling/Shrub Stratum (plot size: 15)			
1 *Abies grandis*	10		FACU
2 *Mahonia aquifolium*	20		FACU
3 *Rubus parviflorus*	30	X	FACU
4 *Rosa pisocarpa*	30	X	FAC
5 *Symphoricarpos albus*	20		FACU
	110	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Holcus lanatus*	50	X	FAC
2 *Equisetum arvense*	5		FAC
3 *Anthoxanthum odoratum*	15		FACU
4 *Agrostis capillaris*	30	X	FAC
5			
6			
7			
8			
	100	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

____ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

____ 3-Prevalence Index is ≤ 3.0[1]

____ 4-Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ 5- Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL PHS # 6689 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
0-16	10YR 3/3	100					Silt Loam	Rock/gravel fill at 12+ inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- _____ 2 cm Muck (A10)
- _____ Red Parent Material (TF2)
- _____ Very Shallow Dark Surface (TF12)
- _____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Surface Soil Cracks (B6)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Sparsely Vegetated Concave Surface (B8)
- _____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- _____ Salt Crust (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Odor (C1)
- _____ Oxidized Rhizospheres along Living Roots (C3)
- _____ Presence of Reduced Iron (C4)
- _____ Recent Iron Reduction in Plowed Soils (C6)
- _____ Stunted or Stressed Plants (D1) **(LRR A)**
- _____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Geomorphic Position (D2)
- _____ Shallow Aquitard (D3)
- _____ Fac-Neutral Test (D5)
- _____ Raised Ant Mounds (D6) **(LRR A)**
- _____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	_____	No X	Depth (inches):	_____
Water Table Present?	Yes	_____	No X	Depth (inches):	>16
Saturation Present? (includes capillary fringe)	Yes	_____	No X	Depth (inches):	>16

Wetland Hydrology Present?

Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Vegetated Corridor Data Sheet and Site Photos

Vegetated Corridor Sample Site

Plant Community	A
Sample Point	**1**
TREES	
Native	
Acer macrophyllum	
Fraxinus latifolia	
Populus balsamifera	
Non native	
Robinia pseudoacacia	
SHRUBS & SAPLINGS	
Native	
Acer circinatum	
Alnus rubra	
Rubus ursinus	2
Spiraea douglasii	
Symphoricarpos albus	
Invasive	
Cytsus scoparius	3
Rubus armeniacus	20
Rubus lacinatus	
Non native	
Crataegus monogyna	
Rosa multiflora	
HERBS	
Native	
Bromus carinatus	10
Galium aparine	
Urica dioica	
Invasive	
Cirsium arvense	
Phalaris arundinacea	
Polygonum cuspidatum	
Taraxacum officinale	5
Verbascum blattaria	5
Non Native	
Anthoxanthum odoratum	
Agrostis capillaris	15
Dactylis glomerata	15
Daucus carota	20
Holcus lanatus	20
Hypochaeris radicata	5
Madia glomerata	
Plantago lanceolata	
Rumex crispus	
Schedonorus arundinaceus	20
Trifolium pratense	
Vicia sativa	5
	A
Canopy cover	**0**
% Native Species	**8**
% Invasive Species	**23**
Total cover	**145**

Photo A

Looking east at Springville Creek, adjacent wetland, slope along edge of wetland, and southern edge of project site.

Photo B

Looking west at wetland and vegetated corridor in eastern end of site.

#6689
10/26/2019

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Wilsonville, OR 97070

Photodocumentation
18300 & 18450 NW West Union Road, Portland, Oregon
Both photos taken on July 25, 2017

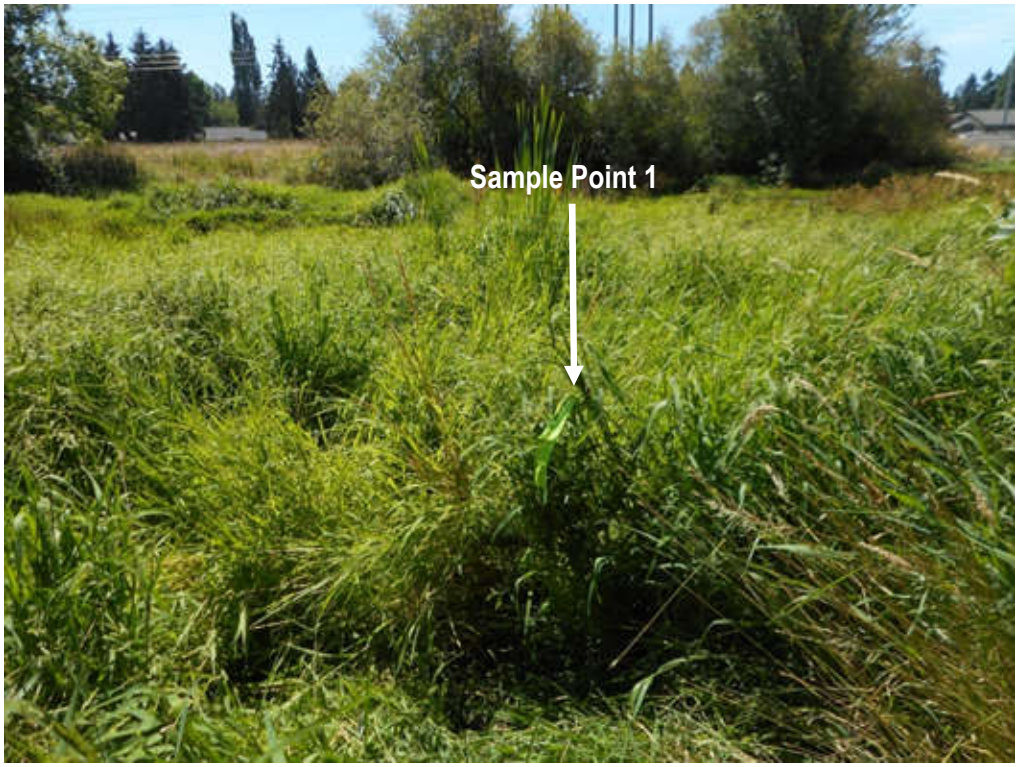

Photo C

Looking south at Sample Point 1.

Photo D

Looking north at Sample Point 2.

#6689
10/26/2019

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Wilsonville, OR 97070

Photodocumentation
18300 & 18450 NW West Union Road, Portland, Oregon
Both photos taken on July 25, 2017

Appendix D

NRA Definitions and Methodology and References

NATURAL RESOURCE ASSESSMENT (NRA)

Regulatory Jurisdiction

Clean Water Services, as part of their revised Design and Construction Standards, requires that natural resource assessments be conducted for Sensitive Natural Resource Areas within their jurisdiction. Sensitive Natural Resource Areas include intermittent and perennial creeks, wetlands, springs and seeps, and associated vegetated corridors. The intent of these requirements is to "…prevent or reduce adverse impacts to the drainage system and water resources of the Tualatin River Basin" (CWS 2019). CWS requires a wetland determination/delineation and vegetated corridor assessment on projects that contain or are within 200 feet of a Sensitive Area.

Natural Resource Assessment Methodology

The Natural Resource Assessment (NRA) contains two components: a delineation of the water quality sensitive areas and a vegetated corridor evaluation. A detailed discussion of the methodology is included in Chapter 3 of CWS's revised Design and Construction Standards (CWS, 2019). A brief description of each component is included below.

Delineation of water quality sensitive areas

A delineation of all on-site water quality sensitive areas (wetland, intermittent/perennial streams, springs, and natural lakes or ponds) must be conducted. For wetlands, the required criteria and suggested methodologies of the *Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1*, (Environmental Laboratory, 1987) must be used to delineate the boundaries. This manual defines wetlands as requiring indicators of hydric soils, a dominance of hydrophytic vegetation, and wetland hydrology. A determination as to whether streams are intermittent or perennial must be made. The extent of all streams, springs, and natural lakes or ponds must also be determined.

When known sensitive areas exist on adjacent properties, an attempt must be made by the applicant to obtain access to delineate the limits of these off-site features, especially if vegetated corridors associated with an off-site sensitive area may extend onto a proposed development site.

Determine Vegetated Corridor Width and Condition

The width of the vegetated corridor must be determined at least every 100 feet along the boundary of the water quality sensitive area. The corridor width can range between 15 and 200 feet and is measured horizontally from the outer edge of the water quality sensitive area. The boundaries of the sensitive areas and their vegetated corridors must be staked, surveyed, and mapped within the property and within 200 feet of the property line on a base map. The vegetated corridor width is based on the type of water resource (wetland, lake, stream), the size and nature of the water resource (acreage and/or perennial/intermittent), the size of the watershed, and the adjacent slope.

Upon identification of the regulated vegetated corridor boundary, the existing condition of the vegetated corridor must also be determined. This is accomplished by 1) identifying the plant community types present in the vegetated corridor, 2) documenting representative sample points, 3) characterizing each plant community type, 4) determining the cover by native species, invasive species, and noxious plants, and 5) based on this information determining whether the existing vegetated corridor condition for each plant community is good, marginal, or degraded.