Development Services Department
Environmental Coordinator
450 110th Avenue NE
Bellevue, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPOSAL NAME:	Sunset Hills Memorial Park Expansion
LOCATION:	1575 145th Pl SE
FILE NUMBERS:	21-107343-LB, 21-107348-LO, and 21-107349-LS
PROPONENT:	**William Dunning, Huit-Zollars**

DESCRIPTION OF PROPOSAL:

Proposal to construct 7.88-acre expansion of the existing cemetery use along the western side of the site and within a steep slope, steep slope buffer, stream buffers, and their respective structure setbacks.

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision.

DATE ISSUED: 6/22/2023

APPEAL DATE: 7/6/2023

A written appeal must be filed in the City Clerk's Office by 5 p.m. on the appeal date noted above.

This DNS may be withdrawn at any time if the proposal is modified so as to have significant adverse environmental impacts; if there is significant new information indicating a proposal's probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project) or if the DNS was procured by misrepresentation or lack of material disclosure.

Issued By: Elizabeth Stead **for** **Date:** June 22, 2023
Elizabeth Stead, Environmental Coordinator
Development Services Department

City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Sunset Hill Memorial Park Expansion
Proposal Address:	1575 145th Pl SE
Proposal Description:	Land Use review of a Conditional Use Permit, Critical Areas Land Use Permit, and Variance to the Land Use Code Permit approval to construct a 7.88-acre cemetery expansion along the west side of the existing cemetery. The proposal is supported by a Critical Areas Report and geotechnical report.
File Number:	21-107343-LB, 21-107348-LO, and 21-107349-LS
Applicant:	William Dunning, Huit-Zollars
Planner:	David Wong, Senior Environmental Planner
Recommendation Included:	Conditional Use Permit (Process I)
Decisions Included:	Critical Areas Land Use Permit (Process II) Variance from the Land Use Code (Process II)
Application Date:	April 12, 2021
Notice of Application Date:	June 10, 2021
Decision/Recommendation Date:	June 22, 2023
Decision Appeal Deadline:	July 6, 2023
CUP Public Hearing Date:	July 13, 2023
SEPA Determination:	**Determination of Non-Significance** **By:** *Elizabeth Stead* Elizabeth Stead, Environmental Coordinator Development Services Department
Director's Decision and Recommendation:	**Approval with Conditions** Rebecca Horner, Director Development Services Department **By:** *Elizabeth Stead* Elizabeth Stead, Land Use Director Development Services Department

For information on how to appeal the Critical Areas Land Use Permit, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Critical Areas Land Use Permit decision must be made to the City of Bellevue City Clerk's Office by 5 p.m. on the date noted above.

CONTENTS

Attachments

1. Site Plans
2. Building Plans
3. Mitigation, Restoration, and Enhancement Plans
4. Executive Summary (4/7/2021)
5. Critical Areas Report (12/11/2020) – Talasaea, LLC
6. Critical Areas Report Addendum (11/9/2021) – Wet.Land, LLC
7. Critical Areas Response to Comment (11/9/2021) – Wet.Land, LLC
8. Geotechnical Engineering Study (4/26/2019) – Terracon
9. Geotechnical Engineering Addendum (11/3/2021)– Terracon
10. Geotechnical Engineering Addendum (7/11/2022)– Terracon

I. Request & Review Process

A. Request

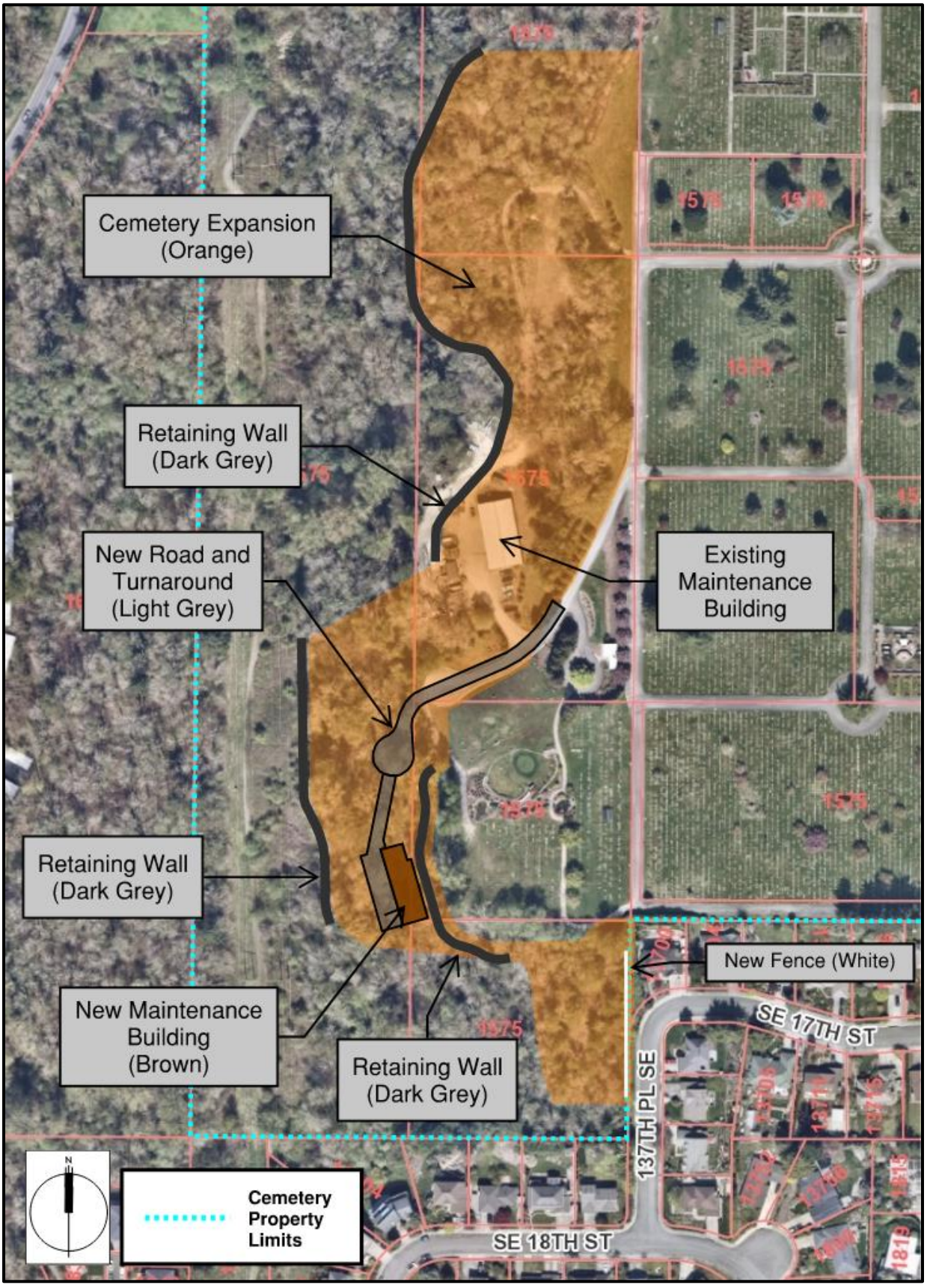
The applicant has requested a Conditional Use, Critical Areas Land Use Permit (CALUP), and Variance to the Land Use Code (Variance) review of a proposal to construct 7.88-acre expansion of the existing cemetery use along the western side of the site and within a steep slope, steep slope buffer, stream buffers, and their respective structure setbacks. The expansion of the cemetery consists of a 4.10-acre expansion, as well as redevelopment of 3.78 acres, or a total of 7.88 acres. The proposal requests modification of the code-protected steep slope critical area, 50-foot top-of-slope buffer, and 75-foot toe-of-slope structure setback to accommodate the cemetery expansion. The proposal also requests a Variance to exceed the maximum allowed fill amount of 5 feet outside of a building footprint.

Summary of Proposed Improvements

- 7.88-acre expansion of existing the cemetery within undeveloped and less developed areas to the north, south, and west of the existing maintenance shed to provide additional burial area.
- Construction and backfill of three (3) large retaining walls to facilitate the proposed improvements and cemetery expansion by providing a flatter, more useable grade.
- Demolition of an existing maintenance building and construction of a new 4,425 square-foot maintenance building to the south of the existing building
- Construction of an access road extension and new turnaround to serve the new maintenance building
- Approximately 152,000 square feet of critical areas mitigation, restoration, and enhancement
- Construction of a new 8-foot privacy fence and installation of landscaping along 137th Pl SE/SE 17th St to screen adjacent properties

See Figure 1 derived from the project Site Plan (Attachment 1) on page 5 for proposed expansion elements.

Figure 1


Cemetery Expansion (Orange)
Retaining Wall (Dark Grey)
New Road and Turnaround (Light Grey)
Existing Maintenance Building
Retaining Wall (Dark Grey)
New Maintenance Building (Brown)
Retaining Wall (Dark Grey)
New Fence (White)
SE 17TH ST
137TH PL SE
SE 18TH ST
Cemetery Property Limits

B. Review Process

Cemeteries and improvements supporting them are allowed in residential zones through a Conditional Use Permit. The proposed expansion exceeds the scope allowed through an exemption or amendment to a prior CUP approval and requires a new Conditional Use Permit application pursuant to LUC 20.30B.175.C. Approval of a Conditional Use Permit is subject to the requirements and Decision Criteria of LUC 20.30B.

Proposals to permanently modify a steep slope, steep slope buffer, or structure setback require the approval of a Critical Areas Land Use Permit (CALUP) with Critical Areas Report (CAR) and are subject to the requirements of LUC 20.25H and 20.30P, including but not limited to those sections governing steep slopes, Critical Areas Reports (CAR), and restoration.

Proposals to exceed the allowed cut and fill grading limits of the zoning district require the approval of a Variance to the Land Use Code and are subject to the requirements and Decision Criteria of LUC 20.30G.

II. Proposed Development

Retaining Walls and Grading

Three (3) large retaining walls ranging in height from 15-30 feet are proposed to the north and south of the existing maintenance building. These walls are located within areas of steep slopes in excess of 45 percent. Backfill of the retaining walls is proposed to be no steeper than a 2:1 grade and will contain required stormwater infrastructure to maintain flows to the wetlands and streams found on- and off-site to the west. Areas above the retaining walls will be graded to a comparable flat or gentle grade to allow for cemetery use to occur.

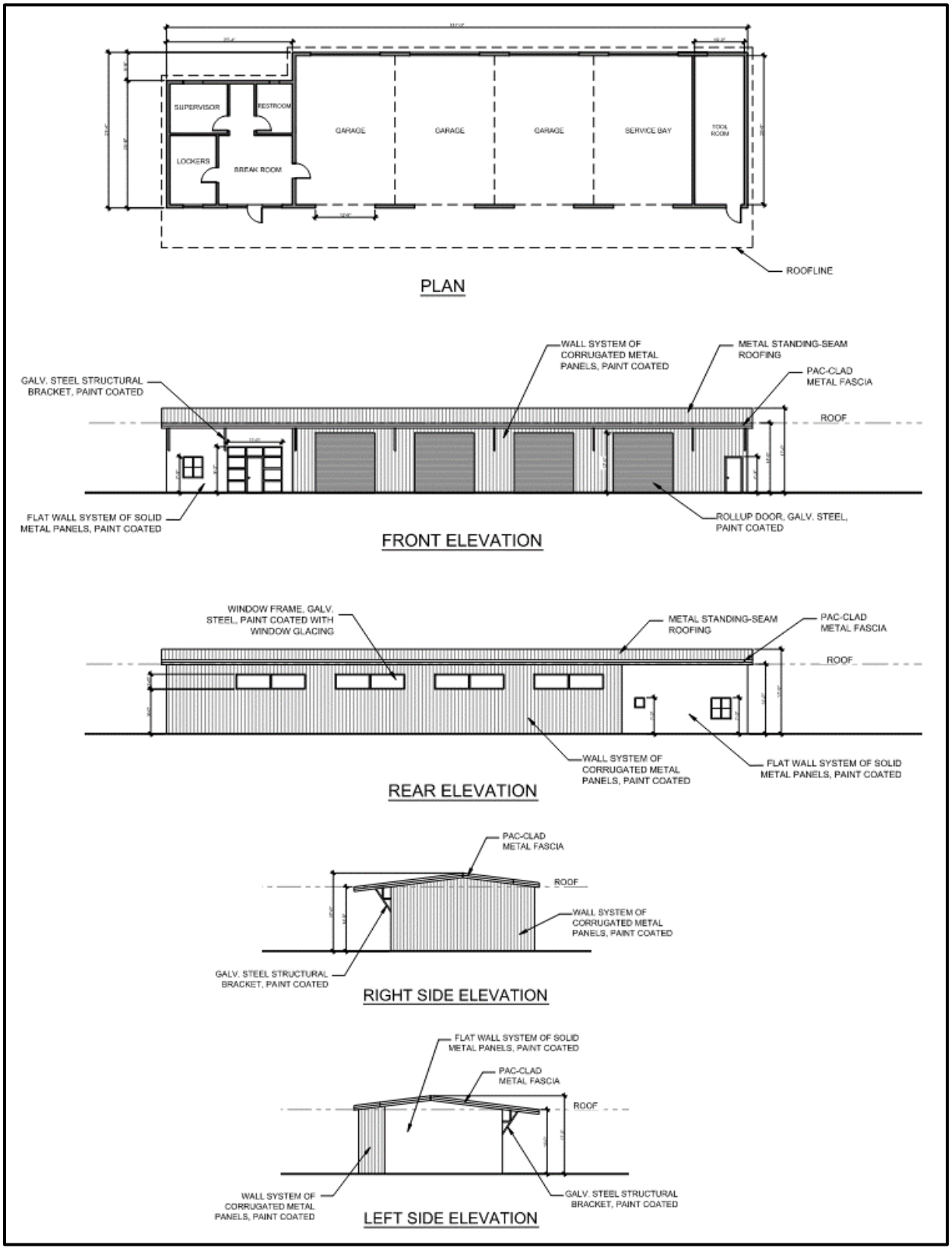
Existing and Proposed Maintenance Building

A new, 4,425 square-foot maintenance building is proposed to replace an existing maintenance building that will be demolished as part of the site improvements. The new building will be located to the south of the existing building and will be located within the bench, or level topography, created by the two southern retaining walls. Location of the building between the two walls will allow for much of the building to be obscured by the upland grading to help screen the building from the view of neighboring houses approximately 400 feet to the east.

The building design is that of a common maintenance or groundskeeping building and features a metal roof with corrugated metal cladding. An extended front awning provides limited weather protection to the 12-foot rollup garage doors, break room, and tool room egresses. Glazed, horizontal windows line the rear of the structure along the individual garage bays.

See Figure 2 from (Attachment 2) for maintenance building elevations and floorplan.

Figure 2


SUPERVISOR
RESTROOM
LOCKERS
BREAK ROOM
GARAGE
GARAGE
GARAGE
SERVICE BAY
ROOFLINE
PLAN
GALV. STEEL STRUCTURAL BRACKET, PAINT COATED
WALL SYSTEM OF CORRUGATED METAL PANELS, PAINT COATED
METAL STANDING-SEAM ROOFING
PAC-CLAD METAL FASCIA
ROOF
FLAT WALL SYSTEM OF SOLID METAL PANELS, PAINT COATED
ROLLUP DOOR, GALV. STEEL, PAINT COATED
FRONT ELEVATION
WINDOW FRAME, GALV. STEEL, PAINT COATED WITH WINDOW GLACING
METAL STANDING-SEAM ROOFING
PAC-CLAD METAL FASCIA
ROOF
WALL SYSTEM OF CORRUGATED METAL PANELS, PAINT COATED
FLAT WALL SYSTEM OF SOLID METAL PANELS, PAINT COATED
REAR ELEVATION
PAC-CLAD METAL FASCIA
ROOF
WALL SYSTEM OF CORRUGATED METAL PANELS, PAINT COATED
GALV. STEEL STRUCTURAL BRACKET, PAINT COATED
RIGHT SIDE ELEVATION
FLAT WALL SYSTEM OF SOLID METAL PANELS, PAINT COATED
PAC-CLAD METAL FASCIA
ROOF
WALL SYSTEM OF CORRUGATED METAL PANELS, PAINT COATED
GALV. STEEL STRUCTURAL BRACKET, PAINT COATED
LEFT SIDE ELEVATION

Access Road Extension and Turnaround

An existing access road and turnaround located to the south of the existing maintenance building will be extended and reconstructed to provide access and maneuverability to the proposed maintenance building. The extension of the road is located within the bench area of the south retaining walls and is designed to utilize much of the existing road and turnaround to minimize new impervious surface.

Mitigation, Restoration, and Enhancement

Approximately 152,000 square feet of mitigation, restoration, and enhancement is proposed in Attachment 3 to off-set proposed impacts and degraded conditions to the on-site steep slope, wetlands, and buffers (including stream buffers). The proposal includes planting of native tree, shrub, and groundcover species commonly found in and around streams, wetlands, and steep slope geologic hazards and include the following species in Table 1 below:

Table 1 - Native Plant Species Proposed

	Common Name	**Scientific Name**
Trees	Douglas-fir	*Pseudotsuga menziesii*
	Western redcedar	*Thuja plicata*
	Western hemlock	*Tsuga heterophylla*
	Beaked hazelnut	*Corylus cornuta*
	Bitter cherry	*Prunus emarginata*
	Sitka mountain ash	*Sorbus sitchensis*
Shrubs	Vine maple	*Acer circinatum*
	Serviceberry	*Amelanchier alnifolia*
	Oceanspray	*Holodiscus discolor*
	Indian plum	*Oemleria cerasiformis*
	Pacific ninebark	*Physocarpus capiatus*
	Stink currant	*Ribes bracteosum*
	Red currant	*Ribes sanguineum*
	Red elderberry	*Sambucus racemose*
	Red-osier dogwood	*Cornus alba*
	Salal	*Gaultheria shallon*
	Black twinberry	*Lonicera involucrate*
	Oregon grape	*Mahonia aquifolium*
	Clustered rose	*Rosa pisocarpa*
	Thimbleberry	*Rubus parviflorus*
	Salmonberry	*Rubus spectabilis*
	Western spirea	*Spirea douglasii*
	Snowberry	*Symphocarpos albus*
Groundcovers	Sword fern	*Polystichum munitum*
	Skunk cabbage	*Lysichitum americanum*

In addition to native species replanting and replacement, the proposal also includes removal and control of non-native and invasive species within the wetlands, streamy, and their respective buffers.

To provide post-project short-and mid-term slope stability, the proposal includes the use of

10-foot coir logs, downed logs, and native grass mix hydroseeding within he within the regarded areas. Downed logs are designed to be placed at a rate of 1 per 2,500 square feet of area and will consist of trees removed for this project. In addition, downed logs, standing tree snags will be located within the mitigation, restoration, and enhancement areas.

Grading (Fill) and Request for Variance

Due to the presence of steep slopes, wetlands, streams, critical area buffers, and forested conditions along the western portion of the site; critical areas report requirements for mitigation sequencing (LUC 20.25H.215); and the fill limit of 5 feet set forth in LUC 20.20.425.D the proposal requests a Variance to the Land Use Code (Variance) to exceed the allowed fill limit to as high as 25 feet. Expansion of the cemetery in strict adherence to the allowed fill limit would not be feasible due to the existing topography. Early designs (Attachment 4; pg. 7) for the cemetery expansion considered import of approximately 368,868 cubic yards (CY) of fill, which has been reduced to approximately 190,000 CY or 51.6% of the original volume. The use of walls and reduced fill to avoid unnecessary critical areas and buffer impacts will still result in fill beyond the limit as noted and requires variance approval to be allowed.

137th Pl SE/SE 17th St Landscaping and Fencing

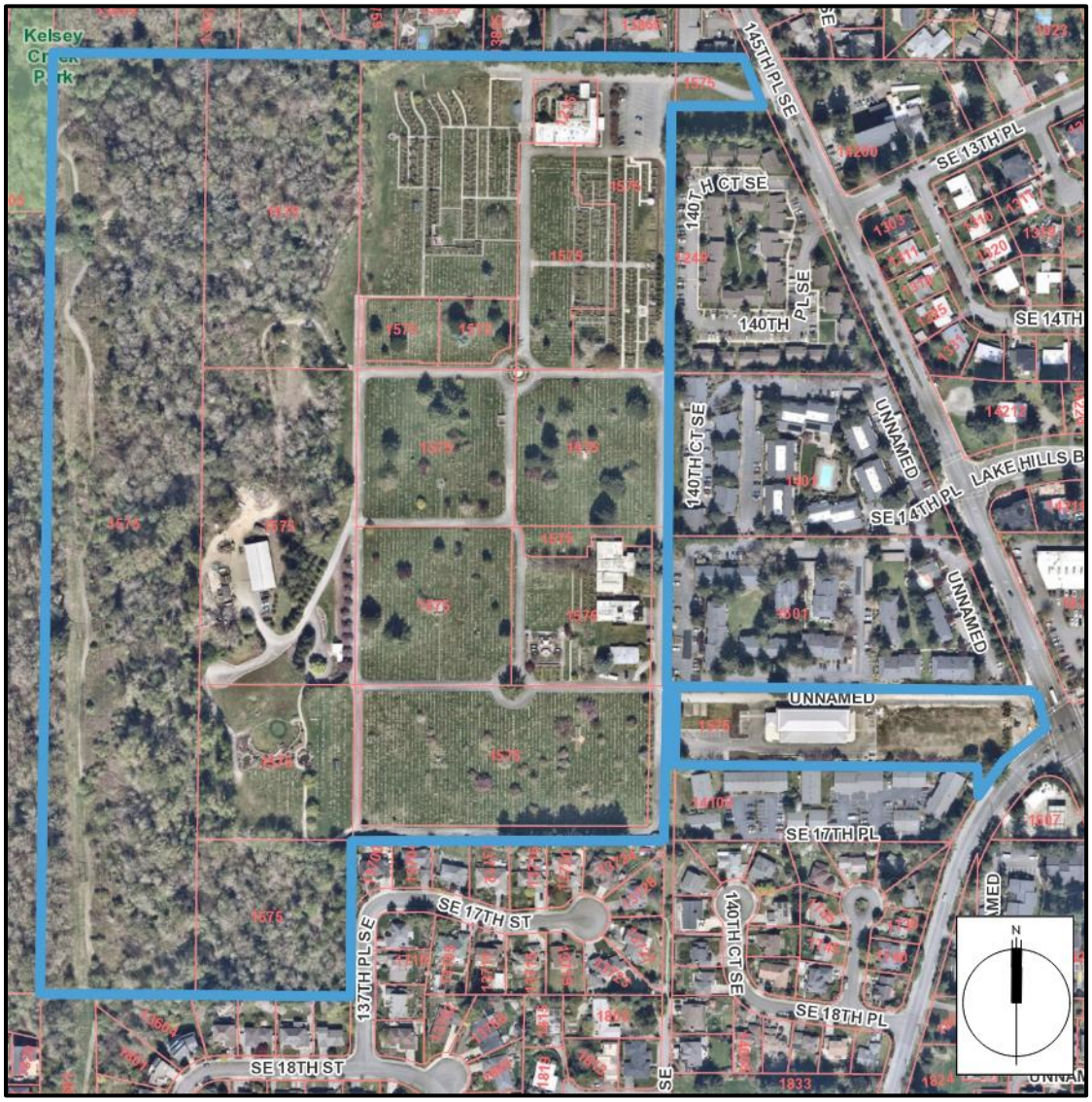
Landscape and fence screening is proposed along the property line adjacent to 137th Pl SE and SE 17th St. The landscape screen will consist of a single row of cherry laurel (*Prunus laurocerasus*) shrubs spaced at 5 feet on-center in front of a new solid fence. Cherry laurel is a commonly found fast growing tree/hedge and is intended to function as a dense vegetative visual separation between the cemetery property, including the maintenance building, and the single-family uses to the east.

III. Site, Zoning, Land Use Context, and Critical Areas Functions and Values

A. Site Context

The subject site is approximately 60 acres in size and is currently developed as a cemetery use. The western half of the site is relatively undeveloped compared to the eastern half of the site, and development is limited to smaller 2-acre burial area and a maintenance building. The most western parcel of the site contains transmission overhead electric lines in a north-south configuration, as well as a trail that meanders in a north-south configuration. Both the overhead powerlines and trail continue off-site to both the north and south. Streams, wetlands, a large steep slope, and continuous mature tree canopy are also present in this western parcel. See Figure 3 below for the current site**.**

Figure 3



B. Zoning

The property is zoned R-1 (Single-Family Residential) and R-20 (Multifamily Residential) and is located within the Lake Hills neighborhood area. The portion of the site where work is proposed to occur is zoned R-1. See Figure 4 for zoning map and Figure 5 for neighborhood area information.

Figure 4

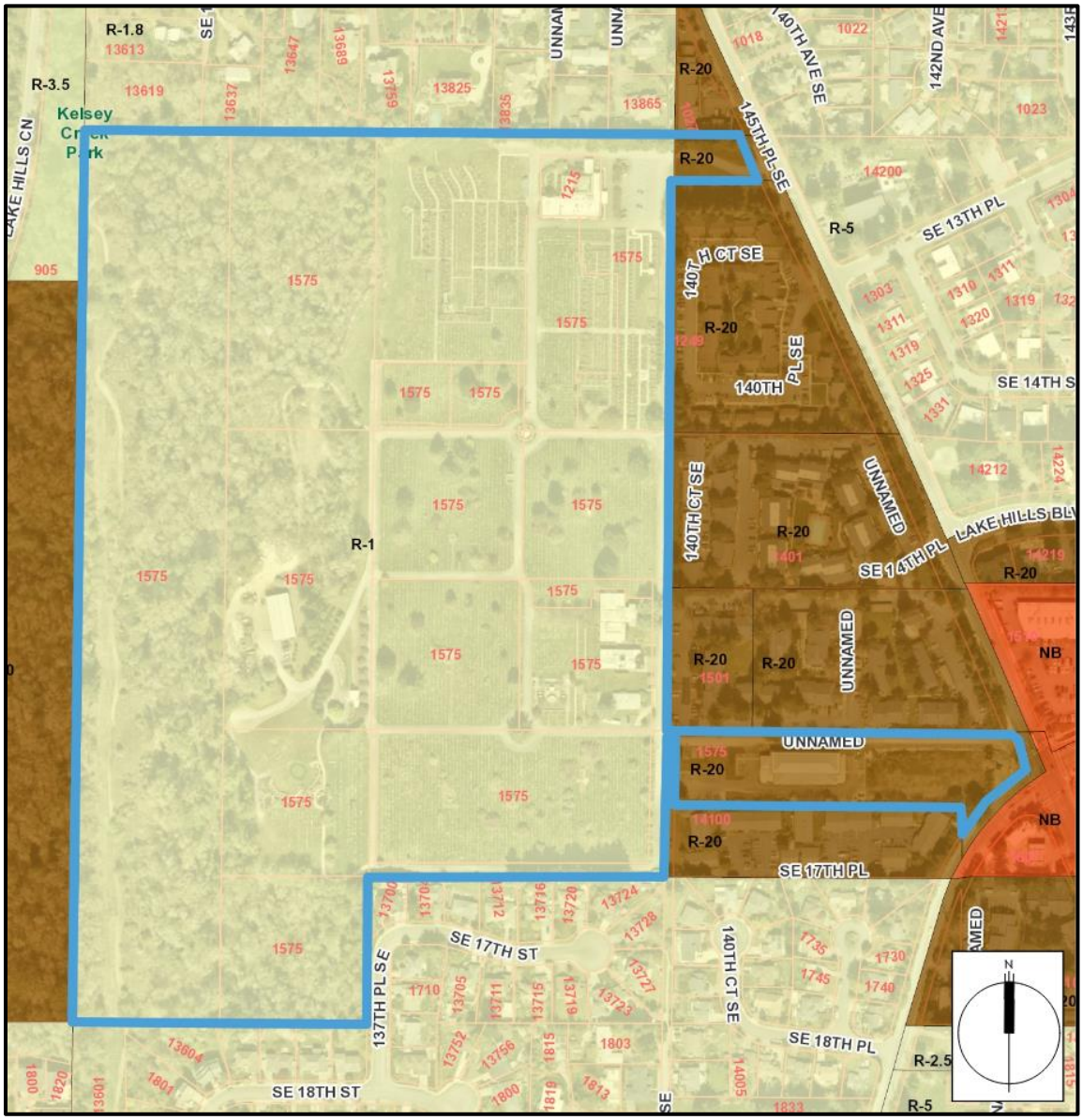
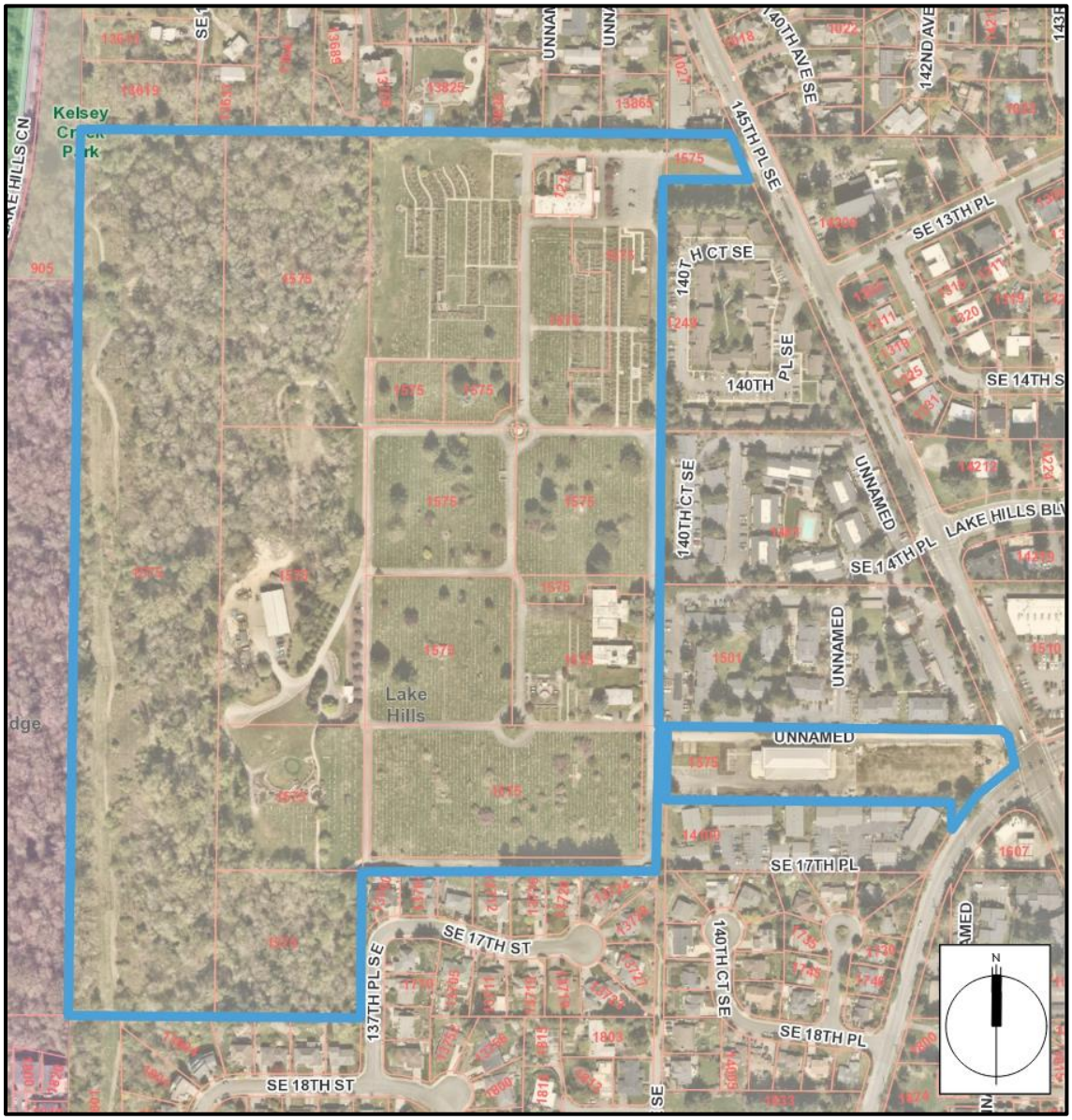

R-1.8
R-3.5
Kelsey Creek Park
R-1
R-20
R-5
R-2.5
NB
SE 17TH ST
SE 17TH PL
SE 18TH ST
SE 18TH PL
SE 13TH PL
SE 14TH PL
SE 14TH S
LAKE HILLS BL
LAKE HILLS CN
140TH AVE SE
142ND AVE
145TH PL SE
140TH PL SE
140TH CT SE
137TH PL SE
UNNAMED
1575
N

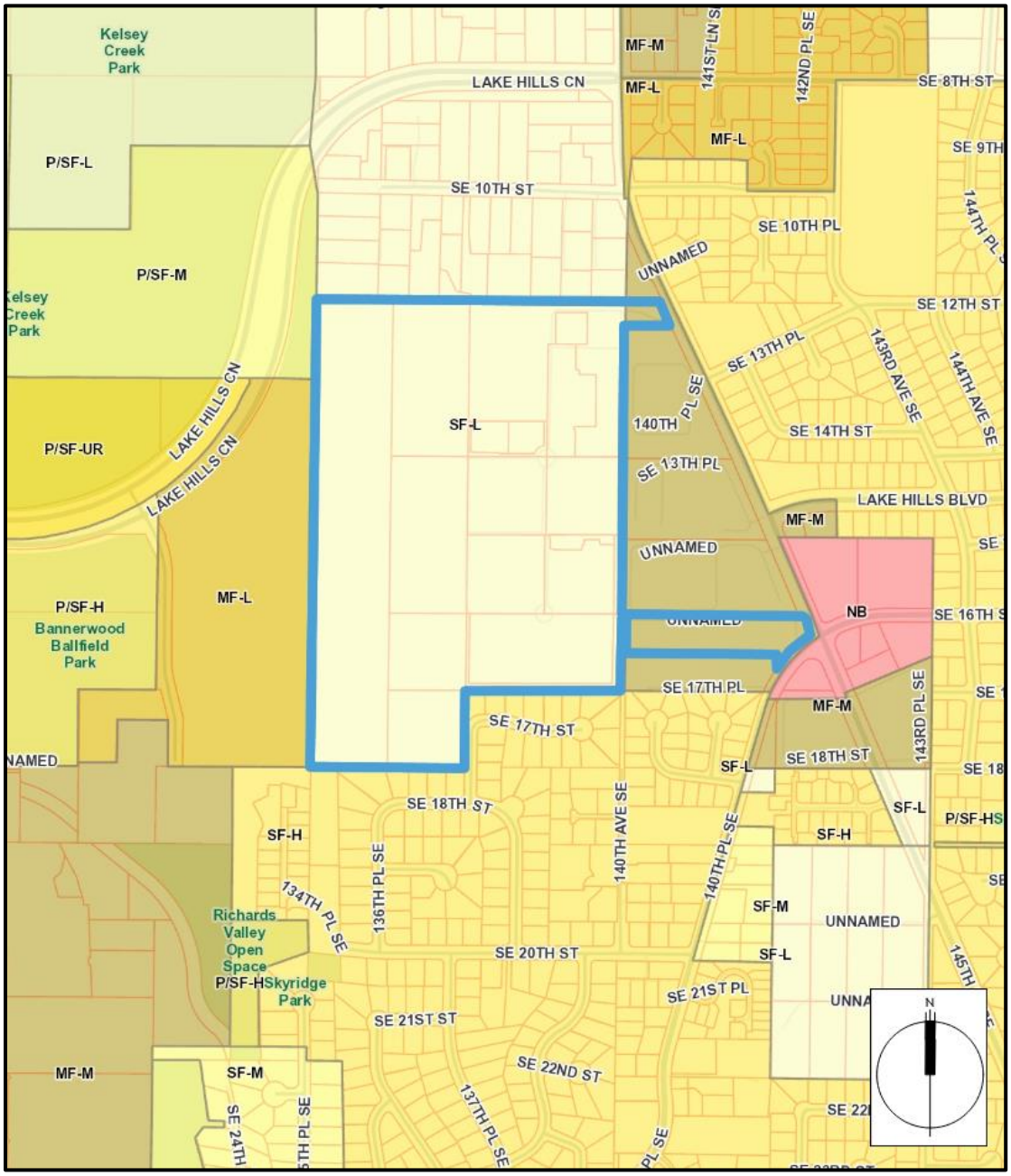
Figure 5



C. Land Use Context

The site has a Comprehensive Plan designation of SF-L (Single-Family Low Density) and MF-M (Multifamily Medium Density). The site is bordered by SF-L to the north; MF-M and NB (Neighborhood Business) to the east; SF-H (Single-Family High Density); and MF-L (Multifamily Medium Density) and P/SF-M (Park/Single-Family Medium Density) to the west. The portion of the site where the proposed work will occur is identified as SF-L. See Figure 6 for Comprehensive Plan designation.

Figure 6



D. Critical Areas

i. Streams

Five (5) streams ranging from Type-O to Type-N have been identified in the near vicinity of the project area on the west side of the cemetery site. The Critical Areas Report (Attachments 5-7) identifies each as streams 1-5 and containing buffers of 25-50 feet, depending on the stream typing and in accordance with LUC 20.25H.075.C.1.i. See Figure 7 for approximate stream mapping (dark blue) and Figure 8 for individual stream typing found on page 11 of the Critical Areas Report (CAR).

Figure 7

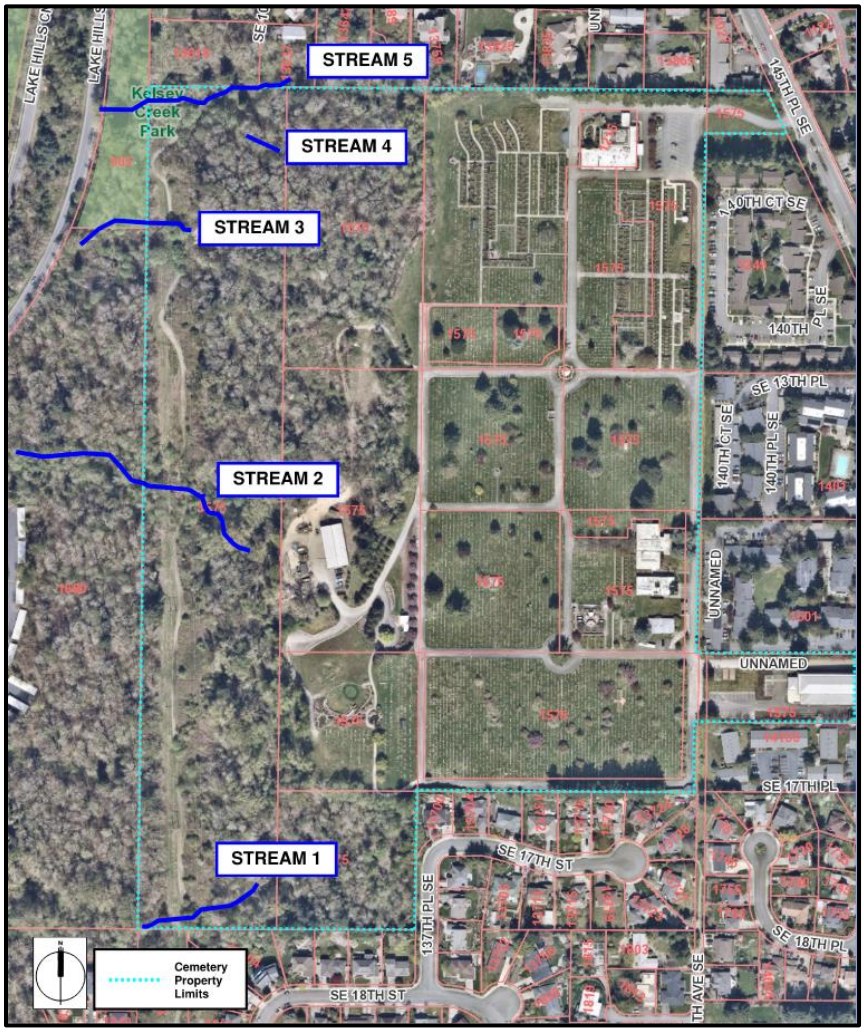


Figure 8

Stream Name	Stream Type	Buffer Width (ft)[1]
Stream 1	O	25
Stream 2	N	50
Stream 3	N	50
Stream 4	O	25
Stream 5	N	50

Stream and Buffer Impacts

The proposed cemetery expansion and improvements avoid all impacts to Streams 1-5 through the use of large retaining walls. Due to the presence of steep topography in close proximity to the on-site streams, the Top of Bank, as defined in LUC 20.50, for many of the streams is located well beyond the stream ordinary high water marks (OHWM), and, in some cases, hundreds of feet away from the stream OHWM. Due to the large buffers, the proposed upland development will result in approximately 56,814 SF of stream buffer impact. See Table 2 for a summary of stream buffer impacts.

Table 2

Summary of Stream Buffer Impacts*	
Impact Type	**Area (SF)**
Permanent Buffer Impacts	35,089 SF
Buffer Grading and Revegetation	21,725 SF
Total Impacts	56,814 SF

**Table generated from information found on Sheet CA2.0*

ii. Wetlands

Nine (9) wetlands ranging from Category III to IV have been identified in the vicinity of the project area on the west side of the cemetery site. The CAR identifies each as Wetlands A-K (not including B and I) and containing buffers ranging from 0 to 110 feet, depending on the wetland category and habitat score and in accordance with LUC 20.25H.095.D. See Figure 8 for approximate wetland mapping (green) and Figure 9 for individual wetland categorization, habitat scores, and associated buffers found on page 6 of the CAR.

Figure 8

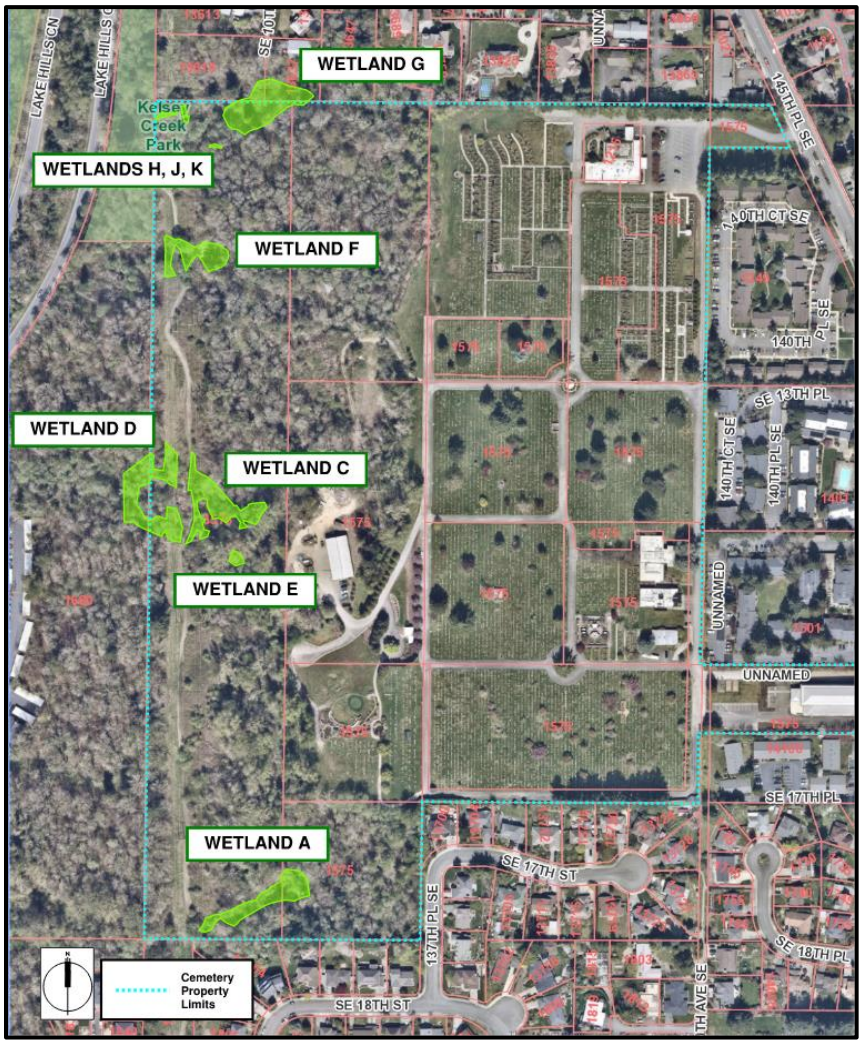


Figure 9

Wetland Name[1]	Category	Habitat Score	Buffer Width (feet)[2]	Size (sf)
Wetland A	IV	6	40	10,237
Wetland C	IV	5	40	11,948
Wetland D	III	6	110	7,450 (on-site)
Wetland E	IV	5	N/A	859
Wetland F	III	6	110	7,631
Wetland G	III	5	110	14,440 (onsite)
Wetland H	III	5	110	367
Wetland J	IV	5	N/A	402
Wetland K	IV	5	N/A	138

[1]The letters B and I were skipped in the wetland labeling nomenclature and do not occur in the field.
[2]All Category III wetlands have a 15-foot structure setback. Category IV wetlands have no required structure setback.

Wetland and Buffer Impacts

Wetland and wetland buffer impacts are entirely avoided through this proposal. As part of the proposed improvements for critical area and buffer functions and values, the proposal includes approximately 70,273 square feet of enhancement and invasive species removal within the Wetlands A, C, D, F, G, H, and J and their respective buffers.

iii. Steep Slopes

A large, steep slope with a west-facing aspect is located along the western side of the cemetery site and continues off-site to the north, south, and west. The slope is generally contiguous though some small topographic variation may exist. The approximate on-site steep slope elevation changes range from 80-110 feet and are heavily forested. Geotechnical analysis and reporting (Attachments 8-10) noted the presence of erosion hazards to the north of the project area but did not find evidence of such hazards within the work limits for this project. See Figure 10 for approximate mapping of the steep slope (light blue).

Figure 10

Steep Slope and Buffer Impacts

Approximately 178,071 square feet of steep slope and steep slope buffer impacts are proposed through the cemetery expansion. Impacts to these areas are primarily due to construction of retaining walls and fill behind them which is removing steep slopes area and the vegetation present to expand the usable cemetery area. The use of retaining walls is proposed to reduce the total impacts to critical areas compared to the impacts that would result from using less costly artificial grading techniques. See Figure 11 and Table 3 for a summary of steep slope and buffer impacts.

Figure 11

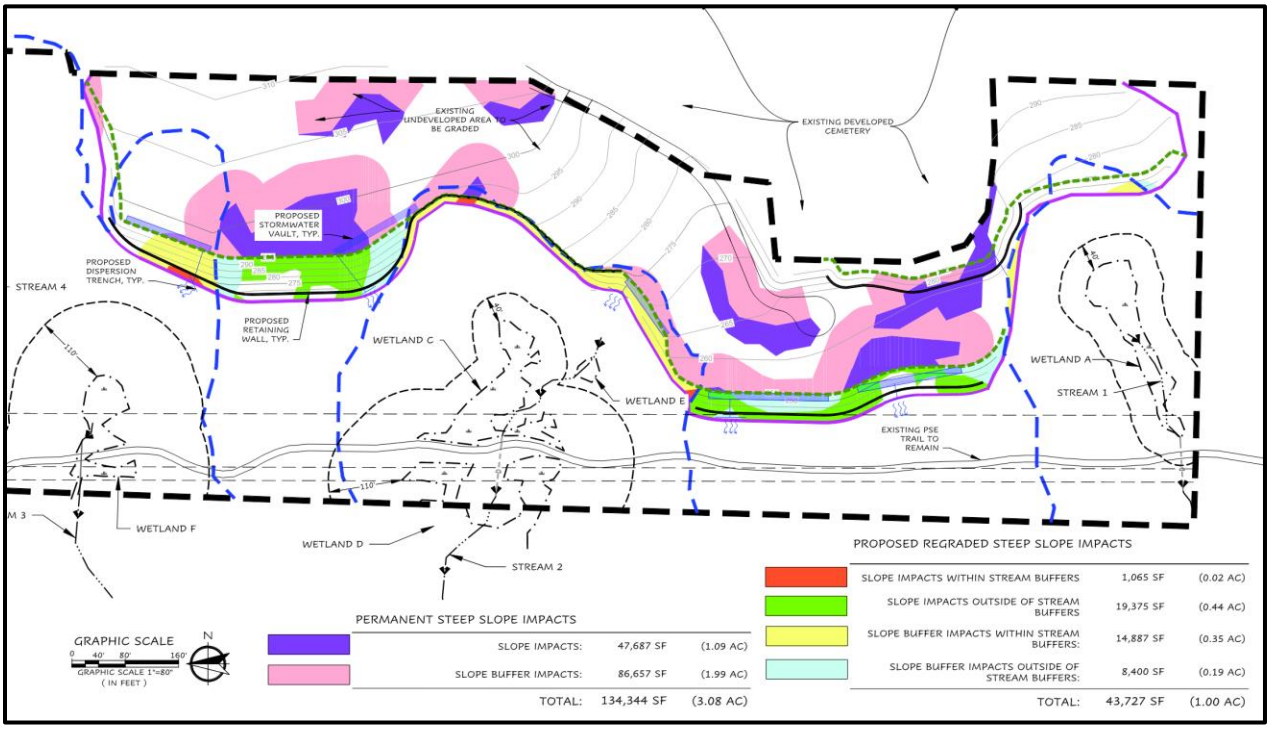


Table 3

Summary of Steep Slope and Buffer Impacts*		
Impact Type	**Impact**	**Area (SF)**
Permanent Impact	Slope Impact	47,687
	Buffer Impact	86,657
Regrading Impact	Slope Impact w/in Stream Buffers	1,065
	Slope Impacts Outside of Stream Buffers	19,375
	Slope Impact w/in Stream Buffers	14,887
	Slope Impacts Outside of Stream Buffers	8,400
	Total Impacts	43,727

**Table generated from information found on Sheet CA2.1 (see Figure 11)*

iv. Habitat for Species of Local Importance

The CAR notes Bald Eagle (*Haliaeetus leugocephalus*), pileated woodpecker (*Dryocopus pileatus*), and red-tailed hawk (*Buteo jamaicensis*) to have a likelihood of presence at the site and specifically with regard to the mature, continuous forested conditions that exist along the western portion of the site. These forested conditions continue off-site to the north and west and connect to the Lower Kelsey Creek wetland complex.

Bald eagle presence was limited to migration only, while red-tailed hawk was limited to perching within the forested area and suitable hunting area within the powerline easement. To comply with Critical Areas Ordinance requirements, WDFW management plan recommendations have been included in the proposal to address impacts to and improve pileated woodpecker habitat on-site.

E. Critical Areas and Shoreline Functions and Values

i. Streams and Riparian Areas

Most of the elements necessary for a healthy aquatic environment rely on processes sustained by dynamic interaction between the stream and the adjacent riparian area (Naiman et al., 1992). Riparian vegetation in floodplains and along stream banks provides a buffer to help mitigate the impacts of urbanization (Finkenbine et al., 2000 in Bolton and Shellberg, 2001). Riparian areas support healthy stream conditions.

Riparian vegetation, particularly forested riparian areas, affect water temperature by providing shade to reduce solar exposure and regulate high ambient air temperatures, slowing or preventing increases in water temperature (Brazier and Brown, 1973; Corbett and Lynch, 1985).

Upland and wetland riparian areas retain sediments, nutrients, pesticides, pathogens, and other pollutants that may be present in runoff, protecting water quality in streams (Ecology, 2001; City of Portland 2001). The roots of riparian plants also hold soil and prevent erosion and sedimentation that may affect spawning success or other behaviors, such as feeding.

Both upland and wetland riparian areas reduce the effects of flood flows. Riparian areas and wetlands reduce and desynchronize peak crests and flow rates of floods (Novitzki, 1979; Verry and Boelter, 1979 in Mitsch and Gosselink, 1993). Upland and wetland areas can infiltrate flood flows, which in turn, are released to the stream as baseflow.

Stream riparian areas, or buffers, can be a significant factor in determining the quality of wildlife habitat. For example, buffers comprised of native vegetation with multi-canopy structure, snags, and down logs provide habitat for the greatest range of wildlife species (McMillan, 2000). Vegetated riparian areas also provide a source of large woody debris that helps create and maintain diverse in-stream habitat, as well as create woody debris jams that store sediments and moderate flood velocities.

Sparsely vegetated or vegetated buffers with non-native species may not perform the needed functions of stream buffers. In cases where the buffer is not well vegetated, it is necessary to either increase the buffer width or require that the standard buffer width be restored or revegetated (May 2003). Until the newly planted buffer is established the near-term goals for buffer functions may not be attained.

Riparian areas often have shallow groundwater tables, as well as areas where groundwater and surface waters interact. Groundwater flows out of riparian wetlands, seeps, and springs to support stream baseflows. Surface water that flows into riparian areas during floods or as direct precipitation infiltrates into groundwater in riparian areas and is stored for later discharge to the stream (Ecology, 2001; City of Portland, 2001).

ii. Wetlands

Wetlands provide important functions and values for both the human and biological environment—these functions include flood control, water quality improvement, and nutrient production. These "functions and values" to both the environment and the citizens of Bellevue depend on their size and location within a basin, as well as their diversity and quality. While Bellevue's wetlands provide various beneficial functions, not all wetlands perform all functions, nor do they perform all functions equally well (Novitski et al., 1995). However, the combined effect of functional processes of wetlands within basins provides benefits to both natural and human environments. For example, wetlands provide significant stormwater control, even if they are degraded and comprise only a small percentage of area within a basin.

iii. Steep Slopes and Geologic Hazards

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

ii. Habitat

Urbanization, the increase in human settlement density and associated intensification of land use, has a profound and lasting effect on the natural environment and wildlife habitat (McKinney 2002, Blair 2004, Marzluff 2005 Munns 2006), is a major cause of native species local extinctions (Czech et al 2000), and is likely to become the primary cause of extinctions in the coming century (Marzluff et al. 2001a). Cities are typically located along rivers, on coastlines, or near large bodies of water. The associated floodplains and riparian systems make up a relatively small percentage of land cover in the western United States, yet they provide habitat for rich wildlife communities (Knopf et al. 1988), which in turn provide a source for urban habitat patches or reserves. Consequently, urban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development (Blair 1999, Marzluff 2005). Protected wild areas alone cannot be depended on to conserve wildlife species. Impacts from catastrophic events, environmental changes, and evolutionary processes (genetic drift, inbreeding, colonization) can be magnified

when a taxonomic group or unit is confined to a specific area, and no one area or group of areas is likely to support the biological processes necessary to maintain biodiversity over a range of geographic scales (Shaughnessy and O'Neil 2001). As well, typological approaches to taxonomy or the use of indicators present the risk that evolutionary potential will be lost when depending on reserves for preservation (Rojas 2007). Urban habitat is a vital link in the process of wildlife conservation in the U.S.

IV. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

The area of site where the proposed work is set to occur is within the R-1 zoning district. Cemeteries (and expansions) are allowed by Conditional Use within R-1 the zoning district and are subject to the standards of LUC 20.20.

i. Fences – LUC 20.20.400

The project proposes an 8-foot tall privacy fence along the property line and perpendicular to 137th Pl SE. Fences typically cannot exceed 4.5 feet within a required front yard setback except in accordance with standards and allowances noted in LUC 20.20.400.A.2. To provide necessary privacy and noise attenuation, the project proposes an 8-foot tall privacy fence at the property line. Design of the fence shall conform to the conceptual design described in the plans. See Section XI for conditions of approval related to required screening fence.

ii. Hard Surface Performance Standards – LUC 20.20.425.D

The project proposes to exceed the limits for excavation and fill outside of a building footprint set in LUC 20.20.425.D.1, or 10 feet of excavation and 5 feet of fill. Compliance with this performance standard would result in greater impacts to the on-site streams, wetlands, steep slopes, critical area buffers, and mature forest conditions (high-value natural area) or would create extremely limited conditions for expanded cemetery use upland of the steep slope and buffer areas. As such, the applicant has submitted a Variance to exceed the maximum allowed fill depth outside of a building footprint to a maximum of 25 feet.

B. Consistency with Land Use Code Critical Areas Performance Standards:

i. Wetland Performance Standards – 20.25H.100

Development on sites with a wetland or wetland critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. **Lights shall be directed away from the wetland.**
   No lighting is proposed to be directed to the on-site wetlands and wetland buffers.

2. **Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the wetland, or any noise shall**

be minimized through use of design and insulation techniques.
All activities associated with the expanded cemetery use are located outside of the wetland buffers.

3. **Toxic runoff from new impervious area shall be routed away from the wetlands.**
   No runoff is proposed to be directed to the wetlands.

4. **Treated water may be allowed to enter the wetland critical area buffer.**
   Stormwater is proposed to be collected and treated through a detention system designed to provide adequate discharge to the drainage basins on site and to maintain stream and wetland conditions and flows.

5. **The outer edge of the wetland critical area buffer shall be planted with dense vegetation to limit pet or human use.**
   The outer edges of the wetlands and wetland buffers are proposed to be planted with dense vegetation commonly found in wetlands in the local vicinity. See Table 1 above for a list of the proposed vegetation.

6. **Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.**
   Herbicide use is noted for situations where mechanical control of invasive species in the mitigation, restoration, and enhancement areas is not satisfactorily meeting Critical Areas Report objectives and performance standards. Use will be determined during the 5-year maintenance and monitoring period based on results. Any use of pesticides, insecticides, or fertilizers will be required to be in accordance with the City of Bellevue Environmental Best Practices requirements and guidance. See Section XI for conditions of approval related to pesticide, insecticide, and herbicide use.

7. **All applicable standards of Chapter 24.06 BCC, Storm and Surface Water Utility Code, are met.**
   Utilities Department staff have reviewed the proposal and determined it to be generally approvable. Further review of compliance with Utilities Codes will occur under the required construction permits. See Section XI for conditions of approval related to required construction permits.

ii. Steep Slope Performance Standards – LUC 20.25H.125
Development on sites with steep slopes or steep slope critical area buffers shall incorporate the following performance standards, as applicable:

1. **Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to**

conform to existing topography;
The proposal provides limited tiering between the two southern retaining walls and where the proposed maintenance building is located. Increasing the quantity of tiers through the expansion area is not feasible due the cemetery use and the need for flat space to conduct burial operations. The design was modified to use a retaining wall system and in doing so will help to protect existing topography below the downhill side of the retaining walls.

2. **Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;**
As noted in number 1 above, the proposal includes the use of retaining walls which has minimized the impacts to steep slope areas below the proposed retaining wall locations, as well as streams, wetlands, buffers, and high-value forested conditions the are present in the western portion of the site.

3. **The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;**
Section 3.4 on page 4 of the geotechnical report notes, "*Through proper site preparation, grading, and filling operations the proposed slope developments will not create a landslide hazard zone or create adverse impacts to adjacent properties from a geotechnical standpoint, in our opinion.*" As part of the construction permit review process, the applicant will be required to provide a geotechnical letter confirming the final plans conform to the recommendations contained within the referenced geotechnical report. See Section XI for conditions of approval related to geotechnical review.

4. **The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;**
The proposal includes the use of retaining walls to allow the maintenance of slopes below the toe of the proposed walls. Slopes above the walls will be regraded at a 2:1 slope to match upland grades and create a relatively flat space for cemetery operations to occur.

5. **Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;**
The proposal utilizes areas of existing impervious surface to reconfigure and extend the access road to the proposed maintenance building. Demolition of the existing maintenance building will help to offset impervious surface additions related to expansion of the access road and the construction of a new maintenance building.

6. **Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent,**

grading for yard area may be disallowed where inconsistent with this criteria;
The proposal includes the use of three (3) large retaining walls in order to avoid a much large area of artificial regrading needed to match the upper elevations to the lower elevations. Use of a 2:1 regraded slope would also increase impacts to streams, wetlands, critical area buffers, and mature forested conditions that are present on- and off-site. Artificial grading would also likely impact restoration opportunities in areas near the transmission powers as vegetation allowed within these areas is restricted to maintain safety.

7. **Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;**
The proposal includes three (3) freestanding retaining walls to retain the large volume of fill needed to provide a relatively flat area for the expanded cemetery use. Building foundation walls are not feasible due to the size of the required walls and the proximity to structure to tie into.

8. **On slopes in excess of 40 percent, use of pole-type construction which conforms to the existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;**
Pole-type construction is not feasible to expand the cemetery use. The proposed maintenance building has been designed to be located between benched areas that are relatively flat in grade and will not be located in an area where the final grade is at or above 40 percent.

9. **On slopes in excess of 40 percent, piled deck support structures are required where technically feasible for parking or garages over fill-based construction types; and**
Piled deck support structures are not feasible for the same reasons listed in number 8 above. The type of use and expansion would not be supported by the use of piled deck supports and requires the addition of fill to create relatively level space commonly found in cemetery uses.

10. **Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.**
A mitigation, restoration, and enhancement plan that includes approximately 152,000 square feet of native steep slope mitigation planting and native enhancement planting located slope areas above the retaining walls and remaining, unimpacted slopes beyond the expansion area. The mitigation is

intended to provide functional improvement of stormwater quality, remaining slope stability, and habitat above what currently exists on-site. See Section XI for conditions of approval related to mitigation, restoration, and enhancement.

iii. Species of Local Importance Performance Standards – LUC 20.25H.160

The Critical Areas Report identified three (3) species (Bald Eagle, red-tailed hawk, and pileated woodpecker) that likely have at least transient usage of the site. The report indicates Bald Eagle as having migratory usage, and red-tailed hawk to likely use large trees for perch and/or the powerline easement for hunting purposes. The report indicated likely habitat for pileated woodpecker due to the presence of contiguous, mature forested conditions with trees meeting the typical sizes for use by pileated woodpecker. As such, the CAR addendum (Attachment 6) included analysis of WDFW management recommendations for pileated woodpecker and plans have been modified to include enhancement planting of a portion of the remaining forested areas to ensure future habitat opportunities for pileated woodpecker on-site. See Section XI for conditions of approval related to WDFW management recommendations.

C. Consistency with Critical Areas Report LUC 20.25.230.

The applicant supplied a complete Critical Areas Report (Attachment 5) prepared by Talasaea Consultants, a qualified professional. The report met the minimum requirements in LUC 20.25H.250. The CAR was supplemented by a Critical Areas Report – Addendum (Attachment 6) prepared by Wet.Land, LLC, a qualified professional, which also met the minimum requirements of LUC 20.25H.250. Both the CAR and the Addendum documented degraded conditions within the streams, wetlands, slopes, and their buffers, primarily though invasive and non-native species coverage.

V. Public Notice and Comment

Application Date:	April 12, 2021
Public Notice (500 feet):	June 10, 2021
Public Meeting:	June 29, 2021
Minimum Comment Period:	June 24, 2021

The Notice of Application for the Conditional Use Permit, Critical Areas Land Use Permit and the Variance to the Land Use Code was published in the City of Bellevue weekly permit bulletin on June 10, 2021. It was mailed to property owners within 500 feet of the project site. A public meeting was held on June 29, 2021 and 14 comments have been received from the public as of the writing of this staff report.

Summary of Relevant and Consolidated Comments

Comment: *Concern about use of SE 17th St/137th Pl SE as a point of access for visitors and funeral processions.*

Response: No access will be provided from SE 17th St/137th Pl SE. The design along SE

17th St/137th Pl SE will include both a solid fence and solid row of fast-growing large shrubs/small trees, which is intended to prevent access and provide visual and noise screening to the neighboring properties.

Comment: *Concern that moving the maintenance building closer to the residence in the SE 17th St/137th Pl SE/SE 18th St neighborhood may increase noise and visual impacts experienced by the neighborhood.*

Response: The new maintenance building is proposed to be located approximately 400 feet from the closest neighboring residence. The new maintenance building is a single-story structure proposed to be 17 feet in height, which complies with the 30/35-foot height restriction, per LUC 20.20. Height restrictions are adopted to, in part, address visual impacts to surrounding properties. The proposed location is also between the two (2) southern retaining walls and will be mostly screened by the eastern of the two retaining walls. The location is further screened by dense mature trees and undergrowth to the south, which will not be impacted by the work and is proposed to remain. Additionally, mitigation and restoration planting is proposed around the south and southeast end of the eastern retaining wall and extending along the area to neighboring residences to the southeast. A solid, 8-foot high fence and a row of cherry laurel (*Prunus laurocerasus*), a fast-growing and dense large shrubs/small trees, is proposed along the property line adjacent to 137th Pl SE. The combination of grade changes, wall height, existing and proposed vegetation, and a fence will provide significant visual and sound attenuation screening to the SE 17th St/137th Pl SE neighborhood. Lastly, all activities on the site are required to comply with Noise Code requirements of BCC 9.18.

Comment: *Concern about the wildlife impacts this project may have.*

Response: No endangered or threatened species were observed or anticipated to use the site. Some transient use by Bald Eagles and red-tailed hawks is expected. The site likely contains pileated woodpecker habitat, and the project has included management recommendations, per WDFW guidance, as part of this proposal, consistent with LUC 20.25H.160. See Section IV.B.iii for more information.

Comment: *Concern about noise and traffic impacts as a result of construction at this site.*

Response: Construction will be required to comply with hour and noise requirements of BCC 9.18. Traffic impacts were reviewed by the Transportation Division of the City's Development Services Department that determined construction activities will access the site via SE 16th Street/145th Place SE. Applicants may request use of the right of way to facilitate construction activities. A Right of Way Use Permit for such activities must be acquired prior to issuance of any construction permit including demolition permit and will impose conditions necessary to address impacts. No traffic impacts to SE 17th St/137th Pl SE are expected.

Comment: *Concern that safety of the site may be compromised by the removal of non-native, and invasive vegetation that may prohibit the site from be utilized by*

homeless people.

Response: Non-native and invasive vegetation is proposed to be removed from the streams, wetlands, and their buffers, and native planting is proposed in many of those areas to help off-set critical area and buffer impacts that will occur under this proposal. Wetland performance standards require dense planting to occur in proximity to the wetland to provide a physical barrier between the wetland to prevent human activities and access. The proposal has included a preliminary landscape plan with a sample planting template. A final landscape plan will be required to provide greater detail regarding the species, size, and density of the planting to determine compliance with this performance standard.

Comment: *The development should be required to place an opaque along the entire perimeter adjacent to the residential community at SE 17th St/137th Pl SE/SE 18th St.*

Response: The Land Use Code does not require new developments to place fencing around a development but does allow for a fence to be placed on a property line in accordance with LUC 20.20.400. The applicant has proposed a solid fence 137th Pl SE where vegetation will be impacted. Extension of the fence to the north or south may have negative impacts on the remaining mature vegetation that will be used to provide a noise and visual buffer between the new development and the adjacent residential uses. The cemetery will be responsible for any maintenance of the fence and landscaping (existing and proposed) to maintain these two elements in good condition.

VI. Summary of Technical Reviews

Clearing and Grading:

The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development. Conformance with the conceptual plans submitted in this application will be reviewed under the Building Permit. Work within proximity to the steep slope will be restricted during the rainy season unless specifically allowed by Clearing & Grading approval through implementation of specific BMPs. On-site monitoring of filling and grading operations will need to be conducted by the geotechnical engineer and field reporting will be required to be submitted to Clearing and Grading inspection staff. See Section XI for conditions of approval related to the Building Permit, Clearing & Grading BMPs, rainy season restrictions, monitoring and reporting requirements.

Utilities:

City of Bellevue Utilities Department staff has reviewed the proposed development for compliance with City of Bellevue Utilities codes and standards. Utilities staff found no issues with the proposed development.

Transportation:
City of Bellevue Transportation Department staff has reviewed the proposed development for compliance with City of Bellevue Transportation and Right of Way codes and standards. Transportation staff found no issues with the proposed development. See below for addition review details:

Site Access
The project site is located at 1575 145th Place SE west of 145th Pl SE. The site is currently undergoing construction for a 21,150 square foot building used for funeral services. The two driveways at SE 16th Street / 145th Place SE are also being reconstructed to meet COB standards and as mitigation for the previously approved expansion.

The current proposal includes a 4.1-acre expansion, as well as redevelopment of 3.78 acres of existing cemetery property. Vehicular access to the project will be provided by the two newly reconstructed driveways at SE 16th Street / 145th Place SE as well as the single driveway at SE 12th Street off 145th Place SE at the north end of the site. Along the frontage of the project site along 145th Place SE, 6-feet wide sidewalks are provided. An analysis of the existing driveway was conducted, and it was found that the driveway and adjacent sidewalk panels do not meet ADA or City of Bellevue Standards.

Loading and trash access also access the site through these driveways. The proposed expansion will impact the SE 12th Street driveway significantly with construction hauling, freight and heavy vehicles needing to utilize the driveway for mobilization.

See Section XI for conditions of approval related to vehicular access restrictions, provisions for loading, and the site access covenant.

Transportation Improvements
In order to provide safe pedestrian and vehicular access in the vicinity of the site, and to provide infrastructure improvements with a consistent and attractive appearance, the construction of street frontage improvements is required as a condition of development approval. The design of the improvements must conform to the requirements of the Americans with Disabilities Act, the Transportation Development Code (BCC 14.60), and the provisions of the Transportation Department Design Manual.

As mitigation required by the development the following improvements are required by the developer:

1. SE 12th Street driveway
    a. Reconstruct driveway to meet COB Standards per Standard Drawing SW-170-1
    b. Reconstruct any sidewalk panels adjacent to the driveway to meet ADA standards.

Impact Fees
Transportation impact fees are used by the City to fund street improvement projects to alleviate traffic congestion caused by the cumulative impacts of development throughout the

City. Payment of the transportation impact fee, as required by Chapter 22.16 BCC, contributes to the financing of transportation improvement projects in the current adopted Transportation Facilities Plan.

Impact fees for this project will be calculated during review of the building permit. Fee payment is required at the time of building permit issuance. Impact fees are subject to change and the fee schedule in effect at the time of building permit issuance will apply. The current city adopted impact fee rates are posted on the City of Bellevue website. See Section XI for conditions of approval related to impact fees.

Concurrency

The City Multimodal Concurrency Code 14.10 requires development projects to assess cumulative impacts that may result from growth and development within the city. This code allows development approval and issuance of a concurrency certificate only if the city is able to determine that the unallocated Mobility Unit supply necessary to provide for the Mobility Unit demand from a proposed development is available at the time of opening or within six years, consistent with the city's transportation LOS standard. This analysis is based on a projected land use scenario and improvements to the transportation system that would occur during this time period through construction of TFP projects.

A concurrency determination was completed for this project on June 15, 2023. When complete, this project will require 4 mobility units. The supply of Mobility Units is sufficient to accommodate this level of development. A concurrency certificate will not be required for this development.

Use of the Right of Way During Construction

Applicants often request use of the right of way and of pedestrian easements for materials storage, construction trailers, hauling routes, fencing, barricades, loading and unloading and other temporary uses as well as for construction of utilities and street improvements. A Right of Way Use Permit for such activities must be acquired prior to issuance of any construction permit including demolition permit. Sidewalks may not be closed except as specifically allowed by a Right of Way Use Permit. See Section XI for conditions of approval related to the Right-of-Way Use Permit.

VII. State Environmental Policy Act (SEPA)

The applicant has provided a complete SEPA checklist supported by detailed analysis for review in demonstrating no significant adverse environmental impact. Staff has reviewed the checklist, analysis, and supporting documentation and has determined that, for the proposed action, environmental review indicates no probability of significant adverse environmental impacts provided that applicable city codes and standards are implemented. Therefore, issuance of a Determination of Non-Significance pursuant to WAC 197-11-340 and Bellevue City Code (BCC) 22.02.034 is appropriate.

A. Earth, Air, and Water

Approximately 190,000 cubic yards of fill soil are proposed to be imported to the site to

create level space for expanded cemetery operations. No impacts to air or water are anticipated.

B. Animals

Although no species were directly observed on site, three (3) species of local importance have been identified to have possible use of the site; Bald Eagle, red-tailed hawk, and pileated woodpecker. Bald Eagle use is anticipated to be migration only, while red-tailed hawk use will likely occur through perching on mature trees within the forested areas and hunting in the transmission powerline easement. The existing contiguous forest area meets pileated woodpecker habitat characteristics and species recommendations published by WDFW have been proposed as part of the mitigation package included in this application.

C. Plants

A large, contiguous forested area along the west side of the site and continuing off-site to the west and north is present. Impacts will occur to a portion of the forested area. Mitigation proposed to off-set the impacts and improve existing critical area, buffer, and forest conditions include replanting of native trees, shrubs, groundcover, and emergent, and controlling invasive species within the wetlands, streams, steep slopes and their respective buffers.

D. Noise

Noise from construction activities are likely and the project will be required to comply with noise code requirements of BCC 9.18.

E. Transportation

i. System Impacts and Mitigation

This project proposes to expand the existing Sunset Hill Memorial Park's cemetery with a 4.1-acre expansion, as well as redevelopment of 3.78 acres of existing cemetery property. This proposal fits within the land use assumptions in the current Comprehensive Plan and the future growth targets ratified by the Bellevue City Council through the adoption of Resolution No. 10080 on March 28, 2022. Based on the SEPA checklist and environmental record, it is not anticipated that this project will adversely affect the vehicular, transit, pedestrian and bicycling performance targets identified in the City's Multimodal Implementation Plan (MIP). The project will also not result in unmitigated significant adverse transportation impacts based on increased travel time, congestion, or impacts to the multimodal transportation network beyond what would be expected under existing conditions. Based on the analysis supporting the current Comprehensive Plan as well as the Addendum to Existing Environmental Documents for the 2021 King County Planning Policies ratified by the City of Bellevue, this project will not result in significant adverse transportation impacts.

ii. Operational Impacts and Mitigation

City staff directed the applicant's traffic consultant, TENW, to produce a Level 1

Traffic Impact Analysis (TIA) Report to analyze the operational vehicular and freight impacts in order to recommend mitigation if necessary.

The TIA analyzed trip generation, truck activity, freight routing and turning studies at the SE 12th Street driveway along 145th Place SE. It was found that the project would generate 4 new PM peak hour trips.

No additional pedestrian facilities will be constructed with this project. Pedestrians will continue to utilize the existing sidewalks and mid-block crossing on 145th Place SE.

No additional bicycle improvements will be constructed with this project. Bicyclists will use the existing bike lanes on 145th Place SE and the sidewalk to navigate to and from their destination.

No additional transit improvements will be constructed with this project. Two bus stops are provided within 400-ft walking distance of the driveway entrance which provide service for King County Metro Routes 245 and 271.

VIII. Changes to Proposal as a Result of City Review

The proposal was modified to include the use of three (3) large retaining walls to retain the proposed fill after receiving City comments. Minor changes were made to the proposal regarding the mitigation, restoration, enhancement planting; landscape screening; and stormwater infrastructure location.

IX. Decision Criteria

A. Conditional Use – LUC 20.30B

The City may approve or approve with modifications an application for a Conditional Use Permit if:

1. The conditional use is consistent with the Comprehensive Plan; and

Finding: The applicant's proposal is consistent with the following policies and has demonstrated compliance with the Comprehensive Plan through this application. Specifically:

EN-11. Support partnerships between the city and private landowners to steward private lands, streams, habitat and other natural resources for public benefit.

EN-18. Integrate site-specific development standards with urban watershed-scale approaches to managing and protecting the functions of critical areas.

EN-19. Retain existing open surface water systems in a natural state and restore conditions that have become degraded.

S-SE-1. Strictly enforce the Land Use Code, Building Codes, Fire Code, and other

regulations and standards related to development and use of property.

The proposed cemetery expansion is consistent with these goals and will not have an adverse effect on neighborhood character, critical areas, or fish and wildlife.

2. **The design is compatible with and responds to the existing or intended character, appearance, quality of development and physical characteristics of the subject property and immediate vicinity; and**
   Finding: The site contains highly managed landscape, typically found at cemeteries, and a largely undeveloped containing multiple critical areas and their buffers. Single-family and multifamily development adjacent to the site exhibits commonly found Pacific Northwest architectural elements and landscapes. This proposal balances the natural character and highly maintained residential character by proposing similar design elements, such as residential landscaping species, to those found in adjacent areas. This is further demonstrated by the proposal retaining and restoring heavily forested areas on the west side of the site and proposing complementary plant species to the adjacent forested areas. The newly created areas where cemeteries are intended to occur will be designed with a similar or same character as the other areas with same or similar function in the cemetery.

3. **The conditional use will be served by adequate public facilities including streets, fire protection, and utilities; and**
   Finding: The site is currently served by public facilities and no change in demand for public facilities and services are anticipated by the completion of this project.

4. **The conditional use will not be materially detrimental to uses or property in the immediate vicinity of the subject property; and**
   Finding: The proposed conditional use is an expansion of an existing, legally established use of the same type. The design proposed balances the need to protect and enhance both critical areas functions and values and neighborhood impacts. The proposal achieves this by utilizing selective placement of permanent improvements; providing landscape and fence screening; and approximately 152,000 square feet of mitigation, restoration, and enhancement of critical areas and their buffers. A hold harmless agreement will be required to be submitted to the City prior to issuance of a Clearing and Grading Permit. See Section XI of this report for conditions of approval related to the required hold harmless agreement.

5. **The conditional use complies with the applicable requirements of this Code.**
   As reviewed in Sections III and V of this report, the proposal complies with all applicable requirements of the Bellevue City Code. Conformance with City Code requirements will be further reviewed at the time of the required construction permits. See Section XI for conditions of approval related to the required construction permits.

B. Variance from the Land Use Code – LUC 20.30G.140

The Director may approve or approve with modifications an application for a variance

from the provisions of the Land Use Code if:

1. **The variance will not constitute a grant of special privilege inconsistent with the limitation upon uses of other properties in the vicinity and land use district of the subject property; and**
   Finding: No other similar use is located on other properties in the vicinity and land use district. The cemetery use is unique in its needs for area to conduct standard cemetery operations. An expansion is necessary to meet projected future demand for services. The nature of the variance requested is to allow increased fill behind retaining walls. This is proposed to limit impacts to adjacent critical areas while achieving the applicant's desired expansion of the cemetery. Granting increased development intensity to avoid critical area impacts is consistent with variances granted to other uses in the City.

2. **The variance is necessary because of special circumstances relating to the size, shape, topography, location or surroundings of the subject property to provide it with use rights and privileges permitted to other properties in the vicinity and in the land use district of the subject property; and**
   Finding: The existing cemetery is heavily developed, and expansion is limited to areas west of the current outer limits of the improved cemetery grounds. The remaining undeveloped area of the cemetery contains significant slopes with a generally west-facing aspect. The significant elevation change that occurs between the top of slope and the property exceeds 100 feet and over a short distance in some locations. A variance is needed to expand west of the current developed area limits. The site is surrounded by residential neighborhoods to the north, east, and south which makes the only option for expansion to the west which is mostly critical area. The variance allows fill to be placed in excess of the code limit and is needed due to the special circumstances of the use of the site in relation to the surrounding uses and location of critical areas.

3. **The granting of the variance will not be materially detrimental to property or improvements in the immediate vicinity of the subject property; and**
   Finding: The proposal has been designed to not be materially detrimental to surrounding developments and uses. The proposed walls and fill have been reviewed and are supported by a licensed geotechnical engineer. Design, construction, and safety recommendations have been provided by the engineer in the geotechnical report (Attachment 8) and addendums (Attachment 9-10).

4. **The variance is not inconsistent with the Comprehensive Plan; and**
   Finding: See Section IX.A.1 for Comprehensive Plan review.

C. Critical Areas Report Decision Criteria-Proposals to Reduce Regulated Critical Area Buffer LUC 20.25H.255.

The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:

1. **The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as the application of the regulations and standards of this code;**

   Finding: The modifications and performance standards included in this proposal will lead to improved levels of protection of critical areas functions and values. The CAR (Attachment 5) identifies and documents the degraded conditions on-site, both in the area of cemetery expansion and where the proposed mitigation, restoration, and enhancement planting will occur. With the installation of native vegetation, net improvement is expected, primarily through the improvements to the existing habitat conditions and stormwater quality. See Section XI for conditions of approval related to the mitigation, restoration, and enhancement plan.

2. **Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;**

   Finding: A five-year maintenance and monitoring plan has been included in the proposal. In addition to maintenance and monitoring activities, a financial assurance device associated with the maintenance and monitoring will be required as part of the Clearing and Grading Permit. Prior to requesting a temporary certificate of occupancy for the maintenance building, all landscaping will need to be installed and inspected or a financial installation device will be required to be submitted. See Section XI for conditions of approval related to the financial assurance devices.

3. **The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and**

   Finding: The modifications and performance standards included in the proposal are not detrimental to off-site critical areas and buffers and are expected to lead to improved steep slope, wetland, stream, and habitat functions for on-site and off-site critical areas and their buffers. As noted in the Critical Areas Report the areas of low level of function on this site would continue without the modification to the steep slope and the mitigation and enhancement plan. The steep slope functions will be improved with the proposed actions.

4. **The resulting development is compatible with other uses and development in the same land use district.**

   Finding: See Section IX.A-B for compatibility analysis.

D. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

1. **The proposal obtains all other permits required by the Land Use Code;**

   Finding: The applicant will be required to apply for a Building Permit and a Clearing and Grading Permit after the approval of the Critical Areas Land Use Permit. See Section XI for conditions of approval related to the Building Permit and Clearing and Grading Permit.

2. **The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;**

   Finding: The proposal has been designed and located to minimize impacts to and improve steep slope critical area functions. The proposed cemetery expansion is located within adjacent to an area of low function due to existing improvements and degraded conditions through non-native, invasive species coverage. Locating the development as proposed has the least impact on the overall critical area and buffer functions and values of the site. The proposal utilizes existing development and disturbance areas to help avoid unnecessary development impacts to the streams, wetlands, steep slopes, and habitat. Additionally, on-site mitigation through stream, wetland, steep slope, and buffer plantings, restoration, and vegetation enhancement will help to provide uplift in function both to the critical areas and buffers on the site. See Section XI for conditions of approval related to the mitigation, restoration, and enhancement plan.

3. **The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;**

   Finding: As discussed in Section III.B of this report, the proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable.

4. **The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;**

   Finding: The site is currently served by adequate public facilities and no additional need is anticipated with this proposal.

5. **The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and**

   Finding: The proposal includes a mitigation plan that provides native planting consistent with LUC 20.25H.210. The plan also contains a five-year maintenance and monitoring plan to ensure successful establishment of installed planting. See Section XI for conditions of approval related to the mitigation, restoration, and enhancement plans, maintenance and monitoring, and the financial assurance device.

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section III and V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

X. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **APPROVE with CONDITIONS** the Critical Areas Land Use Permit and Variance to the Land Use Code, and **RECOMMENDS APPROVAL** of the Conditional Use Permit to allow:

- 7.88-acre expansion of existing the cemetery within undeveloped and less developed areas to the north, south, and west of the existing maintenance shed
- Construction and backfill of three (3) large retaining walls to facilitate the proposed improvements and cemetery expansion by providing a flatter, more useable grade.
- Demolition of an existing maintenance building and construction of a new 4,425 square-foot maintenance building to the south of the existing building
- Construction of an access road extension and new turnaround to serve the new maintenance building
- Approximately 152,000 square feet of critical areas mitigation, restoration, and enhancement
- Construction of a new 8-foot privacy fence and installation of landscaping along 137th Pl SE/SE 17th St to screen adjacent properties

Note - Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Building Permit, Clearing and Grading Permit, or other necessary development permits within five (5) years of the effective date of the approval.

XI. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code - BCC 23.76	Savina Uzunow, 425-452-7860
Utilities Code - BCC 24	Mark Dewey, 425-452-6179
Land Use Code - BCC 20.25H	David Wong, 425-452-4282
Noise Code – BCC 9.18	David Wong, 425-452-4282
Transportation Code - BCC 14	Darwin Li, 425-452-4598

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Building Permit Required: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A Building Permit shall be required and approved. Plans consistent with those submitted as part of this permit application shall be included in the Building Permit application.

Authority: Land Use Code 20.30P.140
Reviewer: David Wong, Land Use

2. Clearing and Grading Permit Required: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. A Clearing and Grading Permit shall be required and approved. Plans consistent with those submitted as part of this permit application shall be included in the Clearing and Grading Permit application.

Authority: Land Use Code 20.30P.140
Bellevue City Code 23.76.035
Reviewer: David Wong, Land Use
Savina Uzunow, Clearing and Grading

3. Provisions for Loading: The property owner shall provide an off-street loading space which can access a public street. This must include an off-street location for garbage pick-up, which must be acceptable to the garbage hauler. On-street loading and unloading will not be permitted.

Authority: Land Use Code 20.20.590.K.4
Bellevue City Code 14.60.180
Reviewer: David Wong, Land Use
Darwin Li, Transportation

4. Geotechnical Review: The project geotechnical engineer must review the final plans, including all foundation, retaining wall, shoring, and vault designs. A letter from the geotechnical stating that the plans conform to the recommendations in the geotechnical report and any addendums and supplements must be submitted to the clearing and grading section prior to issuance of the construction permit.

Authority: Bellevue City Code 23.76.050
Reviewer: David Wong, Land Use

5. Geotechnical Monitoring: The project geotechnical engineer of record or his representative must be on site during critical earthwork operations. The geotechnical engineer shall observe all excavations and fill areas. In addition, the engineer shall monitor the soil cuts prior to construction of rockeries and verify compaction in fill areas. The engineer must submit field report in writing to the DSD inspector for soils verification and

foundation construction. All earthwork must be in general conformance with the recommendations in the geotechnical report.

Authority: Bellevue City Code 23.76.160
Reviewer: Savina Uzunow, Clearing and Grading

6. Required Screening: An 8-foot privacy fence and dense vegetative screening shall be provided along 137th Pl SE and conforming to the conceptual plans. The privacy fence shall be faced with the finished side towards 137th Pl SE. The plant species selected shall be fast-growing; have a mature height of at least 20 feet; and shall be at least 5 feet tall at time of installation.

Authority: Land Use Code 20.20.400, 20.30B.140
Reviewer: David Wong, Land Use

7. Clearing Limits and Temporary Erosion & Sedimentation Control Plan: Prior to the initiation of any clearing or grading activities, clearing limits and the location of all temporary erosion and sedimentation control measures shall be field staked for approval by the on-site clearing and grading inspector.

Authority: Bellevue City Code 23.76.060, 23.76.090
Reviewer: Savina Uzunow, Clearing and Grading

8. Pesticides, Insecticides, Herbicides, and Fertilizers: The use of pesticides, insecticides herbicides, and fertilizers to install and maintain the wetland buffer enhancement planting shall be in accordance with the City of Bellevue's "Environmental Best Management Practices." Herbicides, pesticides and insecticides used in the stream, wetland, or their respective buffer areas shall be approved for aquatic use.

Authority: Land Use Code 20.25H.220.H
Reviewer: David Wong, Land Use

9. Rainy Season restrictions: Due to the proximity of working occurring and the presence of a steep slope on-site, no clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A
Reviewer: Savina Uzunow, Clearing & Grading

PRIOR TO ISSUANCE OF A BUILDING PERMIT

10. Building and Site Plans - Transportation: The building grade and elevations shall be consistent with the curb and sidewalk grade shown in the approved civil engineering plans. During construction, city inspectors may require additional survey work at any time in order to confirm proper elevations. Building plans, landscaping plans, and architectural site plans must accommodate on-site traffic markings and signs and driveway design as specified in the engineering plans. Building plans, landscaping plans, and architectural site plans must comply with vehicle and pedestrian sight distance requirements, as shown on the engineering plans.

Authority: Bellevue City Code 14.60.060, 110, 120, 150, 180, 181, 190, 240, 241
Reviewer: Darwin Li, Transportation

PRIOR TO ISSUANCE OF A CLEARING AND GRADING PERMIT

11. Hold Harmless Agreement: Prior to Clearing and Grading Permit approval, the applicant or property owner shall submit a hold harmless agreement releasing the City of Bellevue from any and all liability associated with the critical area, critical area buffer, and critical areas structure setback modifications. The agreement must meet city requirements and must be reviewed by the City Attorney's Office for formal approval.

Authority: Land Use Code 20.30P.170
Reviewer: David Wong, Land Use

12. Right of Way Use Permit: Prior to issuance of any construction or clearing and grading permit, the applicant shall secure applicable right-of-way use permits from the City's Transportation Department, which may include:

a. Designated truck hauling routes.
b. Truck loading/unloading activities.
c. Location of construction fences.
d. Hours of construction and hauling.
e. Requirements for leasing of right of way or pedestrian easements.
f. Provisions for street sweeping, excavation and construction.
g. Location of construction signing and pedestrian detour routes.
h. All other construction activities as they affect the public street system.

In addition, the applicant shall submit for review and approval a plan for providing pedestrian access during construction of this project. Access shall be provided at all times during the construction process, except when specific construction activities such as shoring,

foundation work, and construction of frontage improvements prevent access. General materials storage and contractor convenience are not reasons for preventing access.

The applicant shall secure sufficient off-street parking for construction workers before the issuance of a clearing and grading, building, a foundation or demolition permit.

Authority: Bellevue City Code 11.70 & 14.30
Reviewer: Tim Stever, Right of Way

13. Civil Engineering Plans – Transportation: Civil engineering plans produced by a qualified engineer must be approved by the Transportation Department prior to issuance of the clearing and grading permit. The design of all street frontage improvements and driveway accesses must be in conformance with the requirements of the Americans with Disabilities Act, the Transportation Development Code, the provisions of the Transportation Department Design Manual, and specific requirements stated elsewhere in this document.

All relevant standard drawings from the Transportation Department Design Manual shall be copied exactly into the final engineering plans. Requirements for the engineering plans include, but are not limited to:

a. Traffic signs and markings.
b. Curb, gutter, sidewalk, and driveway approach design. The engineering plans shall be the controlling document on the design of these features; architectural and landscape plans must conform to the engineering plans as needed.
c. Installation or relocation of streetlights and related equipment.
d. Undergrounding of existing overhead utility lines, which should be coordinated with adjacent sites. Transformers and utility vaults to serve the building shall be placed inside the building or below grade, to the extent feasible.
e. Sight distance. Show the required sight triangles and include any sight obstructions, including those off-site. Sight distance triangles must be shown at all driveway locations and must consider all fixed objects and mature landscape vegetation. Vertical as well as horizontal line of sight must be considered when checking for sight distance.
f. Landings on sloping approaches are not to exceed a 7% slope for a distance of 30 feet approaching the back edge of sidewalk. Driveway grade must be designed to prevent vehicles from bottoming out due to abrupt changes in grade.
g. Location of fixed objects in the sidewalk or near the driveway approach.
h. Trench restoration within any right of way or access easement.

Specific requirements are detailed below.

Frontage improvements required by the developer include:

1. SE 12th Street driveway
    a. Reconstruct driveway to meet COB Standards per Standard Drawing SW-170-1
    b. Reconstruct any sidewalk panels adjacent to the driveway to meet ADA standards.

Construction of all street and street frontage improvements must be completed prior to closing the clear and grade permit and right of way use permit for this project. A Design Justification Form must be provided to the Transportation Department for any aspect of any pedestrian route adjacent to or across any street that cannot feasibly be made to comply with ADA standards. Design Justification Forms must be provided prior to approval of the clear and grade plans for any deviations from standards that are known in advance. Forms provided in advance may need to be updated prior to project completion. For any deviations from standards that are not known in advance, Forms must be provided prior to project completion.

Authority: Bellevue City Code 14.60
Transportation Department Design Manual
Americans with Disabilities Act
Reviewer: Darwin Li, Transportation

14. Turbidity and pH Monitoring Required: A turbidity and pH monitoring plan must be submitted and approved prior to issuance of the clearing and grading permit, and the plan must be implemented during site work. The plan must be developed and implemented in accordance with the Turbidity & pH Monitoring Requirements contained in the Bellevue Clearing & Grading Development Standards.

Authority: Bellevue City Code 23.76.160.C
Reviewer: Savina Uzunow, Clearing and Grading

15. Mitigation, Restoration, and Enhancement Plan: A final mitigation plan in accordance with the conceptual mitigation plan (Attachment 3) provided under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Clearing and Grading Permit. Enhancement plans for pileated woodpecker habitat shall conform with WDFW publication: *Management Recommendations for Washington's Priority Species Volume IV: Birds*.

Authority: Land Use Code 20.25H.125, 20.25H.160
Reviewer: David Wong, Land Use

16. Maintenance & Monitoring: A maintenance & monitoring plan in conformance with the plan submitted under this application shall be submitted for review and approval by the City of Bellevue prior to issuance of the Building Permit. The mitigation plan shall be maintained and monitored for a minimum of five (5) years. Annual reporting shall be submitted at the end of each growing season or by December 1 for each of the five (5) years this plan is applicable. All reporting shall be submitted by email to **dwong@bellevuewa.gov**. or by mail to:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.25H.220.D, 20.25H.220.H
Reviewer: David Wong, Land Use

17. Maintenance and Monitoring Assurance Device: A financial surety is required to be submitted to ensure the mitigation, restoration, and enhancement planting successfully establishes. A maintenance assurance device that is equal to 100% of the cost of plants, planting materials, and labor is required to be held for a period of five years from the date of building permit issuance. A cost estimate is required to be provided with the Clearing and Grading Permit. The assurance device is required to be posted prior to Clearing and Grading Permit issuance. Release of the surety after the 5-year monitoring period is contingent upon meeting all performance standards, submission of annual reporting by December 1 of each year following successful Land Use inspection of the plant installation, and a final inspection of the planting by Land Use Staff that determines the maintenance and monitoring plan was successful and objectives are met.

Authority: Land Use Code 20.25H.220.F
Reviewer: David Wong, Land Use

PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCUPANCY

18. Landscape Installation Assurance Device: Prior to any request for temporary certificate of occupancy, all landscaping shall be installed, or a financial surety is required to be submitted to ensure the mitigation, restoration, and enhancement planting is successfully installed. An assurance device that is equal to 150% of the cost of plants, planting materials, and labor is required to be held until all landscaping is installed and successfully inspected by City inspection staff. A cost estimate is required to be provided prior to the request for temporary occupancy to determine the final cost of the assurance device.

Authority: Land Use Code 20.25H.220.F
Reviewer: David Wong, Land Use

19. Street Frontage Improvements: All street frontage improvements and other required transportation elements, including streetlight and traffic signal revisions, must be constructed by the applicant and accepted by the Transportation Department inspector. All existing streetlight and traffic signal apparatus affected by this development, including traffic controllers, pedestrian signal poles, traffic signal poles, and power sources, must be relocated as necessary. Existing overhead lines must be relocated underground. All required improvements must be constructed as per the approved plans or as per direction

of the Transportation Department inspector. Bonding or other types of assurance devices will not be accepted in lieu of construction, unless the City requires a delay.

Authority: Bellevue City Code 14.60
Comprehensive Plan Policy UT-39
Transportation Department Design Manual Sections
Transportation Department Design Manual Standard Drawings
Reviewer: Darwin Li, Transportation

N

0 120

SCALE IN FEET

SUNSET HILLS
MEMORIAL PARK

PROPOSED
MAINTENANCE
BUILDING

RETAINING WALL

RETAINING WALL

STORMWATER
DETENTION TANK, TYP

STORMWATER LEVEL
SPREADER, TYP

WETLAND
BUFFER (TYP)

WETLAND BUFFER
(TYP)

100' EASEMENT, PSP&L
REC 2521315 & 2535387

20' EASEMENT, OLYMPIA PIPELINE CO
REC 5731983 & 7311300369

5' CONTOURS SHOWN

TW 287
BW 287

TW 283
BW 278

TW 278
BW 276.5

TW 272
BW 255.3

TW 272.5
BW 258

TW 268
BW 246

TW 268
BW 238.5

TW 268
BW 246.4

TW 272
BW 263.8

TW 294
BW 270.4

TW 295
BW 285.8

TW 290
BW 277.4

TW 291
BW 267.3

TW 293
BW 267.5

TW 283
BW 264.2

TW 280
BW 262

TW 275
BW 275

TW 275
BW 262

TW 275
BW 264.2

TW 275
BW 275

TW 275
BW 260

TW 275
BW 260

TW 275
BW 275

TW 275
BW 264.5

TW 240
BW 239.5

TW 245
BW 232.7

TW 245
BW 239.7

TW 245
BW 240.3

TW 245
BW 219.5

TW 240
BW 215

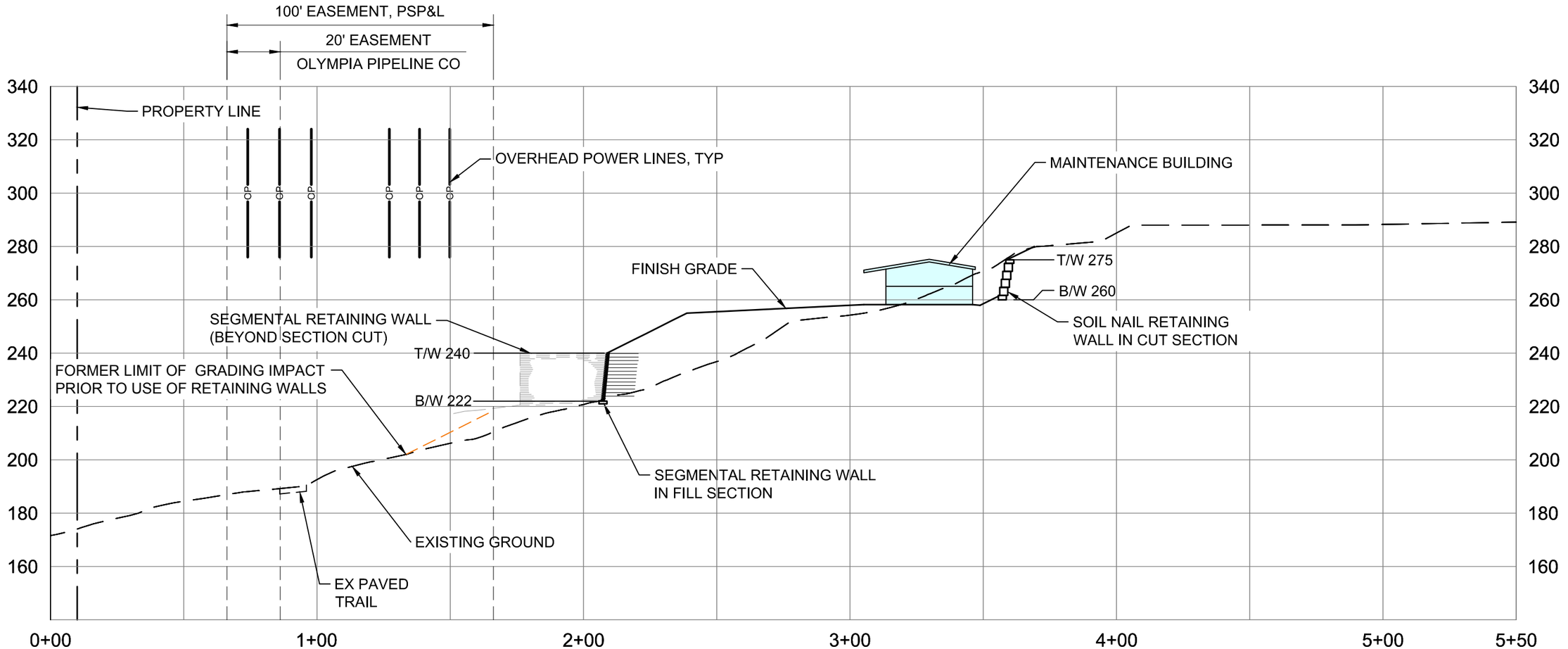
TW 240
BW 222

TW 240
BW 239.2

HUITT-ZOLLARS

SUNSET HILLS
RETAINING WALL SKETCH 11/03/2022

Date: Nov 03, 2022, 8:55:19 AM
Drawing: \\HZTACOMAJ-DRIVER\310137.02 - SUNSET HILLS MP CUP AND SEPA\10 CADD & BIM\10.1 AUTOCAD\CUP DRAWINGS\R3\310137002GSSP01.DWG

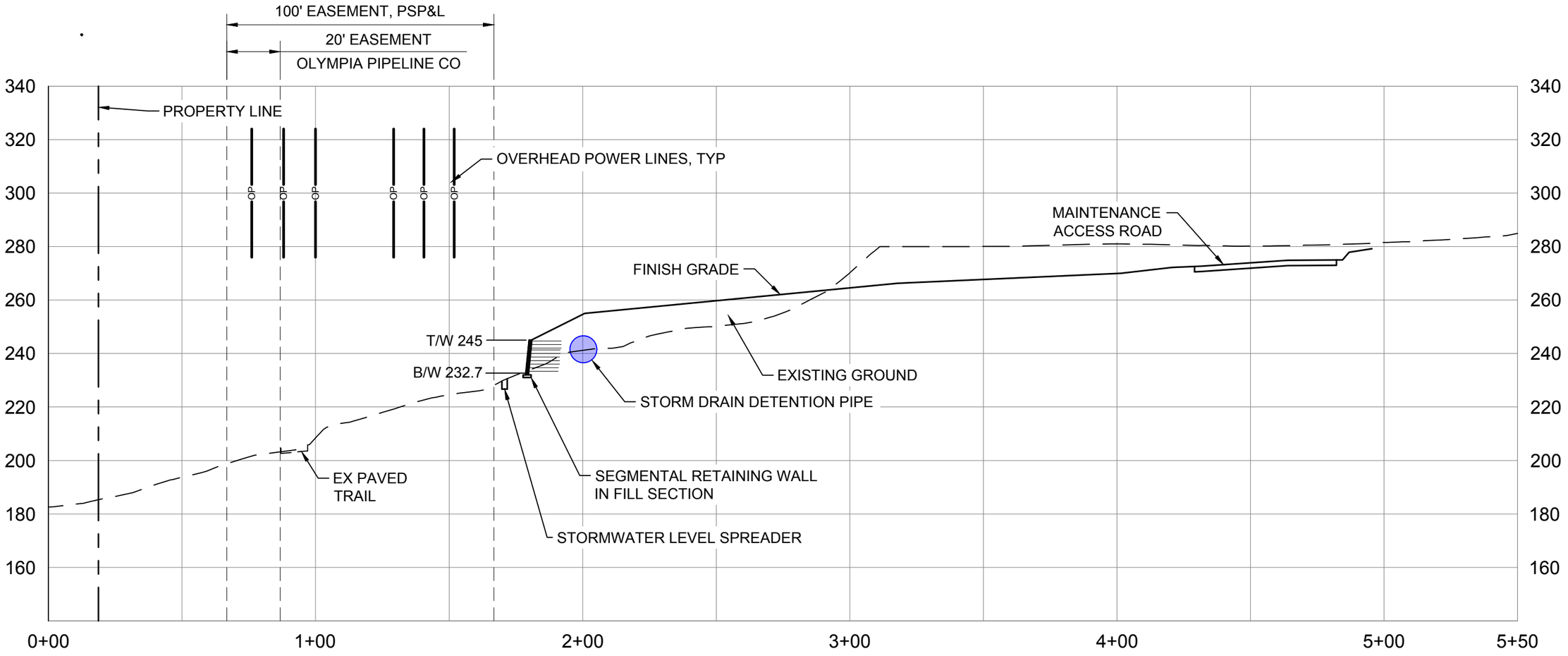


A-A'

HUITT-ZOLLARS

SUNSET HILLS
SECTION A-A', 6/15/2022

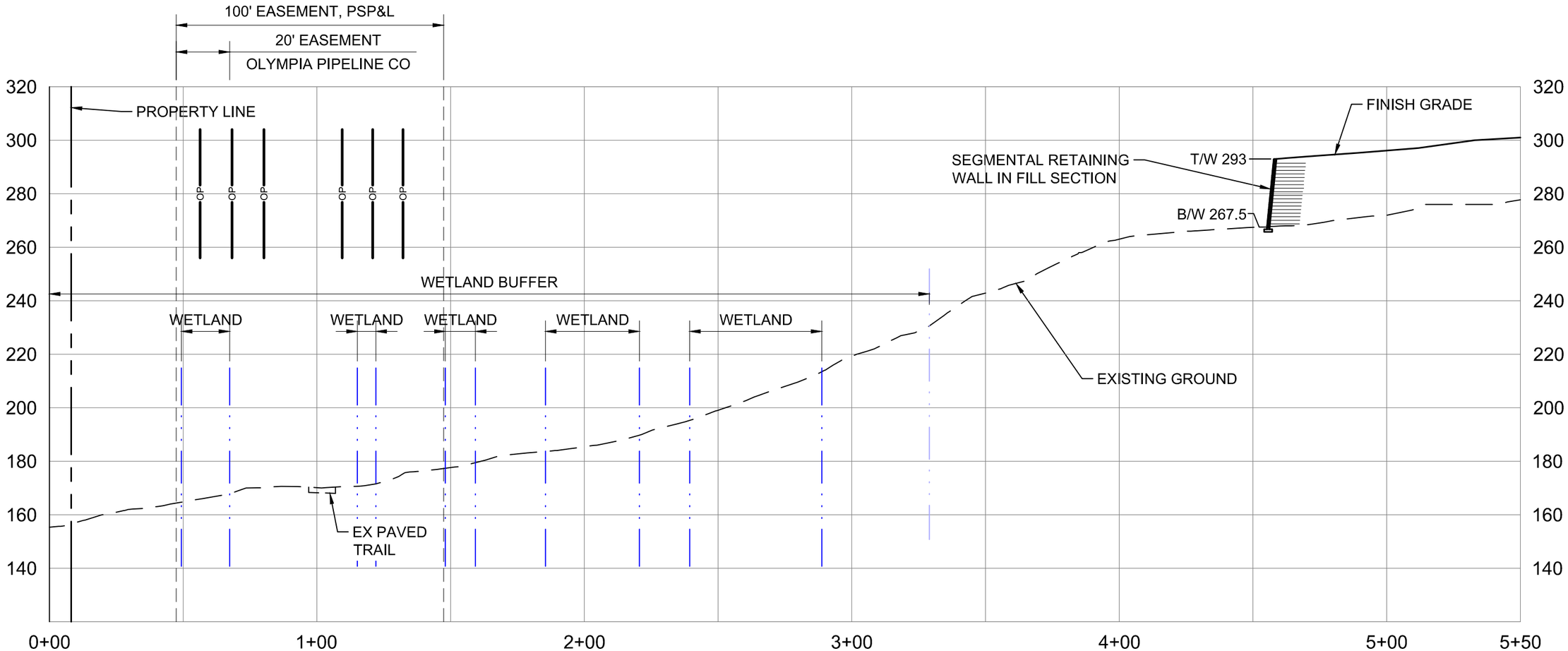
T/W: TOP OF WALL
B/W: BOTTOM OF WALL MEASURED AT FINISH GRADE.



HUITT-ZOLLARS

SUNSET HILLS
SECTION B-B', 11/02/2022

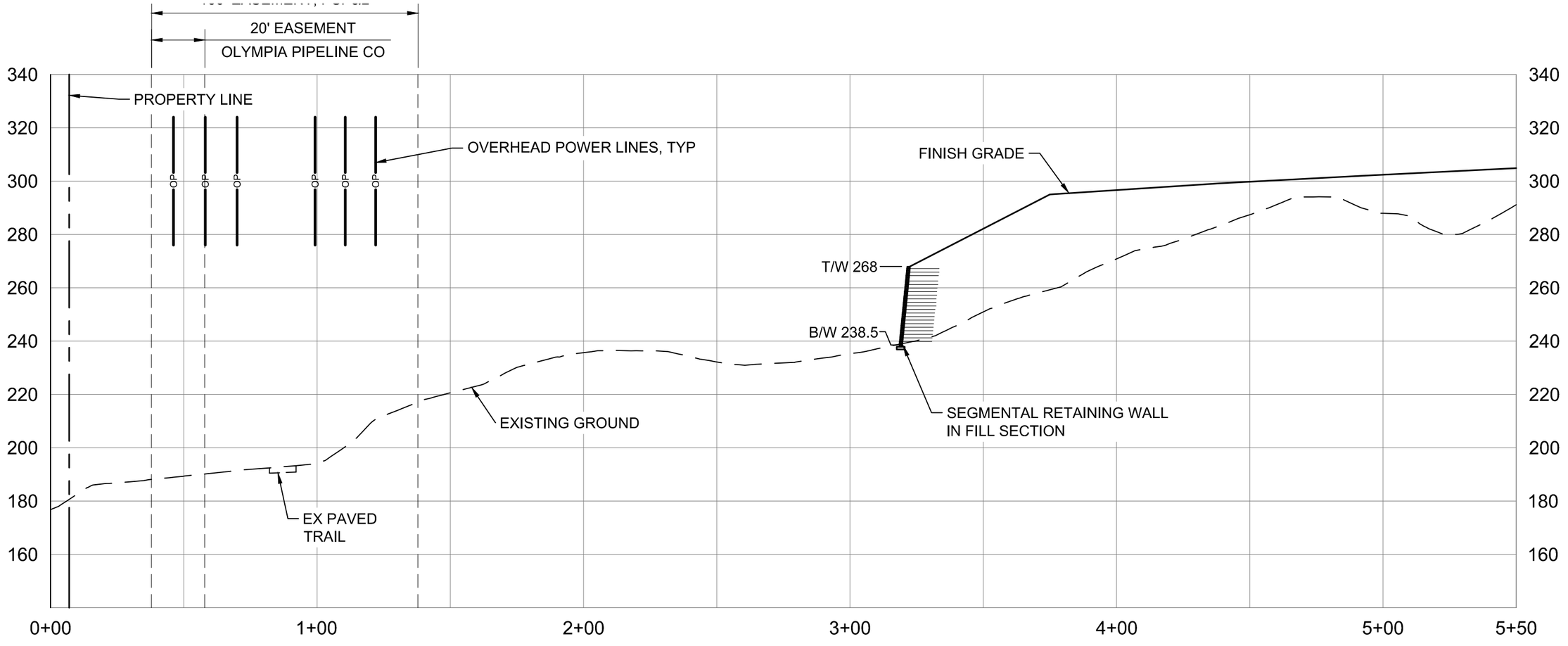
T/W: TOP OF WALL
B/W: BOTTOM OF WALL MEASURED AT FINISH GRADE.



HUITT-ZOLLARS

SUNSET HILLS
SECTION C-C', 6/15/2022

T/W: TOP OF WALL
B/W: BOTTOM OF WALL MEASURED AT FINISH GRADE.



HUITT-ZOLLARS

SUNSET HILLS
SECTION D-D', 6/15/2022

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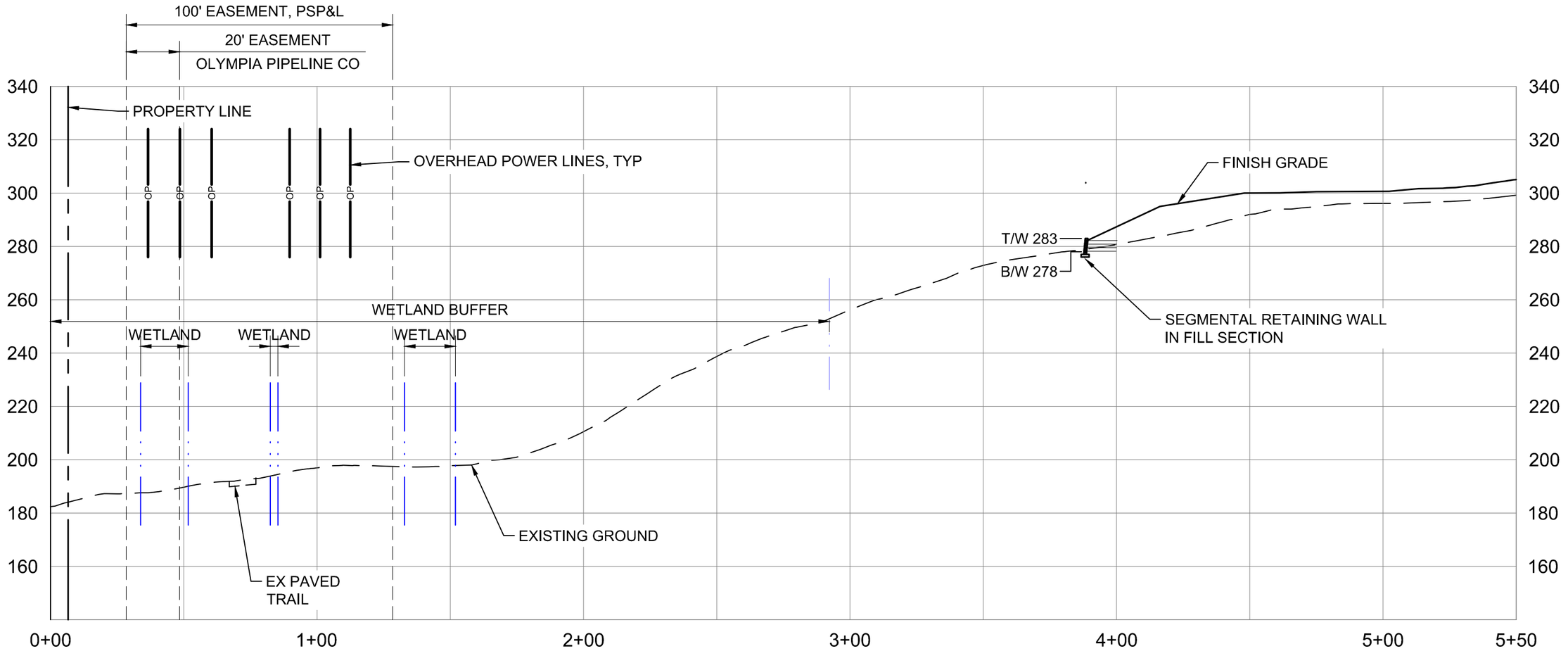
B/W: BOTTOM OF WALL MEASURED AT FINISH GRADE.



HUITT-ZOLLARS

SUNSET HILLS
SECTION E-E', 6/15/2022

T/W: TOP OF WALL
B/W: BOTTOM OF WALL MEASURED AT FINISH GRADE.

PERMIT #18 129303 DC AND
PRE-APPLICATION CONFERENCE #19 116802 DB

TREE LEGEND

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
	4	#20	PINUS NIGRA	AUSTRIAN PINE	SEE DETAIL B
	3	#20	ACER PALMATUM 'BLOODGOOD'	JAPANESE MAPLE	SEE DETAIL B

REFER TO THE PLANTING NOTES AND DETAILS ON THE PLANTING DETAILS SHEET AND THE PLANTING SPECIFICATIONS SHEET.

SHRUBS LEGEND

SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	SPACING	REMARKS
	35	5 GAL	PRUNUS LAUROCERASUS	ENGLISH LAUREL HEDGE	5'-0" O.C.	SEE DETAIL A MIN. 5' TALL AT INSTALLATION

REFER TO THE PLANTING NOTES AND DETAILS ON THE PLANTING DETAILS SHEET AND THE PLANTING SPECIFICATIONS SHEET.

* SPECIAL HYBRID PLANTS HAVE BEEN SPECIFIED. CONTRACTOR MAY NOT SUBSTITUTE OTHER SPECES. CONTRACTOR TO VERIFY ALL PLANT QUANTITIES BEFORE ORDERING.

** NOTE: PLANTS TO BE OBTAINED FROM INSTANT HEDGE.

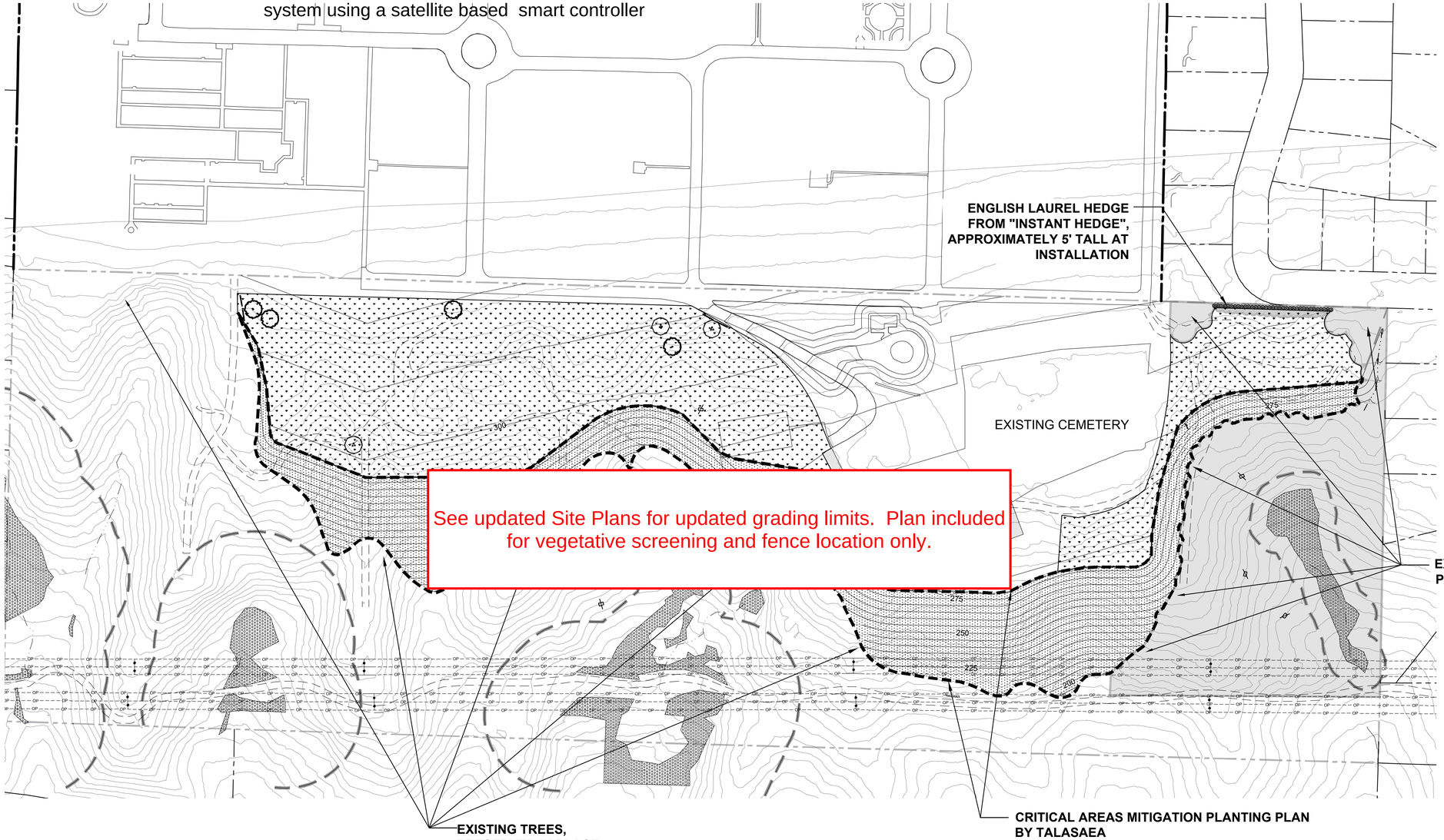
27977 Carby-Marquam Hwy., Carby, OR 97013

PH: 503.587.0102

order@instanthedge.com

IRRIGATION NOTE

All planting areas shall be irrigated by an automatically controlled system using a satellite based smart controller



SODDED TURF LEGEND & NOTES

SYMBOL

SODDED TURF TO MATCH EXISTING SOD ADJACENT. CONTRACTOR TO CONFIRM WITH OWNER'S REPRESENTATIVE FOR THE TYPE OF TURF REQUIRED.

SOIL AMENDMENTS

FOR SODDED AREA TO BE LANDSCAPED, THE FOLLOWING AMENDMENTS SHALL BE UNIFORMLY BROADCAST AND THOROUGHLY INCORPORATED BY MEANS OF A ROTOTILLER OR EQUAL TO A DEPTH NO LESS THAN 8 INCHES.

AMOUNT PER 1,000 SQUARE FEET

FOR BIDDING PURPOSES:

3 CU. YDS. NITROGEN STABILIZED ORGANIC AMENDMENT DERIVED FROM ORGANIC HUMUS WITH A MINIMUM 70% FULLY COMPOSTED FIR OR REDWOOD SHAVINGS CONTENT. GENERAL PURPOSE MULCH AVAILABLE FROM AGUINAGA FERTILIZER COMPANY PHONE: (714) 786-9558, OR APPROVED EQUAL.

15 LBS. SOIL SULFUR
15 LBS. 12-12-12 FERTILIZER
100 LBS. AGRICULTURAL GYPSUM

CONTRACTOR SHALL OBTAIN AGRONOMIC TESTING OF SOIL AFTER ROUGH GRADING IS COMPLETE AND MODIFY AMENDMENT SCHEDULE ACCORDINGLY.

TURF AREA FINISH GRADING

SOD CAN BE PLACED AFTER ALL TURF AREAS HAVE BEEN PROPERLY AMENDED, ROTOTILLED AND/OR CROSSRIPPED AND UNIFORMLY COMPACTED AND SMOOTHED OUT TO MEET A UNIFORM CONSISTENT APPEARANCE. THERE SHALL BE NO SOIL DEPRESSIONS OR SURFACE IRREGULARITIES AND GRADING MUST BE APPROVED BY OWNER AND/OR LANDSCAPE ARCHITECT. SOIL SHALL BE FRIABLE AND MOIST PRIOR TO LAYING OF TURF.

SODDED TURF INSTALLATION PROCEDURE

1. LAY FIRST STRIP OF SOD SLABS ALONG A STRAIGHT LINE. BUTT JOINTS TIGHTLY; DO NOT OVERLAP EDGES. ON SECOND STRIP, STAGGER JOINTS JUST AS IN LAYING MASONRY. USE A SHARP KNIFE TO CUT SOD TO FIT CURVES, EDGES, SPRINKLER HEADS, ETC. LAY SOD IN ONE DIRECTION ONLY.
2. DO NOT LAY ENTIRE LAWN BEFORE WATERING. WHEN A CONVENIENTLY LARGE AREA HAS BEEN SODDED, WATER LIGHTLY TO PREVENT DRYING. CONTINUE TO LAY SOD AND WATER REPEATEDLY UNTIL INSTALLATION IS COMPLETE.
3. AFTER LAYING SOD, ROLL LIGHTLY TO ELIMINATE IRREGULARITIES AND TO FORM GOOD CONTACT BETWEEN SOD AND SOIL. AVOID HEAVY ROLLER OR EXCESSIVE INITIAL WATERING WHICH MAY CAUSE ROLLER MARKS.
4. WATER THOROUGHLY THE COMPLETED LAWN SURFACE. SOIL SHOULD BE MOISTENED AT LEAST 8 INCHES DEEP. REPEAT WATERING AT REGULAR INTERVALS TO KEEP SOD MOIST AT ALL TIMES UNTIL ROOTED. AFTER SOD IS ESTABLISHED, DECREASE FREQUENCY AND INCREASE AMOUNT OF WATER PER APPLICATION AS NECESSARY.
5. ALL UNSUCCESSFULLY ESTABLISHED SOD SHALL BE REMOVED AND NEW SOD LAID TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

TREE ROOT BARRIER NOTE:

THE CONTRACTOR SHALL INSTALL 'DEEP ROOT' (OR APPROVED EQUAL) TREE ROOT BARRIERS, MODEL UB 24-2, IN A LINEAR FASHION ADJACENT TO THE HARD SURFACE AS SHOWN ON THE PLAN. SEE DETAIL C ON THE PLANTING DETAILS SHEET FOR INSTALLATION. CONTRACTOR TO INSTALL ROOT BARRIERS A MINIMUM OF 6" FROM EDGE OF LAWN CRYPT.

AVAILABLE FROM:
DEEP ROOT PARTNERS, LP.
81 LANGTON ST., SUITE 305
SAN FRANCISCO, CA. 94103
PHONE: (800) 458-7668
(415) 347-9700
FAX: (800) 277-7668
(415) 437-9744

LEGEND

SYMBOL

CRITICAL AREAS MITIGATION PLANTING PLAN BY TALASAEA

EXISTING WETLAND

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

MICHAEL A. GREEN
CERTIFICATE NO. 1081
EXP. 10/02/2021

DATE

NORTH

0 40' 80' 160'

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES AND SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE: UNDERGROUND LOCATE LINE: 811 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION

NO.	REVISION	DATE

PRELIMINARY

PLANTING PLAN

CLARK & GREEN Associates Landscape Architecture
15420 Laguna Canyon Road, Ste 210, Irvine, California 92618
(714) 434-9803 www.clarkgreen.com

DESIGNED BY:	SCALE: SUNSET HILLS PLANTING PLAN 03-01-21
DRAWN BY: AS	
CHECKED BY: MG	CONTRACT NO:
APPROVED BY:	DATE: SEPTEMBER 11, 2020

SUNSET HILLS MEMORIAL PARK
CONDITIONAL USE PERMIT TO EXPAND CEMETERY
Bellevue, Washington

SHT. OF X

1. THE CONTRACTOR SHALL MAINTAIN A QUALIFIED SUPERVISOR ON THE SITE AT ALL TIMES DURING CONSTRUCTION THROUGH COMPLETION OF PICK-UP WORK. ALL EMPTY BAGGED AMENDMENTS, FERTILIZERS, SEEDS, ETC. USED ON PROJECT SHALL STAY ON SITE IN A NEAT, CLEAN AND ORDERLY MANNER UNTIL FINAL APPROVAL BY LANDSCAPE ARCHITECT. ALL MATERIALS OTHER THAN SOIL ORGANIC AMENDMENTS SHALL BE DELIVERED IN UNOPENED BAGS. PACKING LISTS SHALL BE PROVIDED TO VERIFY FURNISHED QUANTITIES. ANY EXCESS MATERIALS REMOVED FROM THE JOB SITE SHALL BE IDENTIFIED PRIOR TO THEIR REMOVAL.

2. THE CONTRACTOR SHALL VERIFY ALL PLANT MATERIAL QUANTITIES PRIOR TO INSTALLATION. PLANT MATERIAL QUANTITIES LISTED FOR CONVENIENCE OF CONTRACTOR. ACTUAL NUMBER OF SYMBOLS SHALL HAVE PRIORITY OVER QUANTITY DESIGNATED.

3. THE CONTRACTOR SHALL FURNISH AND PAY FOR ALL CONTAINER GROWN TREES, SHRUBS AND VINES, INCLUDING SEEDED AND SODDED TURF, HYDROMULCHES AND FLATTED GROUNDCOVERS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE AND PAY FOR: PLANTING OF ALL PLANT MATERIALS; THE SPECIFIED GUARANTEE OF ALL PLANT MATERIALS; THE STAKING AND GUYING OF TREES AND THE CONTINUOUS PROTECTION OF ALL PLANT MATERIALS UPON THEIR ARRIVAL AT THE SITE.

4. GROUNDCOVER PLANTING
GROUNDCOVER PLANTING SHALL BE AS SHOWN ON PLAN UNLESS OTHER-WISE NOTED.
SEE DETAIL A & B, THIS SHEET, FOR FLATTED GROUNDCOVER PLANTING.

5. PLANT MATERIAL
ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

6. BOXED TREES
ALL BOXED TREES SHALL BE SELECTED AND SPOTTED BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.

7. VINES
ALL VINE RUNNERS SHALL BE INSTALLED WITH THE NURSERY STAKES REMOVED AND VINE RUNNERS SHALL BE ESPALIERED TO THE ADJACENT WALL USING WIRE OR AS DIRECTED BY THE LANDSCAPE ARCHITECT.

8. LEACHING
- ALL SOILS WHERE THE SOIL SALINITY IS GREATER THAN 3 MILLIMHO/CM SHALL BE PRELEACHED PRIOR TO PLANTING.
- AFTER TREE PLANTING PITS HAVE BEEN EXCAVATED, AND PRIOR TO THE INSTALLATION OF TREES, THE PLANTING PITS SHALL BE LEACHED BY FILLING PITS 1/2 FULL WITH GOOD QUALITY WATER AND ALLOW TO DRAIN COMPLETELY PRIOR TO PLANTING.
- AFTER THE IRRIGATION IS INSTALLED AND PRIOR TO THE PLANTING OF SHRUBS AND GROUNDCOVER, THE PLANTING AREA SHALL BE LEACHED SO THAT A MINIMUM OF 6" OF GOOD QUALITY WATER PASSES THROUGH SOIL PROFILE BEYOND ROOT ZONE. PRIOR TO LEACHING, PLANT PITS SHALL BE DUG LEAVING SPOILS IN THE PITS. LEACHING IRRIGATION SHALL BE PROGRAMMED TO AVOID EROSION/RUN-OFF.

9. PLANTING AREA PREPARATION:
- ALL PLANTING AREAS INCLUDING TURF AREAS ARE TO BE PROPERLY AMENDED, CROSS RIPPED OR ROTOTILLED AND ROLLED IN SEVERAL PASSES TO UNIFORMLY COMPACT TO 80% RELATIVE DENSITY EXCEPT WHERE REQUIRED BY THE GEOTECHNICAL ENGINEER OR WHERE INDICATED TO A GREATER COMPACTION FOR STRUCTURAL SUPPORT CONSISTENT WITH CODE OR DETAILS/NOTES. THE GRADED SURFACE AND TO AN 8" DEPTH SHALL BE OF CONSISTENT MINERAL TOPSOIL MATERIAL WITH A MAXIMUM 15% ORGANIC MATTER AND FREE OF DEBRIS AND ROCKS GREATER THAN 1". THE FINAL GRADED SURFACE SHALL BE SMOOTH AND EVEN WITHOUT DEPRESSIONS OR BUMPS, HUMPS OR HIGH SPOTS. SURFACE ROCKS GREATER THAN 3/8" SHALL BE REMOVED BY RAKING PRIOR TO SOD PLACEMENT OR SEEDING. THE OWNER AND/OR LANDSCAPE ARCHITECT SHALL REVIEW AND APPROVE THE FINAL GRADED SURFACE PRIOR TO SHRUB PLANTING, SOD PLACEMENT AND SEEDING. SETTLEMENT THAT OCCURS DURING THE ESTABLISHMENT AND/OR MAINTENANCE PERIOD INDICATES THAT THE SUBGRADE WAS NOT UNIFORMLY COMPACTED AND SHALL BE CORRECTED TO RETURN THE SURFACE TO THE REQUIRED EVEN AND ATTRACTIVE APPEARANCE TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AND OWNER AND SUBSEQUENTLY DAMAGED PLANTING WORK REPAIRED.
- THE CONTRACTOR SHALL PROVIDE APPROPRIATE TRANSITION GRADING BETWEEN DEVELOPED AREA OR AREAS OUTSIDE THE LIMITS OF WORK AND THE PROJECT AREA TO CREATE SMOOTH EVEN TRANSITIONS OF THE GROUND SURFACE TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AND OWNER. THIS MAY REQUIRE ADDITIONAL MINOR FILLS OR CUT IN ORDER TO CREATE THESE ACCEPTABLE TRANSITIONS. THIS WILL BE REQUIRED TO BE COMPLETED AS NECESSARY WITH NO ADDITIONAL COMPENSATION.

10. SOIL AMENDMENTS, FERTILIZERS & SOIL CONDITIONERS
THE SOIL AMENDMENTS SPECIFIED BELOW ARE FOR BIDDING AND INSTALLATION. THE OWNER SHALL PROVIDE AND PAY FOR THE SOILS AGRONOMY REPORT FROM AN APPROVED SOILS LABORATORY AND ADDITIONAL SPECIFICATIONS MAYBE PROVIDED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF PLANT MATERIALS. ANY MODIFICATION TO THE BELOW SPECIFICATION MUST BE IN WRITING FROM THE OWNER OR LANDSCAPE ARCHITECT.

11. GENERAL PLANTING AREAS
GENERAL SOIL PREPARATION FOR TURF, GROUNDCOVER AND SHRUB AREAS. BROADCAST THE FOLLOWING MATERIALS UNIFORMLY. THE RATES ARE PER 1,000 SQUARE FEET. INCORPORATE THEM HOMOGENEOUSLY 6 INCHES DEEP;
- 5 LBS. AMMONIUM SULFATE (21-0-0)
- 8 LBS. POTASSIUM SULFATE (0-0-50)
- 4 LBS. TRIPLE SUPERPHOSPHATE (0-45-0)
- 30 LBS. AGRICULTURAL GYPSUM
- 3 CUBIC YARDS COMPOSTED ORGANIC AMENDMENT DERIVED FROM MATURE COMPOST/HUMUS
- (NOT TO EXCEED 30% HUMUS) (SEE DEFINITION BELOW), SUFFICIENT FOR 3% TO 6% SOIL ORGANIC MATTER ON A DRY WEIGHT BASIS.

12. PLANTING BACKFILL
FOR PREPARATION OF BACKFILL MIX FOR CONTAINER PLANTS / BOXED TREES, INCORPORATE UNIFORMLY THE FOLLOWING MATERIALS INTO LEACHED SOIL. RATES ARE EXPRESSED PER CUBIC YARD:
- 1/4 LB. CALCIUM NITRATE (15.5-0-0)
- 1/4 LB. POTASSIUM FULFATE (0-0-50)
- 1/4 LB. TRIPLE SUPERPHOSPHATE (0-45-0)
- 1/4 LB. AGRICULTURAL GYPSUM
- 2 LB. AGRICULTURAL LIMESTONE
- 15% ORGANIC AMENDMENT BY VOLUME, SUFFICIENT FOR 3% TO 6% SOIL ORGANIC MATTER ON A DRY WEIGHT BASIS. THERE SHALL BE POSITIVE DRAINAGE AWAY FROM THE ROOT CROWN OF THE PLANT MATERIAL.

13. SITE MAINTENANCE
- APPLY CALCIUM NITRATE (15.5-0-0) AT 6 POUNDS PER 1,000 SQUARE FEET, ABOUT ONCE PER QUARTER, MONITOR THE SITE WITH PERIODIC SOIL TESTING.
- ALL MATERIALS SHALL BE THOROUGHLY IRRIGATED INTO SOILS IMMEDIATELY AFTER APPLICATION.

14. FOR ALL STAKED TREES, SEE DETAIL C, THIS SHEET.

15. FOR ALL SHRUB PLANTING, SEE DETAIL A & B, THIS SHEET.

16. PRE-INSTALLATION WEED ABATEMENT
ON IRRIGATED FILL SLOPES AND FLAT AREAS TO BE SEEDED, SODDED, AND/OR PLANTED REMOVE ALL EXISTING VEGETATION, EXCEPT AS IDENTIFIED BY LANDSCAPE ARCHITECT FOR PRESERVATION IN PLACE. THE SHRUBS OR TREES TO BE PRESERVED SHALL BE CLEARLY MARKED WITH AN ORANGE RIBBON. FERTILIZE THESE AREAS WITH 300 LBS. PER ACRE OF 14-4-9, OR EQUIVALENT. IRRIGATION FOR 2-4 WEEKS, 2-4 TIMES DAILY TO KEEP THE SOIL SURFACE MOIST IN ORDER TO GERMINATE THE WEED SEEDS EXISTING IN THE SOIL. ONCE THE WEED SEEDS HAVE GERMINATED AND ATTAINED SUFFICIENT GROWTH, APPLY A BROAD SPECTRUM, NON-SELECTIVE HERBICIDE ACCORDING TO THE MANUFACTURER'S LABEL RECOMMENDATIONS AND LICENSED PCA. AFTER SEVEN DAYS, GRUB ALL WEED GROWTH FROM AREAS TO OWNER'S APPROVAL. REPEAT ENTIRE PROCEDURE IF DIRECTED BY LANDSCAPE ARCHITECT OR OWNER.

17. SHRUB PLANTING METHOD
EXCAVATE PLANTING PIT TO TWO (2) TIMES THE DIAMETER OF ROOTBALL AND 1-1/2 TIMES ITS DEPTH. AUGER 4" ON CENTER X 2' DEEP AT BOTTOM OF PIT. LEAVE AUGERED SOIL IN PLACE, UNCOMPACTED. FILL BOTTOM OF PLANTING PIT WITH AMENDED SOIL TO BRING LEVEL TO PROPER PLANTING DEPTH. BACKFILL AROUND ROOTBALL WITH AMENDED SOIL. FORM BASIN ON DOWN-SLOPE SIDE OF PLANTING PIT TO HOLD MOISTURE WITHIN THE ROOT ZONE. REMOVE BASINS WITHIN 30 DAYS OF START OF MAINTENANCE AS IDENTIFIED BY OWNER IN WRITING.

18. FIRST WATERING OF NEWLY PLANTED MATERIAL
WET THE ROOT ZONE BY HAND WATERING THE PITS TO THE LOWEST EDGE BASIN. AFTER AMENDED SOIL HAS BEEN WETTED, THE SPRINKLERS SHOULD CONTROL THE MOISTURE FROM THAT POINT ON.

19. ESTABLISHMENT / MAINTENANCE PERIOD
THE CONTRACTOR SHALL PROVIDE FOR A 60 DAY ESTABLISHMENT AND A 60 DAY MAINTENANCE PERIOD AFTER THE APPROVAL, IN WRITING, OF THE INSTALLATION OF THE PROJECT. THE MAINTENANCE SHALL BE PER THE ABOVE NOTES AND THE PROJECT LANDSCAPE SPECIFICATIONS.

20. TREE ROOT BARRIERS
INSTALL "DEEP ROOT" (OR APPROVED EQUAL) TREE ROOT BARRIERS ON ALL TREES WITHIN 5'-0" OF SIDEWALKS OR HARD SURFACES. CHECK MANUFACTURERS CALCULATOR CHART FOR NUMBER OF PANELS REQUIRED FOR EACH SIZE TREE.

21. MULCH
CONTRACTOR SHALL PROVIDE 2" LAYER OF MULCH IN ALL SHRUB PLANTING AREAS INCLUDING SLOPES 2:1 AND LESS. PROVIDE 2" LAYER OF MULCH AROUND TREE TRUNK IN TURF AREAS. MULCH SHALL EXTEND IN AN 18" DIAMETER CIRCLE FROM TRUNK, BUT KEEP 3" CLEAR AROUND SURFACE OF BARK. DO NOT MULCH SURFACE OF ROOTBALLS. PROVIDE SAMPLE TO OWNER'S REPRESENTATIVE FOR APPROVAL.

DEFINITION OF MULCH

LEAFY GREEN DERIVED SOURCE OF MULCH:
1. MULCH SHALL HAVE AN ACID-SOLUBLE ASH CONTENT OF NO LESS THAN 8% AND NO MORE THAN 40%. THE ORGANIC MATTER CONTENT SHALL BE AT LEAST 40% ON A DRY WEIGHT BASIS. SILICON CONTENT (ACID-INSOLUBLE ASH) SHALL BE LESS THAN 50%.
2. THE PH OF THE MATERIAL SHALL BE BETWEEN 6.0 AND 8.0.
3. THE SALT CONTENT SHALL BE LESS THAN 6 MILLIMHO/CM @ 25° C. (ECE LESS THAN 10) IN A SATURATED PASTE EXTRACT.
4. BORON CONTENT OF THE SATURATED EXTRACT SHALL BE LESS THAN 3.0 PART PER MILLION.
5. THE MOLAR RATIO OF SOLUBLE AMMONIACAL NITROGEN TO SOLUBLE NITRATE NITROGEN IN THE SATURATION EXTRACT SHALL BE LESS THAN 2.
6. CALCIUM CARBONATE SHALL NOT BE PRESENT IF TO BE APPLIED ON ALKALINE SOILS.
7. TYPES OF ACCEPTABLE PRODUCTS ARE MULCHES DERIVED FROM VEGETATION CONTAINING LEAF MATTER FREE FROM WEED SEEDS, FREE OF PATHOGENS AND OTHER DELETERIOUS MATERIALS.
8. WOOD PRODUCTS ARE NOT ACCEPTABLE
9. STABLE HUMUS MUST BE PRESENT. CARBON:NITROGEN RATIO SHALL BE LESS THAN 25:1.
10. THE MULCH SHALL BE AEROBIC WITHOUT MALODOROUS PRESENCE OF DECOMPOSITION PRODUCTS.
11. THE MAXIMUM PARTICLE SIZE SHALL BE 1 INCH, 20% OR MORE SHALL PASS A NO. 4 SCREEN.
12. THE COLOR SHALL BE EARTH TONE SUCH AS REDDISH BLACK, BROWN, YELLOWISH RED OR DARK GRAY.

WOODY MATERIAL DERIVED SOURCE OF MULCH:
1. THE MAXIMUM PARTICLE SIZE SHALL BE 1.5 INCHES. NO MORE THAN 5% SHALL BE LESS THAN 0.5 INCH.
2. THE MULCH MATERIAL SHALL HAVE AN ACID-SOLUBLE ASH CONTENT NO MORE THAN 10%. THE ORGANIC MATTER CONTENT SHALL BE AT LEAST 80 ON A DRY WEIGHT BASIS.
3. THE PH OF THE MATERIAL SHALL BE BETWEEN 5.0 AND 8.0.
4. THE SALT CONTENT SHALL BE LESS THAN 5 MILLIMHO/CM @ 25° C. (ECE LESS THAN 5) IN A SATURATED PASTE EXTRACT.
5. BORON CONTENT OF THE SATURATED EXTRACT SHALL BE LESS THAN 1.0 PART PER MILLION.
6. THE MOLAR RATIO OF SOLUBLE AMMONIACAL NITROGEN TO SOLUBLE NITRATE NITROGEN IN THE SATURATION EXTRACT SHALL BE LESS THAN 10.
7. TYPES OF ACCEPTABLE PRODUCTS ARE WOODY NATURAL PRODUCTS FREE FROM WEED SEEDS, FREE OF PATHOGENS AND OTHER DELETERIOUS MATERIALS.
8. THE MULCH SHALL BE AEROBIC WITHOUT MALODOROUS PRESENCE OF DECOMPOSITION PRODUCTS.
9. CARBON: NITROGEN RATIO SHALL BE LESS THAN 80:1
10. THE COLOR SHALL BE EARTH TONE SUCH AS REDDISH BLACK, BROWN, YELLOWISH RED OR DARK GRAY.

MAXIMUM TOTAL PERMISSIBLE POLLUTANT CONCENTRATIONS IN THE MULCH. UNITS ARE IN PARTS PER MILLION ON A DRY WEIGHT BASIS:

ARSENIC - 20 COPPER - 100 SELENIUM - 30 CADMIUM - 15 LEAD - 10
SILVER - 10 CHROMIUM - 100 MERCURY - 10 VANADIUM - 200 COBALT - 50
MOLYBDENUM - 20 ZINC - 300 NICKEL - 100

INITIAL LEACHING OR HEAVY IRRIGATION MAY BE REQUIRED TO LOWER THE SALINITY, BORON OR SOLUBLE SALTS.

DEFINITION OF COMPOSTED ORGANIC AMENDMENT

A. HUMUS MATERIAL SHALL HAVE AN ACID-SOLUABLE ASH CONTENT OF NO LESS THAN 6% AND NO MORE THAN 20%. ORGANIC MATTER SHALL BE AT LEAST 50% ON A DRY WEIGHT BASIS.

B. THE pH OF THE MATERIAL SHALL BE BETWEEN 6 AND 7.5.

C. THE SALT CONTENT SHALL BE LESS THAN 10 MILLIMHO/CM @ 25 DEGREES C. ON A SATURATED PASTE EXTRACT.

D. BORON CONTENT OF THE SATURATED EXTRACT SHALL BE LESS THAN 1.0 PARTS PER MILLION.

E. SILICON CONTENT (ACID-INSOLUABLE ASH) SHALL BE LESS THAN 50%.

F. CALCIUM CARBONATE SHALL NOT BE PRESENT IF TO BE APPLIED ON ALKALINE SOILS.

G. TYPES OF ACCEPTABLE PRODUCTS ARE COMPOST, MANURES, MUSHROOM COMPOSTS, STRAW, ALFALFA, PEAT MOSSES, ETC. LOW IN SALTS, LOW IN HEAVY METALS, FREE FROM WEED SEEDS, FREE OF PATHOGENS AND OTHER DELETERIOUS MATERIALS.

H. COMPOSTED WOOD PRODUCTS ARE CONDITIONALLY ACCEPTABLE [STABLE HUMUS MUST BE PRESENT]. WOOD BASED PRODUCTS ARE NOT ACCEPTABLE WHICH ARE BASED ON RED WOOD OR CEDAR.

I. SLUDGE-BASED MATERIALS ARE NOT ACCEPTABLE.

J. CARBON: NITROGEN RATION IS LESS THAN 25:1.

K. THE COMPOST SHALL BE AEROBIC WITHOUT MALODOROUS PRESENCE OF DECOMPOSITION PRODUCTS.

L. THE MAXIMUM PARTICLE SIZE SHALL BE 0.5 INCH, 80% OR MORE SHALL PASS A NO. 4 SCREEN FOR SOIL AMENDING. THE MAXIMUM PARTICLE SIZE SHALL BE 0.25 INCH FOR HYDROSEEDING.
- MAXIMUM TOTAL PERMISSIBLE POLLUTANT CONCENTRATIONS IN AMENDMENT IN PARTS PER MILLION ON A DRY WEIGHT BASIS:

ARSENIC - 20 ZINC - 300 CADMIUM - 15 VANADIUM - 500 CHROMIUM - 300
SILVER - 10 COBALT - 50 SELENIUM - 50 COPPER - 150 NICKEL - 100 LEAD - 200
MOLYBDENUM - 20 MERCURY - 10

SECTION 02970 - LANDSCAPE ESTABLISHMENT AND MAINTENANCE

A. ALL AREAS CONSTRUCTED AND LANDSCAPED BY THE CONTRACTOR UNDER THIS CONTRACT SHALL BE ESTABLISHED AND MAINTAINED FOR A DURATION OF NO LESS THAN ONE HUNDRED AND TWENTY (120) CALENDAR DAYS.

B. START OF ESTABLISHMENT/MAINTENANCE CRITERIA:
1. ESTABLISHMENT/MAINTENANCE PERIOD SHALL NOT COMMENCE UNTIL ALL ELEMENTS OF THE PROJECT ARE COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS. UPON SATISFACTORY COMPLETION OF THE IMPROVEMENTS AND ACCEPTANCE BY OWNER, THE CONTRACTOR WILL START THE 120-CALENDAR DAY ESTABLISHMENT/MAINTENANCE PERIOD.

2. POWER, EITHER TEMPORARY OR PERMANENT, TO REMOTE CONTROLLERS SHALL BE ESTABLISHED PRIOR TO THE BEGINNING OF THE ESTABLISHMENT/MAINTENANCE PERIOD.

3. WRITTEN APPROVAL BY THE OWNER MUST BE OBTAINED PRIOR TO THE BEGINNING OF THE ESTABLISHMENT/MAINTENANCE PERIOD.

4. IF THE PROJECT ESTABLISHMENT FAILS TO CONTINUOUSLY MEET STANDARDS REQUIRED FOR START OF ESTABLISHMENT THE ESTABLISHMENT/MAINTENANCE PERIOD SHALL BE SUSPENDED. THE ESTABLISHMENT/MAINTENANCE PERIOD SHALL BEGIN WHEN THE CONTRACTOR HAS CORRECTED ALL DEFICIENCIES.

5. ESTABLISHMENT/MAINTENANCE PERIOD WILL NOT BE ACCEPTED BY THE OWNER AS BEING COMPLETE UNLESS GROWTH HAS ACHIEVED A MINIMUM OF 75% COVERAGE OF THE APPROPRIATE PROJECT AREAS.

E. END OF ESTABLISHMENT/MAINTENANCE:
1. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE AND ARRANGE A PRELIMINARY FINAL INSPECTION OF THE LANDSCAPE IMPROVEMENTS TO BE HELD APPROXIMATELY THIRTY (30) CALENDAR DAYS PRIOR TO COMPLETION OF THE ESTABLISHMENT/MAINTENANCE PERIOD. THIS MEETING SHALL INCLUDE THE CONTRACTOR, OWNER AND LANDSCAPE ARCHITECT. IF APPLICABLE, THE OWNER WILL ARRANGE ATTENDANCE OF THE FUTURE MAINTENANCE SUPERVISOR. THE PURPOSE OF THIS MEETING IS TO INSPECT THE IMPROVEMENTS IN ADVANCE OF OWNER'S FINAL ACCEPTANCE WHILE ALLOWING SUFFICIENT TIME FOR CONTRACTOR TO MAKE CORRECTIONS OF NOTED DEFICIENCIES.

CONTRACTOR'S FAILURE TO SCHEDULE THE PRELIMINARY FINAL INSPECTION IN A TIMELY MANNER SHALL NOT ALLEVIATE CONTRACTOR OF THE RESPONSIBILITY TO MAINTAIN THE LANDSCAPE IMPROVEMENTS BEYOND THE ESTABLISHMENT/MAINTENANCE PERIOD AT ITS SOLE EXPENSE.

2. DEFICIENCIES NOTED DURING INSPECTION SHALL EXTEND THE ESTABLISHMENT/ MAINTENANCE PERIOD.

3. END OF THE ESTABLISHMENT/MAINTENANCE PERIOD SHALL OCCUR ONLY UPON WRITTEN ACCEPTANCE BY OWNER.

4. THE DURATION FOR ESTABLISHMENT/MAINTENANCE OF THE IMPROVEMENTS AS STATED ABOVE (I.E., THE CALENDAR DAYS INDICATED ABOVE FOR ESTABLISHMENT/ MAINTENANCE) SHALL HEREINAFTER BE REFERRED TO AS THE "ESTABLISHMENT/ MAINTENANCE PERIOD", AND SHALL HAVE A DURATION OF 120-CALENDAR DAYS.

F. DURING THE ESTABLISHMENT/MAINTENANCE PERIOD THE CONTRACTOR SHALL PROVIDE ALL WATERING, WEEDING, FERTILIZING, CULTIVATING, SPRAYING AND MOWING NECESSARY TO KEEP THE PLANTS AND TURF IN A HEALTHY, WEED FREE, GROWING CONDITION AND TO KEEP THE PLANTED AREAS NEAT, EDGED AND ATTRACTIVE. ALL SHRUBS SHALL BE PINCHED-PRUNED AS NECESSARY TO ENCOURAGE NEW GROWTH AND TO ELIMINATE RANK SUCKER GROWTH. OLD WILTED FLOWERS AND DEAD FOLIAGE SHALL BE IMMEDIATELY PINCHED OR CUT OFF. ALL TREES SHALL BE PRUNED FOR STRUCTURAL FORM AND HEALTH. LIMBS SHALL BE REMOVED TO THE GROWTH COLLAR PER GOOD ARBORICULTURAL PRACTICES. RESEEDING AS NECESSARY TO MEET THE CONDITIONS OF REQUIRED PLANT ESTABLISHMENT SHALL BE THE SOLE COST RESPONSIBILITY OF THE CONTRACTOR.

G. DURING THE ESTABLISHMENT/MAINTENANCE PERIOD, SHOULD THE APPEARANCE OF ANY PLANT INDICATE WEAKNESS, THAT PLANT OR CUTTING SHALL BE REPLACED WITHIN ONE WEEK OF DISCOVERY BY THE CONTRACTOR OR THE DATE OF WRITTEN COMMUNICATION FROM THE LANDSCAPE ARCHITECT OR OWNER WITH A NEW HEALTHY PLANT. ANY TREES OR SHRUBS WITH DAMAGED CAMBIUM SHALL BE REPLACED IMMEDIATELY. AT THE END OF THE MAINTENANCE PERIOD, ALL PLANT MATERIAL SHALL BE IN A HEALTHY GROWING CONDITION AND SPACED AS INDICATED ON THE PLANS.

H. IRRIGATION

1. CONTRACTOR SHALL PROPERLY AND COMPLETELY MAINTAIN ALL IRRIGATION SYSTEMS, AUTOMATIC AND MANUAL. A BALANCED WATERING PROGRAM SHALL BE MAINTAINED TO ENSURE PROPER GERMINATION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IRRIGATION SYSTEM FOR THE ENTIRE MAINTENANCE PERIOD AND FOR INSPECTING AND DETERMINING PROPER SOIL MOISTURE FOR GERMINATION AND GROWTH OF ALL PLANT MATERIAL.

2. ALL CONTROLLERS ARE TO HAVE EACH STATION INDIVIDUALLY ADJUSTED ON A WEEKLY BASIS. SYSTEM SHALL BE SET CONSIDERING THE APPLICATION RATE EACH AREA IS CAPABLE OF RECEIVING. THE SYSTEM SHALL OPERATE ON SHORT INTERVALS, WITH THE CYCLE REPEATING AT A LATER TIME TO REDUCE RUNOFF, IF NECESSARY. IRRIGATION SHOULD BE SCHEDULED TO OCCUR DURING THE PRE-DAYLIGHT HOURS TO THE GREATEST DEGREE PRACTICABLE WHILE MAINTAINING PROPER UNIFORM SOIL MOISTURE.

3. MAINTAIN ALL VALVE BOXES AND CONTROLLERS FREE OF DEBRIS. BOXES SHALL REMAIN LOCKED AT TIMES.

I. SITE MAINTENANCE

1. ALL PLANTED AREAS SHALL BE KEPT NEAT AND CLEAN AND FREE OF ALL CLIPPINGS, DEBRIS AND TRASH.

2. ALL SUBSURFACE DRAINS SHALL BE PERIODICALLY FLUSHED WITH CLEAR WATER TO AVOID BUILD UP OF SILT AND DEBRIS. KEEP ALL DRAIN INLETS CLEAR OF LEAVES, TRASH AND OTHER DEBRIS.

3. ALL PAVED AREAS SHALL BE CLEANED WEEKLY OF TRASH, DEBRIS AND SILT.

4. RE-APPLICATION OF MULCH PER PROJECT SPECIFICATIONS AT END OF 120 DAY MAINTENANCE WHERE REQUIRED BY LANDSCAPE ARCHITECT.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ELIMINATION OF VERTEBRATE PESTS DETERMINED BY THE LANDSCAPE ARCHITECT TO BE DETRIMENTAL AND DAMAGING TO THE AREA OF DEVELOPMENT. ELIMINATION SHALL BE PERFORMED BY SAFE, APPROVED METHODS.

J. UTILITIES: ALL UTILITY COSTS INCURRED DURING THE ESTABLISHMENT/MAINTENANCE PERIOD SHALL BE THE RESPONSIBILITY OF THE OWNER.

K. PROTECTION: PROTECT PLANTING AREAS AND PLANTS AGAINST DAMAGE FOR DURATION OF ESTABLISHMENT/ MAINTENANCE PERIOD. THE ESTABLISHMENT/MAINTENANCE PERIOD WORK SHALL INCLUDE THE INSTALLATION OF AND MAINTENANCE OF TEMPORARY PROTECTION FENCES, BARRIERS, AND SIGNS AS REQUIRED FOR PROTECTION OF PLANT MATERIAL. IF PLANTS BECOME DAMAGED OR INJURED, TREAT OR REPLACE AS DIRECTED BY LANDSCAPE ARCHITECT AT NO ADDITIONAL COST TO OWNER.

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

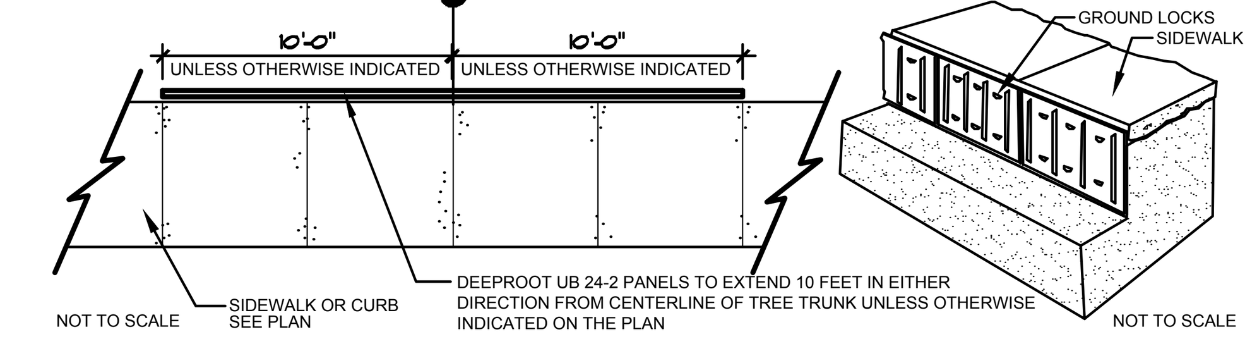
MICHAEL A. GREEN
CERTIFICATE NO. 1081
EXP. 10/02/2021

DATE

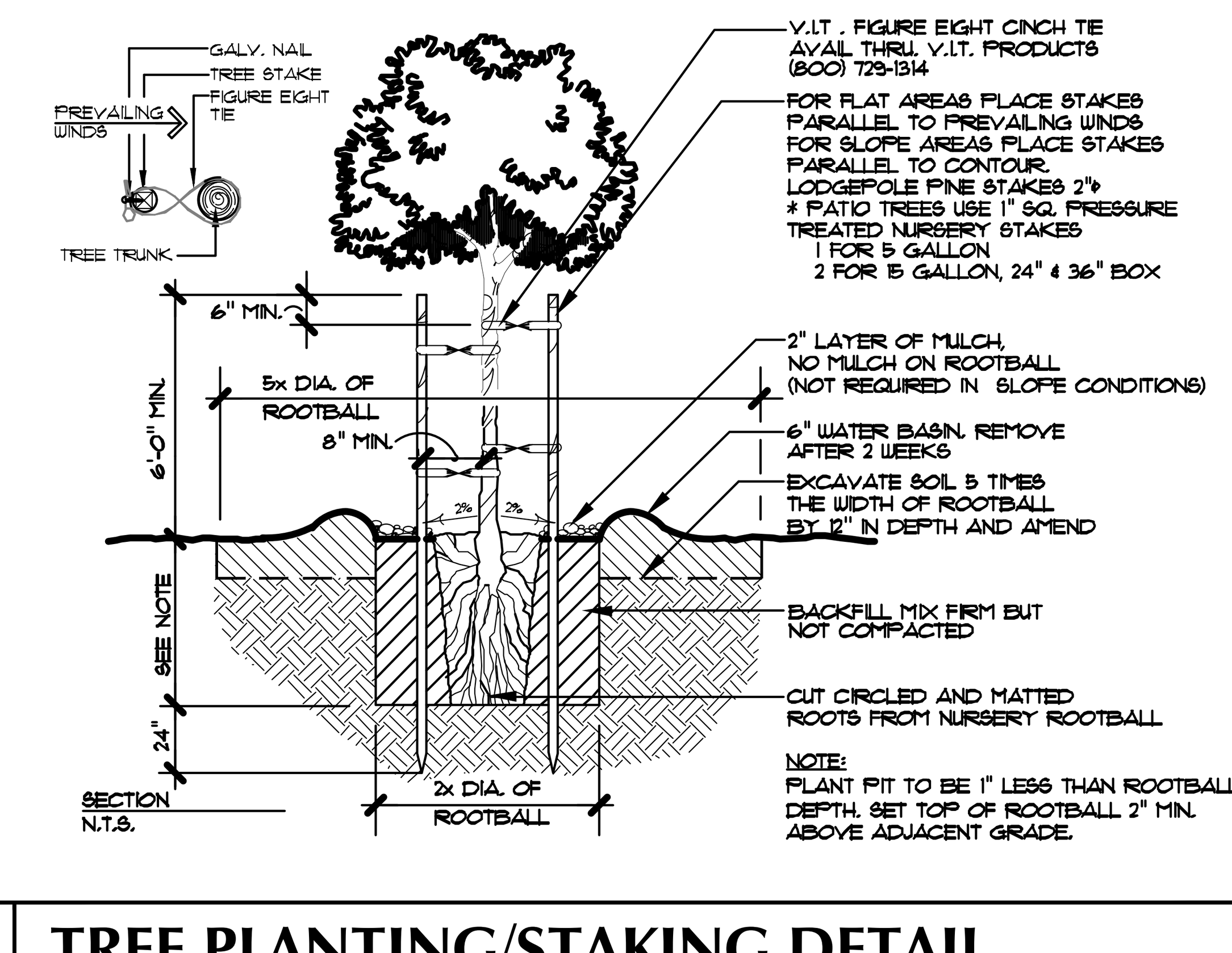
D | GENERAL PLANTING NOTES

PERMIT #18 129303 DC AND
PRE-APPLICATION CONFERENCE #19 116802 DB

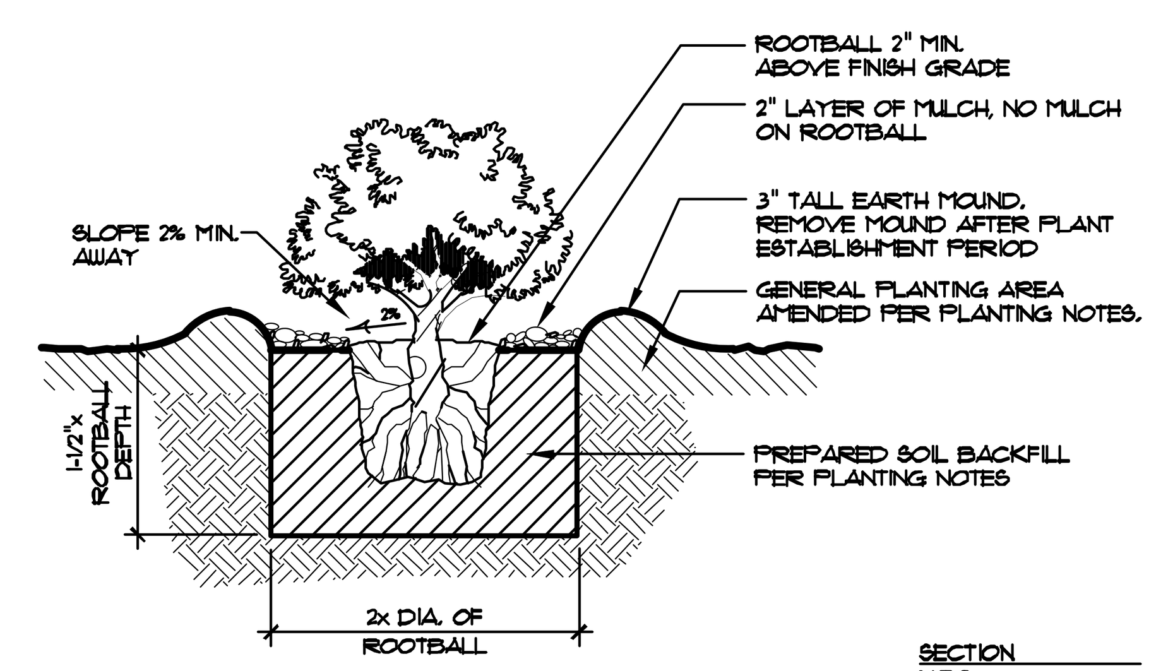
LINEAR STYLE PLANTING WITH DEEPROOT BARRIERS
DETERMINE THE CORRECT NUMBER OF PANELS TO BE USED. DEPENDING UPON THE ACTUAL PLANTING PLAN AND THE NUMBER OF TREES INVOLVED, THE LENGTH OF LINEAR BARRIER WILL VARY, BUT AS A GENERAL RULE OF THUMB TAKE THE ANTICIPATED MATURE CANOPY DIAMETER OF THE TREE AND ADD 2 FEET (61CM). THIS WILL BE THE NUMBER OF FEET NECESSARY FOR A LINEAR STYLE PLANTING APPLICATION.
A. FOR CURB AND GUTTER PROTECTION OR MORE AGGRESSIVE ROOTS USE THE 24" (61CM) (UB 24-2).
B. DIG THE TRENCH TO THE DEPTH BASED UPON THE PARTICULAR BARRIER CHOSEN.
C. INSTALL THE BARRIER. WHEN USING DEEPROOT LINEAR BARRIERS SIMPLY PULL THE APPROPRIATE NUMBER OF PANELS OUT OF THE BOX (THEY COME PREASSEMBLED) AND SEPARATE THE JOINER AT THE CORRECT LENGTH. WHEN INSTALLING DEEPROOT UNIVERSAL BARRIERS IN A LINEAR FASHION YOU WILL NEED TO JOIN THE APPROPRIATE NUMBER OF PANELS TOGETHER.
D. NEXT PLACE THE BARRIER IN THE TRENCH WITH THE VERTICAL RIBS FACING TOWARD THE TREE AND ALIGN IN A STRAIGHT FASHION. IT IS HELPFUL TO PLACE THE BARRIER AGAINST THE HARDSCAPE. USE THE HARDSCAPE AS A GUIDE AND BACKFILL AGAINST THE BARRIERS TO PROMOTE A CLEAN SMOOTH FIT TO THE HARDSCAPE. BE SURE TO KEEP THE BARRIER'S DOUBLE TOP EDGE AT LEAST 1/2" (13MM) ABOVE GRADE TO ENSURE ROOTS DO NOT GROW OVER THE TOP.
E. PLANT THE TREE(S). THE LINEAR STYLE OFFERS A MORE EXPANSIVE ROOTING GROWTH AREA, HOWEVER ADVERSE SOIL AND DRAINAGE CONDITIONS MAY EXIST IN THE ACTUAL PLANTING AREA. TAKE STEPS TO ENSURE HEALTHY GROWTH OF THE TREE AT PLANTING. CONSULT WITH A LOCAL ARBORIST FOR PLANTING TIPS AND RECOMMENDATIONS.
FOR ADDITIONAL INFORMATION PLEASE CONSULT THE 16 PAGE DEEPROOT PRODUCT SELECTION AND INSTALLATION GUIDELINES.
FOR INFORMATION REGARDING DISTRIBUTORS PLEASE CALL: 1 800 ILV ROOT (458-7668). FOR HELP WITH DIFFICULT DRAINAGE OR OTHER DIFFICULT INSTALLATION QUESTIONS PLEASE CALL DEEPROOT TECHNICAL SUPPORT AT: 1 800 ROOT TEK (766-8835).



C | ROOT BARRIER



B | TREE PLANTING/STAKING DETAIL



A | SHRUB PLANTING

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES AND SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE:
UNDERGROUND LOCATE LINE:
811
A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION

NO.	REVISION	DATE

PRELIMINARY

PLANTING DETAILS & NOTES

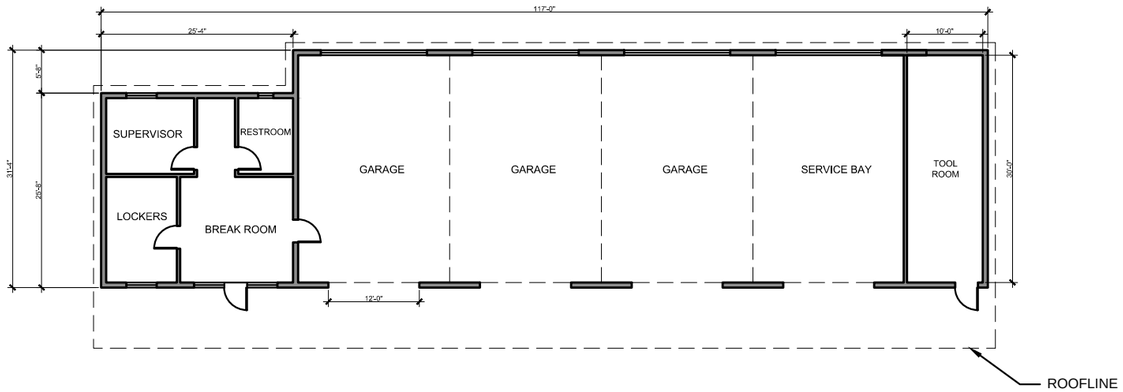
CLARK & GREEN Associates Landscape Architecture
15420 Laguna Canyon Road, Ste 210, Irvine, California 92618
(714) 434-9803 www.clarkgreen.com

DESIGNED BY:	SCALE:
DRAWN BY: AS	FILENAME: SUNSET HILLS PLANTING PLAN 02-25-21
CHECKED BY: MG	CONTRACT NO:
APPROVED BY:	DATE: SEPTEMBER 11, 2020

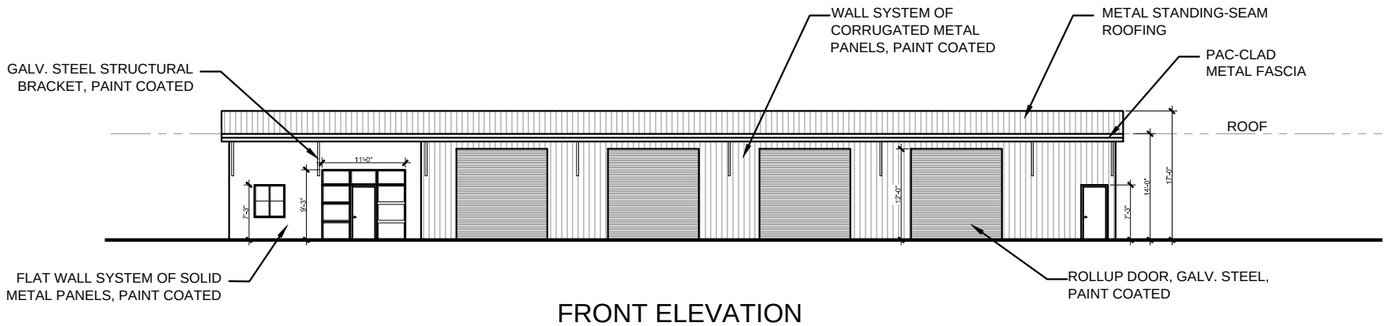
SUNSET HILLS MEMORIAL PARK
CONDITIONAL USE PERMIT TO EXPAND CEMETERY

SHT. OF X

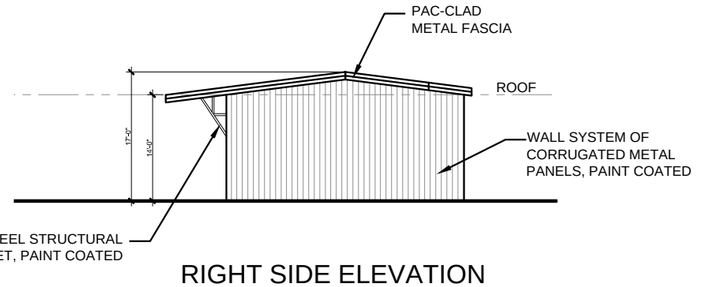
02/25/21 | 10:34 AM | ASTINEAN
I:\01-S.C.I\WA\SUNSET HILLS MEMORIAL-0208\18-057 SUNSET HILLS , LIP MASTER PLAN, WASHINGTON (0208)\20-30 DESIGN PHASE\EXHIBITS\PLANTING EXHIBIT\SUNSET HILLS PLANTING PLAN 02-25-21.DWG



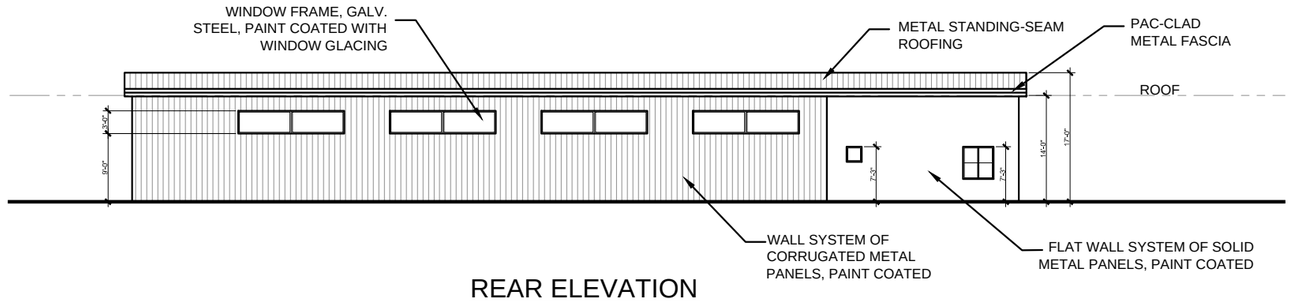
PLAN



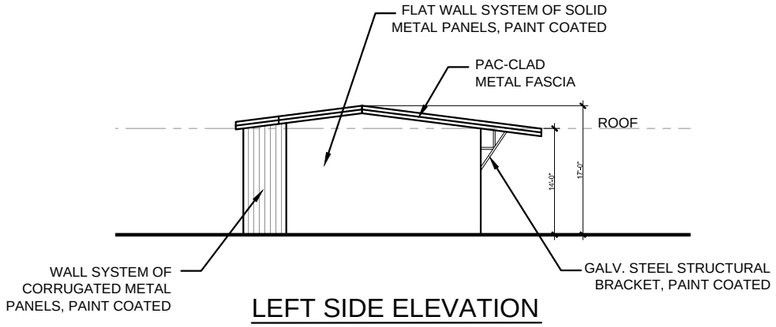
FRONT ELEVATION



RIGHT SIDE ELEVATION



REAR ELEVATION



LEFT SIDE ELEVATION

MAINTENANCE BUILDING

Sunset Hills Memorial Park
1215 145th Place SE, Bellevue, WA 98007

NORTH

1 OF 1

October 04, 2021

0' 10' 20'

CLARK & GREEN Associates Landscape Architecture

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.

EXISTING CONDITIONS OVERVIEW - WETLANDS & STREAMS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

NOTE: SEE SHEETS W1.0 AND W1.1 FOR WETLAND FLAG LOCATIONS AND RATING SUMMARIES.

WETLAND & STREAM BUFFER LEGEND

WETLAND BUFFER ONLY	0.04 ACRES
STREAM BUFFER ONLY	7.93 ACRES
COMBINED WETLAND & STREAM BUFFER	4.95 ACRES
PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER	0.68 ACRES
PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER	0.22 ACRES
TOTAL:	13.82 ACRES

811 Know what's below. Call before you dig.

NOTES

1. SITE PLAN AND SURVEY PROVIDED BY HUITT-ZOLLARS.
2. THE SOURCE DRAWING WAS MODIFIED BY EASTSIDE ENVIRONMENTAL PROS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020, REVISED BY WET.LAND IN 2021.

EASTSIDE ENVIRONMENTAL PROS, INC.
14221 NE 181ST PLACE, SUITE P304
Woodinville, Washington 98072
BUS (425) 949-8609

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS OVERVIEW - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

AS SHOWN

Scale
Drawn

EE-163

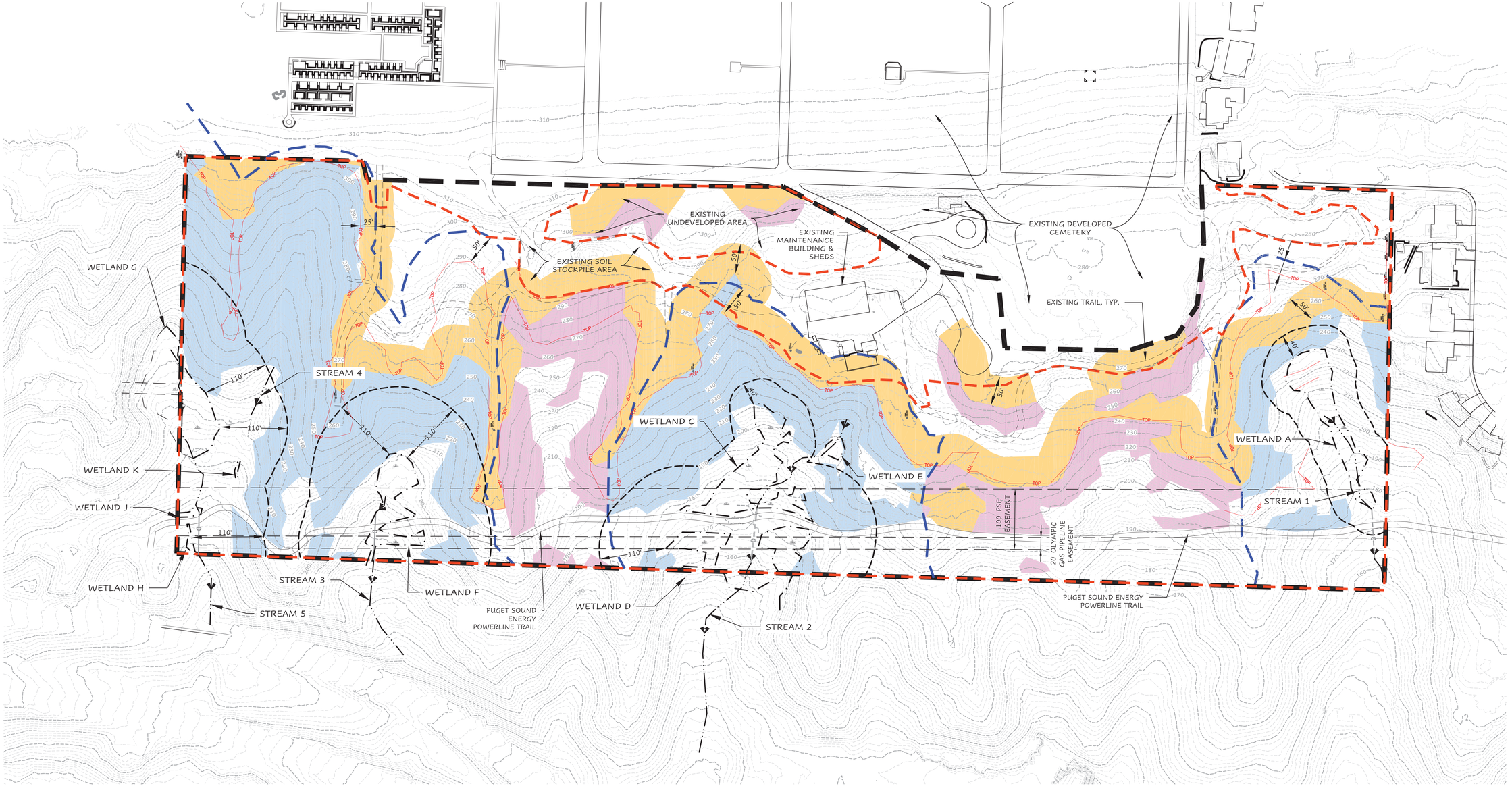
Date 11-08-2021
Revised

PREPARED FOR

wet.land

Sheet # CA1.4

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



EXISTING CONDITIONS OVERVIEW - STEEP SLOPES

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)*
- EXISTING UNDEVELOPED AREAS

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STEEP SLOPE LEGEND

STEEP SLOPE WITHIN STREAM BUFFERS	6.53 ACRES
STEEP SLOPE OUTSIDE OF STREAM BUFFERS	2.55 ACRES
STEEP SLOPE BUFFER	4.74 ACRES
TOTAL:	13.54 ACRES

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE.

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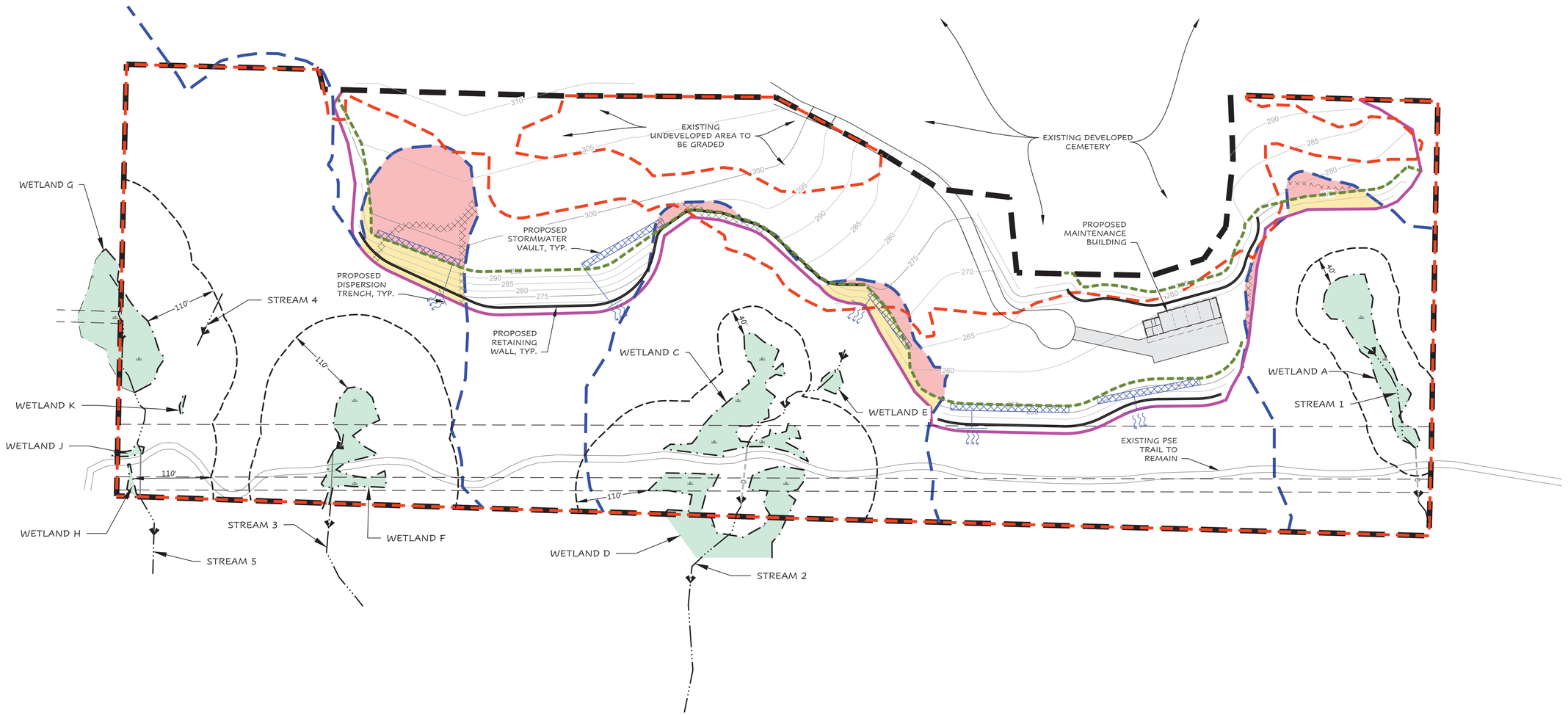
CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS OVERVIEW - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

AS SHOWN
Scale
Drawn
EE-163
Date 11-08-2021
Revised

PREPARED FOR
wet.land

Sheet # CA1.5

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80"
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER
- EXISTING UNDEVELOPED AREAS

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STREAM BUFFER IMPACTS LEGEND

	PERMANENT STREAM BUFFER IMPACTS		
	OUTSIDE OF EXISTING, NON-CONFORMING USES:	31,758 SF	(0.73 AC)
	WITHIN EXISITNG, NON-CONFORMING USES	3,331 SF	(0.08 AC)
	TOTAL:	35,089 SF	(0.81 AC)
	PROPOSED GRADED STREAM BUFFER TO BE REVEGETATED		
	OUTSIDE OF EXISTING, NON-CONFORMING USES:	18,719 SF	(0.43 AC)
	WITHIN EXISITNG, NON-CONFORMING USES	3,006 SF	(0.07 AC)
	TOTAL:	21,725 SF	(0.50 AC)
	TOTAL IMPACTS:	56,814 SF	(1.31 AC)

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CRITICAL AREAS MITIGATION PLAN
PROPOSED SITE PLAN & STREAM BUFFER IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Scale AS SHOWN
Drawn

EE-163

Date 11-08-2021
Revised

PREPARED FOR

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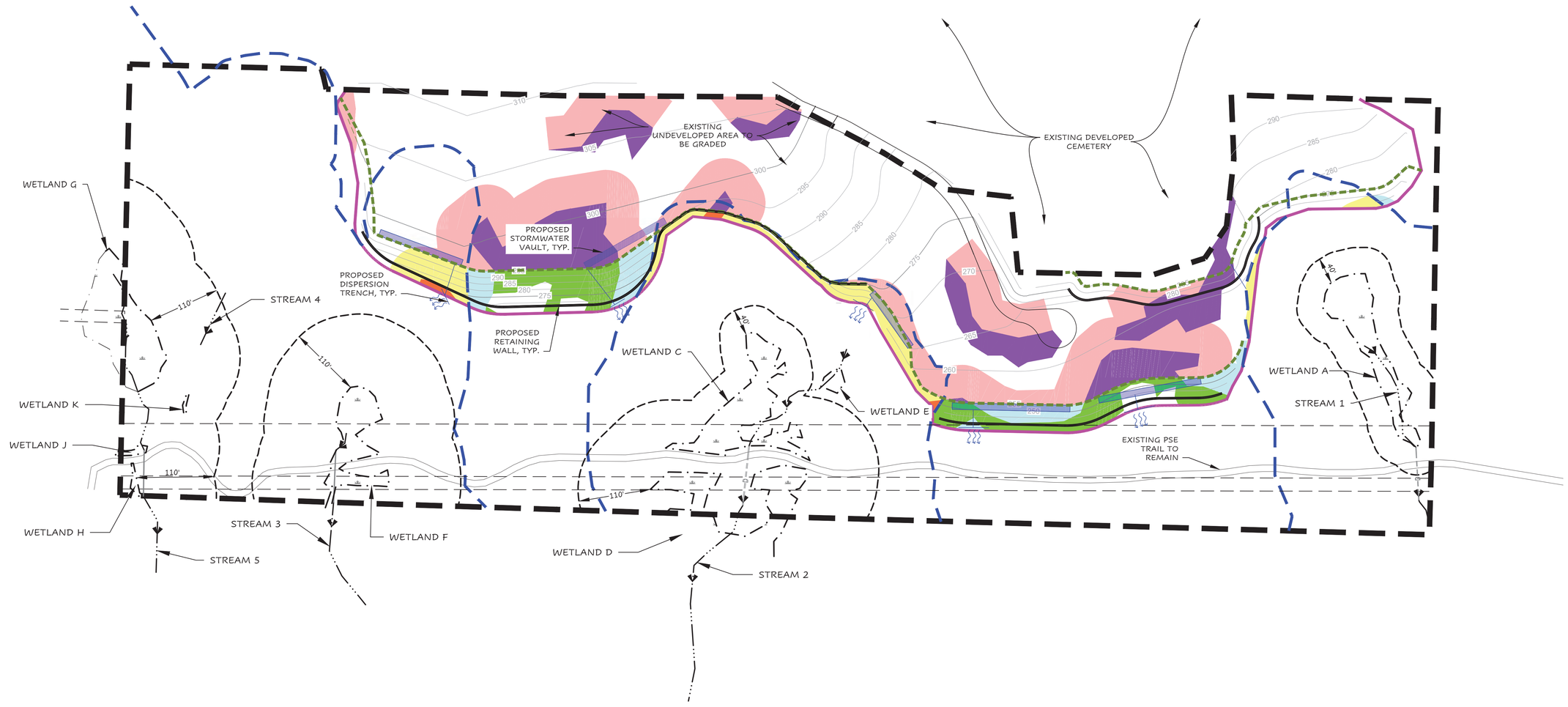
Sheet # CA2.0

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED GRADING PLAN & SLOPE IMPACTS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STEEP SLOPE IMPACTS LEGEND

PERMANENT STEEP SLOPE IMPACTS

	SLOPE IMPACTS:	47,687 SF	(1.09 AC)
	SLOPE BUFFER IMPACTS:	86,657 SF	(1.99 AC)
	TOTAL:	134,344 SF	(3.08 AC)

PROPOSED REGRADED STEEP SLOPE IMPACTS

	SLOPE IMPACTS WITHIN STREAM BUFFERS	1,065 SF	(0.02 AC)
	SLOPE IMPACTS OUTSIDE OF STREAM BUFFERS	19,375 SF	(0.44 AC)
	SLOPE BUFFER IMPACTS WITHIN STREAM BUFFERS:	14,887 SF	(0.35 AC)
	SLOPE BUFFER IMPACTS OUTSIDE OF STREAM BUFFERS:	8,400 SF	(0.19 AC)
	TOTAL:	43,727 SF	(1.00 AC)

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CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & SLOPE IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

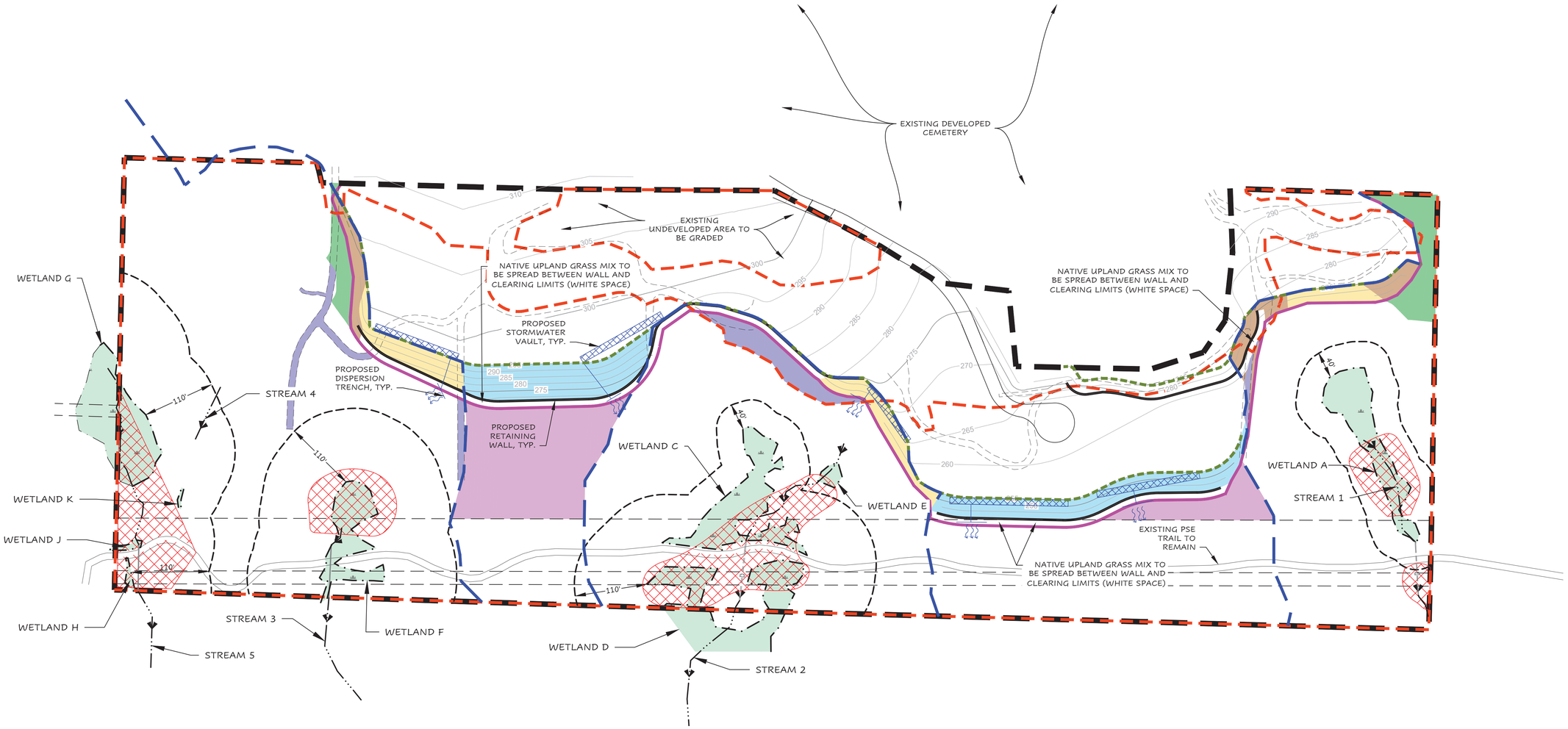
Scale AS SHOWN
Drawn

EE-163

Date 10-27-2021
Revised

Sheet # CA2.1

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED MITIGATION OVERVIEW PLAN

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80"
(IN FEET)

N

PLAN LEGEND

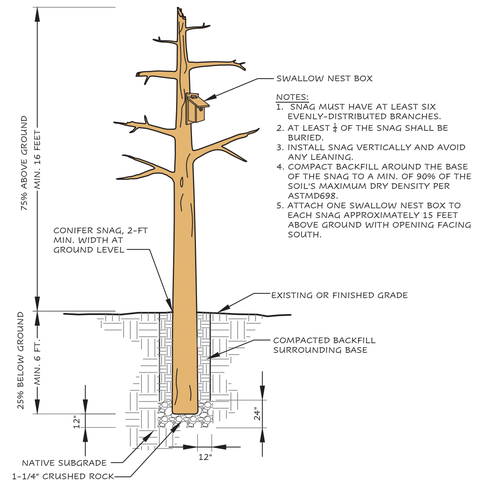
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

MITIGATION LEGEND

BUFFER CREATION		
STREAM BUFFER CREATION FROM NATIVE UPLAND	13,588 SF	(0.31 AC)
STREAM BUFFER CREATION WITHIN REESTABLISHED GRADED AREAS	9,655 SF	(0.22 AC)
BUFFER RESTORATION		
FROM PRE-EXISTING BUFFER IMPACTS/ NON-CONFORMING USES	13,188 SF	(0.30 AC)
RESTORED GRADED STREAM BUFFER	15,221 SF	(0.35 AC)
WETLAND/BUFFER ENHANCEMENT		
INVASIVE SPECIES REMOVAL WITH ENHANCEMENT	70,273 SF	(1.61 AC)
GENERAL HABITAT RESTORATION		
SLOPE HABITAT RESTORATION IN GRADED AREAS	30,076 SF	(0.70 AC)
TOTAL MITIGATION:	152,001 SF	(3.49 AC)
PRESERVED NATIVE FOREST	43,788 SF	(1.03 AC)



NOTES:
1. SNAG MUST HAVE AT LEAST SIX EVENLY-DISTRIBUTED BRANCHES.
2. AT LEAST ⅓ OF THE SNAG SHALL BE BURIED.
3. INSTALL SNAG VERTICALLY AND AVOID ANY LEANING.
4. COMPACT BACKFILL AROUND THE BASE OF THE SNAG TO A MIN. OF 90% OF THE SOIL'S MAXIMUM DRY DENSITY PER ASTMD698.
5. ATTACH ONE SWALLOW NEST BOX TO EACH SNAG APPROXIMATELY 15 FEET ABOVE GROUND WITH OPENING FACING SOUTH.

2 SNAG DETAIL
SCALE: NTS

Native Upland Grass Mix #9

30%	*Elymus glaucus*	**(BLUE WILDRYE)**
25%	*Bromus carinatus*	**(CALIFORNIA BROME)**
10%	*Hordeum brachyantherum*	**(MEADOW BARLEY)**
10%	*Festuca roemeri*	**(ROEMER'S FESCUE)**
10%	*Deschampsia elongata*	**(SLENDER HAIRGRASS)**
5%	*Agrostis exarata*	**(SPIKE BENTRGRASS)**
5%	*Deschampsia cespitosa*	**(TUFTED HAIRGRASS)**
5%	*Festuca rubra rubra*	**(RED FESCUE)**

NATIVE UPLAND SEED MIX

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CRITICAL AREAS MITIGATION PLAN
PROPOSED MITIGATION OVERVIEW PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Scale AS SHOWN
Drawn

EE-163

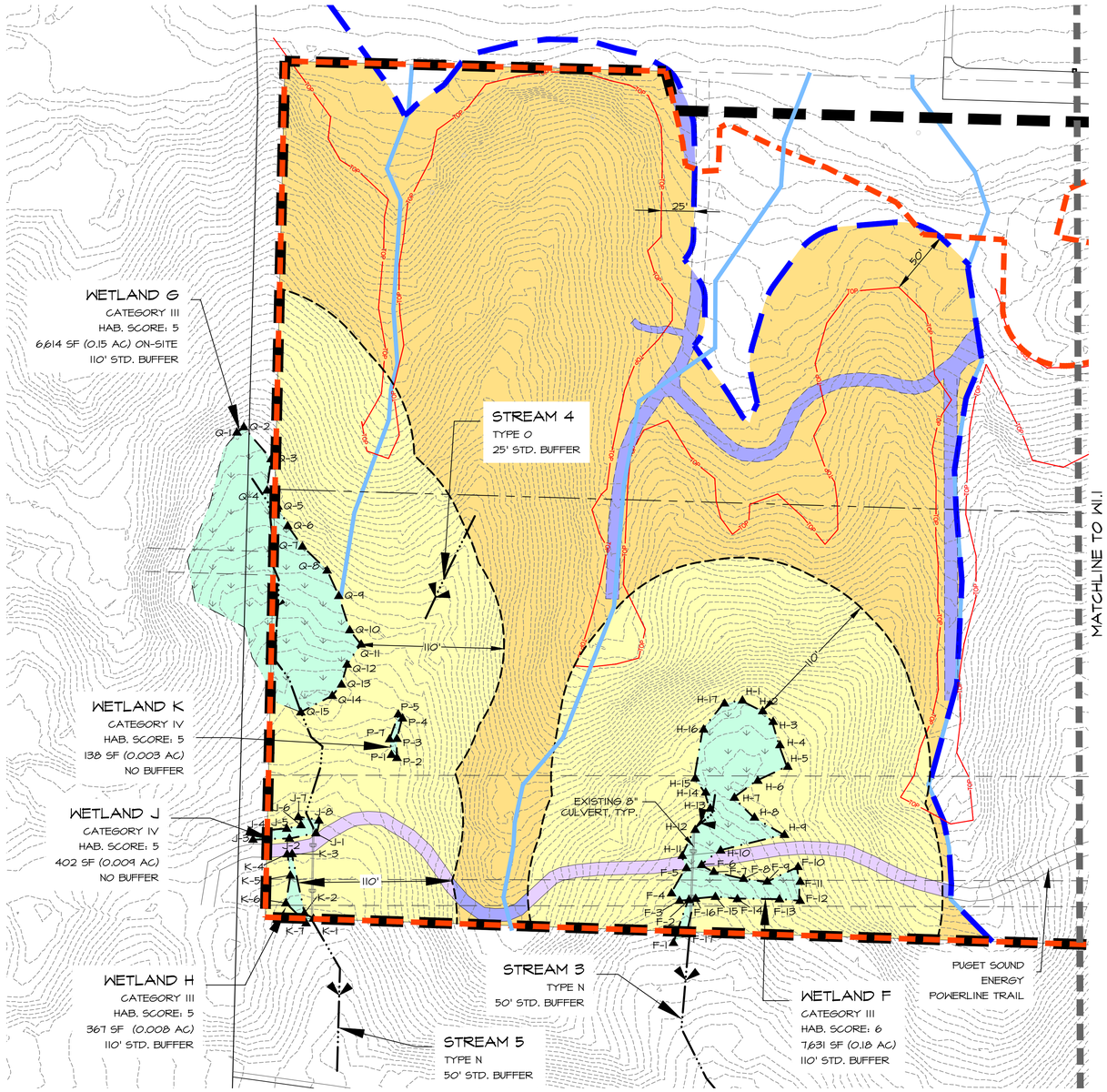
Date 11-08-2021
Revised

PREPARED FOR

wet.land

Sheet # CA3.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- ▲A-# WETLAND FLAG LOCATION
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

BUFFER LEGEND

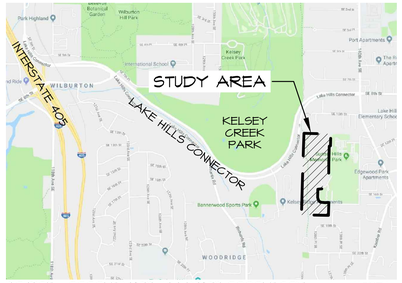
- WETLAND BUFFER ONLY
- STREAM BUFFER ONLY
- COMBINED WETLAND & STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER

NOTE: WETLAND NAMES WERE CHANGED POST-DELINEATION. FLAG NUMBERS REFLECT IN-FIELD CONDITIONS. WETLAND F CONTAINS FLAGS H-1 THROUGH H-11 AND F-1 THROUGH F-17. WETLAND H CONTAINS FLAGS K-1 THROUGH K-7. WETLAND K CONTAINS FLAGS P-1 THROUGH P-7. WETLAND G CONTAINS FLAGS Q-1 THROUGH Q-15.

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.4 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.0 AND W1.1.

VICINITY MAP

NTS



SOURCE: GOOGLE MAPS; WWW.MAPS.GOOGLE.COM (ACCESSED 3-7-2019)

NORTH

CONTACTS

APPLICANT/OWNER
NAME: SUNSET HILLS MEMORIAL PARK
ADDRESS: 1215 145TH PL SE, BELLEVUE, WA 98007
PHONE: (425) 746-1400
CONTACT: PATRICK HUSBAND

ENGINEER/SURVEYOR
NAME: HUITT-ZOLLARS
ADDRESS: 1102 BROADWAY, SUITE 301, TACOMA, WA, 98402
PHONE: (206) 324-5500
CONTACT: BILL DUNNING, PM
E-MAIL BDUNNING@HUITT-ZOLLARS.COM

ENVIRONMENTAL CONSULTANT
NAME: TALASAEA CONSULTANTS, INC.
ADDRESS: 15020 BEAR CREEK RD. NE, WOODINVILLE, WA 98077
PHONE: (425) 861-7550
CONTACT 1: BILL SHIELS, PRINCIPAL, SENIOR PROJECT MANAGER
E-MAIL: BSHIELS@TALASAEA.COM
CONTACT 2: AARON ELLIG, ECOLOGIST
E-MAIL: AELLIG@TALASAEA.COM

SHEET INDEX

Know what's below. Call before you dig.

NOTES

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2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
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TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15020 Bear Creek Road Northeast – Woodinville, Washington 98077
Bus (425) 861-7550 – Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

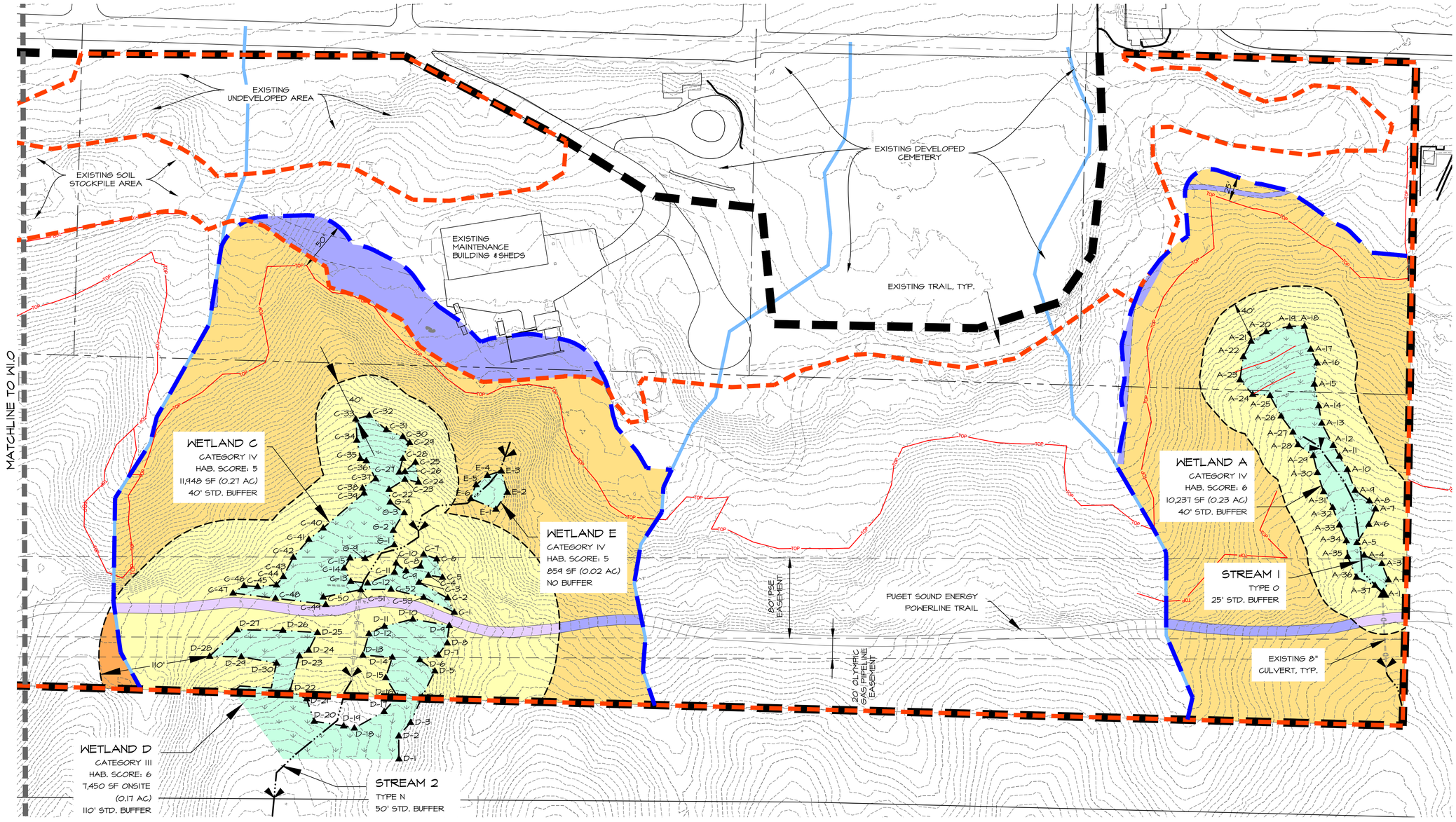
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MH
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS NOTED
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W1.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

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- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- A-# WETLAND FLAG LOCATION
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- WETLAND BUFFER
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SEE SHEET CA1.4 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.0 AND W1.1.

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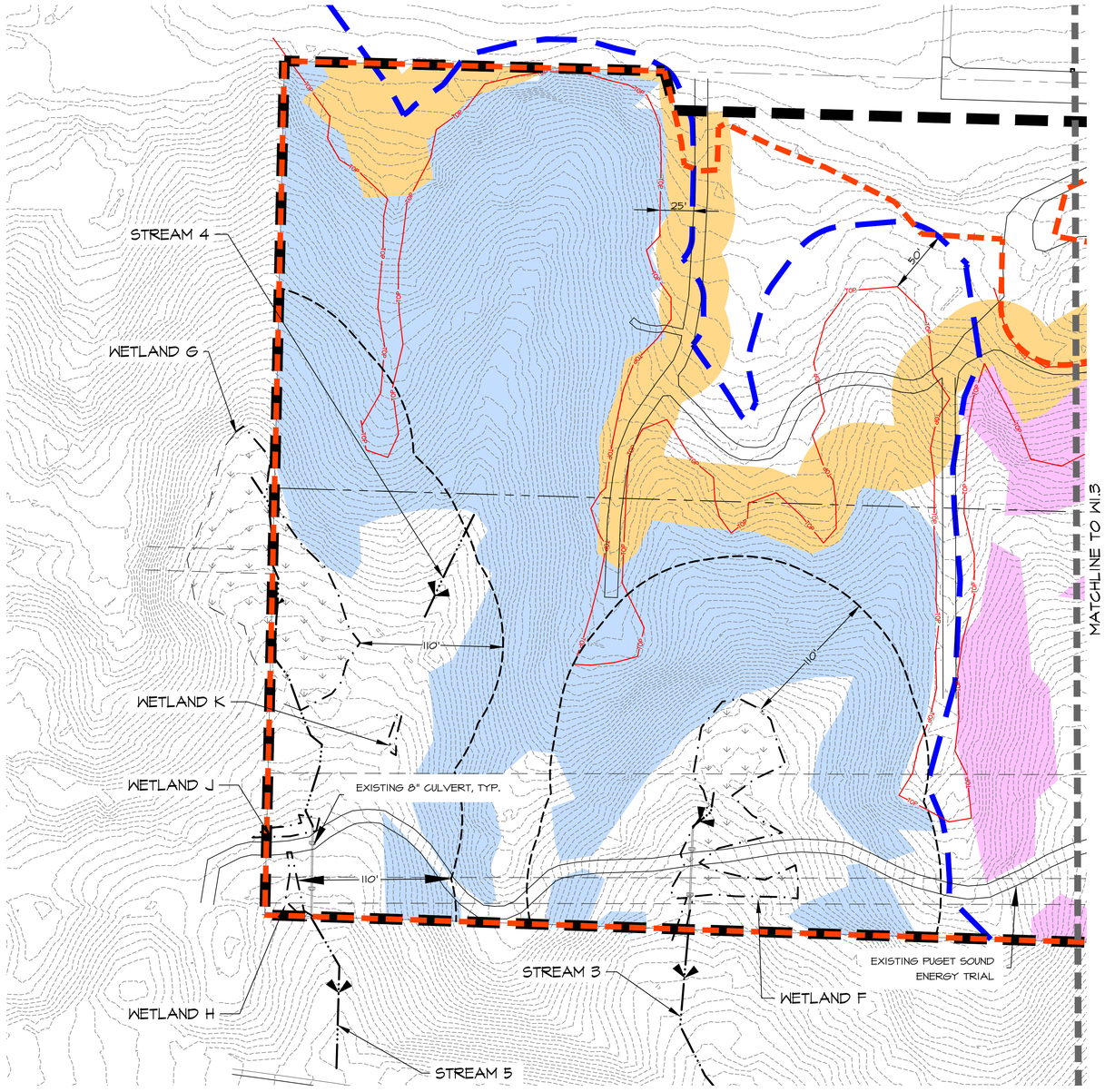
NEW SITE PLAN	8-6-2020	MW
CITY COMMENTS	12-1-2020	KM

Date	4-10-2019
Scale	AS SHOWN
Designed	KM
Drawn	FH
Checked	AO
Approved	BS

Project # 1789

Sheet # W1.1

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

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- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.5 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.2 AND W1.3.

811 Know what's below. Call before you dig.

NOTES

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2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15400 Bear Creek Road Northeast - Woodinville, Washington 98077
Box (425) 861-7500 - Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MH
CITY COMMENTS	12-1-2020	KM

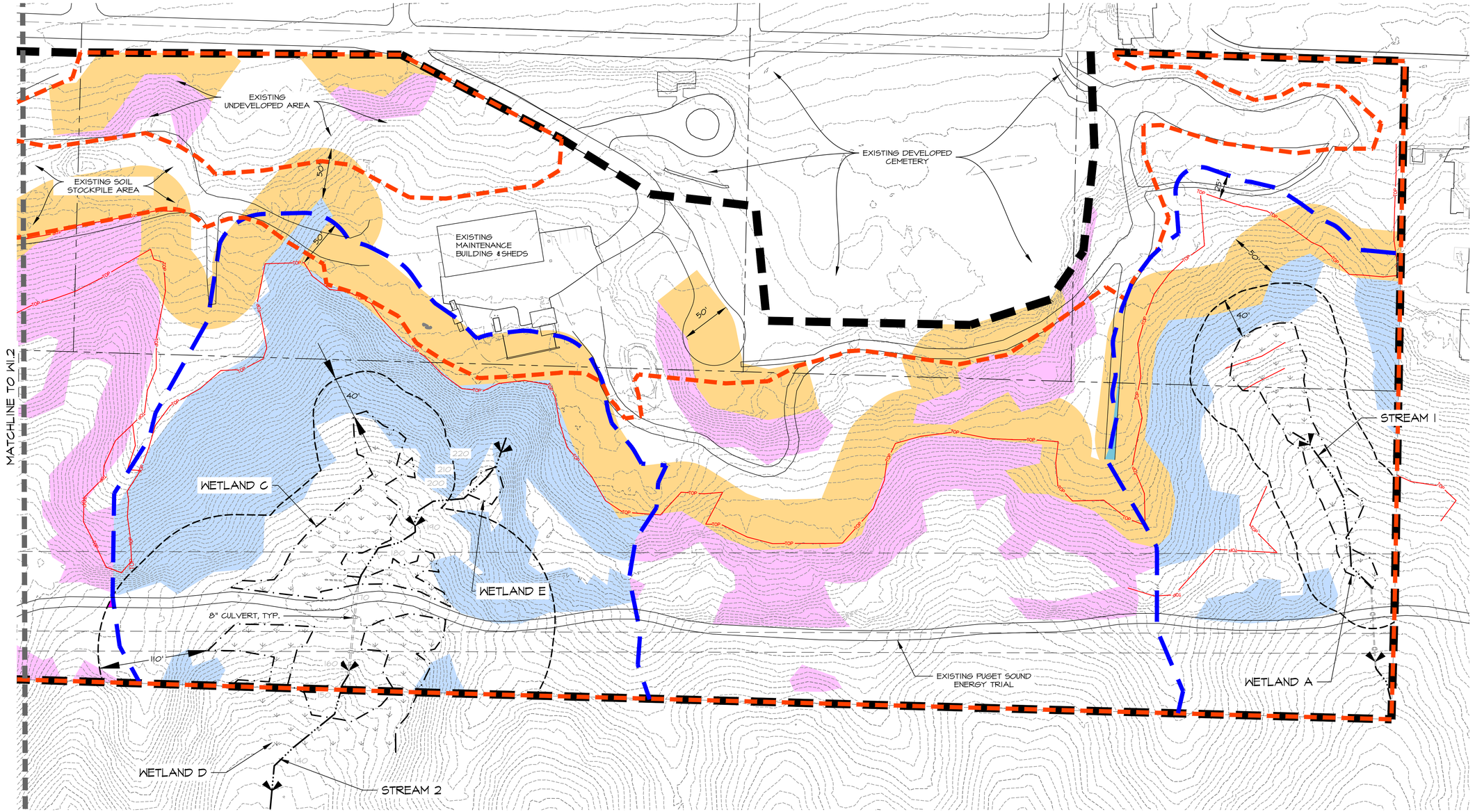
Date 4-10-2019
Scale AS NOTED
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W1.2

Z:\DRAWING\1700-1799\TAL1789\Plank\TAL-1789 WP 2020-11_recover.dwg
Plotted: November 30, 2020

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)
- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER (50' STD. FROM TOP OF SLOPE)

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

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ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.5 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.2 AND W1.3.

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CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	2-6-2020	MN
CITY COMMENTS	12-1-2020	KM

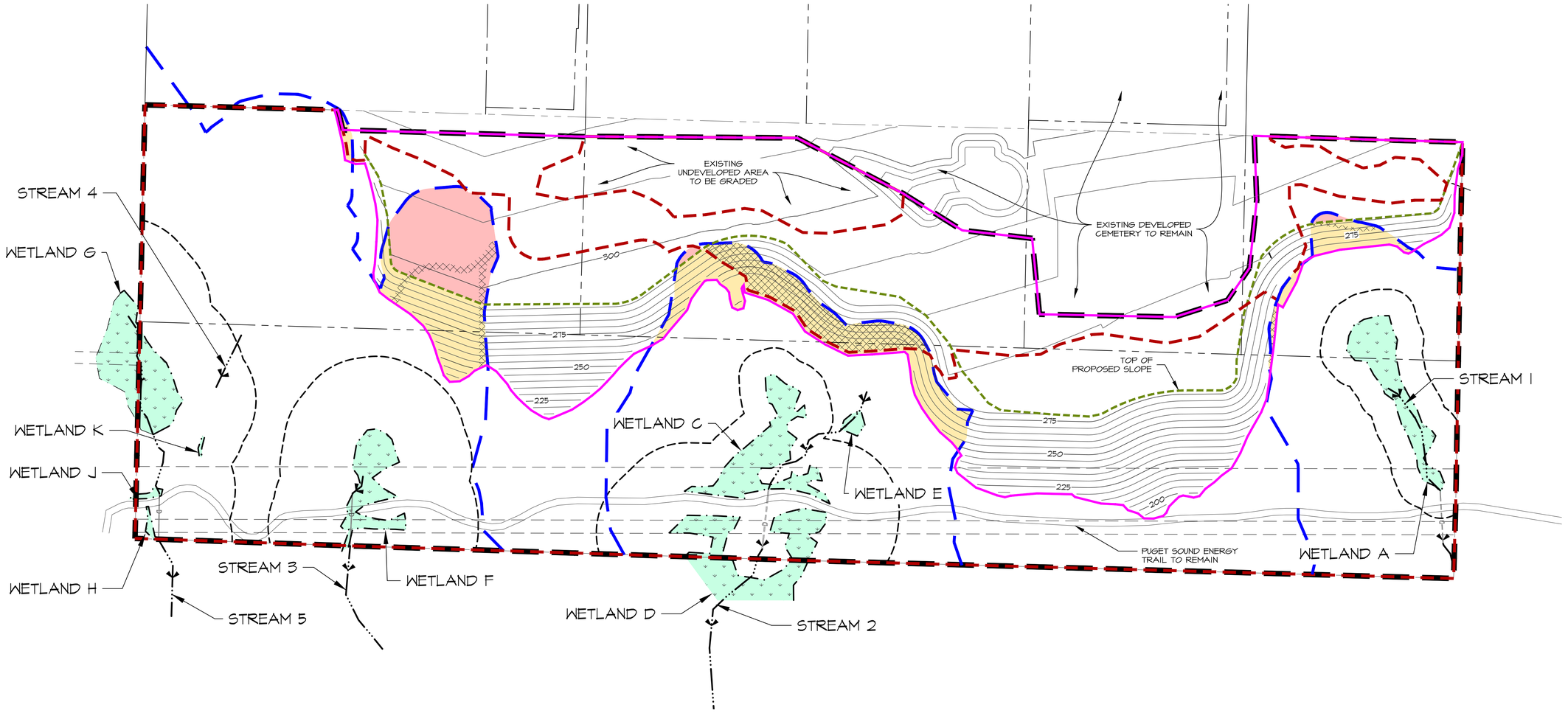
Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AD
Approved BS

Project # 1789

Sheet # W1.3

Z:\DRAWINGS\1700-1799\TAL1789\Plans\TAL-1789 WF 2020-11_recover.dwg
Plotted November 30, 2020

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER
- EXISTING UNDEVELOPED AREAS

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STREAM BUFFER IMPACTS LEGEND

PERMANENT STREAM BUFFER IMPACTS

OUTSIDE OF EXISTING, NON-CONFORMING USES:	20,151 SF	(0.46 AC)
WITHIN EXISITNG, NON-CONFORMING USES	2,321 SF	(0.05 AC)
TOTAL:	22,472 SF	(0.51 AC)

PROPOSED GRADED STREAM BUFFER TO BE REVEGETATED

OUTSIDE OF EXISTING, NON-CONFORMING USES:	33,531 SF	(0.77 AC)
WITHIN EXISITNG, NON-CONFORMING USES	17,370 SF	(0.40 AC)
TOTAL:	50,901 SF	(1.17 AC)

TOTAL IMPACTS: 73,373 SF (1.68 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA2.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED STREAM IMPACT MAP TO REPLACE TALASEA SHEET W2.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

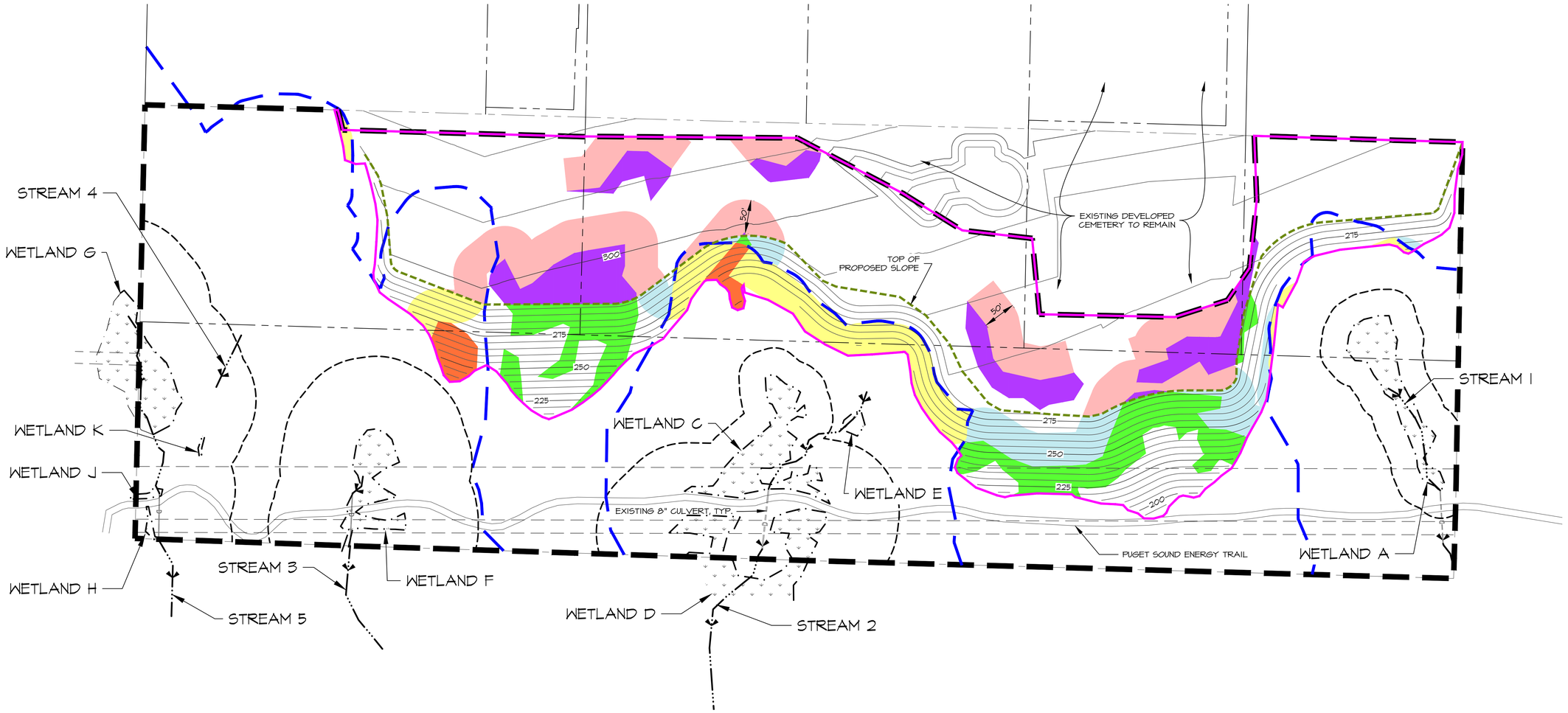
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W2.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED GRADING PLAN & STEEP SLOPE IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STEEP SLOPE IMPACTS LEGEND

PERMANENT STEEP SLOPE IMPACTS

	PERMANENT SLOPE IMPACTS:	36,831 SF	(0.85 AC)
	PERMANENT SLOPE BUFFER IMPACTS:	65,378 SF	(1.50 AC)
	TOTAL:	102,209 SF	(2.35 AC)

PROPOSED REGRADED STEEP SLOPE BUFFER TO BE REVEGETATED

	TEMPORARY SLOPE IMPACTS WITHIN STREAM BUFFERS	7,177 SF	(0.16 AC)
	TEMPORARY SLOPE IMPACTS OUTSIDE OF STREAM BUFFERS	39,962 SF	(0.92 AC)
	TEMPORARY SLOPE BUFFER IMPACTS WITHIN STREAM BUFFERS:	32,670 SF	(0.75 AC)
	TEMPORARY SLOPE BUFFER IMPACTS OUTSIDE OF STREAM BUFFERS:	23,960 SF	(0.55 AC)
	TOTAL:	103,769 SF	(2.38 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA2.1 (PREPARED BY WET.LAND, LLC) FOR UPDATED STEEP SLOPE IMPACT MAP TO REPLACE TALASEA SHEET W2.1.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & SLOPE IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

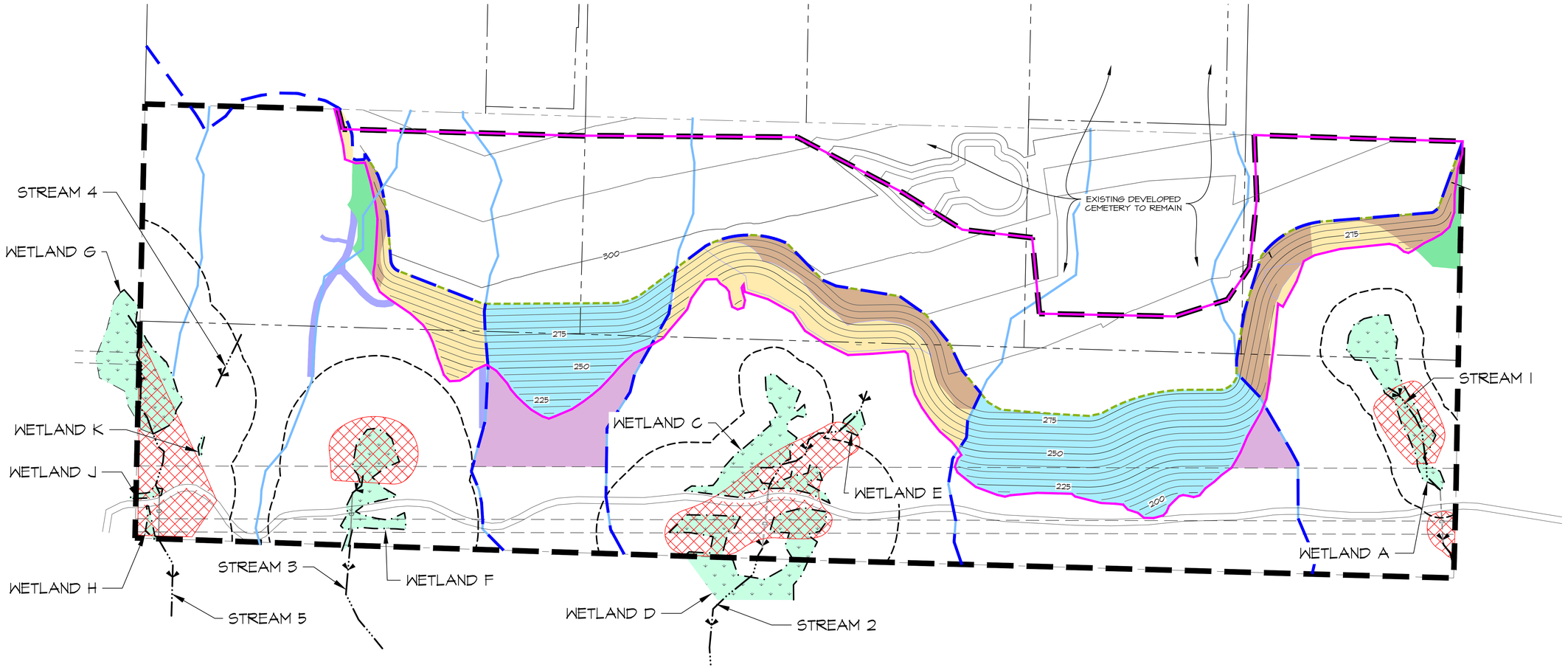
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W2.1

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED MITIGATION OVERVIEW PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

MITIGATION LEGEND

BUFFER CREATION			
	STREAM BUFFER CREATION FROM NATIVE UPLAND	8,625 SF	(0.20 AC)
	STREAM BUFFER CREATION WITHIN REESTABLISHED GRADED AREAS	37,181 SF	(0.85 AC)
BUFFER RESTORATION			
	FROM PRE-EXISTING BUFFER IMPACTS/ NON-CONFORMING USES	899 SF	(0.02 AC)
	RESTORED GRADED STREAM BUFFER	50,901 SF	(1.17 AC)
WETLAND/BUFFER ENHANCEMENT			
	INVASIVE SPECIES REMOVAL WITH ENHANCEMENT	70,273 SF	(1.61 AC)
GENERAL HABITAT RESTORATION			
	SLOPE HABITAT RESTORATION IN GRADED AREAS	96,570 SF	(2.22 AC)
	PRESERVED NATIVE FOREST	27,430 SF	(0.63 AC)
TOTAL MITIGATION:		291,879 SF	(6.70 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED MITIGATION OVERVIEW PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

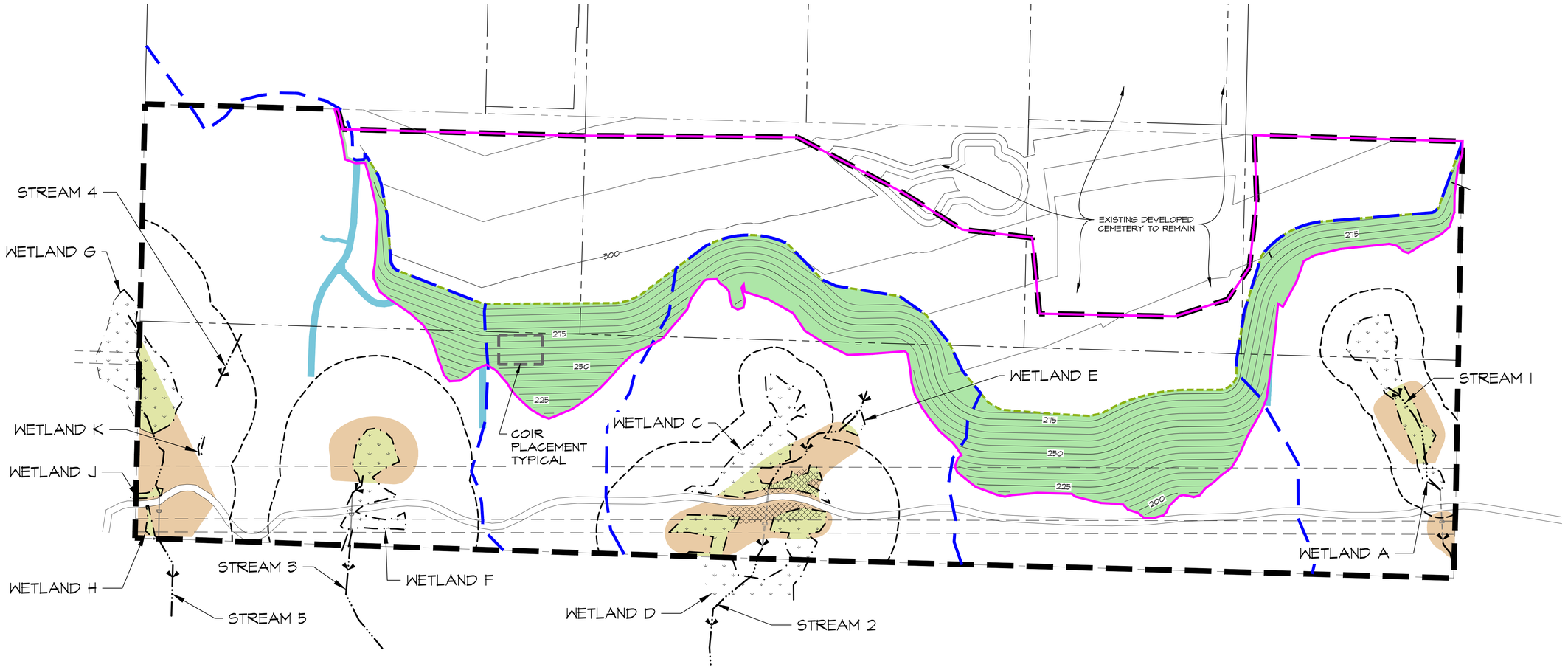
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED CLEARING, GRUBBING AND HABITAT FEATURE PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

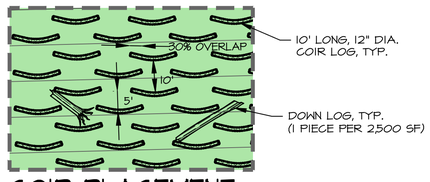
GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (3/R03)

CLEARING AND GRUBBING LEGEND

STRUCTURES TO BE DEMOLISHED; NEW 2:1 SLOPE TO BE CONSTRUCTED, SPRAYED WITH TOPSOIL, AND HYDROSEEDED WITH NATIVE GRASS SPECIES; COIR LOGS TO BE PLACED PER TYPICAL.	183,540 SF	(4.21 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; MULCH ENTIRE AREA; AND REPLANT WITH NATIVE SPECIES.	46,737 SF	(1.07 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; RE-PLANT WITH NATIVE SPECIES AND ADD A MULCH RING AROUND INDIVIDUAL PLANTS.	22,877 SF	(0.53 AC)
JAPANESE KNOTWEED TO BE INJECTED WITH HERBICIDE, GRUBBED WHEN CONFIRMED DEAD, AND REPLACED WITH NATIVE SPECIES.	5,617 SF	(0.13 AC)
DECOMPACT EXISTING TRAILS, AMEND WITH TOPSOIL AND MULCH, AND PLANT WITH NATIVE SPECIES	5,900 SF	(0.14 AC)

INSERT NEW NUMBERS HERE BY HATCH - GREEN HATCH CHANGES ONLY (?)



COIR PLACEMENT TYPICAL
SCALE: 1"=20'

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (1/R03)
- WOODY DEBRIS (DOWN LOGS) (2/R03)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0 AND 3.1.

THE ONLY EFFECTIVE CHANGE TO THIS MAP IS THAT THE GREEN HATCHED AREA IS NOW REDUCED TO XXXXX ACRES, AS REFLECTED ON SHEET CA3.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED CLEARING, GRUBBING, AND HABITAT FEATURE PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-14	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.1

NOTES FOR CLEARING, GRUBBING, AND HABITAT FEATURE INSTALLATION

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION:

1. CONTRACTOR SHALL GIVE TALASAEA CONSULTANTS A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO BEGINNING CONSTRUCTION.

2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, TALASAEA CONSULTANTS, GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONSTRAINTS.

3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION PLAN AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. TALASAEA CONSULTANTS SHALL REVIEW ANY CONFLICTS WITH THE APPROVED MITIGATION PLAN PRIOR TO START OF CONSTRUCTION.

4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.

5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.

6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.

7. A QUALIFIED ECOLOGIST SHALL BE ON SITE, AS NECESSARY, TO MONITOR MITIGATION CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.

8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.

9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.

10. THE CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THIS MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, TALASAEA CONSULTANTS, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS.

2. SURVEY CLEARING LIMITS.

3. INSTALL SILT FENCE AND ANY OTHER EROSION AND SEDIMENTATION CONTROL BMPS NECESSARY FOR WORK IN THE MITIGATION AREAS.

4. CLEAR AND GRUB NON-NATIVE/INVASIVE VEGETATION FROM WETLAND AND BUFFER AREAS

5. ON PROPOSED GRADED SLOPES (PLANTING TYPICALS #1 AND #2), AMEND PLANTING AREAS WITH 8-INCH MINIMUM OF TOPSOIL AND PLACE LARGE WOODY MATERIAL. NO TOPSOIL AMENDMENT IS NECESSARY WITHIN PLANTING TYPICALS #2 AND #3.

6. HYDROSEED ALL GRADED AREAS WITHIN PLANTING TYPICAL AREAS #1 AND #2 WITH A NATIVE MEADOW GRASS MIX.

7. COMPLETE SITE CLEANUP AND INSTALL PLANT MATERIAL ONCE THE HYDROSEED GRASS MIX HAS MATURED, AS INDICATED ON THE MITIGATION PLANTING PLAN.

8. INSTALL BARRIER FENCE AND CRITICAL AREA SIGNS.

1.2 PROJECT CONDITIONS

A. PROTECTION AND MAINTENANCE OF OFF-SITE AREAS: CONTRACTOR SHALL ENSURE THAT CONSTRUCTION RELATED ACTIVITIES DO NOT DAMAGE OFF-SITE FEATURES OR ADJACENT VEGETATION. TALASAEA CONSULTANTS SHALL BE NOTIFIED IMMEDIATELY IF ACCIDENTAL DAMAGE OCCURS. CONTRACTOR SHALL ENSURE THAT ADJACENT ROADS ARE MAINTAINED AND KEPT CLEAR OF SOIL AND/OR OTHER DEBRIS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH THE GOVERNING JURISDICTION'S CODES REGARDING STREET MAINTENANCE/CLEANING DURING CONSTRUCTION.

B. PLAN CHANGES AND MODIFICATIONS: ANY CHANGES OR MODIFICATIONS TO THE MITIGATION PLANS OR SPECIFICATIONS MUST RECEIVE PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

1.3 WARRANTY

A. WARRANTY TERMS AND CONDITIONS: A CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL CLEARING/GRUBBING, HABITAT FEATURE PLACEMENT, PLANTING, IRRIGATION, AND SEED PHASES OF SUCH WORK HAVE BEEN COMPLETED AND ARE ACCEPTED BY THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

PART 2: PRODUCTS AND MATERIALS

2.1 HABITAT FEATURES

A. DOWN LOGS: DOWN LOGS SHALL BE CEDAR OR FIR SPECIES, HAVE A 20 FOOT MINIMUM LENGTH, WITH OR WITHOUT ROOTS, AND A MINIMUM DIAMETER OF 18 INCHES. BARK SHALL BE KEPT INTACT. ENDS THAT HAVE BEEN CUT SHALL BE DISTRESSED AND NOT BLUNT. DOWN LOGS MAY BE SOURCED FROM CLEARED TREES ONSITE, OR IMPORTED FROM OFFSITE.

2.3 TOPSOIL

A. TOPSOIL: TOPSOIL THAT HAS BEEN STOCKPILED ON-SITE FOR REUSE IN PROJECT AREA(S) OR IMPORTED FROM OFF-SITE SOURCES SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

2.4 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

PART 3: EXECUTION

A. SURVEY/STAKE/FLAG LIMITS OF CLEARING:

1. PRIOR TO ANY CONSTRUCTION, A LICENSED SURVEYOR SHALL SURVEY, STAKE, AND FLAG CLEARING LIMITS. CLEARING LIMITS ARE DEPICTED ON THE MITIGATION PLANS. TALASAEA CONSULTANTS SHALL REVIEW AND APPROVE FLAGGING OF CLEARING LIMITS PRIOR TO ANY VEGETATION REMOVAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATIONS OF VEGETATION TO BE SAVED AND REQUEST THAT TALASAEA CONSULTANTS MODIFY THE MITIGATION PLAN AS NECESSARY TO AVOID ALL SIGNIFICANT NATIVE VEGETATION.

B. FLAG AND PROTECT EXISTING VEGETATION TO REMAIN:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING DISTURBANCE TO EXISTING VEGETATION LOCATED OUTSIDE THE CLEARING LIMITS. NO REMOVAL OF ANY VEGETATION SHALL OCCUR WITHOUT PRIOR APPROVAL BY TALASAEA CONSULTANTS.

2. TALASAEA CONSULTANTS SHALL FLAG EXISTING VEGETATION TO REMAIN LOCATED WITHIN THE MITIGATION AREA. FLAGGED VEGETATION SHALL NOT BE DISTURBED, UNLESS APPROVED IN WRITING BY TALASAEA CONSULTANTS.

3. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, AND BRANCHES OF TREES AND SHRUBS TO REMAIN. ANY WOODY PLANT TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED IMMEDIATELY AFTER DAMAGE OCCURS, AND TALASAEA CONSULTANTS SHALL BE NOTIFIED OF INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

C. PLACE EROSION CONTROL MEASURES:

1. CONTRACTOR IS RESPONSIBLE FOR, AND SHALL INSTALL, SILT FENCING AND OTHER EROSION CONTROL BMPS PRIOR TO ANY MITIGATION CONSTRUCTION ACTIVITY. OTHER EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY OR AS REQUIRED. TALASAEA CONSULTANTS SHALL VERIFY AND APPROVE LOCATIONS OF EROSION CONTROL MEASURES WITHIN MITIGATION AREAS PRIOR TO COMMENCING MITIGATION CONSTRUCTION. EROSION CONTROL MEASURES FOR MITIGATION WORK SHALL BE COORDINATED WITH EROSION CONTROL FOR CIVIL SITE WORK AS NECESSARY.

2. CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES FOR THE DURATION OF THE PROJECT. THESE MEASURES SHALL REMAIN IN PLACE UNTIL AUTHORIZATION IS GIVEN BY TALASAEA CONSULTANTS FOR REMOVAL OR LOCATION ADJUSTMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL EROSION CONTROL MEASURES WITHIN AND/OR ADJACENT TO SENSITIVE AREAS WHEN AUTHORIZED BY TALASAEA CONSULTANTS.

3. AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY TALASAEA CONSULTANTS TO ENSURE CONTINUED EROSION/SEDIMENTATION CONTROL.

4. WHERE POSSIBLE, NATURAL GROUND COVER VEGETATION SHALL BE MAINTAINED FOR EROSION CONTROL.

D. INVASIVE/NON-NATIVE VEGETATION REMOVAL FROM MITIGATION AREAS:

1. CONTRACTOR SHALL GRUB OUT ALL NON-NATIVE AND INVASIVE VEGETATION WITHIN BUFFER MITIGATION AREAS AS SHOWN ON THE MITIGATION PLANS, WITH THE EXCEPTION OF JAPANESE KNOTWEED AND FLAGGED EXISTING VEGETATION TO REMAIN. IN AREAS OF EXISTING VEGETATION, CONTRACTOR SHALL REMOVE INVASIVE SPECIES INCLUDING, BUT ARE NOT LIMITED TO: SCOT'S BROOM, ENGLISH IVY, HIMALAYAN AND EVERGREEN BLACKBERRY, PURPLE LOOSESTRIFE, HEDGE BINDWEED (MORNING GLORY), CANADA THISTLE, AND CREEPING NIGHTSHADE. INVASIVE/NON-NATIVE VEGETATION SHALL BE REMOVED BY HAND WITH MINIMAL DISTURBANCE TO THE EXISTING NATIVE VEGETATION TO REMAIN. ALL ROOTS SHALL BE REMOVED TO THE MAXIMUM EXTENT PRACTICABLE.

2. JAPANESE KNOTWEED CONTROL: JAPANESE KNOTWEED SHALL BE TREATED THROUGH INJECTION WITH AN HERBICIDE APPROVED FOR USE IN AQUATIC AREAS (E.G., RODEO, OR EQUAL). HERBICIDE TREATMENT SHALL BE APPLIED TO EACH INDIVIDUAL CANE OF THE PLANT. IF, AFTER ONE (1) GROWING SEASON, THE JAPANESE KNOTWEED HAS PERSISTED, IT WILL REQUIRE RE-TREATMENT.

3. ALL GRUBBED VEGETATION SHALL BE EXPORTED FROM THE SITE AND DISPOSED OF IN AN APPROVED MANNER FOLLOWING ALL APPLICABLE LOCAL/STATE/FEDERAL REGULATIONS.

4. TALASAEA CONSULTANTS SHALL DESIGNATE ANY ADDITIONAL PLANT SPECIES TO BE REMOVED DURING MITIGATION CONSTRUCTION.

F. TOPSOIL

1. TOPSOIL SHALL BE SCRAPED AND SCREENED FROM PROPOSED CLEARING AND GRADING AREAS AND STOCKPILED FOR REUSE ON THE NEW PROPOSED SLOPE.

2. IN ALL CLEARED AND GRUBBED BUFFER MITIGATION AREAS, EXISTING SOIL SHALL BE AMENDED TO PROVIDE A 9-INCH MINIMUM DEPTH OF TOPSOIL.

G. HYDROSEED: AREAS GRADED AT A 2:1 SLOPE SHALL BE TREATED WITH HYDROSEED GRASS MIX. SPECIES SHALL BE OF A NATIVE GRASS VARIETY (E.G. RED FESCUE, TUFTED HAIRGRASS, BLUE WILDRYE,

H. HABITAT FEATURES: PLACE HABITAT FEATURES UPON COMPLETION OF TOPSOIL AND/OR SOIL AMENDMENT PLACEMENT, AS DEPICTED ON THE MITIGATION PLANS AND DETAILS. TALASAEA CONSULTANTS SHALL APPROVE LOCATIONS PRIOR TO PLACEMENT.

I. DOWN LOGS: TO CUT/BREAK DOWN LOGS, FIRST SCORE THE LOG AT THE DESIRED LENGTH BY MECHANICAL MEANS, THEN SNAP THE LOG AT THE SCORED LOCATION TO CREATE A NATURAL LOOK TO THE BREAK. TWIST BROKEN ENDS TO DISGUISE SAW CUTS. HABITAT FEATURES THAT HAVE BEEN CUT SHALL HAVE NO BLUNT ENDS.

I. MULCH CLEARED/GRUBBED BUFFER AREAS: TALASAEA CONSULTANTS SHALL BE PROVIDED A MULCH SAMPLE PRIOR TO IT BEING DELIVERED TO THE SITE. NO BUFFER AREAS SHALL BE SEEDED.

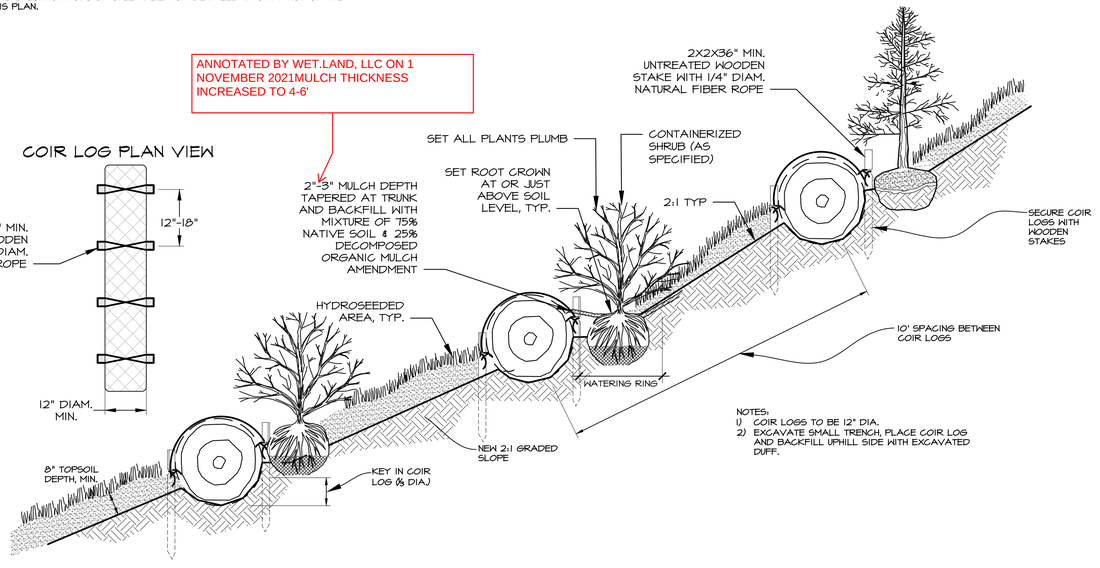
I. CONTRACTOR SHALL SPREAD MULCH OVER ALL GRADED BUFFER AREAS TO ACHIEVE A UNIFORM DEPTH OF 3 INCHES. NOTE: 3-INCH DEPTH IS THE MINIMUM AFTER SETTLING. IF MULCH IS INSTALLED BY BLOWER TRUCK IT SHALL BE INSTALLED AT A 4-INCH DEPTH TO PROVIDE A MINIMUM 3-INCH DEPTH AFTER SETTLING.

J. INSPECTIONS: PRIOR TO PLANT INSTALLATION, TALASAEA CONSULTANTS SHALL APPROVE ALL CLEARING/GRUBBING WORK AND HABITAT FEATURE PLACEMENT. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY TALASAEA CONSULTANTS AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, TALASAEA CONSULTANTS SHALL REVIEW THE PROJECT FOR FINAL ACCEPTANCE OF PUNCH LIST ITEMS, AND PLANTING MAY THEN PROCEED.

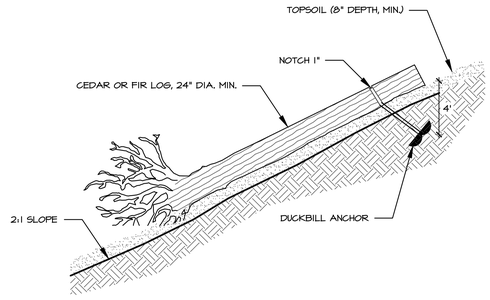
K. SOIL STABILIZATION. IF THERE IS A DELAY IN CONSTRUCTION FOR ANY REASON, CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EROSION CONTROL MEASURES, DRAINAGE, AND TEMPORARY IRRIGATION DURING CONSTRUCTION DELAY PERIOD, UNLESS OTHERWISE STATED IN WRITING.

GENERAL GRADING NOTES

1. SILT FENCING AS SHOWN ON PLANS AND ANY OTHER NECESSARY EROSION CONTROL BMPS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE MITIGATION AREAS.
2. SEE CIVIL PLANS FOR CLEARING/GRADING, DRAINAGE, AND EROSION CONTROL BMPS FOR SITE CONSTRUCTION OUTSIDE OF MITIGATION AREAS. SILT FENCING AND OTHER EROSION CONTROL BMPS IN THE MITIGATION AREAS SHALL BE COORDINATED WITH EROSION CONTROL BMPS FOR CIVIL SITE WORK WHERE NECESSARY.
3. PROJECT BIOLOGIST AND/OR ECOLOGIST SHALL FLAG EXISTING VEGETATION TO REMAIN PRIOR TO ANY CLEARING, GRUBBING, OR GRADING WORK IN MITIGATION AREAS. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND FLAGGED VEGETATION TO REMAIN PRIOR TO WORK IN MITIGATION AREAS.
4. SEE CIVIL PLANS FOR ALL CONSTRUCTION INFORMATION RELATING TO STORMWATER INFRASTRUCTURE (OUTLET/INLET PIPES, ELEVATIONS, AND CBS).
5. SEE MITIGATION GRADING SPECIFICATIONS ON SHEET W2.2 FOR DETAILED INFORMATION ON THE IMPLEMENTATION OF THIS PLAN.



1 SLOPE PLANTING IN BUFFER RESTORATION AREAS (TYP.)
N.T.S.



NOTES:
1. LOG TO BE 24" DIA. MIN., CONIFER (CEDAR OR FIR SPECIES), 20' LENGTH MIN.
2. PLACEMENT OF HABITAT LOG TO BE DETERMINED IN THE FIELD BY TALASAEA CONSULTANTS.
3. ANCHOR LOG WITH DUCKBILL ANCHOR:
4. DRIVE ANCHOR A MIN. OF 4' INTO THE GROUND WITH A HAMMER AND DRIVE STEEL. ONCE THE ANCHOR IS AT THE PROPER DEPTH, REMOVE THE DRIVE STEEL.
5. WRAP THE STEEL CABLE AROUND THE DRIVE STEEL AND PULL UPWARD A DISTANCE SLIGHTLY LONGER THAN THE LENGTH OF THE ANCHOR BODY.
6. THIS WILL ROTATE THE ANCHOR INTO A PERPENDICULAR POSITION.
7. NOTCH THE BARK OF THE LOG A MINIMUM OF 1" AROUND THE CIRCUMFERENCE OF THE LOG AS SHOWN.
8. WRAP THE STEEL CABLE OF THE DUCKBILL ANCHOR IN THE NOTCH AROUND THE LOG IN SUCH A WAY THAT THE CABLE IS HIDDEN.

2 LOG ANCHORING DETAIL
N.T.S.

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NOTES

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2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15020 Bear Creek Road Northeast - Woodinville, Washington 98077
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CRITICAL AREAS MITIGATION PLAN CLEARING AND GRUBBING NOTES AND DETAILS. SUNSET MEMORIAL PARK EXPANSION BELLEVUE, WASHINGTON

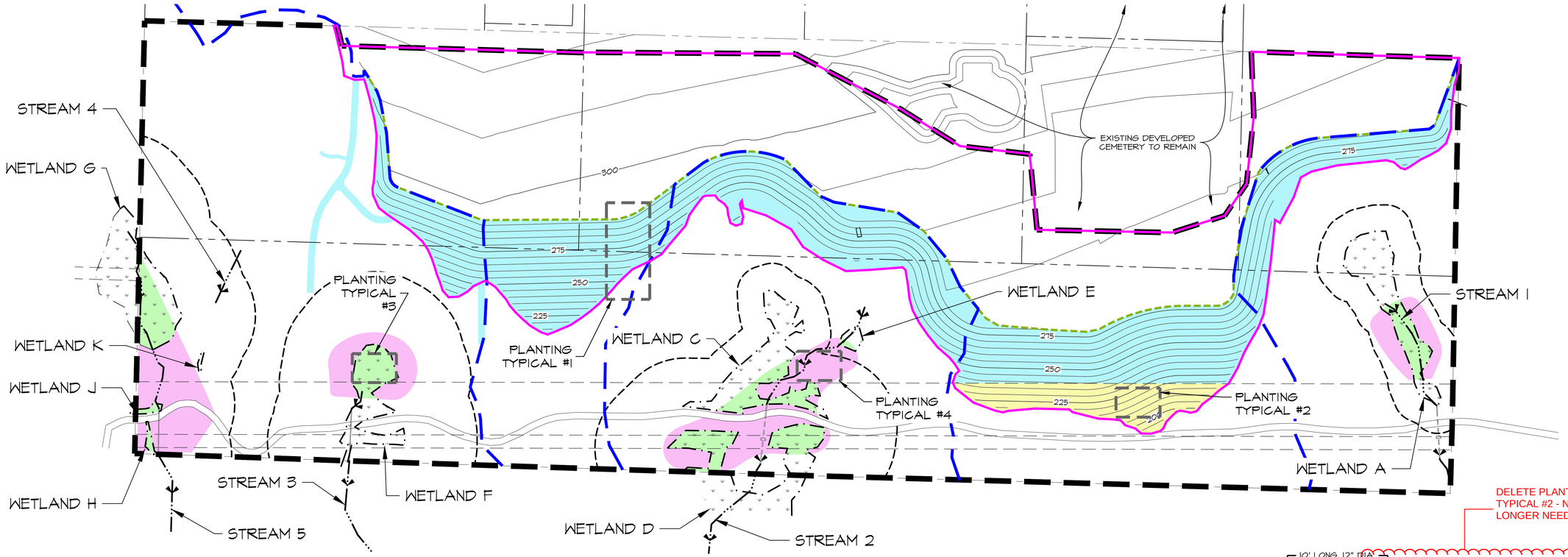
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.2

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED PLANTING PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (4 / W47)

DELETE PLANTING TYPICAL #2 - NO LONGER NEEDED

CLEARING AND GRUBBING LEGEND

PLANTING TYPICAL #1: NATIVE FOREST PLANT COMMUNITY ON GRADED SLOPE AND RESTORED TRAILS	170,566 SF	(3.92 AC)
PLANTING TYPICAL #2: NATIVE SHRUB PLANT COMMUNITY ON GRADED SLOPE	18,055 SF	(0.41 AC)
PLANTING TYPICAL #3: WETLAND SHRUB ENHANCMENT	22,877 SF	(0.53 AC)
PLANTING TYPICAL #4: BUFFER SHRUB ENHANCEMENT	44,346 SF	(1.02 AC)

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (10" Ø)
- WOODY DEBRIS (DOWN LOGS) (2 / Ø12")

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0 AND 3.1.

THE ONLY EFFECTIVE CHANGE TO THIS MAP IS THAT THE BLUE HATCHED AREA IS NOW REDUCED TO XXXXX ACRES, AS REFLECTED ON SHEET CA3.0.

REVISED TABLE FOUND ON SHEET CAXX.XX

PLANT SCHEDULE

LARGE TREES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	204	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	THUJA PLICATA	WESTERN RED CEDAR	FAC	171	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	FACU	225	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY

SMALL TREES/LARGE SHRUBS

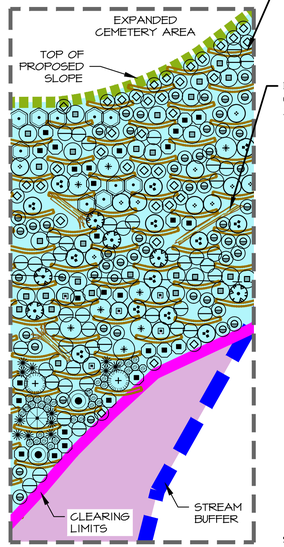
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	ACER CIRCINATUM	VINE MAPLE	FAC	269	65	-	24	AS SHOWN	4' HT.	SINGLE TRUNK, WELL BRANCHED
	AMELANCHIER ALNIFOLIA	SERVICEBERRY	FAC	215	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	CORYLUS CORNUTA	BEAKED HAZELNUT	FACU	349	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	HOLODISCUS DISCOLOR	OCEAN SPRAY	FACU	269	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	OEMLERIA CERASIFORMIS	INDIAN PLUM	FAU	-	-	-	104	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	FACW	-	-	-	160	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PRUNUS EMARGINATA	BITTER CHERRY	FACU	134	-	-	-	5' O.C.	24" HT.	SINGLE TRUNK, WELL BRANCHED
	RIBES BRACTEOSUM	STINK CURRANT	FAC	-	-	-	80	AS SHOWN	24" HT.	MULTI-CANE (3 MIN.)
	RIBES SANGUINEUM	RED CURRANT	NL	-	-	-	48	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SAMBUCUS RACEMOSA	RED ELDERBERRY	FACU	753	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SORBUS SITCHENSIS	SITKA MOUNTAIN ASH	FAC	161	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED

MASSING SHRUBS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	CORNUS ALBA	RED-OSIER DOGWOOD	FACW	-	-	95	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	GAULTHERIA SHALLON	SALAL	FACU	806	-	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY	FAC	-	-	62	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	MAHONIA AQUIFOLIUM	OREGONGRAPE	FACU	753	195	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	ROSA PISOCARPA	CLUSTERED WILD ROSE	FAC	968	358	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	1,452	404	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	RUBUS SPECTABILIS	SALMONBERRY	FAC	-	-	95	-	4' O.C.	1 GAL.	FULL & BUSHY
	SPIREA DOUGLASII	WESTERN SPIREA	FACW	-	-	78	-	4' O.C.	1 GAL.	FULL & BUSHY
	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	FACU	1,263	274	-	160	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)

GROUND COVERS AND EMERGENTS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	POLYSTICHUM MUNITUM	SWORD FERN	FACU	323	-	-	208	36" O.C.	1 GAL.	FULL & BUSHY
	LYSICHITUM AMERICANUM	SKUNK CABBAGE	OBL	-	-	390	-	AS SHOWN	1 GAL.	



TYPICAL #1
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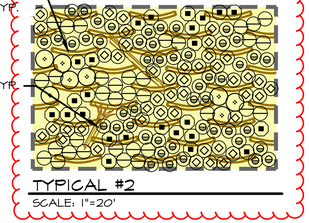
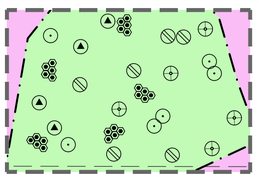
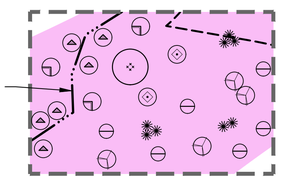


TYPICAL #2
SCALE: 1"=20'



TYPICAL #3
SCALE: 1"=20'



TYPICAL #4
SCALE: 1"=20'

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CRITICAL AREAS MITIGATION PLAN
PROPOSED PLANTING PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date	4-10-2019
Scale	AS SHOWN
Designed	KM
Drawn	FH
Checked	AO
Approved	BS

Project # 1789

Sheet # W4.0

PLANTING SPECIFICATIONS

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION

1. CONTRACTOR SHALL GIVE THE PROJECT BIOLOGIST OR ECOLOGIST A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO COMMENCING CONSTRUCTION.
2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, THE PROJECT BIOLOGIST OR ECOLOGIST, THE GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONSTRAINTS.
3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS, AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL RESOLVE ANY CONFLICTS WITH THE APPROVED GRADING PLAN PRIOR TO START OF CONSTRUCTION.
4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.
5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.
6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.
7. A QUALIFIED WETLAND CONSULTANT SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.
8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.
9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.
10. PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THE PLANTING PORTION OF THE MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, THE PROJECT BIOLOGIST OR ECOLOGIST, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS, STAGING/STOCKPILE AREAS, AND MATERIAL DISPOSAL AREAS.
2. PLANT TREES AND SHRUBS AS INDICATED ON MITIGATION PLANS.
3. MULCH INSTALLED PLANTS AND TREES.
4. INSTALL TEMPORARY IRRIGATION SYSTEM AND PROGRAM FOR 0.5 INCHES OF WATER EVERY 3 DAYS.
5. INSTALL FENCING AND CRITICAL AREA PROTECTION SIGNS.

1.2 SUBMITTALS

A. PRODUCT DATA: FURNISH THE FOLLOWING WITH EACH PLANT MATERIAL DELIVERY:

1. INVOICES INDICATING SIZES AND VARIETY OF PLANT MATERIAL.
2. CERTIFICATES OF INSPECTION REQUIRED BY STATE AND FEDERAL AGENCIES.

B. QUALITY CONTROL SUBMITTALS:

1. PRIOR TO DELIVERY OF MATERIALS, CERTIFICATES OF COMPLIANCE ATTESTING THAT MATERIALS MEET THE SPECIFIED REQUIREMENTS SHALL BE FURNISHED FOR THE FOLLOWING: PLANTS, TOPSOIL, FERTILIZER, AND ORGANIC MULCH. CERTIFIED COPIES OF THE MATERIAL CERTIFICATES SHALL INCLUDE THE FOLLOWING:
   a. PLANT MATERIALS: BOTANICAL NAME, COMMON NAME, SIZE, QUANTITY BY SPECIES, AND LOCATION WHERE GROWN.
   b. IMPORTED TOPSOIL: PARTICLE SIZE, PH, ORGANIC MATTER CONTENT, TEXTURAL CLASS, SOLUBLE SALTS, CHEMICAL AND MECHANICAL ANALYSES.
   c. FERTILIZER: CHEMICAL ANALYSIS AND PERCENT COMPOSITION.
   d. IMPORTED MULCH: COMPOSITION AND SOURCE.

1.3 REFERENCES

A. SIZE AND GRADING STANDARDS: SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

1.4 QUALITY ASSURANCE

A. WORKER'S QUALIFICATIONS: THE PERSONS PERFORMING THE PLANTING AND THEIR SUPERVISOR(S) SHALL BE PERSONALLY EXPERIENCED WITH PLANTING AND CARING FOR PLANT MATERIAL, AND SHALL HAVE BEEN REGULARLY EMPLOYED BY A COMPANY ENGAGED IN PLANTING AND CARING FOR PLANT MATERIAL FOR A MINIMUM OF 2 YEARS.

B. PLANT MATERIAL: ALL PLANT MATERIALS SHALL BE LOCALLY GROWN OR REGIONALLY ACCLIMATIZED TO THE PACIFIC NORTHWEST.

1.5 DELIVERY, INSPECTION, STORAGE AND HANDLING

A. DELIVERY: A DELIVERY SCHEDULE SHALL BE PROVIDED AT LEAST 10 CALENDAR DAYS PRIOR TO THE FIRST DAY OF DELIVERY. PLANT MATERIALS SHALL BE DELIVERED TO THE JOB SITE NOT MORE THAN 7 WORKING DAYS PRIOR TO THEIR RESPECTIVE PLANTING DATES.

B. PROTECTION DURING DELIVERY: PLANT MATERIAL SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION AND DAMAGE TO THE BRANCHES, TRUNK, ROOT SYSTEM, OR EARTH BALL. BRANCHES SHALL BE PROTECTED BY TYING-IN. EXPOSED BRANCHES SHALL BE COVERED DURING TRANSPORT.

C. FERTILIZER: FERTILIZER SHALL BE DELIVERED IN MANUFACTURER'S STANDARD SIZED BAGS SHOWING WEIGHT, ANALYSIS, AND MANUFACTURER'S NAME. STORE UNDER A WATERPROOF COVER OR IN A DRY PLACE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

D. INSPECTION: ALL PLANT MATERIALS SHALL BE INSPECTED UPON ARRIVAL AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE FOR CONFORMITY TO TYPE AND QUANTITY WITH REGARD TO THEIR RESPECTIVE SPECIFICATIONS.

E. MULCH: A MULCH SAMPLE SHALL BE INSPECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO THE MULCH BEING DELIVERED TO THE SITE.

F. STORAGE:

1. PLANT MATERIAL NOT INSTALLED ON THE DAY OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED AREAS. PLANTS STORED ON THE PROJECT SITE SHALL BE PROTECTED FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS OR CONTAINERS WITH SAWDUST, SOIL, COMPOST, BARK OR WOODCHIPS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN. BARE-ROOT PLANT MATERIAL SHALL BE HEELED-IN. CUTTINGS AND EMERGENT PLANTS MUST BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HEELED-IN WITH MOIST SOIL OR OTHER INSULATING MATERIAL. ALL PLANT MATERIAL STORED ON-SITE SHALL BE WATERED DAILY UNTIL INSTALLED.
2. STORAGE OF OTHER MATERIALS SHALL BE IN DESIGNATED AREAS.

1.6 SCHEDULING

A. PLANTING SEASON: INSTALL WOODY PLANTS BETWEEN OCTOBER 1 AND FEBRUARY 15 WHENEVER THE TEMPERATURE IS ABOVE 32 DEGREES F AND THE SOIL IS IN A WORKABLE CONDITION, UNLESS OTHERWISE APPROVED IN WRITING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST.

B. PLANT INSTALLATION: EXCEPT FOR CONTAINER-GROWN PLANT MATERIAL, THE MAXIMUM TIME BETWEEN THE DIGGING AND INSTALLATION OF PLANT MATERIAL SHALL BE 21 DAYS. THE MAXIMUM TIME BETWEEN PLANT INSTALLATION AND MULCH PLACEMENT SHALL BE 72 HOURS.

1.7 WARRANTY

A. WARRANTY PERIOD: THE CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL GRADING, PLANTING, IRRIGATION, AND RELATED WORK HAS BEEN COMPLETED AND IS ACCEPTED BY THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

B. WARRANTY TERMS: CONTRACTOR'S WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS DUE TO MORTALITY (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). PLANTS REPLACED UNDER THIS WARRANTY SHALL BE WARRANTED FOR AN ADDITIONAL YEAR AFTER REPLACEMENT.

C. EXCEPTIONS: LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS), OR CASES OF NEGLECT BY OWNER, OR CASES OF ABUSE/DAMAGE BY OTHERS.

PART 2: PRODUCTS AND MATERIALS

2.1 PLANTS

A. GENERAL: ALL PLANT MATERIAL WILL CONFORM TO THE VARIETIES SPECIFIED OR SHOWN IN THE PLANT LIST(S) INDICATED ON THE MITIGATION PLANS AND BE TRUE TO BOTANICAL NAME AS LISTED IN: HITCHCOCK, C.L., AND A. CRONQUIST. 1973. FLORA OF THE PACIFIC NORTHWEST. UNIVERSITY OF WASHINGTON PRESS.

B. SHRUBS AND TREES:

1. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL EXAMINE PLANT MATERIAL PRIOR TO PLANTING. ANY MATERIAL NOT MEETING THE REQUIRED SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED WITH LIKE MATERIAL THAT MEETS THE REQUIRED STANDARDS. PLANT MATERIAL SHALL MEET THE REQUIREMENTS OF STATE AND FEDERAL LAWS WITH RESPECT TO PLANT DISEASE AND INFESTATIONS. INSPECTION CERTIFICATES, REQUIRED BY LAW, SHALL ACCOMPANY EACH AND EVERY SHIPMENT AND SHALL BE SUBMITTED TO THE PROJECT BIOLOGIST OR ECOLOGIST UPON CONTRACTOR'S RECEIPT OF PLANT MATERIAL.
2. PLANT MATERIALS SHALL BE LOCALLY GROWN (WESTERN WASHINGTON, WESTERN OREGON, OR WESTERN BC), HEALTHY, BUSHY, IN VIGOROUS GROWING CONDITION, AND GUARANTEED TO BE TRUE TO SIZE, NAME, AND VARIETY. IF REPLACEMENT OF PLANT MATERIAL IS NECESSARY DUE TO CONSTRUCTION DAMAGE OR PLANT FAILURE WITHIN ONE YEAR OF INSTALLATION, THE SIZES, SPECIES, AND QUANTITIES SHALL BE EQUAL TO SPECIFIED PLANTS, AS INDICATED ON THE PLANS.
3. PLANTS SHALL BE NURSERY GROWN, WELL-ROOTED, OF NORMAL GROWTH AND CHARACTER, AND FREE FROM DISEASE OR INFESTATION. THE PROJECT BIOLOGIST OR ECOLOGIST RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF ANY PLANTS DEEMED UNSUITABLE.
4. TREES SHALL HAVE UNIFORM BRANCHING, SINGLE STRAIGHT TRUNKS (UNLESS SPECIFIED AS MULTI-STEM, MULTI-CANE, OR MULTI-TRUNK), AND AN INTACT AND UNDAMAGED CENTRAL LEADER. CONTAINER STOCK SHALL HAVE BEEN GROWN IN A CONTAINER FOR AT LEAST ONE FULL GROWING SEASON AND SHALL HAVE A WELL DEVELOPED ROOT SYSTEM. PLANT MATERIAL THAT IS ROOT-BOUND OR HAS DAMAGED ROOT ZONES OR BROKEN ROOT BALLS WILL NOT BE ACCEPTED.
5. CONIFEROUS TREES SHALL BE NURSERY GROWN, FULL AND BUSHY, WITH UNIFORM BRANCHING AND A NATURAL, NON-SHEARED FORM. ORIGINAL CENTRAL LEADER MUST BE HEALTHY AND UNDAMAGED. MAXIMUM GAP BETWEEN BRANCHING SHALL NOT EXCEED 9 INCHES, AND LENGTH OF TOP LEADER SHALL NOT EXCEED 12 INCHES.
6. SHRUBS SHALL HAVE A MINIMUM OF THREE STEMS AND SHALL BE A MINIMUM HEIGHT OF 18 INCHES.
7. TREES AND SHRUBS SHALL HAVE DEVELOPED ROOT AND BRANCH SYSTEMS. DO NOT PRUNE BRANCHES BEFORE DELIVERY.
8. PLANTS SHALL BE FREE OF SPLITS AND CHECKS, BARK ABRASIONS, AND DISFIGURING KNOTS.
9. FOR DECIDUOUS PLANTS, BUDS SHALL BE INTACT AND REASONABLY CLOSED AT TIME OF PLANTING, IF DORMANT.
10. PLANTS SHALL CONFORM TO SIZES INDICATED ON THE PLANT SCHEDULE. PLANTS MAY BE LARGER THAN THE MINIMUM SIZES SPECIFIED.

C. NOXIOUS SPECIES: ALL PLANT STOCK AND OTHER RE-VEGETATION MATERIALS SHALL BE FREE FROM THE SEED OR OTHER PLANT COMPONENTS OF ANY NOXIOUS OR INVASIVE SPECIES, AS IDENTIFIED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

D. SUBSTITUTIONS: SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST AND APPROVAL FROM THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

2.2 PLANTING SOIL

A. TOPSOIL: IF SUITABLE STOCKPILED NATIVE TOPSOIL IS NOT AVAILABLE FOR MITIGATION PLANTINGS, TOPSOIL SHALL BE OBTAINED FROM OUTSIDE SOURCES. STOCKPILED OR IMPORTED TOPSOIL SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

C. COMPOST: COMPOST SHALL MEET THE DEFINITION FOR COMPOSTED MATERIALS AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

D. SOIL AMENDMENTS:

D.A. FERTILIZER: WOODY PLANTINGS SHALL BE FERTILIZED WITH A SLOW-RELEASE GENERAL GRANULAR FERTILIZER (16-16-16), WITH APPLICATION RATES AS SPECIFIED BY MANUFACTURER. FERTILIZER SHALL BE APPLIED AFTER PLANTING PIT IS BACKFILLED, AND PRIOR TO APPLICATION OF MULCH. FERTILIZER SHALL NOT BE APPLIED BETWEEN NOVEMBER AND MARCH. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.

D.B. SOIL MOISTURE RETENTION AGENT: A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUAL, SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

2.3 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE, OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

2.4 MISCELLANEOUS MATERIALS

A. STAKES, DEADMEN AND GUY STAKES: SOUND, DURABLE, WESTERN RED CEDAR, OR OTHER APPROVED WOOD, FREE OF INSECT OR FUNGUS INFESTATION.

PART 3: EXECUTION

3.1 SOIL PREPARATION

A. PLANTING AREA CONDITIONS: CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE PROJECT AREA(S). ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR DRAINAGE, COMPACTED SOILS, SIGNIFICANT EXISTING OR INVASIVE VEGETATION, OR OTHER OBSTRUCTIONS, CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO PLANTING. THE BEGINNING OF WORK BY THE CONTRACTOR CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

B. PLANTING IN UNDISTURBED, NON-GRADED AREAS: PLANTS INSTALLED IN UNDISTURBED AREAS SHALL BE INTEGRATED WITH EXISTING NATIVE VEGETATION AND PLANTED IN A RANDOM, NATURALISTIC PATTERN. PRIOR TO INSTALLATION OF PLANTINGS, ALL CONSTRUCTION DEBRIS, TRASH, AND NON-NATIVE INVASIVE PLANT MATERIAL SHALL BE REMOVED FROM THE PROJECT AREA. IN NON-GRADED AREAS, TREES AND SHRUBS SHALL BE PIT PLANTED AS SHOWN IN TYPICAL PLANTING DETAILS. PLANTING PITS SHALL BE BACKFILLED WITH A 50/50 MIXTURE OF IMPORTED, WEED-FREE TOPSOIL AND THE SOIL FROM THE PLANTING PIT.

C. PLANTING IN GRADED AREAS: IN GRADED PLANTING AREAS PLANTS SHALL BE INSTALLED IN NEWLY PLACED TOPSOIL.

D. SOIL DECOMPACTION/SCARIFICATION: SOILS IN GRADED/DISTURBED AREAS THAT ARE COMPACTED AND UNSUITABLE FOR PROPER PLANT GROWTH SHALL BE DECOMPACTED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6" PRIOR TO TOPSOIL INSTALLATION.

3.2 PLANTING

A. PLANT LAYOUT: PROPOSED LOCATIONS OF TREES AND SHRUBS SHALL BE STAKED AND IDENTIFIED WITH AN APPROVED CODING SYSTEM OR BY PLACEMENT OF THE ACTUAL PLANT MATERIAL. FOR LARGE GROUPINGS OF A SINGLE SPECIES OF SHRUB, LANDSCAPE CONTRACTOR MAY STAKE THE PLANTING BOUNDARIES.

B. OBTAIN LAYOUT APPROVAL FROM THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO EXCAVATION OF PLANTING PITS.

C. PLANTING PIT DIMENSIONS:

3. PIT DEPTH: NOT TO EXCEED THE CONTAINER DEPTH.
4. PIT WIDTH: MEASURED AT THE GROUND SURFACE, 2 TIMES THE WIDTH OF THE CONTAINER, AS INDICATED IN TYPICAL PLANTING DETAILS.
   a. BARE-ROOT PLANTS: DIAMETER EQUAL TO THE WIDTH OF THE ROOT SPREAD.

D. SETTING PLANTS:

1. BARE-ROOT PLANTS: PRUNE BRUISED OR BROKEN ROOTS. SET PLANT IN POSITION AND PLACE WETLAND PLANTING SOIL AROUND ROOTS. USE CARE TO AVOID BRUISING OR BREAKING ROOTS WHEN FIRMING SOIL. SETTLE WITH WATER.
2. SHRUB/TREE CONTAINER PLANTING: SHRUB AND TREE STOCK SHALL BE PLANTED IN HAND-DUG HOLES ACCORDING TO PLANTING DETAILS SHOWN ON THE MITIGATION PLANS. SHRUB AND TREE ROOT BALLS SHALL BE SET SO THAT ROOT COLLARS ARE 1 INCH ABOVE ADJACENT GRADE. ALL BACKFILL SHALL BE GENTLY TAMPED IN PLACE.
3. SURFACE FINISH: FORM A SAUCER AS INDICATED ON TYPICAL PLANTING DETAILS, OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON THE LOWER SIDE OF SLOPE PLANTINGS TO CATCH AND RETAIN WATER.
4. IN FORESTED AREAS, CONTRACTOR SHALL LOOSELY TIE A 2 FOOT PIECE OF BIODEGRADABLE FLAGGING TO THE TOP PORTION OF ALL PLANTED VEGETATION, BUT NOT ON A CENTRAL LEADER, TO FACILITATE POST-CONSTRUCTION PERFORMANCE AND MAINTENANCE REVIEW BY THE PROJECT BIOLOGIST OR ECOLOGIST AND REGULATORY AGENCIES.
5. ACTUAL PLANT SYMBOL QUANTITIES SHOWN ON THE PLANS SHALL PREVAIL OVER QUANTITIES SHOWN ON THE PLANT SCHEDULE IN THE EVENT OF A DISCREPANCY.

E. MULCHING:

1. IN GRADED AND NON-GRADED BUFFER AREAS: IMMEDIATELY FOLLOWING INSTALLATION OF PLANT MATERIAL, CONTRACTOR SHALL SPREAD ARBORIST WOOD CHIPS OVER ALL BUFFER AREAS (AREAS ABOVE OHWM OF WETLANDS) TO ACHIEVE A UNIFORM MINIMUM DEPTH OF 4 INCHES. A DEPTH OF 4-INCHES IS THE MINIMUM REQUIRED AFTER SETTLING. ENSURE MULCH IS NOT PILED UP AGAINST PLANT TRUNKS/STEMS; MAINTAIN AREA AT BASE OF PLANTS FREE AND CLEAR OF WOOD CHIPS. PROVIDE A 36-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH TREE, AND A 24-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH SHRUB.
2. WATER PLANTS THOROUGHLY AFTER MULCHING.

F. PRUNING: PRUNE IMMEDIATELY AFTER PLANTING ONLY AS DIRECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. TREE STAKES AND TIES: STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET OR OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR BALL, IN LINE WITH THE PREVAILING WIND, AND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK. LOOSELY ATTACH STAKE TO TREE USING CHAIN-LOCK TIES; TREE SHOULD BE ABLE TO SWAY.

H. INSTALLING TEMPORARY IRRIGATION

1. GENERAL REQUIREMENTS: CONTRACTOR SHALL PROVIDE AN ABOVE-GROUND TEMPORARY IRRIGATION SYSTEM CAPABLE OF FULL HEAD-TO-HEAD COVERAGE OF ALL PLANTED PROJECT AREAS. THE TEMPORARY IRRIGATION SYSTEM SHALL EITHER UTILIZE CONTROLLER AND POINT OF CONNECTION (POC) FROM THE SITE IRRIGATION SYSTEM OR SHALL INCLUDE A SEPARATE POC AND CONTROLLER WITH A BACKFLOW PREVENTION DEVICE PER WATER JURISDICTION INSPECTION AND APPROVAL. THE SYSTEM SHALL BE ZONED TO PROVIDE OPTIMAL PRESSURE AND UNIFORMITY OF COVERAGE, AS WELL AS SEPARATION BETWEEN AREAS OF FULL SUN AND SHADE AND FOR SLOPES IN EXCESS OF 5 PERCENT. THE SYSTEM SHALL BE OPERATIONAL FOR A MINIMUM OF THE FIRST TWO GROWING SEASONS AFTER PLANTING (THE FIRST TWO YEARS OF THE PERFORMANCE MONITORING PERIOD), OR LONGER IF REQUIRED TO ENSURE PROPER PLANT ESTABLISHMENT. THE SYSTEM SHALL BE REMOVED UPON FINAL APPROVAL OF THE MITIGATION PROJECT AT THE END OF THE PERFORMANCE MONITORING PERIOD.
2. SYSTEM DESIGN AND MATERIALS: ELECTRONIC VALVES SHALL BE THE SAME MANUFACTURER AS THOSE USED FOR THE SITE IRRIGATION SYSTEM, OR SHALL BE RAIN BIRD PEB SERIES OR EQUAL IF SYSTEM IS NOT CONTIGUOUS WITH THE SITE SYSTEM. VALVES SHALL BE SIZED TO ACCOMMODATE PRESSURE AND ZONE CONSUMPTION REQUIREMENTS OF THE SYSTEM AND SHALL BE INSTALLED BELOW GRADE IN CARSON (OR EQUAL) VALVE BOXES. WIRING SHALL BE INSULATED MULTI-STRAND, TAPED TO THE MAIN AT 6-INCH INTERVALS WITH DUCT TAPE WRAPS. ON-GRADE MAIN AND LATERAL LINES SHALL BE CLASS 200 PVC BELL PIPE WITH SOLVENT WELDED FITTINGS, SECURED IN-PLACE WITH WIRE STAPLES WHERE NECESSARY ON SLOPED AREAS. LINES SHALL BE PLACED 12 INCHES BELOW GRADE IN 4 INCH PCV SLEEVES WHERE VEHICULAR OR MAINTENANCE ACCESS IS NEEDED ACROSS LINES TO THE PROJECT AREA(S). MAXIMUM MAIN LINE SIZE SHALL BE 1½ INCHES AND MAY BE LOOPED BACK TO THE POC TO REDUCE PRESSURE LOSS. LATERAL LINES SHALL BE SIZED IN DECREASING DOWNSTREAM ORDER PER RAIN BIRD DESIGN STANDARDS; THE MINIMUM LATERAL SIZE SHALL BE ¾ INCH. HEADS SHALL BE ROTOR OR IMPACT TYPE INSTALLED 4 FEET ABOVE FINISHED GRADE ON 2-INCH DIAMETER WOOD TREE STAKES. STAKES SHALL BE SECURE IN THE GROUND, EMBEDDED TO A MINIMUM DEPTH OF 24 INCHES. HEADS AND ¾ INCH PVC RISERS SHALL BE SECURED TO STAKES WITH CONSTRICTING HOSE CLAMPS; NO FUNNY PIPE SHALL BE USED. HEADS AND NOZZLES SHALL PROVIDE MATCHED PRECIPITATION RATES FOR EACH ZONE.
3. PROGRAMMING: IRRIGATION SYSTEM SHALL BE PROGRAMMED TO PROVIDE APPROXIMATELY 1/2 INCH OF WATER EVERY THREE DAYS DURING THE DRY SEASON (APPROXIMATELY JUNE 15TH TO OCTOBER 15TH). IRRIGATION AMOUNTS IN ZONES LOCATED IN THE SHADE OR ON STEEP SLOPES MAY BE REDUCED IF APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST OR THE PROJECT ECOLOGIST/BIOLOGIST.
4. WATER AND POWER SUPPLY FOR SYSTEM: THE OWNER SHALL PROVIDE WATER AND ELECTRICITY FOR THE SYSTEM.
5. AS-BUILT DRAWING: A CHART DESCRIBING THE LOCATION OF ALL INSTALLED OR OPEN ZONES AND CORRESPONDING CONTROLLER NUMBERS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED INSIDE THE CONTROLLER AND GIVEN TO THE OWNER'S REPRESENTATIVE.
6. WARRANTY: THE IRRIGATION SYSTEM SHALL INCLUDE A ONE-YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL PROJECT ACCEPTANCE. THE WARRANTY SHALL INCLUDE SYSTEM ACTIVATION AND WINTERIZATION FOR THE FIRST YEAR AND IMMEDIATE REPAIR OF THE SYSTEM IF IT IS OBSERVED TO BE MALFUNCTIONING.

J. CRITICAL AREAS FENCE AND SIGNS: INSTALL CRITICAL AREAS FENCE AND CRITICAL AREAS SIGNS WHERE SHOWN ON PLANS.

K. RESTORE EXISTING NATURAL OR LANDSCAPED AREAS:

1. EXISTING NATURAL OR LANDSCAPED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS IMPROVEMENTS OR MODIFICATIONS ARE SPECIFIED FOR THOSE AREAS.
2. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, OR BRANCHES OF ANY TREES OR SHRUBS THAT ARE TO REMAIN. ANY LIVING, WOODY PLANT THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED WITHIN 24 HOURS OF OCCURRENCE, AND THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE NOTIFIED IMMEDIATELY OF THE INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

L. FINAL INSPECTION AND APPROVAL: THE CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST IN WRITING AT LEAST TEN DAYS PRIOR TO THE REQUESTED DATE OF A PROJECT COMPLETION INSPECTION. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY THE PROJECT BIOLOGIST OR ECOLOGIST AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE PROJECT BIOLOGIST OR ECOLOGIST SHALL REVIEW THE PROJECT AGAIN FOR FINAL ACCEPTANCE OF PLAN IMPLEMENTATION. IF PUNCH LIST ITEMS REQUIRE PLANT REPLACEMENT, AND THE INSPECTION OCCURS OUTSIDE OF A SUITABLE PLANTING SEASON, PLANTS SHALL BE REPLACED DURING THE NEXT PLANTING SEASON.

M. AS-BUILT PLAN: CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT LOCATIONS AND QUANTITIES ON THE PLANT SCHEDULE WITH THOSE REPRESENTED AS SYMBOLS ON THE MITIGATION PLANS. CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF RECORDING IN-THE-FIELD CHANGES OR MODIFICATIONS TO THE APPROVED PLANS. THIS INFORMATION SHALL BE UPDATED ON A DAILY BASIS AS NECESSARY.

PART 4: ONE YEAR CONTRACTOR WARRANTY

NOTE: THESE MAINTENANCE SPECIFICATIONS APPLY TO THE ONE-YEAR CONTRACTOR WARRANTY PERIOD ONLY. IF THIS MITIGATION PROJECT REQUIRES LONG-TERM PERFORMANCE MONITORING, AS DETERMINED BY THE GOVERNING JURISDICTION, THE MAINTENANCE SPECIFICATIONS AND GUIDELINES ASSOCIATED WITH THE PERFORMANCE MONITORING STANDARDS ARE INCLUDED IN THE MITIGATION REPORT ASSOCIATED WITH THIS PLAN SET, AND MAY ALSO BE INCLUDED ON A SEPARATE PLAN SHEET IF REQUIRED.

A. REVIEW OF MAINTENANCE REQUIREMENTS: CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE RECOMMENDATIONS WITH A QUALIFIED WETLAND BIOLOGIST FROM THE PROJECT BIOLOGIST OR ECOLOGIST WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE PROJECT PLAN.

B. MAINTENANCE ACTIVITIES: CONTRACTOR SHALL MAINTAIN TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE IN ORDER TO MAINTAIN HEALTHY GROWTH AND HABITAT DIVERSITY. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT ARE NOT LIMITED TO: (A) REPLACING PLANTS DUE TO MORTALITY, (B) TIGHTENING AND REPAIRING TREE STAKES, (C) RESETTING PLANTS TO PROPER GRADES AND UPRIGHT POSITIONS, AND (D) CORRECTING DRAINAGE PROBLEMS AS REQUIRED.

C. IRRIGATION:

1. SYSTEM MAINTENANCE AND REPAIR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTIVATING, WINTERIZING, MAINTAINING, AND CONTINUALLY VERIFYING THE ADEQUATE OPERATION OF THE TEMPORARY IRRIGATION SYSTEM FOR THE FIRST GROWING SEASON FOLLOWING INSTALLATION. SYSTEM FUNCTION (INCLUDING ELECTRONIC VALVE AND CONTROLLER FUNCTION) SHALL BE INSPECTED FOR OPERATION AND FULL COVERAGE OF ALL PLANTED AREAS DURING EACH MAINTENANCE VISIT. THE SYSTEM SHALL BE REPAIRED IMMEDIATELY IF FOUND TO BE DAMAGED OR MALFUNCTIONING. SYSTEM SHALL BE PROGRAMMED AND MAINTAINED TO PROVIDE APPROXIMATELY ½ INCH OF WATER EVERY THREE DAYS.

D. EROSION AND DRAINAGE: CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS REQUIRED.

E. IRRIGATION SYSTEM REMOVAL: CONTRACTOR SHALL REMOVE IRRIGATION SYSTEM APPROXIMATELY 3 YEARS AFTER PLANTING, OR AS APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

F. FINAL MAINTENANCE INSPECTION AND APPROVAL: UPON COMPLETION OF THE ONE-YEAR MAINTENANCE PERIOD, AN INSPECTION BY THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE CONDUCTED TO CONFIRM THAT THE PROJECT AREA WAS PROPERLY MAINTAINED. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR FOR CORRECTION. UPON CORRECTION OF THE PUNCH LIST ITEMS, THE PROJECT SHALL BE REVIEWED BY THE PROJECT BIOLOGIST OR ECOLOGIST FOR FINAL CLOSEOUT OF PLAN IMPLEMENTATION.

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021

TALASAEA SHEET W4.1 RETAINED WITH NO MODIFICATIONS.

Know what's below. Call before you dig.

NOTES

1. SURVEY AND SITE PLAN PROVIDED BY HUITT-ZOLLARS, 1102 BROADWAY, SUITE 301, TACOMA 98402. (206) 324-5500.
2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
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CRITICAL AREAS MITIGATION PLAN
PLANTING SPECIFICATIONS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MW
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W4.1

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Plotted December 1, 2020

Sunset Hills Memorial Park Expansion

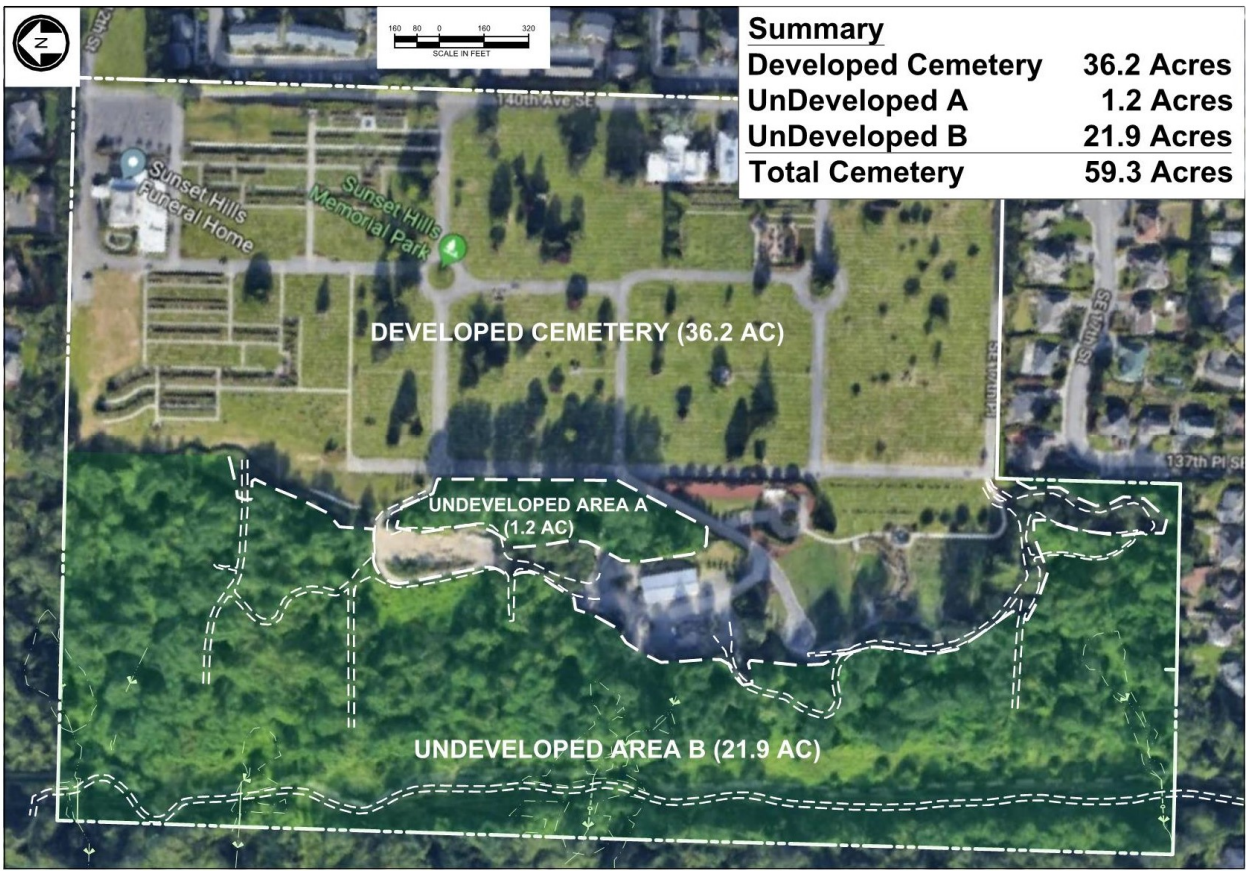
Executive summary

April 7, 2021

Background

The Sunset Hills Memorial Park proposes to expand the existing cemetery to accommodate the continued demand for burial services within the greater Bellevue community. As the premier memorial park on the Eastside, Sunset Hills serves a unique and diverse population. The Bellevue population alone has grown over 40% since 2000. Accommodating the desires and burial traditions of the community requires additional cemetery land to extend the life of the park over the next several decades.

The 36.2-acre developed portion of the 59.3-acre cemetery property has been largely on the upper plateau accessing directly off 145th Place SE. The logical expansion area is to the west over the property purchased in 1986. This wooded undeveloped portion of the property slopes down toward the PSE utility easement and associated greenbelt trail along its western boundary. Several culverts installed and maintained by PSE to drain cemetery runoff under the powerline maintenance road and public path, have become clogged over time and now cause runoff to back up into the Sunset Hill property creating small, fragmented, and low value wetland areas. The site also includes areas of City-defined steep slopes and streams. The wetland and stream areas have required buffer zones limiting impact.

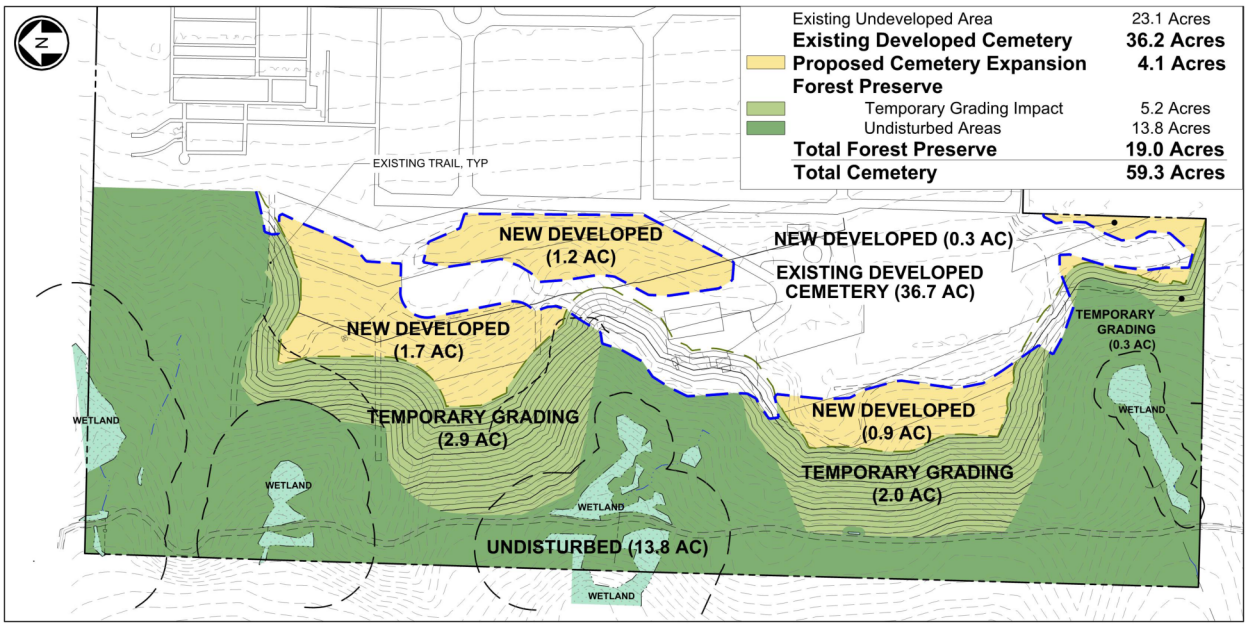


As part of the project planning process, various expansion scenarios were evaluated for avoidance and minimization of impacts to critical areas. The site has also been evaluated in light of its existing zoning as single-family residential. The objective in evaluating the alternatives is to find a balance between the important environmental aspects of the site and the needs of the community for accessible and convenient cemetery services.

Given that Sunset Hills is the only cemetery in Bellevue and that the memorial park intends to continue in perpetuity as a community resource, the review of the proposed expansion must include consideration of these important long-term needs of the community.

Initial Proposal & Staff Review

The Cemetery submitted a pre-application expansion request to the City of Bellevue in spring 2019. The application included critical areas biological assessment and mapping, geotechnical investigation and data analyzing the slope areas and grading issues, and an initial proposal to expand the cemetery grounds by 4.1 acres. There would be a temporary grading impact of 5.2 acres which would be revegetated and included in the permanent open space area of 19.0 acres. The plan would 368,000 CY of import fill and require a Critical Areas Land Use Permit for the encroachment into steep slopes and buffers for streams and wetlands, however no direct impact to streams or wetlands would occur. The 5.2-acre temporary impact areas would be revegetated with native trees and shrubs.



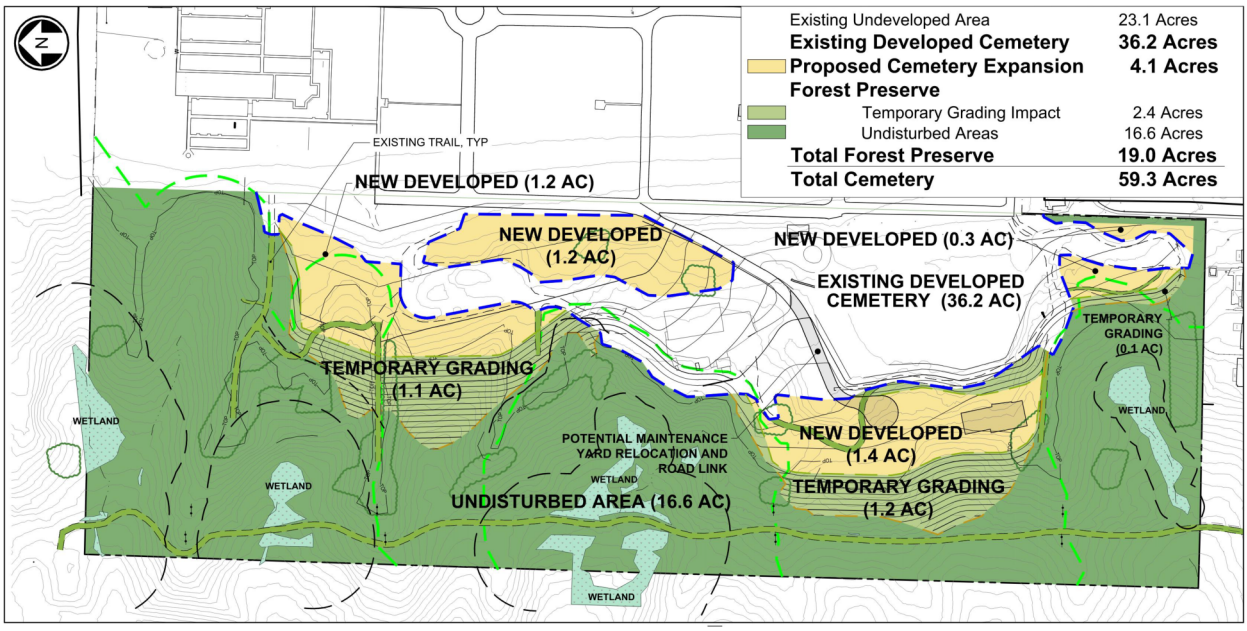
Staff made an initial review and requested additional studies including a detailed tree inventory and understory vegetation to assess the quality of the critical area resources. Staff also expressed concern about the impact to buffers and steep slopes area particularly in relation to the unknown quality of the trees and general plant community.

Tree Inventory and Additional Critical Area Review/Biological Assessment

In response to staff comments, the project team conducted a detailed tree inventory and additional critical areas analyses, which led to a better understanding of the site's historic and current vegetation composition. The proposed expansion area had been first cleared in the 1930's. When clearing ceased, cottonwood, maple, alder, and some conifer and madrone established on the property. The project biologist prepared the detailed tree inventory which reflected this young forest dominated by the above fast-growing tree species and an understory broadly dominated by invasive species which threatens to significantly degrade the forested areas. Specific high value tree groupings and detailed mapping of the invasive species led to the formulation of a revised expansion approach limiting impact on tree groupings, reducing the extent of grading impacts and encroachment into buffers and setbacks. In addition, an extensive removal and maintenance program for the invasive species is also included in the revised mitigation plan. **This new information was used to develop a revised expansion proposal, which decreases critical area impacts, retains more trees, and incorporates more robust mitigation measures, which will ultimately improve the enhanced critical areas on the site and in the surrounding environment.**

Revised Expansion Proposal (Sunset Hills Preferred Plan)

The revised expansion proposal reduces the amount of proposed forest disturbed by 2.8 acres, which also substantially reduces the temporary impacts of grading and the overall earthwork volume. This has been accomplished by lowering a portion of the site grading and allowing 2:1 slopes to be present within the southwest portion of the cemetery grounds. As a result, the proposed quantity of imported fill has been reduced by a total of 178,000 CY. In addition, groupings of highest value tree resources have been avoided, no permanent impact to wetland or stream buffers is proposed, and temporary impacts to these buffers have been minimized. Importantly, the proposed mitigation effort will focus on creating a high value forest canopy and understory through an extensive program of invasive plant removal, forest floor management and tree planting enhancement, substantially improving the future quality of the forest.



Only a minor increase in roadway or impervious vehicle surfaces are proposed in the expanded cemetery grounds. The improvements do not propose retaining walls which would require extensive construction access, a longer construction period, and the introduction of construction materials inconsistent with the natural forested condition of the area. The proposed permanent increase in development area is able to be kept small at 4.1 acres relative to the amount of undeveloped property of 23.1 acres by relocating and consolidating the current maintenance yard onto a smaller footprint. This will allow for the re-purposing of currently developed property to burial garden area. This plan will keep all proposed cemetery expansion areas directly connected to the existing cemetery and use the vertical elevational difference to separate the cemetery grounds above from the permanent open space below, which will create a natural buffer between the two land uses. This current plan will still require a variance for the cut and fill depths associated with the unavoidable encroachment into steep slope areas.

The revised plan proposes a modest expansion to allow the cemetery to continue to serve the community while providing permanent protection for the greenbelt along the westerly border of the property and comprehensive enhancement of existing vegetation on the site. In working with the City staff to minimize impacts, the applicant has reduced the development footprint to avoid wetland buffers and has reduced the proposed earthwork volume by 45% as compared to the original proposal.

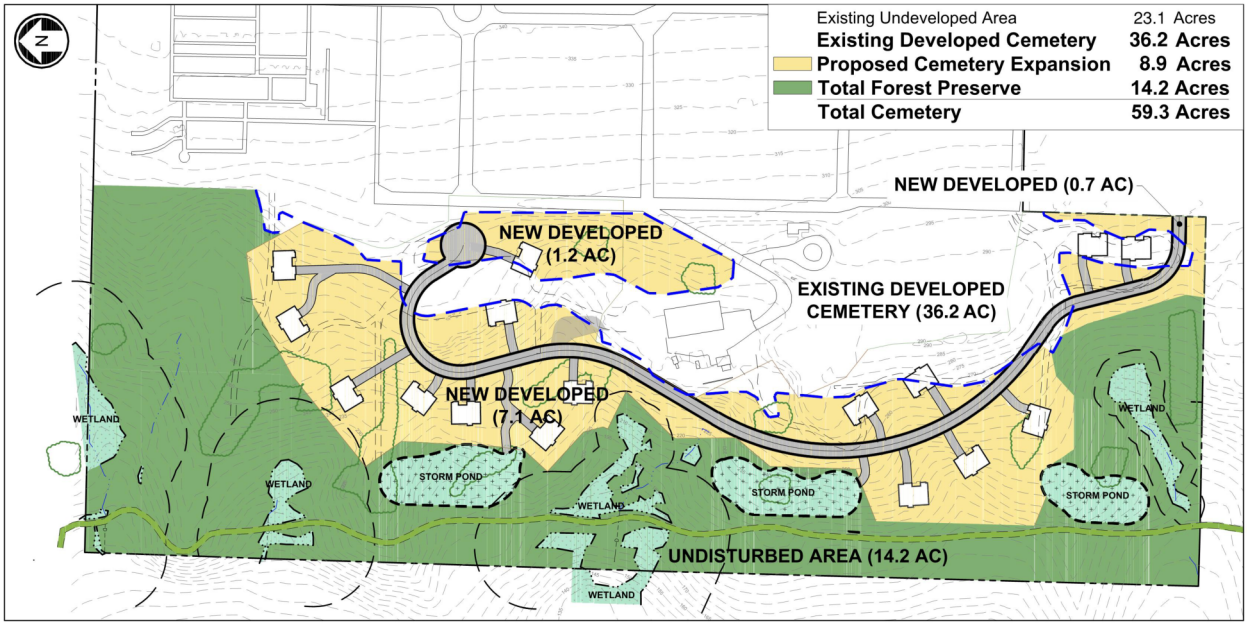
Notably, if no expansion is approved, the forest would be left as is. Invasive species coverage would continue to expand across the site. Himalayan blackberry, for instance, is the most aggressive of the invasive species present and will continue to encroach into new areas and overtake existing native vegetation. Other aggressive invasive species present include reed canary grass, English ivy, and Japanese knotweed. These invasive species will also encroach into areas dominated by native species and progressively overtake the landscape. The canopy will remain relatively undisturbed, except for the English ivy intrusions, but the understory vegetation will transition to a degraded system that will provide less opportunity for the desirable species currently present.

Residential Development Comparison

For purposes of a complete development analysis, the project team also evaluated development potential under the existing residential zoning. The property is zoned R-1 (1 unit per acre) and the "buildable area" is calculated at 9.15 acres, which accounts for all of the expansion property that is not encumbered by critical areas/buffers (wetlands, streams or steep slopes). Given the sum of the buildable area, critical resource areas, and total area, the site could accommodate up to 15 single family homes. The scenario pushes into the critical area buffers somewhat to represent what would be a reasonable residential development plan given the zoning and adjacent critical areas.

It does show that residential development of the property requires a roadway close to the critical areas, creates a considerable amount of impervious area, and places a significantly higher intensity use adjacent to the critical areas.

Per the Steep Slopes Performance Standards, the use of retaining walls, both initially and long term, is intended to provide a stable condition and minimize impacts while allowing the maximum opportunity for the development to satisfy its objectives. However, retaining walls will create both temporary and long term impacts that would be antithetical to the soft forested and permanently protected greenbelt currently proposed.



Regulatory Approvals and State Environmental Policy Act (SEPA) Review

The Sunset Hills Memorial Park expansion proposal requires approval of a **Conditional Use Permit Amendment** prior to submittal of construction permits. The conditional use process requires evaluation of the criteria in Bellevue Land Use Code ("LUC") 20.30B.140. That criteria includes consistency with the Comprehensive Plan, compatibility with the existing development and property in the immediate vicinity, adequacy of public facilities to serve the project, a demonstration that the use will not be materially detrimental to uses and property in the immediate vicinity, and complies with applicable requirements of City Code.

In addition to the CUP, the proposal will require SEPA review, a Critical Areas Land Use Permit ("CALUP") for wetlands, streams and slopes, and a variance for modification of the geologic hazard critical areas (landslide and steep slope areas). Each of these processes will ensure that the project impacts are mitigated, consistent with City Codes.

The critical areas ordinance (LUC 20.25H.215) requires an applicant to "demonstrate all reasonable efforts to avoid and minimize critical areas impacts. The revised site plan avoids impact to streams and wetlands to the extent possible, but it does encroach on a portion of the critical area buffers.

The steep slope areas, defined as slopes of 40% or greater which have a grade difference of 10 feet or more, cover approximately 35% of the undeveloped property and cannot be avoided in expanding the cemetery. The ordinance states that the applicant must demonstrate that the mitigation scenario will "lead to equivalent or better protection of critical area functions and values."

This impact on the existing steep slopes needs to be considered through ten performance standards which identify preferred mitigation measures, prior to approval of grading to create a more usable slope or site. Most of these performance standards relate to alternative structure construction techniques.

However, no structures are proposed in the steep slope areas. One performance standard that could apply relates to "the use of retaining walls to minimize the creation artificially graded slopes." The introduction of large retaining wall structures into this site would be antithetical to the nature of the soft landscaped cemetery/open space interface, would result in the mobilization of larger and more intrusive machinery adjacent to or within the critical areas, would add unnecessary cost and construction time, and would have a significant additional impact through construction equipment access requirements and the introduction of concrete and masonry material.

The combination of the proposed passive cemetery land use, young forest, degraded understory and opportunity to mitigate and enhance the forest character would "lead to equivalent or better protection of critical area functions and values."

Proposed Mitigation Plan

The proposed mitigation plan will protect and enhance the wetlands and streams and provide important improvements to the wetland and stream buffers, which will significantly improve the long-term health and benefits of habitat and watershed functions. As part of the upper plateau grading and mitigation activities, none of the wetland buffer would be affected and approximately 30% of the stream buffers would be temporarily affected. The temporary encroachment would be revegetated to create a permanent long-term buffer that protects and improves the function and habitat value of these resources.

A Critical Areas Report has been prepared by Talasaea Consultants evaluating the wetland and stream impacts. Terracon Associates has provided a geotechnical and hydrologic report that also addresses hydro-geologic slope stability considerations. These scientific analyses confirm the proposed expansion satisfy applicable critical areas code regulations.

The Proposed Project reflects **no impacts to wetlands or streams**, though **minor impacts a**re anticipated to **small portions of their buffers** as part of the steep slope modification. Approximately **30% of the steep slope areas are proposed to be modified**, in a manner that will result in increased slope stability, with all of the changed slopes occurring outside of the wetland buffers and more than 60% of the changed slopes occurring outside of stream buffers. Tree impacts have been minimized to the greatest extent practicable, and the **impacts have targeted younger trees and fast-growing species**, such as black cottonwood, red alder, and big leaf maple.

On-site mitigation to offset proposed impacts is addressed through a multi-pronged approach that is more substantial than typical mitigation plans. This proposal accounts for the temporal loss to the trees, a phased approach to site impacts and mitigation, prioritizing the retention of higher value trees and understory, and through an extended performance monitoring period.

The proposed mitigation plan to offset the development of 4.1 acre of currently undeveloped area has the following elements:

- Set aside 19.0 acres as permanent open space
- Full removal of invasive species in all critical areas onsite, including the wetlands and all buffers,
- Revegetate all disturbed areas including graded slopes and invasive removal areas with appropriate high value target tree and understory species

- The use of removed trees in the mitigation plan either as large woody material (or mulch) to keep the biomass within this ecosystem,
- Retention of topsoils onsite and institute onsite composting to remove the existing invasive species from the soil matrix
- Develop a seed bank to retain as much of the microbial community from the native soils as possible.
- Prepare and implement a critical area management plan with a 5-year active establishment and monitoring program funded out of the Sunset Hills Endowment Care Fund
- Place new cemetery development expansion on a plateau above the future preserve area to create a topographical separation and buffer between the uses. No nighttime cemetery uses or visitation in the expansion area.

Fill/Excavation Limits

Given the topography of the site, any expansion proposal would exceed the 5 foot deep excavation and fill limitations in LUC 20.20.425. The revised proposal requires fills in excess of the 5 foot identified in code and as much as 43 feet in depth, which will require a variance under the LUC.

The majority of import fill material will be used to raise the existing cemetery maintenance area, which is already developed. The remaining portion of the fill volume, which extends into the adjacent vegetation, has been reduced from the original proposal by 45%, or 178,000 cubic yards. The original proposal required 368,868 CY of import fill. The revised proposal reduces this to below 190,000 CY.

The proposed variance will meet the variance criteria in LUC 20.30G.140: it will not constitute a grant of special privilege inconsistent with the limitation upon uses of other property in the vicinity, it is necessary because of special circumstances related to the size, shape, topography and location of the subject property, and the granting of the variance will not be materially detrimental to property or improvements in the immediate vicinity. To the contrary, the proposal will enhance and permanently protect a sizable portion of the site in open space.

There are several mitigating circumstances relating to this variance request:

1. The cemetery lies on the high ground above the slope system and forested band along the greenbelt. The position of the cemetery on the plateau above the forested lower section creates a physical buffer between the active land use and the forest. The proposed cemetery expansion will continue this physical buffer and create a permanent separation between the two uses. This also allows a contiguous dense mass of forested area adjacent to the lower power line and other public greenbelt corridor.
2. Keeping the cemetery on the higher ground directly adjacent to the existing access roads and walkways will eliminate the need to construct new roadways for access down into the lower areas of the property, thereby removing the resultant impact of more impervious surfaces and WQMP treatment areas. All new development areas will be within reasonable distances from existing roadways.
3. In order to minimize impact to certain resource areas wall systems could be utilized. These wall systems will be very expensive, require a large footprint of construction access including material storage and more types of construction processes and equipment and introduce a

man-made element instead of graded fill slopes that can be revegetated to a long-term sustainable environment and habitat. Fill slopes, unlike cut slopes will revegetate very well due to the better soil structure and composition as opposed to cut slopes or bedrock.

4. The development of a fill slope with a segmented or other retaining wall structure would require geogrid reinforcement layers extending many feet horizontally behind the wall location. This would not allow casketed burial due to shallow depth of geogrid.
5. The steep slope corridor will be essentially rebuilt into a quality "like" condition to a natural setting and not replaced or lost.
6. The cemetery is a daytime only use with no nighttime activities so there is a significant quiet and undisturbed period everyday which is beneficial to the environment on many levels. The cemetery grounds have no barriers and are typically heavily used by fauna for movement and foraging during the evening.
7. The hauling of soil back and forth across Bellevue and the surrounding region is a constant occurrence. Local grading companies expend significant sums with the resultant environmental impact of taking dirt many miles for disposal in landfills or at remote project sites. The opportunity to be able to haul soil only a few miles to Sunset Hills will have a region wide benefit both in reduced costs for construction project in the community and reduced impact on road systems and air quality.
8. The hauling and placement of soil requires significantly less mechanized equipment than that required to haul heavy construction materials, offload with special equipment, import and place concrete, masonry and other alternative wall materials for purposes of reducing fill heights and mechanically and structurally dealing with the elevation difference.
9. Taller fill heights will create a gently sloping lawn area, rather than stepping the cemetery lawn down in elevation. A gently sloping lawn will eliminate the need for more internal roadways and shorten the construction timeframe and intensity of work. This will eliminate potential long term impacts associated with pollution generating impervious surfaces being above the critical areas. Since this will be a cemetery use area, the post soil placement activity will consist of planting and irrigation as opposed to roadway construction and retaining wall construction activities. This proposal will simply be to transport, place, and landscape the area.

Our application will expand on the above list and detail how this proposal meets the variance criteria in the LUC.

Conclusion

Sunset Hills Memorial Park and Funeral Home is an important cultural resource that has been serving and honoring Bellevue families since 1936. As the City's population continues to grow in number, and in ethnic and racial diversity, a strong demand for casketed burials is present even though the cremation rate continues to rise. The desire for traditional casketed burials are often associated with the deeply held cultural traditions and religious beliefs of our increasing Asian, Jewish, Persian, eastern European and Muslim families.

Sunset Hill's upper developed plateau, however, is nearing capacity. In 1986, having foreseen the need for additional burial grounds in the future, the Memorial Park purchased the western property for the expansion. Extending this plateau into the undeveloped land below the existing park allows families to have burial plots near their loved ones, and also to maintain the openness of the overall park grounds, which is an important aspect for many cultures. Keeping the elevation of the proposed expansion area

consistent with the main cemetery, the plateau will also minimize the need for new roadways within the park since these areas will be accessible off of the existing roadway system. This will also provide a separation between the cemetery grounds and the adjacent wetlands, streams, and buffers.

Given that Sunset Hills is the only cemetery in Bellevue and that the Memorial Park intends to continue in perpetuity as a community resource, the land use approval of the proposed expansion must include a concern for meeting the long-term needs of the community for funeral services and placement.

In spring of 2019, we brought an initial proposal to you for discussion. Staff recommended that the proposal be revised to reduce the extent and amount of grading, fill import, and disturbance to critical areas and buffers. The project team evaluated those comments and developed a revised proposal consistent with that direction. The current proposal reduces the cemetery expansion area disturbed by 2.8-acres and lowers portions of the burial lawns where additional internal roadways will not be required. These changes have reduced the extent and amount of proposed grading and fill import by approximately 178,000 cubic yards.

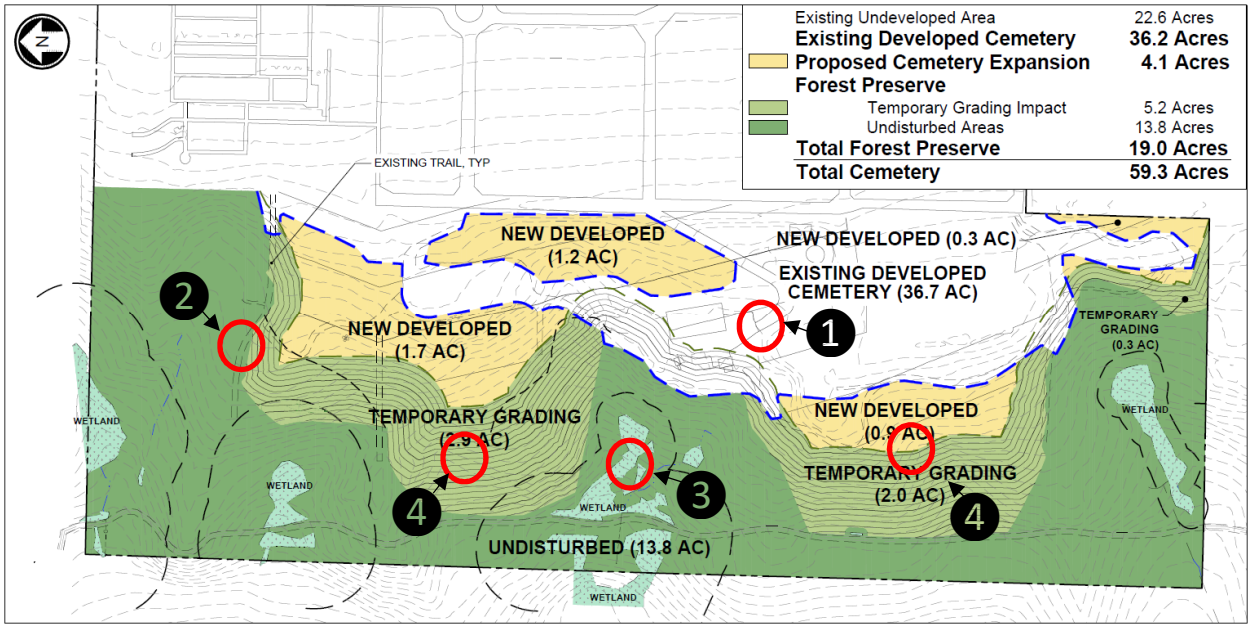
This proposal provides the appropriate balance between the environmental, neighborhood and community needs by creating a reasonable cemetery expansion that will avoid critical areas impacts to a reasonable extent while permanently setting aside a significant open space resource. Notably, this proposal would not require an increase in impervious roadways, large retaining walls, and other high impact elements that a project developed under the existing residential zoning would.

Our proposal will include a detailed SEPA checklist that will disclose and evaluate the environmental impacts of the project, and it will incorporate mitigation measures required by SEPA and the LUC to ensure appropriate mitigation.

We look forward to discussing this revised proposal with you and working with you to expand this necessary resource for the benefit of the Bellevue community.

Site Plan Changes to Avoid and Minimize Impacts
June 2019 to December 2020

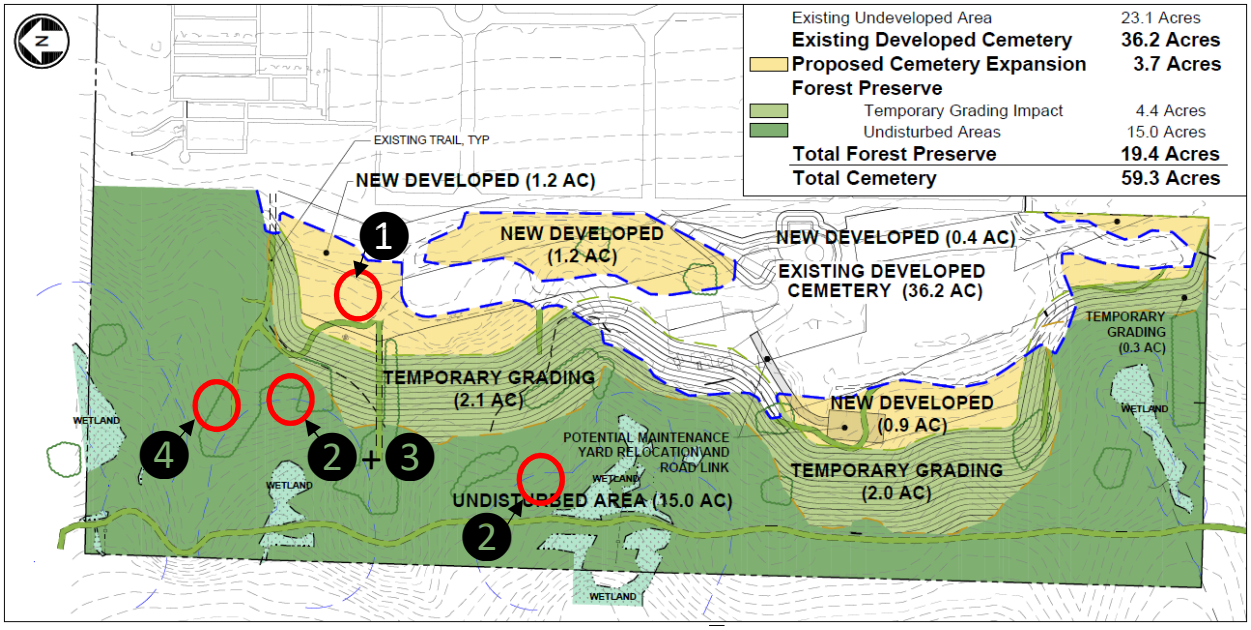
June 2019 Site Plan



1. The area of "Existing Developed Cemetery" was added to distinguish the natural area from pre-existing developed area.
2. Trails and roads through the natural area were identified as pre-existing disturbances. The expansion area was then targeted to include areas with pre-existing disturbances.
3. Areas of invasive species were identified and incorporated as a mitigation element to increase functions and values of the wetlands and streams from their existing condition (Exact areas are shown on mitigation plan in the Critical Areas Report).
4. Areas of proposed clearing and grading were targeted over ridges and basin divides with minimal critical areas (steep slopes) to limit impacts to streams, wetlands, and associated buffers.
5. Meeting with Neighbors to south for input on development plan.

Site Plan Changes to Avoid and Minimize Impacts
June 2019 to December 2020

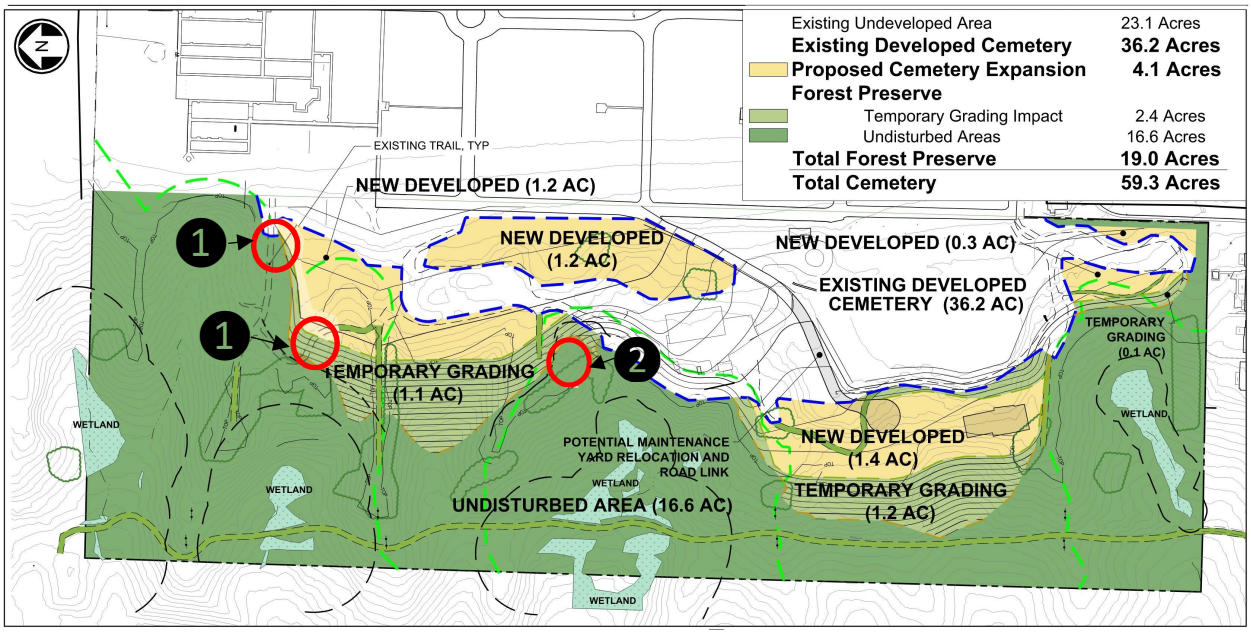
February 2020



1. The extent of proposed clearing and grading was significantly reduced resulting in a smaller total expansion area that reduced impacts to the natural area and reduced the total area of temporary impacts from clearing and grading. This also preserved some areas with steep slope critical areas and associated buffers.
2. All temporary impacts from clearing and grading within the Wetland F and Wetland C buffers were avoided entirely.
3. Stream buffer impacts were simultaneously reduced when removing the proposed grading from the wetland buffers.
4. A habitat and tree survey was conducted to identify priority areas with slow growing trees (i.e. Pacific madrone and conifers) as well as areas with intact native understory vegetation. These areas were then avoided as much as possible to limit impacts to existing priority forest.
5. Maintenance Facility location identified in response to neighborhood coordination.
6. Overall Earthwork Quantity Reduced by 30,000 cubic yards.

Site Plan Changes to Avoid and Minimize Impacts
June 2019 to December 2020

November 2020



1. The proposed earthwork scenario and clearing and grading limits are reduced further in basins with wetlands and streams.
2. A wall concept was explored in the area near Wetland C, Wetland E, and Stream 2, but it was determined that tying into the existing 1:1 slope was the preferred alternative for several reasons. It allowed us to significantly reduce temporary stream buffer impacts around Stream 2. It also reduced impacts to steep slopes and steep slope buffers in this area, while providing additional undisturbed wetland and stream buffer on the eastern side of the wetland complex. Revised grading allows additional high value madrone groupings to be preserved.
3. Additional reductions in earthwork quantities

CRITICAL AREAS REPORT AND MITIGATION PLAN

SUNSET HILLS MEMORIAL PARK EXPANSION

BELLEVUE, WASHINGTON

Prepared For:
Huitt-Zollars, Inc.
Tacoma, WA 98402

Prepared By:
TALASAEA CONSULTANTS, INC.
Woodinville, Washington

11 December 2020

07 April 2021
HZ update to Earthwork Volume
and Civil Site Areas Map,
see Pages ii and iii

Critical Areas Report and Mitigation Plan

Sunset Hills Memorial Park Expansion

Bellevue, Washington

Prepared For:
Bill Dunning
Huitt-Zollars, Inc.
1102 Broadway, Suite 301
Tacoma, Washington 98402

Prepared By:
Talasaea Consultants, Inc.
15020 Bear Creek Road NE
Woodinville, Washington 98077
(425) 861-7550

11 December 2020

EXECUTIVE SUMMARY

PROJECT NAME: Sunset Hills Memorial Park Expansion

CLIENT: Huitt-Zollars, Inc., Bill Dunning

SITE LOCATION: The Sunset Hills Memorial Park Expansion Site is a portion of the overall Study Area of approximately 26.97 acres located at 1575 145th Place SE, Bellevue, Washington. The proposed expansion is a part of the larger Sunset Hills Memorial Park located to the east. The Public Land Survey System location of the Property is NW ¼ Section 3, Township 24N, Range 5E, W. M.

PROJECT STAFF: Bill Shiels, Principal; Ann Olsen, RLA, Senior Project Manager; Aaron Ellig, Ecologist.

FIELD SURVEY: Site evaluations and critical area delineations were performed on 10 December 2018 and 25 January 2019. A tree inventory and habitat evaluation were conducted 1 November 2019 and 20-24 January 2020.

CRITICAL AREAS DETERMINATION: Nine (9) wetlands and five (5) streams were identified on, or adjacent to, the property. The wetlands were labeled as Wetland A – K (skipping B and I). Wetlands D, F, G, and H were rated as a Category III wetlands with a 110-foot standard buffer. Wetlands E, J, and K were under 2,500 square feet (sf) and rated as Category IV wetlands. Per §20.25H.095.B, Category IV wetlands in the City of Bellevue that are less than 2,500 sf in size do not have standard buffer requirements. Wetlands A and C were rated as a Category IV greater than 2,500 sf in size. City of Bellevue Category IV wetlands greater than 2,500 sf require a 40-foot standard buffer. The five streams were labeled Stream 1, Stream 2, Stream 3, Stream 4, and Stream 5. Streams 1 and 4 are classified as Type O. Streams 2, 3, and 5 are classified as Type N. Type O streams in the City of Bellevue have a 25-foot standard buffer, while Type N streams have a 50-foot standard buffer.

VEGETATION: The vegetation throughout the site is uniform and does not significantly vary between wetlands. Typical wetland vegetation includes red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), giant horsetail (*Equisetum telmateia*), and skunk cabbage (*Lysichiton americanus*). Plant communities supporting emergent vegetation are found near the source of the hillside seeps and along the road easement where large trees and shrubs have been clear-cut. The majority of the site can be classified as a mixed coniferous and deciduous forest with herbaceous, shrub, and canopy strata. Typical upland vegetation includes red alder, Douglas fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), Indian plum (*Oemleria cerasiformis*), and sword fern (*Polystichum munitum*).

Areas of invasive species, primarily Himalayan blackberry (*Rubus armeniacus*) and Japanese knotweed (*Fallopia japonica*), are abundant across the entire site. Other areas contain reed canarygrass (*Phalaris arundinacea*), Scot's broom (*Cytisus scoparius*), field bindweed (*Convolvulus arvensis*), tansy ragwort (*Jacobaea vulgaris*), common mullein (*Verbascum thapsus*), and poison hemlock (*Conium maculatum*).

SOILS: The Natural Resources Conservation Service (NRCS) has mapped two soil types on the subject property. The soils are Alderwood gravelly sandy loam, 8-15% slopes (AgC), and Alderwood gravelly sandy loam, 15-30% slopes (AgD). The Alderwood soil series is not considered to be hydric by the National Technical Committee on Hydric Soils. Slopes and geological characteristics were not included in this report and are discussed in a study by Terracon (2019).

HYDROLOGY: Hydrology for the wetlands and streams is supported primarily by groundwater and hillside seeps from the steep slopes east of the wetlands. Precipitation and surface water flows also influence hydrology of the wetland systems.

HABITAT ASSESSMENT: We evaluated the habitat potential of the site against the City of Bellevue's list of species of local importance. **Of the 23 species of local importance listed in the City of Bellevue's code, only three (3) were determined to have a likelihood of being present on the Site.** These species are bald eagle (*Haliaeetus leucocephalus*), pileated woodpecker (*Dryocopus pileatus*), and red-tailed hawk (*Buteo jamaicensis*). Pileated woodpecker is also a State-listed Candidate species.

In January 2020, a full tree inventory and evaluation of significant trees across the Site was conducted per initial City comments. A ranked classification of habitats was performed based on several characteristics,

including tree density, tree species, understory condition, invasive species cover, topography, existing disturbances, *etc.*

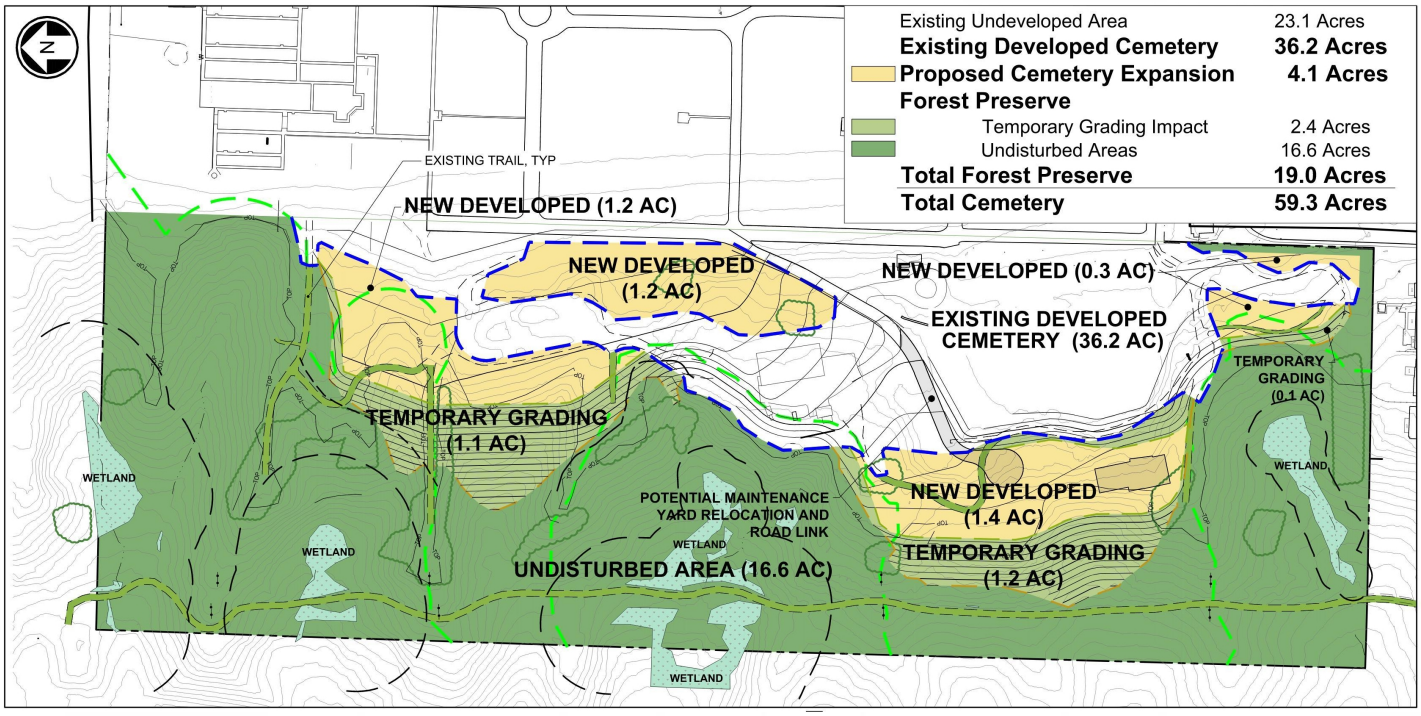
PROPOSED PROJECT: The Sunset Hills Memorial Park totals approximately 59.3 acres, 36.2 acres of which is developed and considered existing cemetery use. The remaining 23.1 acres of the western expansion is considered undisturbed natural area **dominated by invasive species within much of the forest understory and critical areas** (wetlands, streams, steep slopes, and associated setbacks and buffers). The applicant is proposing to expand the existing facility west by redeveloping the existing maintenance area and developing a portion of undisturbed natural area. This will result in clearing and grading 3.7 acres of the existing cemetery maintenance area and 6.8 acres of forested area (3.6 acres of which will immediately be restored as critical area buffer). **The net result of the proposed project is that out of the 23.1 acres of currently undisturbed natural area, only 4.1*acres will be permanently developed for needed cemetery use while19.0* acres will be set aside as permanently protected, enhanced, high value natural area.**

KEY TERMS:

Expansion Area – The Expansion Area (outlined in orange) is defined as the western side of the Sunset Hills Memorial Park where clearing and grading is proposed. This area includes Existing Cemetery Use and the proposed expansion of cemetery operations. This area totals approximately 10.6 acres.

Existing Cemetery Use within Expansion Area – This area is defined as existing maintenance operations and includes the maintenance building, roads, existing development, and maintenance yards. This area totals approximately 3.7 acres.

Undisturbed Natural Area – The undisturbed natural area is defined as all other areas outside of existing cemetery use on the western side of the Sunset Hills Memorial Park. This area totals approximately 23.1 acres and consists of areas of deciduous forest and critical areas, as well as areas dominated by invasive species.



*HZ update to above earthwork volume, site areas and map.

The proposal will expand the Sunset Hills Memorial Park Operations by approximately 4.1*acres and add approximately 190,000*cubic yards of fill (see Engineering Plans for details). The project will involve reducing slopes to a maximum of 5:1 across the majority of the new cemetery lawn. Some areas near the western edge of the grading will have slopes at a maximum of 2:1, with no slopes exceeding 2:1 within any area proposed to be graded. The proposed Site will be used as a cemetery and for maintenance operations, **resulting in a net reduction of impervious surfaces given the preexisting condition of current maintenance operations.** The footprint of the proposed maintenance facility will be significantly reduced from the existing facility.

Stormwater will be managed by treating anything from pollutant generating surfaces over 5,000 sf and dispersing it over the flatter grassy areas. Areas in close proximity to the proposed 2:1 slopes will be conveyed directly to detention facilities that will provide peak flow mitigation. Stormwater will be released into the wetland's respective basins at existing flow rates in order to maintain wetland hydrology and stream base flows. The proposed stormwater management system will be designed to meet applicable requirements of the 2012 Washington State Department of Ecology Stormwater Management Manual for Western Washington as amended in 2014 and adopted by the City of Bellevue.

ASSESSMENT OF DEVELOPMENTAL IMPACTS: **No direct impacts to the wetlands or streams are proposed with this Project;** however, modifications to steep slopes and stream buffers are proposed. All impacts to wetland buffers were avoided entirely. Stream buffers will be reduced to accommodate the development footprint through buffer averaging and subsequent vegetative enhancement of post-development buffers. Total buffer reductions and grading impacts are as follows:

STREAM BUFFER IMPACTS:

• Permanent Stream Buffer Loss	20,151 sf (0.46 ac)
○ Stream Buffer Loss within Non-conforming Uses	2,321 sf (0.05 ac)
• Graded Stream Buffer to be Restored	33,531 sf (0.77 ac)
○ Graded Stream Buffer within Non-conforming Uses	17,370 sf (0.40 ac)
TOTAL	**73,373 sf (1.68 ac)**

PERMANENT STEEP SLOPE AND STEEP SLOPE BUFFER IMPACTS:

• Permanent Slope Impacts[1]	36,831 sf (0.85 ac)
• Permanent Slope Buffer Impacts	65,378 sf (1.50 ac)
TOTAL	**102,209 sf (2.35 ac)**

TEMPORARY STEEP SLOPE AND STEEP SLOPE BUFFER IMPACTS:

• Temporary Slope Impacts within Stream Buffers[1]	7,177 sf (0.16 ac)
• Temporary Slope Impacts outside Stream Buffers	39,962 sf (0.92 ac)
• Temporary Slope Buffer Impacts within Stream Buffers[1]	32,670 sf (0.75 ac)
• Temporary Slope Buffer Impacts outside Stream Buffers	23,960 sf (0.55 ac)
TOTAL	**103,769 sf (2.38 ac)**

[1] Permanent and temporary steep slope and steep slope buffer impacts within stream buffers are not included in the mitigation ratio or total impact area to account for overlapping critical areas. In total, the area of overlapping critical areas excluded from the total is approximately 44,838 square feet (1.03 acres).

TOTAL IMPACT AREA	**234,513 sf (5.38 ac)**

PROPOSED MITIGATION: **The Project proposes a combination of several mitigation measures intended to compensate for buffer functions and values lost through buffer width reduction and buffer impacts caused by grading.** The majority of the proposed mitigation will occur post-construction through restoration of disturbed buffers and the addition of new buffer areas, either already vegetated with native forest or areas to be restored after regrading. The proposed mitigation will result in a net gain in critical area functions and values compared to existing conditions and will provide better protection to critical areas over time. These areas will also provide increased buffer widths in multiple locations throughout the site.

*HZ update to above earthwork volume and site area.

The proposed mitigation-to-impact ratio will be approximately 1.25:1, exceeding the required 1:1 ratio. **Removal of invasive plant species will be part of the vegetative enhancement.**

PROPOSED MITIGATION:

1:1 ratio required for wetland buffer impacts. Areas outside will be based on functional improvement.

- Stream Buffer Creation from Native Upland 8,625 sf (0.20 ac)
- Stream Buffer Creation within Reestablished Graded Areas 37,181 sf (0.85 ac)
- Buffer Restoration from Pre-existing Non-conforming Uses 899 sf (0.02 ac)
- Restored Graded Stream Buffer 50,901 sf (1.17 ac)
- Invasive Species Removal with Enhancement 70,273 sf (1.61 ac)
- Slope Habitat Restoration in Graded Areas 96,570 sf (2.22 ac)
- Preserved Native Forest 27,430 sf (0.63 ac)

TOTAL MITIGATION AREA **291,879 sf (6.70 ac)** 264,449 (6.07)

Critical Area Protection: The eastern side of all post-construction critical areas will be permanently protected with fencing and National Growth Protection Area (NGPA) signs consistent with the City of Bellevue guidelines.

Performance Monitoring: All mitigation areas will be monitored and maintained for a minimum of 5 years to ensure goals, objectives, and performance standards are met.

Performance Security: As required, a performance assurance device would be secured by the applicant to ensure that all mitigation work is completed according to the approved plans. A separate performance security device may also be secured to ensure monitoring and maintenance are carried out as specified in the approved mitigation plan for the duration of the monitoring period.

This project will result in a net gain of critical area functions. The existing, fragmented forested areas would likely continue to deteriorate through the growth of invasive species with no action. This mitigation plan will enhance, connect, and protect this environmental resource, while allowing for minimal reasonable expansion of the Sunset Memorial Hills Park Cemetery.

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INTRODUCTION

Report Purpose

This report is the result of a critical areas study of the Sunset Hills Memorial property located near 1575 145th Place SE (referred to as "Site" or "Project Site" hereinafter). The Site is located in Bellevue, Washington (**Figure 1**). The purpose of this report is to evaluate critical areas, to assess the impacts of the proposed development, and to provide a mitigation plan that meets the requirements of the City of Bellevue Land Use Code (BLUC) §20.25H.

The report has been prepared to comply with the reporting requirements of City of Bellevue Land Use Code §20.25H.075 and §20.25H.090. Specifically, this report provides the following information:

- Property Overview;
- Methodology for Critical Areas Investigations;
- Review and Evaluation of Existing Resource Information;
- Review and Evaluation of On-Site Critical Areas and Habitats;
- Analysis of Critical Area Regulations;
- Habitat Functional Assessment;
- Site Development Plan Description;
- Assessment of Development Impacts;
- Proposed Mitigation;
- Construction Sequencing;
- Monitoring, Maintenance and Contingency Plan;
- Post-monitoring Vegetation Management;
- Financial Guarantee; and
- Summary.

Statement of Accuracy

Critical area studies and regulatory reviews were conducted by trained professionals of Talasaea Consultants, Inc., in adherence to the protocols, guidelines, and generally accepted industry standards available at the time work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent, and within the limitations of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea Consultants does not warrant any assumptions or conclusions not expressly made in this report, or based on information or analyses other than what is included herein.

Qualifications

Field investigations, evaluations, and reporting were conducted by Talasaea staff including Bill Shiels, Ann Olsen, and Aaron Ellig. Bill Shiels has a Bachelor's Degree in Biology from Central Washington University and a Master's Degree in Biological Oceanography from the University of Alaska. He has over 40 years of experience in wetland delineations and mitigations. Buffer mitigation design was prepared by Ann Olsen, RLA. Ann has over 24 years of experience in designing critical area mitigation

plans. Aaron Ellig has a Bachelor's Degree in Environmental Science from Western Washington University. He has 8 years of experience in restoration ecology and wetland mitigation.

PROPERTY OVERVIEW

Property Description and Location

The study area is located within five tax parcels (**Figure 2**) on the western side of the Sunset Hills Memorial Park Cemetery. The tax parcel numbers are 0324059010 (2.50 acres), 0324059066 (15.23 acres), 0324059084 (5.10 acres), 0324059091 (5.10 acres), and 0324059137 (2.51 acres). The Public Land Survey System (PLSS) location of the Site is NW ¼ Section 3, Township 24N, Range 5E, Willamette Meridian.

Existing Conditions

The Sunset Hills Memorial Park Cemetery consists of existing cemetery and the 26.9 acre Study Area ("Site"), which includes the 10.6 acre expansion area. These are under common ownership and collectively total 59.3 acres. The expansion area is located on the west side of the Sunset Hills Memorial Park Cemetery in Bellevue, Washington (**Figure 2**). An approximately 3.7-acre portion of the Site consists of existing cemetery use (referred to as "Cemetery Redevelopment") is utilized for maintenance operations. The remaining 23.1 acre portion of the site is a relatively undisturbed natural area consisting of a combination of invasive species within much of the forest and critical areas (wetlands, streams, steep slopes, and associated setbacks and buffers).

The top of the slope on the eastern half of the undisturbed area is generally maintained as part of the current cemetery maintenance facilities with roads, a large maintenance building, and equipment storage present.

A 100-foot-wide Puget Sound Energy (PSE) powerline easement and 20-foot-wide Olympic Pipeline Company (OPC) pipeline easement are located across the western half of the undisturbed area, with a trail (access road) co-located within these easements. The trail (access road) separates contiguous habitat between wetland/stream ecosystems on either side of the trail. PSE maintains their easement by removing vegetation that has the potential to grow into the powerlines (*i.e.,* trees). The trail is also used by maintenance vehicles and by the general public, which increases external disturbances and potential pollution inputs (*e.g.,* pet excrement and garbage) to critical areas.

The Study Area is bordered on the east side by the developed Sunset Hills Memorial Park, and by residential developments to the north, south, and west. A forested buffer exists between the undeveloped area and the western development. Access to the Site is provided by the PSE/OP easement trail (access road) and through the existing Sunset Hills Memorial Park.

The topography of the Site is generally sloped down from the east to west. The easement trail winds over an undulating topography in which wetlands and streams occur. The Site varies from flat to roughly 60% slopes in places. Conditions of the geology and topography are discussed in a separate study report prepared by Terracon

(2019) that is part of the overall application but not attached to this report**.** The locations of the top of slope, as defined by the Geotechnical Engineer, are included in **Appendix C** on **Sheet W1.0 and Sheet W1.1**.

METHODOLOGY

The critical areas analysis of the Study Area involved a two-part effort. The first part consisted of a preliminary assessment of the Site and immediate surrounding area using published environmental information. This information included:

Wetland and soils information from resource agencies;
Environmental critical areas information from the City of Bellevue and King County;
GIS analysis of orthophotography and LiDAR data; and
Relevant studies completed or ongoing on, or in the vicinity of, the Site as supplied by the Client.

The second part consisted of Site investigations where direct observations of existing environmental conditions were made. Plant communities, soils, hydrology, streams, wetlands, and wildlife habitat conditions were observed. A Tree Inventory was also prepared by Talasaea. This information was used to help characterize on-site wetlands and define the limits of the Ordinary High Water Mark (OHWM) of streams for regulatory purposes (see **Section 3.2 – Field Investigation**, below).

Background Data Reviewed

Background information from the following sources was reviewed prior to our field investigations:

US Fish and Wildlife Service (USFWS), Wetlands Online Mapper (National Wetlands Inventory, NWI) (USFWS 2019) (www.wetlandsfws.er.usgs.gov/wtlnds/launch.html);
Natural Resources Conservation Service (NRCS), Web Soil Survey (NRCS 2019)(www.websoilsurvey.nrcs.usda.gov/app/);
NRCS, National Hydric Soils List by State (NRCS 2019) (www.soils.usda.gov/use/hydric/lists/state.html);
City of Bellevue GIS databases (City of Bellevue 2019);
King County GIS databases (King County 2019);
StreamNet database, 2019 (www.streamnet.org);
SalmonScape database, 2019 (www.wdfw.wa.gov/mapping/salmonscape/databases);
Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Database on the Web (WDFW 2019) (http://wdfw.wa.gov/mapping/phs/);
Washington Department of Natural Resources (WDNR) Natural Heritage Database;
Orthophotography from USDA's National Agricultural Imagery Program (NAIP 2019) and Google Earth; and
LiDAR terrain data from Puget Sound LiDAR Consortium and King County.

Field Investigation

The Site was evaluated on 10 December 2018 and 25 January 2019 by Talasaea Consultants to assess the extent of critical habitat in the Study Area. The limits of

wetland areas and OHWM of on-site streams were delineated and flagged during the 25 January 2019 site work. Additional assessments of stream connections and off-site wetlands were also performed. A tree inventory and habitat evaluation were conducted 1 November 2020 and 20-24 January 2020.

Wetlands were delineated using the routine methodology described in the U.S. Army Corps of Engineers (Corps) *Regional Supplement to the Corps of Engineers Wetland Delineation and Identification Manual: Western Mountains, Valleys, and Coast Region, Version 2* (U.S. Army Corps of Engineers 2010). Wetlands were rated using the Washington State Wetland Rating System for Western Washington (Hruby 2014), and buffers were assigned according to BLUC §20.25H.095.B.

Plant species were identified according to the taxonomy of Hitchcock and Cronquist (Hitchcock and Cronquist 1973). Taxonomic names were updated and plant wetland status assigned according to the *North American Digital Flora: National Wetland Plant List, Version 2.4.0* (Lichvar 2012). Wetland classes were determined with the U.S. Fish and Wildlife Service's system of wetland classification (Cowardin, et al. 1979). Vegetation was considered hydrophytic if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (*i.e.,* facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps' Regional Supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historical records, visual observation of saturated soils, and visual observation of inundation.

Soils were considered hydric if one or more of the hydric indicators listed in the Corps' Regional Supplement were present. Indicators include the presence of reduced, depleted, or gleyed soils, or redoximorphic features in association with reduced soils.

An evaluation of patterns of vegetation, soil, and hydrology was made along the interface of wetland and upland. Wetland boundary points were delineated and flagged for later survey. **Appendix A** contains data forms prepared by Talasaea for representative locations in both upland and wetland locations. These data forms document the vegetation, soil, and hydrology information that aided in the wetland boundary determination. **Appendix B** contains the Washington State Department of Ecology (DOE) wetland rating forms.

The OHWM of streams was delineated using the methodology described in *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010). Physical barriers to fish migration and typing of on-site streams were determined using the water typing criteria provided under WAC 222-16-030 and as outlined by BLUC §20.25H.075.

RESULTS

Analysis of Resource Information
This section describes the results of our in-house research and field investigations.

National Wetlands Inventory
The USFWS NWI maps three (3) streams on the Site classified as seasonally flooded riverine systems with intermittent streambed classes (R4SBC) (**Figure 3**). These three (3) mapped streams begin near the top of slope near the eastern edge of the Site, flowing westward towards Kelsey Creek. Palustrine forested, seasonally flooded wetlands are mapped in association with Kelsey Creek, located to the west more than 900 feet from the Site.

Natural Resources Conservation Service
The NRCS maps two soil types on the Site (**Figure 4**). These are Alderwood gravelly sandy loam 8-15% slopes (AgC) and Alderwood gravelly sandy loam 15-30% slopes (AgD). Soils within the Alderwood series are not identified as hydric soils by the National Technical Committee on Hydric Soils.

King County Critical Areas Map
King County iMap maps do not identify any streams or wetlands on the Site. However, Richards Creek and Kelsey Creek are identified as having Chinook salmon distribution approximately 0.4 miles south and west of the Site, respectively.

City of Bellevue Critical Areas Maps
The City of Bellevue GIS database maps four streams and no wetlands on the Site (**Figure 5**). The four mapped streams are generally consistent with what was delineated in the field.

Analysis of Existing Site Conditions
Talasaea Consultants identified nine (9) wetlands and five (5) streams occurring at least partially on the Site (**Appendix C, Sheet W1.0 and Sheet W1.1**). The wetlands were delineated and marked in the field with surveyor's tape. The centerlines of all five streams were delineated and identified with pink flagging. The wetlands were labeled as Wetland A through K, excluding "B" and "I" (**Table 1**). Streams were labeled as Stream 1 – 5 (**Table 2**).

Wetlands
All wetlands were categorized as slope wetlands per the Hydrogeomorphic Wetland Classification Method (HGM). The Site is a relatively undisturbed area dominated by a mixed coniferous and deciduous forest. Areas of scrub-shrub and emergent communities occur within the wetlands near the trail. Much of the area near the powerline trail is covered with invasive Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*). Wetland buffer widths are defined in BLUC §20.25H.095 and are based on the wetland category as determined by the wetland rating forms (**Appendix C**).

Wetland C, Wetland D, and Wetland E were evaluated to determine if they should be rated as a mosaic wetland (single unit) per the definition provided by DOE. Although the wetlands meet the technical definition of a mosaic, they are functionally distinct based on vegetation and hydrology. From a functional standpoint, the smaller wetlands do not function as a single unit and should not be rated as such. It was determined, in consultation with the Department of Ecology**,** that these wetlands would be best characterized as individual features based on the HGM class as slope wetlands, lack of overbank flooding from Stream 2, and distinct breaks in functional connectivity between each wetland.

Table 1. Summary of Wetlands on the Project Site.

Wetland Name[1]	Category	Habitat Score	Buffer Width (feet)[2]	Size (sf)
Wetland A	IV	6	40	10,237
Wetland C	IV	5	40	11,948
Wetland D	III	6	110	7,450 (on-site)
Wetland E	IV	5	N/A	859
Wetland F	III	6	110	7,631
Wetland G	III	5	110	14,440 (onsite)
Wetland H	III	5	110	367
Wetland J	IV	5	N/A	402
Wetland K	IV	5	N/A	138

[1]The letters B and I were skipped in the wetland labeling nomenclature and do not occur in the field.
[2]All Category III wetlands have a 15-foot structure setback. Category IV wetlands have no required structure setback.

Wetland A

Wetland A is an approximately 10,237 square foot (sf) (0.24 ac) forested wetland. This slope wetland forms the headwaters of Stream 1. Topography within the wetland is generally sloping downhill from the east to the west, with Stream 1 starting within Wetland A. Surface water from Wetland A and Stream 1 flow through a culvert beneath the powerline trail/access road.

Wetland A is vegetated predominantly by red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Himalayan blackberry (*Rubus armeniacus*), and field bindweed (*Convolvulus arvensis*). Skunk cabbage (*Lysichiton americanus*) and giant horsetail (*Equisetum telmateia*) comprise the herbaceous stratum. Surrounding upland vegetation includes big-leaf maple (*Acer macrophyllum*), Indian plum (*Oemleria cerasiformis*), and sword fern (*Polystichum munitum*).

Soils within Wetland A are dark brown to dark grayish brown silt loam. Redoximorphic features were not present, but lighter soils (10YR 6/1) were observed between 15-20 inches below the soil surface. The soil within the boundary of Wetland A satisfies the general requirements for the A12 (Thick Dark Surface) hydric soil indicator.

Soils within Wetland A were saturated near the soil surface at the time of our site evaluation. The water table was observed at five inches below the soil surface. Saturated soils during the growing season satisfies Hydrology Indicator A2 (High Water Table) and A3 (Saturation). Wetland A likely receives overland flooding from Stream 1 during high precipitation events. However, hydrology in Wetland A is primarily driven by surface water seeps from the surrounding steep slopes.

Wetland A rated 5 points for Water Quality Functions, 4 points for Hydrology Functions, and 6 points for Habitat Functions. The total score for functions is 15, which satisfies the criteria of a Category IV wetland. All Category IV wetlands in the City of Bellevue greater than 2,500 sf in size have a 40-foot standard buffer.

Wetland C

Wetland C is an approximately 11,948 sf (0.27 ac) forested wetland located adjacent to Stream 2 east of the powerline trail. This is a slope wetland that occurs in a valley downhill from the maintenance facility. Topography within the wetland is generally sloping downhill from east to west.

Wetland C is vegetated predominantly by red alder, salmonberry, and Himalayan blackberry. Giant horsetail and creeping buttercup (*Ranunculus repens*) occur within the herbaceous stratum. Upland vegetation of the adjacent buffer includes beaked hazelnut (*Corylus cornuta*), Scouler's willow (*Salix scoulerina*), and sword fern. Wetland C was recently heavily disturbed by felled trees, presumably in association with maintenance activities along the PSE easement, as evidenced by the chainsaw cuts on the remaining stumps.

Soils within Wetland C are a brown (10YR 4/2) sandy loam from 0-6 inches. From 6-18 inches, soils are a dark brown (10YR 3/1) sandy loam with 10YR 4/4 redoximorphic concentrations. The soil within the boundary of Wetland C satisfies the general requirements for the F6 (Redox Dark Surface) hydric soil indicator.

Soils within Wetland C were saturated four inches from the soil surface at the time of our site evaluation. The water table was observed at eight inches below the soil surface. Saturated soils during the growing season satisfy Hydrology Indicator A2 (High Water Table) and A3 (Saturation). Hydrologic support for Wetland C is sourced from surface water seeps from the surrounding steep slopes. Wetland C does not receive any overland flooding from Stream 2 due to the deep channelization along the majority of the steam channel.

Wetland C rated 6 points for Water Quality Functions, 4 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 15, which classifies the wetland as a Category IV wetland. Category IV wetlands greater than 2,500 sf in size have a 40-foot standard buffer.

Wetland D

Wetland D is a slope wetland located in association with Stream 2 west of the powerline trail that continues offsite. The onsite portion of Wetland D totals 7,450 sf. Topography

in the wetland is generally sloping downhill from the east to the west. Stream 2 enters Wetland D through a culvert that drains Wetland C under the powerline trail.

Vegetation in Wetland D includes red alder, salmonberry, Himalayan blackberry, and Japanese knotweed (*Fallopia japonica*), with giant horsetail, creeping buttercup, and skunk cabbage comprising the herbaceous stratum. Surrounding upland vegetation includes trailing blackberry (*Rubus ursinus*) and sword fern.

Soils within Wetland D are a dark brown (10YR 2/1) loam from 0-16 inches. From 16-20 inches, soils are a brown (10YR 4/2) sandy loam. The soil within the boundary of Wetland D satisfies the general requirements for the A12 (Thick Dark Surface) hydric soil indicator.

Shallow surface water was present throughout Wetland D during the site visit. The presence of surface water during the growing season satisfies Hydrology Indicators A1 (Surface Water Present), A2 (High Water Table), and A3 (Saturation). Primary hydrology comes from surface water seeps from the surrounding steep slopes. Wetland D also receives overland flooding from Stream 2.

Wetland D rated 6 points for Water Quality Functions, 5 points for Hydrology Functions, and 6 points for Habitat Functions. The Total Score for Functions is 17, which classifies the wetland as a Category III wetland. Category III wetlands in the City of Bellevue with a Habitat Score of 6 have a standard 110-foot buffer.

Wetland E

Wetland E is an 859 sf slope wetland located south of Wetland C. Stream 2 flows through Wetland E. The wetland is on a shallow terrace that slopes downhill from east to west that is below a steep slope.

Vegetation within Wetland E was disrupted by landside events and deposition of fill material from the maintenance operations that are due east of this wetland. Vegetation consists of red alder, Japanese knotweed, and salmonberry, with trailing blackberry and herb Robert (*Geranium robertianum*) comprising the herbaceous stratum. Upland vegetation includes trailing blackberry, English laurel (*Prunus laurocerasus*), and sword fern.

Soils within Wetland E are disturbed from past landslide events. Soils are a brown (10YR 4/2) gravelly sandy loam from 0-4 inches. From 4-9 inches, soils are a dark brown (10YR 2/1) sandy loam. From 9-20 inches, the soils are a (10YR 3/3) gravelly loam. The soils within the boundary of Wetland E do not have clear hydric soil indicators but are in a significantly disturbed area.

Soils within Wetland E were saturated at the surface at the time of our site evaluation and the water table was observed at six inches below the soil surface. Saturated soils during the growing season satisfies Hydrology Indicators A2 (High Water Table) and A3 (Saturation). Hydrology in Wetland E is supported primarily by surface water seeps from the surrounding steep slopes and to a lesser extent by overland flooding from Stream 2.

Wetland E rated 6 points for Water Quality Functions, 4 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 15, which classifies the wetland as a Category IV wetland. Category IV wetlands in the City of Bellevue that are less than 2,500 sf in size do not have standard buffer requirements per City code.

Wetland F

Wetland F is an approximately 7,631 sf (0.18 ac) sloped wetland that forms the headwaters of Stream 3. The east side of the wetland has an abundance of downed trees and snags. Along the powerline trail, the vegetation community shifts to emergent and scrub-shrub-dominant species. Topography within the wetland is generally sloping downhill from east to west. Stream 3 originates in the east end of Wetland F and continues to the western end of the wetland through a culvert under the powerline trail. The culvert appears to be partially blocked, as evidenced by irregular (oddly pulsing) flows from the culvert in the west end of the wetland. The wetland was classified as a single unit due to the excess flow of water over the powerline trail that results from this improperly functioning culvert.

Wetland F is vegetated predominantly by red alder, prickly currant (*Ribes lacustre*), Devil's club (*Oplopanax horridus*), Himalayan blackberry, piggy-back plant (*Tolmiea menziesii*), and reed canarygrass (*Phalaris arundinacea*). Surrounding upland vegetation includes beaked hazelnut and sword fern.

Soils within Wetland F are a dark brown (10YR 2/1) sandy loam from 0-9 inches. From 9-14 inches, soils are a brown (10YR 4/2) sandy loam with 10YR 4/6 redoximorphic concentrations. From 14-20 inches, the soils are a dark brown (10YR 2/1) silt loam. The soil within the boundary of Wetland F satisfies the general requirements for the F6 (Redox Dark Surface) hydric soil indicator.

Soils within Wetland F were saturated six inches below the surface, with a water table present at seven inches below the soil surface, at the time of the Site evaluation. Saturated soils during the growing season satisfies Hydrology Indicator A2 (High Water Table) and A3 (Saturation). Hydrology is supported primarily by surface water seeps from the surrounding steep slopes. A secondary source of hydrology to Wetland F is overland flooding from Stream 3.

Wetland F rated 6 points for Water Quality Functions, 4 points for Hydrology Functions, and 6 points for Habitat Functions. The Total Score for Functions is 16, which classifies the wetland as a Category III wetland. Category III wetlands in the City of Bellevue with a Habitat Score of 6 have a 110-foot standard buffer.

Wetland G

Wetland G is a scrub-shrub slope wetland located adjacent to Stream 5 at the north end of the Site. Wetland G continues offsite to the north. The onsite portion of Wetland G totals 14,440 sf (0.33-ac). Topography within the wetland is generally sloping downhill from the east to the west. Wetland G forms the headwaters of Stream 5, which begins within the wetland. Wetland G and the surrounding uplands are vegetated predominantly by Himalayan blackberry, with small patches of red alder at the wetland edges.

Soils within Wetland G are a dark brown (10YR 2/1) loam from 0-14 inches. From 14-20 inches, soils are the same dark brown (10YR 2/1) with a gravelly loam texture. The soil within the boundary of Wetland G satisfies the general requirements for the A4 (Hydrogen Sulfide) and A12 (Thick Dark Surface) hydric soil indicator.

Surface water ponding was observed at the time of the Site evaluation, which satisfies the criteria of Hydrology Indicators A1 (Surface Water Present), A2 (High Water Table), and A3 (Saturation). Surface water seeps from the surrounding steep slopes and overland flooding from Stream 5 are the primary sources of hydrology to Wetland G.

Wetland G rated 6 points for Water Quality Functions, 6 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 17, which classifies the wetland as a Category III wetland. Category III wetlands in the City of Bellevue with a Habitat Score of 5 have a 110-foot standard buffer.

Wetland H

Wetland H is a 367 sf slope wetland located west of the powerline trail. Stream 5 flows west through a culvert under the powerline trail into Wetland H and continues flowing downhill west of the Site. Topography within Wetland H is sloping down from east to west. Vegetation in Wetland H is dominated by reed canarygrass, red alder, salmonberry, and Himalayan blackberry.

Soils in Wetland H were inundated during the Site evaluation and a test pit could not be excavated. Inundation during the growing season satisfies Hydrology Indicators A1 (Surface Water Present), A2 (High Water Table), and A3 (Saturation). The primary sources of hydrology to Wetland H include overland flow across the powerline trail from the east and occasional overbank flooding from Stream 5.

Wetland H rated 7 points for Water Quality Functions, 5 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 17, which classifies the wetland as a Category III wetland. Category III wetlands in the City of Bellevue with a Habitat Score of 5 have a 110-foot standard buffer.

Wetland J

Wetland J is a 402 sf slope wetland located adjacent and east of the powerline trail opposing Wetland H. Wetland J is likely the result of poor culvert drainage and would likely lack wetland hydrology and vegetation after basic road and culvert maintenance. Vegetation within Wetland J includes red alder, reed canarygrass, and Himalayan blackberry.

Wetland J rated 5 points for Water Quality Functions, 4 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 14, which classifies the wetland as a Category IV wetland. Category IV wetlands in the City of Bellevue that are less than 2,500 sf in size do not have standard buffer requirements per City code.

Wetland K

Wetland K is a 138 sf slope wetland located south of Wetland G. This wetland is likely a remnant of a portion of the Stream 4 channel that appeared to be separated from the

rest of the system due to a landslide. The primary source of hydrology to Wetland K is now groundwater and surface water seeps from the adjacent hillslope to the south.

Wetland K is vegetated predominantly by red alder, vine maple (*Acer circinatum*), and Himalayan blackberry. Surrounding upland vegetation includes trailing blackberry and sword fern.

Soils within Wetland K are dark brown (10YR 2/1) loam from 0-13 inches from the surface. Redoximorphic features were not present, but lighter brown (10YR 4/2) soils began from 13-20 inches below the surface. The soil within the boundary of Wetland K satisfies the general requirements for the A12 (Thick Dark Surface) hydric soil indicator.

Soils within the wetland were saturated four inches from the surface at the time of our Site evaluation. The water table was observed at six inches below the soil surface. Surface water was observed nearby. A high water table and saturated soils during the growing season satisfy Hydrology Indicators A2 (High Water Table) and A3 (Saturation).

Wetland K rated 4 points for Water Quality Functions, 4 points for Hydrology Functions, and 5 points for Habitat Functions. The Total Score for Functions is 13, which classifies the wetland as a Category IV wetland. Category IV wetlands in the City of Bellevue that are less than 2,500 sf in size do not have standard buffer requirements per City code.

Streams

Five streams were identified that occur at least partially on the Site that originate from groundwater seepage from the adjacent hillslopes (**Table 2**). The headwaters of each of these streams begin on the Project Site. Each identified stream is associated with a wetland unit, except for Stream 4.

Buffer widths for streams within the City of Bellevue are provided in BLUC §20.25H.075 and are based on the stream type. Buffers are measured landward from the top-of-bank, unless a steep slope area (defined as greater than 40% slope) exists adjacent to a stream, in which case the stream buffer is measured from the top-of-slope. Buffers for all five streams extend from the top-of-slope limit provided by the geotechnical engineer.

Table 2. Summary of Streams on the Project Site.

Stream Name	Stream Type	Buffer Width (ft)[1]
Stream 1	O	25
Stream 2	N	50
Stream 3	N	50
Stream 4	O	25
Stream 5	N	50

[1]Type N streams on undeveloped sites have a 15-foot structure setback, and Type O streams on undeveloped sites have a 10-foot structure setback.

Stream 1

Stream 1 originates within Wetland A at the southern boundary of the Site. The stream flows generally west through a culvert beneath the powerline trail before continuing offsite. This stream is narrow (approximately 2 feet wide) and ends approximately 50 feet from the Site where a clear bed and bank cease to occur and the stream flows disperse into the surrounding forest on the adjacent parcel to the west.

Stream 1 is rated as a Type O water that is not physically connected to any downstream waters. Hydrology for the stream is supported entirely by groundwater and surface water seepage from the adjacent hillslopes. The average gradient of the stream is approximately 9.4% with a maximum 30% averaged slope over a 50-foot section, according to LiDAR analysis. Further west of the site is a residential neighborhood blocking any connection to Richards Creek or Kelsey Creek Park. Stream 1 meets the criteria of a Type O water because it lacks a surface water connection to Type N, F, or S waters. Type O waters in the City of Bellevue have a 25-foot standard buffer measured from the top-of-bank, which is the top of the slope due to the adjacent steep slopes.

Stream 2

Stream 2 is a perennially-flowing stream that originates approximately 30 feet east of Wetland E. This stream flows generally westward through Wetlands C, D, and E.

Stream 2 is rated as a Type N water. A connection likely exists between Stream 2 and the Kelsey Creek wetlands to the west, but there are physical and topographical barriers that prevent the possibility of resident fish from accessing Stream 2. A 1-foot perched culvert located east of the powerline trail currently precludes any potential for fish passage. Type N waters in the City of Bellevue have a 50-foot standard buffer. As is the case with all onsite streams, the standard buffer is measured from the top-of-slope of the adjacent steep slope to the east.

Need more information regarding the topographical issues. Determination of Type-F stream is based on whether habitat exists or is supported and not based on current access by resident fish.

Stream 3

Stream 3 is an intermittent, westward-flowing stream with a small (less than 1-foot wide) channel associated with Wetland F. The headwaters of Stream 3 begin at the east side of Wetland F and flow west into a culvert under the powerline trail. The culvert appears to be partially blocked, resulting in intermittent spurting water on the west side of the powerline trail. The physical characteristics of Stream 3 do not support fish habitat, due to the size of the channel and its low flow rate.

Stream 3 is rated as a Type N water. There is likely a complete connection to downstream Type F waters via wetlands and above ground channels. However, there are physical and topographical fish passage barriers preventing resident fish from accessing the stream. Type N waters in the City of Bellevue have a 50-ft standard buffer measured from the top-of-slope. In this case, the buffer is measured from the top of the steep slope to the east.

Stream 4

The headwater of Stream 4 is a small, intermittent seep that begins east of Wetland K. There is a clearly defined channel, but no sorting of material throughout the stream

channel. The channel is approximately 75-feet long and infiltrates before reaching nearby wetlands or streams.

Stream 4 is rated as a Type O water with no connection to other streams or fish habitat. The stream's physical properties and lack of hydrology would not support fish even if there was a connection.

Stream 5

Stream 5 flows west through Wetlands G, J. and H from its headwaters at the east side of Wetland G. The stream passes underneath the powerline trail through a culvert, although a significant amount of water flows around the culvert and over the trail supporting hydrology in Wetland H. The physical stream characteristics of channel width and steep gradient preclude the possibility of fish habitat in Stream 5.

Stream 5 is rated as a Type N water with a likely connection to downstream Type F waters. However, physical and topographical fish passage barriers likely prevent anadromous fish from accessing the stream. Additionally, the stream is limited to 1-foot widths and low flow rates in multiple sections. Topographical barriers consisting of 4- to 6-foot drops also occur in multiple locations. Type N waters in the City of Bellevue have a 50-ft standard buffer measured from the top-of-slope. In this case, the stream buffer is measured from the top of the adjacent steep slope to the east.

Existing Conditions of Upland Buffers

A tree inventory and habitat assessment was conducted and used to identify the various components of the undisturbed natural areas to determine if there were areas of higher quality habitat that would be more difficult to compensate. A ranking of forest types was developed for this Site. Priority was given to slow-growing trees, such as madrone; to conifers over deciduous tree species; and to areas with native understory over areas of dense growth of invasive species in the understory.

The following paragraphs discuss the current condition of the buffers and the current ability of the standard buffer widths to provide sufficient protection to the streams and wetlands.

Functions and Services Provided by the Existing Stream Buffers

Buffers provide a first line of water quality improvements, a limited amount of hydrological support, and habitat value for wildlife. The ability of a buffer to provide water quality services is relative to the average slope of the buffer, the soil composition, and the types and density of vegetation present. The ability of a buffer to provide habitat is relative to the habitat requirements of specific species. Finally, buffers serve to protect a critical area from disturbances caused by humans, such as light, noise, and intrusions that disrupt normal wildlife activities.

Habitat provided by a buffer is dependent upon the wildlife species one is considering and its dependence on the critical area being protected. Large mammal species may require larger relatively undisturbed areas adjacent to a critical area for its habitat needs. The fragmentation or shape of undisturbed habitat is a key component in how a

species perceives its value. Knowing the species that currently utilize a critical area is important in determining an appropriate buffer width.

Buffers also protect critical areas from impacts of human development, such as stormwater runoff, toxic runoff, noise, and light.

Existing Buffer Disturbance

Areas of existing buffer disturbance include the powerline trail that runs north to south through the western half of the Site; remnants of the easement maintenance conducted by PSE; and the maintenance facility and associated features at the eastern half of the Site. Vegetation in disturbed areas consists predominantly of grasses, invasive species, and small shrubs. PSE regularly maintains the 100-foot easement located at the western Site boundary by clearing vegetation to limit the ability of woody species to obstruct the powerlines above. Himalayan blackberry is prominent along the edges of the powerline trail and extends throughout the forested areas to the east and west. There is a significant amount of Japanese knotweed that extends upslope through Wetlands C and E.

There are currently no restrictions (by fence or vegetation) preventing people or pets from accessing critical areas or their buffers. Intrusion into buffers creates stress on wildlife that is present, as well as providing opportunities for disposing of trash, debris, and invasive plant material into an area. The potential for disturbance by people, pets, and machinery significantly reduces the ability of standard critical area buffers to provide habitat for many species of wildlife.

A total of 15,770 sf (0.36 acres) of pre-existing non-conforming buffer intrusions occur on the Site as a result of ongoing cemetery operations, in addition to the powerline trail. An existing maintenance structure and associated dirt roads encroach into the buffer of Stream 2. Maintenance roads that service the maintenance structure are also within the buffers of Streams 3, 4, and 5. Additional impacts to the buffers of Streams 3, 4, and 5 include maintained lawn areas and Himalayan blackberry that gets mowed during the growing season. Mitigation for existing and proposed buffer impacts is discussed in **Chapter 8**.

Wildlife

The Site is mostly undeveloped barring the above-mentioned disturbances, including the maintenance facility and infrastructure near the existing cemetery and the powerline and pipeline easements with the associated trail through the western portion of the Site.

Listed Species

No State- or Federally-listed species were identified as occurring within the Site. The streams onsite are too small (narrow) to support any kind of fish population, including listed salmonids. Additionally, several of the streams either have a section of stream gradient greater than 20% or enter into the stormwater drainage system and thus do not continue to downstream waters where fish are present. Lastly, while the potential exists for bald eagles to use the area for perching, there are no known eagle nests on or in the vicinity of the Site.

Species of Local Importance

Section VIII of the Critical Areas Overlay District (BLUC §20.25H) deals with habitat associated with species of local importance. This list is included in **Table 3** below along with an analysis of the likelihood of a species presence on the Site.

Table 3. Species of Local Importance (BLUC 20.25H.150)

Scientific Name	Common Name	Likelihood of presence	Rationale for Presence
Haliaeetus leucocephalus	Bald Eagle	Migration only	Tall trees on the property might provide perching opportunities. It is unlikely any trees on the Site provide nesting or roosting habitat. It is most likely that bald eagles might use the property during annual migrations or general flyovers in the area.
Falco peregrinus	Peregrine falcon	No	Peregrine falcons are likely to utilize open country with suitable cliffs for roosting and nesting. Alternatively, they may utilize the downtown commercial areas of major cities. The subject property, however, does not provide suitable habitat for peregrine falcon.
Gavia immer	Common loon	No	Common loons are unable to walk on land and require open water (large rivers, lakes, and ponds) for suitable habitat. There are no such habitat types near the subject property.
Dryocopus pileatus	Pileated woodpecker	Yes	Pileated woodpeckers require relatively large tracts of mature forest with a significant number of dead or dying trees. Standing snags of suitable diameter serve both as sites of nesting cavities and for insects, which comprise its diet. The subject property is connected to other large tracts of relatively mature forest.
Chetura vauxi	Vaux's swift	No	Vaux's swift requires old-growth forests with hollow trees or abandoned chimneys for nesting and roosting. The forest on the subject property does not have the essential characteristics to support Vaux's swift.
Falco columbarius	Merlin	Low to very low Probability	Merlin generally prefer open country to dense forest, and the open areas are restricted to the powerline easement on the Site.
Progne subis	Purple martin	Low to very low Probability	Purple martins typically require open space and the presence of artificial nesting boxes (gourds, martin houses, *etc.*). The subject property does not have suitable nesting available.
Aechmophorus occidentalis	Western grebe	No	Like the common loon, western grebe is unable to walk on land and require open water in the form of large rivers, lakes, or ponds for suitable habitat. There are no large rivers, lakes, or ponds near the subject property.

Scientific Name	Common Name	Likelihood of presence	Rationale for Presence
Ardea herodias	Great blue heron	Low to very low Probability	Great blue heron requires wetlands, ponds, lakes, or streams for suitable habitat. The streams on the subject property are likely too small to provide a population of prey species for great blue heron. It is possible the forested areas in the vicinity of the subject property could be used as a heron rookery. However, there are no records of heron using the subject property or areas within the general vicinity as a rookery.
Pandion haliaetus	Osprey	Low to very low Probability	Osprey are piscivorous eagles and must be near large rivers or lakes. The subject property is not located near suitably large rivers or lakes.
Butorides striatus	Green heron	Low to very low Probability	Green heron requires wetlands, lakes, or other shallow water areas. The onsite wetlands are slope wetlands that lack ponded areas that would be used by Green heron.
Buteo jamaicensis	Red-tailed hawk	Yes	The trees onsite provide suitable perches and potential nest trees for hawks, and the easement may provide a suitably open area for hunting. However, the presence of the overhead powerlines may reduce this area's suitability.
Plecotus townsendii	Townsend's big-eared bat	Potentially present	Townsend's big-eared bat will utilize many different types of habitats, but the habitat must be near caves. Old mines suffice as caves for diurnal roosting. The greater Bellevue area is known for its caves, but we are not aware of a cave in proximity to this Site.
Myotis keenii	Keen's myotis	Potentially present	Keen's myotis, like Townsend's big-eared bat, requires caves, tree cavities, or loose bark for suitable roosting habitat. Tree cavities, or trees with loose bark, are indicative of more mature forests. There may be suitable roosting habitat in the general vicinity of the subject property.
Myotis volans	Long-legged myotis	Low to very low Probability	Long-legged myotis is a more montane-adapted species and more likely present at elevations over 4,500 feet.
Myotis evotis	Long-eared myotis	Potentially present	Long-eared myotis have similar habitat requirements as Keen's myotis and may be present in the general vicinity of the subject property.
Rana pretiosa	Oregon spotted frog	No	Oregon spotted frogs are seldom found away from standing water, such as wetlands, lakes, or slow-moving streams. No such habitat exists in the general vicinity of the subject property as the onsite slope wetlands are not suitable habitat for this species.

Scientific Name	Common Name	Likelihood of presence	Rationale for Presence
Bufo boreas	Western toad	Low to very low Probability	Western toads prefer grasslands or meadows that are near ponds. There are no ponds in the general vicinity of the pastures on the subject property.
Clemmys marmorata	Western pond turtle	Low to very low Probability	Western pond turtles have been mostly extirpated from King County. Their preferred habitat includes lakes, ponds, wetlands, and slow-moving streams. This type of habitat is not provided on the subject property.
Oncorhynchus tshawytscha	Chinook salmon	Low to very low Probability	The onsite streams are Type N or O streams with narrow (less than 2 feet) channels that hinder their suitability for fish usage. Salmonids occur in downstream waters well beyond the project limits.
Salvelinus confluentus	Bull trout	Low to very low Probability	Bull trout prefer streams with very cold water. These are typically headwater streams fed by glacial meltwater. The streams on the subject property likely does not meet bull trout preferred temperature requirements, and are generally too narrow for fish usage.
Oncorhynchus kisutch	Coho salmon	Low to very low Probability	The onsite streams are Type N or O streams with narrow (less than 2 feet) channels that hinder their suitability for fish usage. Salmonids occur in downstream waters well beyond the project limits.
Entosphenus tridentatus (formerly *Lampetra tridentatus* or *L. ayresii*)	River lamprey	Low to very low Probability	Current maps of river lamprey populations indicate that these fish are not typically found in King County.

Of the list of species of local importance provided on **Table 3**, only three were determined as having any substantial likelihood of being present on the Site. These species are bald eagle (migration only), pileated woodpecker, and red-tailed hawk. Pileated woodpecker is a State-listed Candidate species. Protecting areas with mature forests (forests with significant numbers of dead or dying conifers and soft-wood deciduous trees) provides habitat for these three species and habitat for a multitude of other species not currently included on Federal or State priority species lists.

ANALYSIS OF CRITICAL AREAS REGULATIONS

City of Bellevue

Critical areas on the project site are subject to the regulations of the Bellevue Land Use Code (BLUC) Part §20.25H. This section contains standards and requirements for the protection of designated critical areas and defines permissible uses within the Critical Areas Overlay District. BLUC §20.25H Section III establishes allowed alterations within the Critical Areas Overlay District. BLUC §20.25H Section IV establishes standards and

requirements for protection of streams, Section V establishes standards and requirements for protection of wetlands, and Section VIII establishes standards and requirements for protection of habitat associated with species of local importance. Section XII of BLUC §20.25H provides the purpose, submittal requirements, and reporting requirements for Critical Areas Reports for projects that may alter or impact critical areas and their buffers.

Development on sites that have wetlands or wetland buffers shall also incorporate, where applicable, the performance standards provided in BLUC §20.25H.080, which are listed below. The following guidelines are also being applied to the on-site stream buffers for this project.

A. Lights shall be directed away from the wetland. Lighting levels shall meet the outdoor lighting standards for spillover into critical areas, per BLUC §20.25H;

B. Activity that generates noise, such as parking lots, generators, and residential uses, shall be located away from the wetland, or any noise shall be minimized through use of design and insulation techniques;

C. Toxic runoff from new impervious surface area shall be routed away from the wetlands;

D. Treated water may be allowed to enter the wetland critical area buffer;

E. The outer edge of the wetland critical area buffer shall be planted with dense vegetation to limit pet or human use;

F. Use of pesticides, insecticides, and fertilizers within 150 feet of the edge of the stream buffer shall be in accordance with the City of Bellevue's 'Environmental Best Management Practices,' now or as hereafter amended."

Stream buffers may be modified through the code provisions in §20.25H.075.C.2. This code provision describes the requirements necessary for buffer averaging. Buffer averaging will be used throughout the site to compensate for buffer disturbances in some areas where grading is proposed. Section §20.25H.075.C.2 notes that modifications to stream buffers that do not meet the criteria for buffer averaging may be considered through a critical areas report, as stated below:

> "Modifications to the stream critical area buffer that do not meet the criteria of this subsection may be considered through a critical areas report."

The reductions are defined further under §20.25H.090 Critical Areas Report – Additional Provisions, subsection A – Limitations on Modifications. This provision states:

> "A stream critical area buffer shall not be modified below the widths set forth in this section, measured from the top-of-bank:"

As we understand these particular code provisions, reducing the buffer using this code provision must be supported by a mitigation plan that provides a substantial benefit to habitat and other buffer functions compared to the standard buffer width measurement.

Per BLUC §20.25H.125 regarding steep slopes:

> "LUC 20.25H.055 and 20.25H.065, development within a landslide hazard or steep slope critical area or the critical area buffers of such hazards shall incorporate the following additional performance standards in design of the development, as applicable. The requirement for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function."

Each response below corresponds to the lettering represented in this section of the LUC.

A. No structures are proposed on the steep slope critical areas and the tiered construction of foundations is not applicable to this project.
B. The expansion into the steep slope critical areas has been configured to minimize impacts to high-priority landforms and vegetation. Significant tree clusters were identified that should be maintained to preserve the forested buffer. Nearly all areas, where critical area buffers overlapped (*e.g.,* wetland, stream, and steep slopes), were maintained and excluded from the limits of clearing and grading.
C. No critical area buffers will impact neighboring properties.
D. The use of retaining walls was determined to be a less favorable approach. The height of the walls necessary for the project far exceeded the City of Bellevue requirements and would have deviated substantially from allowable uses. They would have involved heavy construction methods, resulted in a substantial amount of concrete materials in a natural environment, and would have required regular maintenance.
E. The proposed development will not substantially increase impervious surfaces within or outside of critical areas or critical area buffers. The type of land use (cemetery) requires far less impervious surfaces when compared to other types of development.
F. No buildings on steep slopes are proposed.
G. Same as F above.
H. Same as F above.
I. Same as F above.
J. All areas that will be impacted due to clearing, grading, or the expansion of the proposed project, will be mitigated and restored pursuant to the requirements of BLUC §20.25H.210. A detailed mitigation plan is provided in this report in the following chapters.

An erosion and sediment control plan will be prepared to ensure long-term soil stability following any alterations to geologic hazard critical areas per BLUC §20.25H.135. A drainage plan will also be prepared detailing collection, transport, treatment, and discharge of water from the proposed development. The project will also comply with requirements outlined in §20.25H.140 and §20.25H.145.

State and Federal Regulations

Washington State Regulations

Critical areas (wetlands and streams) on the Site are subject to regulation at the State level primarily by the following statutes:

State Water Pollution Control Act (administered by DOE)
Section 401 of the Federal Clean Water Act (administered by DOE)
Hydraulic Code of Washington (administered by WDFW)

DOE uses Section 401 State Water Quality Certification (WQC) as the primary mechanism for implementing the provisions of the State Water Pollution Control Act. Section 401 WQC is typically issued in conjunction with Section 404 permits from the US Army Corps of Engineers (Corps). Any impacts to the on-site streams would also be regulated under the Hydraulic Code of Washington as part of the Hydraulic Project Approval (HPA) permit process.

Federal Regulations

Critical areas (wetlands and streams) on the Site are also subject to Federal regulations under Section 404 of the Clean Water Act. The Corps is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands or streams. No direct impacts (filling or dredging) to wetlands or streams are being proposed in this project.

SITE DEVELOPMENT PLAN

The proposed Site development plan is to expand the cemetery to the west (into the Expansion Area) to add additional lawn area for cemetery operations and allow for the relocation of the existing maintenance facility. The proposed project involves grading and seeding lawn areas at a descending slope of 5%. A maximum slope grade of 2:1 is proposed where the property ties into the existing steep-slope grades on the western edge of the Site. Details on the proposed grading plans are provided in the Engineer documents that are included in this application.

Approximately 10.6 acres of the 59.3-acre Site will be impacted by the proposed clearing and grading, which includes redevelopment of existing cemetery and development into natural areas. The proposed project will result in expanding existing operations by a total of 3.7 acres. The remainder of the Site (approximately 20.3 acres) will remain undeveloped as a combination of restored and enhanced native forest, wetland, stream, steep slope, and critical area buffer. No direct impacts to wetlands or streams are proposed. Modifications and impacts to standard buffers are proposed with accompanying buffer creation, restoration, and enhancement. The proposed site will be used as a cemetery with approximately 5-15% impervious surfaces based on the adjacent cemetery design. The nature of cemetery development impact is relatively low when compared to other types of development. Impervious surfaces will consist of a combination of trails, paved paths, and existing roads.

The proposed plan involves grading the hillslope and modifying some steep slope, steep slope buffer, and stream buffer areas. Clearing and grading is being proposed in the buffers of Streams 1, 2, and 3. No impacts are proposed in wetland buffers. Much

of the disturbance from grading within the buffer areas will be restored and replanted with native vegetation, but there will be a temporal impact resulting from the removal of trees and replanting as part of the restoration plan. Silt fences will be placed at the bottoms of the grading limits to protect the wetlands and streams from disturbances and from sediment inputs. It is necessary to grade further downslope to tie the graded slopes into the existing grades. See civil plans and geotechnical report for more details on the steep slope modification.

The proposed mitigation will remove the invasive species common throughout the stream and wetland buffers, as well as the rusted mechanical equipment found during site evaluations. Areas of dense invasive species coverage have been identified and are presented in **Appendix C, Sheet W3.0**. These areas of debris and invasive species removal will then be replanted with native trees and shrubs attractive for wildlife. These measures will help restore the slopes to highly desirable long-term habitat areas. The proposed site plan is the result of several design iterations to reduce the magnitude of the buffer impacts to the greatest extent while maintaining project goals and achieving improved buffer function. Replacement buffer areas and extensive buffer enhancement will be provided for all streams to compensate for the proposed buffer reductions and impacts to steep slopes.

Huitt-Zollars, Inc. has designed a stormwater management system for the proposed development that will integrate both low-impact development concepts and stormwater treatment. The following are characteristics of the stormwater management plan:

- Treat any stormwater from pollutant generating surfaces over 5,000 sf and disperse over the flat grassy areas;
- Detention facilities will be used for areas that have a proposed 2:1 slope; and
- Collected stormwater will be discharged back into the original drainage basin at existing flow rates to maintain proper wetland and stream hydrology.

The development plan has been designed to avoid all direct impacts to wetlands or streams on the Site. Reductions to buffer width, in combination with substantial habitat enhancement, will result in improved function and value of the remaining buffer. Best management practices (BMPs) will be used across the site to manage all stormwater and potential construction impacts (**Table 4**). See the geotechnical report prepared by others for more information regarding the steep slopes and other geological conditions of the site.

Identify proposed locations for stormwater facilities described.

Finally, the project will implement the following BMPs during construction:

Table 4. Summary of Proposed Mitigation Performance Standards.

Examples of Disturbances	Measures to Minimize Impacts
Lights	Street and security lighting will be placed so that illumination is directed away from the buffer.
Noise	Planting of dense vegetation specified for mitigation of light-related impacts will also ameliorate impacts due to noise.
Toxic Runoff	Operational covenants will stipulate that no pesticides or herbicides will be used within 150 feet of the stream buffer (the use of herbicides to control non-native, invasive species in the course of routine mitigation monitoring and maintenance will be allowed as described in the Mitigation Plan). Road runoff will be collected and transferred to the project's on-site stormwater treatment and detention facilities.
Stormwater runoff	All road runoff will be detained and cleaned by the proposed stormwater system for the project.
Pets and Human Disturbances	Buffer areas will be permanently protected by fencing to help prevent human disturbance in the buffer, and the buffer areas (will be placed in a separate Natural Growth Protection Area (NGPA), per City requirements.

ASSESSMENT OF DEVELOPMENT IMPACTS

No direct impacts to streams or wetlands will occur. The City of Bellevue Land Use Code (BLUC) §20.25H.230, allows for atypical reductions through a critical areas report, which provides the rationale justifying the change. The approach proposed in this report compares the proposed buffer reduction and impacts against a combination of buffer creation, restoration, and enhancement. This chapter measures the scale of the impacts. The areas of proposed buffer reductions are summarized in **Table 5** below.

Buffer averaging and buffer impacts with enhancement are proposed to some stream buffers, with no impacts proposed to any wetland buffers. Impacts are also proposed to steep slopes and steep slope buffers. The majority of graded buffer impact will be restored post-construction. Additional uplands that extend outside of the stream and wetland buffers will be enhanced and protected as preserved native forest to maintain an undisturbed habitat corridor between all critical areas, and off-site forest west of the Site. There will be an overall net gain of protected critical areas and forested habitat.

Table 5. Site Impacts and Mitigation.

Sheet #		
Sheets W1.0-W1.3	**Total** Total Encumbered Area (Including Streams, Wetlands, and Steep Slopes and all Critical Area Buffers)	**966,160 sf (22.18 ac)**
	Impacts	
Sheet W2.0	Permanent Stream Buffer Loss	20,151 sf (0.46 ac)
	o Stream Buffer Loss within Non-conforming Uses	2,321 sf (0.05 ac)
	Graded Stream Buffer to be Restored	33,531 sf (0.77 ac)
	o Graded Stream Buffer within Non-conforming Uses	17,370 sf (0.40 ac)
Sheet W2.1	Permanent Slope Impacts[1]	36,831 sf (0.85 ac)
	Permanent Slope Buffer Impacts	65,378 sf (1.50 ac)
	Temporary Slope Impacts within Stream Buffers[1]	7,177 sf (0.16 ac)
	Temporary Slope Impacts outside Stream Buffers	39,962 sf (0.92 ac)
	Temporary Slope Buffer Impacts within Stream Buffers[1]	32,670 sf (0.75 ac)
	Temporary Slope Buffer Impacts outside Stream Buffers	23,960 sf (0.55 ac)
		234,513 sf (5.38 ac)
	Mitigation	
Sheet W3.0	Stream Buffer Creation from Native Upland	8,625 sf (0.20 ac)
	Stream Buffer Creation within Reestablished Graded Areas[2]	37,181 sf (0.85 ac)
	Buffer Restoration from Pre-existing Non-conforming Uses	899 sf (0.02 ac)
	Restored Graded Stream Buffer[2]	50,901 sf (1.17 ac)
	Invasive Species Removal with Enhancement	70,273 sf (1.61 ac)
	Slope Habitat Restoration in Graded Areas[2]	96,570 sf (2.22 ac)
	Preserved Native Forest	27,430 sf (0.63 ac)
		291,879 sf (6.70 ac)

[1] Permanent and temporary steep slope and steep slope buffer impacts within stream buffers are not included in the mitigation ratio or total impact area to account for overlapping critical areas. In total, the area of overlapping critical areas is approximately 44,838 square feet (1.03 acres).

[2] The graded critical area buffers and steep slopes will be permanently impacted but will be restored as forested upland post-construction. This will result in a temporal impact to this area of buffer.

Impacts to Stream Buffers

The standard buffers that apply to the site described in the existing conditions section of this report are illustrated in **Sheets W1.0 and W1.1** of **Appendix C**. Because of steep slopes along all of the streams, measurement of stream buffer begins at the top-of-bank for all five streams. In §20.50.048 of the Bellevue's Land Use Code, top-of-bank is defined as:

> "The point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for minimum distance of 50 feet measured perpendicularly from the break; and
>
> For a floodplain area not contained within a ravine, the edge of the active floodplain of a stream where the slope of the land beyond the edge is flatter than 3:1 at any point for a minimum distance of 50 feet measured perpendicularly from the edge (Ord. 5683, 6-26-06, § 51).

The City of Bellevue specifically recognizes that steep slopes adjacent to streams provide habitat value requiring protection. Measuring the stream buffer from the top-of-bank, according to code, provides water quality and hydrology protection to the stream. The resultant protected width for a stream, therefore, often exceeds the standard stream buffer width itself. We believe that the steep-sloped areas provide buffer functions that should not be discounted, and this function may be improved with enhancements.

As stated above, it will be necessary to reduce the standard stream buffer width in certain places for Streams 1, 2, and 3 (**Sheet W2.0, Appendix C**). The purpose of this buffer reduction is to allow for a reduced development scenario in a manner that avoids impacts to the maximum extent that will still accommodate the necessary grades for the cemetery to expand adjacent to the critical areas on site.

Impacts to Wetland Buffers

After several site iterations to minimize impacts, the grading plan was shifted east to avoid all impacts to wetland buffers. In addition, an evaluation of wall alternatives was conducted to increase buffer widths around Wetland C, Wetland E, and Stream 2 near the existing maintenance shop. It was determined that the existing grade could be maintained at the current 1:1 slope before tying into the proposed 2:1 slope, minimizing the extent of grading on the east side of Wetland C, Wetland E, and Stream 2. From an ecological standpoint, this is a preferred method to constructed walls. It also enables the preservation of existing significant trees in that area, providing better habitat and structural stability along the existing steep slope.

No temporary or permanent impacts are proposed in wetland buffers.

Impacts to Steep Slopes and Steep Slope Buffers

Impacts to steep slopes and steep slope buffers was unavoidable. Much of the Site is considered either a steep slope critical area or a steep slope buffer, including areas that are already developed and considered existing developed cemetery. In total, 0.85 acres of permanent steep slope impacts are proposed with 1.50 acres of permanent steep slope buffer impacts are proposed. Additionally, 2.38 acres of temporary steep slope and steep slope buffer impacts will occur in the areas where the slopes will be regraded to 2:1 slopes. Regrading of these steep slopes has been analyzed by the geotechnical engineer and it has been confirmed that the slopes can be reconstructed in a manner that will have long term stability.

Cumulative Impacts

A temporal loss of forest functions and values will occur as a result of the proposed clearing and grading. This forested vegetation that will be impacted is generally located above the headwaters of Stream 1, Stream 2, Stream 3, Wetland C, and Wetland E. While the project proposes impacts to the steep slopes, stream buffers, and associated habitat on those slopes, these impacts will be relatively temporary in nature and are only proposed over a portion of the steep slopes. The standard critical buffers post-construction will be retained in most places, providing adequate protection for streams and wetlands and their associated buffers. Approximately 6.8 acres of existing forest is proposed to be cleared as part of the grading process, much of which is composed of

early successional tree species with an understory consisting of invasive species. A large portion of that area will then be replanted with native vegetation, maintained, and placed within an easement protecting these areas in perpetuity. The majority of high-quality habitat will be retained, which will be further enhanced through the removal of invasive species and replanting with a wide variety of native evergreen and deciduous trees and shrubs as detailed in **Chapter 8** below.

Minimal downstream impacts are expected to Kelsey Creek and its associated wetlands within Kelsey Creek Wetland Complex. Several existing developments with high intensity land use occur between the Project Site and Kelsey Creek Park reducing habitat connectivity and creating on-going habitat disturbances that extend far beyond the proposed project (**Figure 6**). This includes an actively maintained PSE/Olympic Pipeline easement on the western edge of the property, an entire apartment complex west of the Site, a sports complex, and several multi-lane roads that are heavily trafficked. Activities associated with each of these has a negative effect on both the aquatic and terrestrial habitats within the Kelsey Creek ecosystem. The environmental effects of the proposed development will be minimal in comparison to nearby land uses and activities and, we believe, the mitigation work associated with this proposed development will provide net improvements in habitat and biodiversity within this portion of the watershed over time.

PROPOSED MITIGATION

Agency Policies and Guidance

The proposed mitigation plan was designed in accordance with the policies and guidance provided in BLUC §20.25H. Pursuant to BLUC §20.25H.245, all proposed mitigation shall be based on best available science and shall demonstrate no net loss of critical areas functions and values.

Mitigation Sequencing

Mitigation sequencing has been applied to the proposed project pursuant to BLUC §20.25H.215. The mitigation sequencing requirements are:

- Avoiding the adverse impact altogether by not taking a certain action or parts of an action;
- Minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
- Rectify the adverse impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the adverse impact over time by preservation and maintenance operations; or,
- Compensating for the adverse impact by replacing, enhancing, or providing substitute resources or environments.

Avoiding Impacts: The proposed site development plan has been designed to avoid all direct impacts to all wetlands and streams on or near the Site. Wetland buffer impacts were avoided entirely and high-priority upland habitats were generally avoided

by proposing the development away from critical areas and proposing expansion over existing developed areas. Where critical area impacts could not be avoided, impacts were then minimized to the greatest extent practicable.

Minimizing Impacts: The proposed site development plan reflects the minimum amount of impacts necessary to provide an economically viable development. The proposed Project Area was designed to minimize critical area impacts by directing the construction away from downslope wetlands and streams. Nearly half of the project is proposed over existing disturbed areas associated with current maintenance operations. Expansion into the natural area was targeted at areas with significant invasive species and avoided high value forested areas and higher value critical areas where overlap between several critical areas occurred (e.g. stream buffers with steep slopes). Some permanent impacts from clearing and grading will occur in areas of steep slopes and stream buffers associated with the steep slopes, but these areas will be minimized to the extent practicable. Construction BMPs will be implemented to minimize soil compaction and sedimentation to the adjacent wetlands and streams.

Rectifying Impacts: The majority of areas impacted by clearing and grading as a result of construction will be fully restored.

Compensating for Impacts: Compensation for steep slope critical areas and critical area buffer impacts (stream and steep slope) will be mitigated through a combination of buffer creation, restoration, and enhancement. Invasive plant species located within critical areas and critical area buffers will be removed across the entire Site. This will ensure critical areas west of the development are not degraded over time due to expanding areal coverage of invasive species. It will also improve functions, values, and protection of critical areas in the natural area over time, providing a better post-construction condition when compared to the existing conditions.

Monitoring for Impacts: A monitoring program and contingency plan is provided in this report that addresses mitigation. Monitoring will document whether the goals, objectives, and performance standards of the approved and implemented mitigation plan have been met. The plan provides the post-construction performance monitoring schedule, including monitoring methods that will be used to evaluate the approved performance standards, as required under BLUC 20.25H.220.

The mitigation sequencing process was an intrinsic part of the analysis of Site development. Site development has been designed to minimize impacts to the existing critical area buffers to the maximum extent practicable while still meeting the requirements for a viable project, including compliance with all zoning code requirements for grading. As a result, all permanent impacts to wetlands and streams have been avoided. Several different site development approaches were evaluated, including the initial plan of more expansive development, the use of terraced walls, the use of walls around Wetland C and Wetland E, impact comparisons of current residential zoning and development, and a no-build alternative.

The mitigation plan provided in **Appendix C** is described in this section, and will illustrate how the net change to the site is a net increase in ecological function. With the design presented on **Sheet W3.0**, the critical area buffers would be reduced from their standard width to variable widths.

Areas of Critical Area Buffer Mitigation

The project proposes a combination of buffer averaging, enhancement, and restoration to account for stream and wetland buffer impacts. Approximately 291,879 sf (6.70 ac) of mitigation will occur through enhancement and restoration activities. Existing trees and habitat will be preserved where possible given the proposed grading and existing utility easements.

Mitigation includes:

• Stream Buffer Creation from Native Upland	8,625 sf (0.20 ac)
• Stream Buffer Creation within Reestablished Graded Areas	37,181 sf (0.85 ac)
• Buffer Restoration from Pre-existing Non-conforming Uses	899 sf (0.02 ac)
• Restored Graded Stream Buffer	50,901 sf (1.17 ac)
• Invasive Species Removal with Enhancement	70,273 sf (1.61 ac)
• Slope Habitat Restoration in Graded Areas	96,570 sf (2.22 ac)
• Preserved Native Forest	27,420 sf (0.63 ac)
TOTAL MITIGATION AREA	**291,879 sf (6.70 ac)**

Preservation is a method of avoidance and not mitigation

The majority of the buffer grading impacts will be immediately replaced following the grading. Invasive species covering an area of approximately 70,273 sf will be removed throughout many of the wetlands and their associated uplands, and these areas replanted with a variety of native tree and shrub species. **The combined new areas of buffer enhancement provided on this project is a 1.25:1 ratio of mitigation to reduced buffer, exceeding the required 1:1 ratio.** A brief description of the major mitigation areas is outlined below.

Stream Buffer Creation from Native Upland – These areas (green color on **Sheet W3.0**) were located outside of the standard buffers for the wetlands and streams on the Site prior to the proposed Project. These are areas where native vegetation exists and will be added as new stream buffer in the post-construction condition.

Stream Buffer Creation within Reestablished Graded Areas – These areas (brown color on **Sheet W3.0**) were outside of the standard buffers of the streams on the Site prior to the proposed Project. These areas consist mostly of invasive species and forested vegetation in the existing condition. These areas will be regraded as part of the larger effort to regrade the slopes on the Site, but will be added as new buffer post-construction and restored to a forested condition as part of the mitigation.

Restored Graded Stream Buffer – These areas (purple and yellow colors on **Sheet W3.0**) were located inside the standard buffers of the streams on the Site prior to the proposed Project. These areas are mostly forested in the existing condition. These areas will be graded as part as part of the expansion and then fully restored to a forested condition.

Invasive Species Removal with Enhancement – These areas (red cross-hatch on **Sheet W3.0**) are approximate locations of invasive species that will require removal, enhancement plantings with native tree and shrub species, and post-construction monitoring.

Slope Habitat Restoration in Graded Areas – These areas (blue color on **Sheet W3.0**) were located outside of drainage basins with wetlands and steams, but still consist of steep slope critical areas. These areas will be graded and then fully restored to a forested condition.

Preservation of Native Forest – These areas (light purple color on **Sheet W3.0**) are located below the limits of proposed grading and are not associated with a drainage basin that contains wetlands or streams. Steep slope critical areas will be maintained in these areas and they will be included as part of the mitigation to maintain a uniform habitat corridor west of the proposed expansion.

The process of grading will result in a temporal loss where the existing buffer is forested. The same area will be planted following the grading activities with the goal of restoring forested conditions. Areas directly adjacent to the stream buffers will also be replanted following the grading. This additional upland area will serve to maintain habitat connectivity and increase buffer functions across all wetland and stream systems located on and near the Site. For locations and total areas, see the "Buffer Creation," "Buffer Restoration," and "General Habitat Restoration" zones on the proposed mitigation plan (**Appendix C, Sheet W3.0**).

Other areas throughout the site that are not part of the grading plan will be used for the preservation of native forest. Roughly half of this area is located within the existing utility easement and will have various restrictions on revegetation and enhancement (*e.g.,* mature plant height, plant placement, *etc.*). Coordination with the utility companies will occur to determine best available options that may coincide with current management objectives. The areas outside of the utility easement will be replanted as native forested and scrub-shrub buffer. For locations and the total area, see the "Preserved Native Forest" zone on the proposed mitigation plan (**Appendix C, Sheet W3.0**).

Buffer enhancement and replacement involve the removal of non-native invasive species, as well as trash and other human-related debris, and the addition of native plant species. For locations and the total area, see the red crosshatched zone on the proposed mitigation plan (**Appendix C, Sheet W3.0**). The habitat value of the improved buffer areas will be increased by the installation of large woody material, where determined appropriate, and nesting structures, such as bat roosting and bird nesting boxes.

Enhancement Planting in Critical Area Buffers and on Steep Slopes

The reduced buffer areas will be enhanced through removal of invasive non-native blackberries, trash, concrete, mechanical equipment, and other debris. The buffer will then be planted with a selection of woody trees and shrubs that will provide many functions that are currently provided under existing conditions. The planted trees and shrubs will provide additional sources of large and small woody debris for habitat.

While the quality of the habitat provided by the existing vegetation on the sloped areas is generally good, enhancement is possible. Many locations within the steep slope areas could be improved by selective planting of additional understory shrubs, small trees, Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and

western redcedar (*Thuja plicata*). Small trees and shrubs would likely include serviceberry (*Amelanchier alnifolia*), red elderberry (*Sambucus racemosa*), Sitka mountain ash (*Sorbus sitchensis*), Nootka rose (*Rosa nutkana*), red-flowering currant (*Ribes sanguineum*), evergreen huckleberry (*Vaccinium ovatum*), bald hip rose (*Rosa gymnocarpa*), Oregongrape (*Mahonia nervosa*), thimbleberry (*Rubus parviflorus*), salal (*Gaultheria shallon*) and others (**Appendix C, Sheet W4.0**)

The additional shrubs and small trees will provide enriched habitat for a variety of birds and native small animals. The species selected for the reduced buffer will be of the massing variety, will provide quality habitat for a variety of birds and small mammals, and will be aesthetically pleasing to visitors throughout the year. Dense, massing shrubs will prevent people and pets from intruding within the buffer and will help reduce sound and light disturbances within the steep slope area. Fruits from the proposed plantings will provide a valuable food source for many species of mammals and birds.

Mitigation Design Elements

Habitat Features

Snags, down logs, rootwads, and stumps have been incorporated into the final mitigation design to provide ecologically important habitat features for wildlife. All down woody material shall be coniferous species (western red cedar, Douglas fir, western hemlock, or Sitka spruce) obtained from the project site. These features will be placed where suitable and appropriate depending on field conditions at a rate of 1 piece per 2,500 square feet. Coir log and habitat feature placement typicals are provided on **Appendix C, Sheet W3.1**.

Snags provide perching, feeding and nesting sites for a variety of native birds. Cavity nesting bird species, such as tree swallows, violet-green swallows, chickadees, and woodpeckers, would be expected to utilize such features. A bird-nesting box will be attached to each installed snag to initially augment the natural habitat for swallow species. Down logs and stumps provide the slow release of nutrients as the wood decays, and also provide cover for amphibians, small mammals, and other wildlife. Boulders recovered from site excavation (if available) will be placed in small piles throughout the mitigation area. These piles can provide habitat for reptiles and small mammals.

Need snag detail.

Mulch

The Client shall provide three (3) inches of medium bark or woodchip mulch around all installed plants. Mulch shall be derived from fir, pine, or hemlock species and shall not contain trash, rocks, or other debris that may be detrimental to plant growth. Mulch will also be used on 2:1 slopes as an erosion control method and will aid in plant growth.

Plantings

A variety of native trees and shrubs will be planted in the buffer mitigation area. Plant species have been chosen for a variety of qualities, including adaptations to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values. Native species were chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the area to wildlife for food and cover. Plant materials will consist of a

combination of bare-root stock (if available) and containers. Plant material installed on the 2:1 graded slope will not exceed sizes larger than one-gallon pots to ensure slope stability. A clearing and grubbing plan and detailed plant list with planting typicals is provided on **Sheet W3.1 & Sheet W4.0, Appendix C**.

Temporary Irrigation System

An above-ground temporary irrigation system, capable of full head-to-head coverage within the graded buffer impact areas, buffer replacement areas, and non-compensatory enhancement areas, will be provided. The temporary irrigation system shall either utilize controller and point of connection (POC) from the site irrigation system or shall include a separate POC and controller with a backflow prevention device per water jurisdiction inspection and approval. The system shall be zoned to provide optimal pressure and uniformity of coverage, as well as separation for areas of full sun or shade and slopes in excess of 5%.

The system shall be operational by June 15 (or at time of planting) and winterized by October 15. Irrigation shall be provided for the first 2 years of the monitoring period. The irrigation system shall be programmed to provide 1/2-inch of water two times per week (one cycle with two start times per week or every three days). A chart describing the location of all installed or open zones and corresponding controller numbers shall be placed inside the controller and given to the owner's representative. In addition to the temporary irrigation system, a soil moisture retention agent will be incorporated into the backfill of planting pits to minimize the potential for plant desiccation in the mitigation areas.

Plantings shall be installed in the dormant season to help reduce transplant shock and encourage successful establishment. Plants shall be watered immediately after planting and shall be provided with supplemental irrigation during the dry season.

Fencing and Critical Area Signs

Permanent fencing and critical area signs shall be installed at the eastern perimeter of all critical area buffers on the site, excluding any areas within the existing PSE and Olympic Pipeline easement. The mitigation fencing will need to provide adequate fall protection for the general public who use the cemetery. Sign locations will be determined at a later date.

Mitigation Goals, Objectives, and Performance Standards

The goal of the mitigation plan is to restore the functions and values of a portion of the critical area buffers on the Site. The mitigation will be evaluated through the following objectives and performance standards. Mitigation monitoring will be performed by a qualified wetland biologist or ecologist.

Objective A: Create habitat structure and plant species diversity in the buffer enhancement areas currently possessing an existing canopy.

> ***Performance Standard A1:*** *In those areas, at least 8 species of desirable native woody plant species will be present at the end of Year 5.* Enhancement areas only.
>
> ***Performance Standard A2:*** *Plant survival must be 100% for all installed native vegetation in all enhanced buffer areas at the end of Year 1 per the contractor's*

plant guarantee, and at least 80% for all installed native vegetation in years 2 through 5. Plants shall be replaced as needed to meet these standards in each of the monitoring years.

Objective B: Create habitat structure and plant species diversity through buffer enhancement of the buffer grading impact and non-compensatory enhancement areas.

Performance standards and monitoring of buffer creation areas and restored critical areas (slopes)?

Performance Standard B1: *In those areas, at least 12 species of desirable native woody plant species will be present at the end of Year 5. Woody plant coverage must be no less than 20% by the end of Year 1, no less than 30% by the end of Year 3, and no less than 50% by the end of Year 5. Woody coverage includes beneficial native woody plants that are naturally recruiting.*

Performance Standard B2: *Plant survival must be 100% for all installed native vegetation in all restored buffer areas at the end of Year 1 per the contractor's plant guarantee, and at least 80% for all installed native vegetation in years 2 through 5. Plants shall be replaced as needed to meet these standards in each of the monitoring years.* Restored buffers only.

Objective C: Limit the amount of invasive and exotic species within the buffer enhancement areas.

Performance Standard C*: After construction and following every monitoring event for the duration of the monitoring period, exotic and invasive plant species will be maintained at levels of 10% or less total cover throughout the mitigation areas. These species include, but are not limited to: Scot's broom, Himalayan and evergreen blackberry, Japanese knotweed, purple loosestrife, hedge bindweed, morning glory, and creeping nightshade. English ivy, where present, shall be removed where growing in the soil and stems growing up tree trunks will be cut through.*

CONSTRUCTION SEQUENCING

Mitigation Construction Sequence

The following provides the general sequence of activities anticipated to be necessary to complete this mitigation project. Some of these activities may be conducted concurrently as the project progresses.

1. Conduct a site meeting between the Contractor, Talasaea Consultants, and the Owner's Representative to review the project plans, work areas, staging/stockpile areas, and material disposal areas.
2. Survey clearing/grading limits.
3. Flag existing trees and other vegetation to remain.
4. Install silt fencing, tree protection fencing (if required), and any other erosion and sedimentation control BMPs necessary for work in the project areas per civil plans.
5. Complete site grading per civil site development plans.
6. Remove all trash and debris and grub out invasive species in enhancement areas.
7. De-compact soils and place topsoil or soil amendments as required.
8. Install habitat features (snags, down logs, and stumps).
9. Mulch all cleared/grubbed buffer areas.

10. Complete site cleanup and install plant material as indicated on the planting plan.
11. Install mitigation fencing and critical area signs.

Post-Construction Approval

Following mitigation construction completion, Talasaea Consultants shall notify the City in writing to request a final site inspection for final construction approval. Once the City has approved of the mitigation construction, the monitoring period shall commence.

Post-Construction Assessment

Once construction is approved by the City, a qualified wetland ecologist or biologist from Talasaea Consultants shall conduct a post-construction assessment. The purpose of this assessment will be to establish baseline conditions at Year 0 of the required monitoring period. A Baseline Assessment report, including "as-built" drawings, will be submitted to the City. The as-built plans will identify and describe any changes in planting or other features in relation to the original approved plan.

MONITORING PLAN

Performance monitoring of the mitigation areas will be conducted for a period of five years consistent with BLUC §20.25H.220(D). The purpose of monitoring and maintaining the site for at least 5 years is to ensure goals, objectives, and performance standards are met. Monitoring events will be conducted according to the schedule presented in

Table 6 below. All monitoring will be performed by a qualified biologist or ecologist.

Reports

The reports will include: 1) Project Overview, 2) Mitigation Requirements, 3) Summary Data, 4) Maps and Plans, and 5) Conclusions. If the performance criteria are met, monitoring for the City will cease at the end of year ten, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

Table 6. Projected Schedule for Performance Monitoring and Maintenance Events.

Year	Date	Maintenance Review	Performance Monitoring	Report Due to City
BA[1]	Fall 2021	X	X	X
1	Spring 2022	X	X	
	Fall 2022	X	X	X
2	Spring 2023	X	X	
	Fall 2023	X	X	X
3	Spring 2024	X		
	Fall 2024	X	X	X
4	Spring 2025	X		
	Fall 2025	X	X	X
5	Spring 2026	X		
	Fall 2026	X	X	X[2]

[1] BA = Baseline Assessment following construction completion.
[2] Obtain final approval from the City of Bellevue (presumes performance criteria are met).

Monitoring Methods

Vegetation monitoring methods may include counts, photo-points, random sampling, sampling plots, quadrats, or transects, stem density, visual inspection, and/or other methods deemed appropriate by the permitting agencies and the biologist/ecologist. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weed cover.

Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

Percent areal cover of woody vegetation (forested and/or scrub-shrub plant communities) will be evaluated through the use of point-intercept sampling methodology. Using this methodology, a tape will be extended between two permanent markers at each end of an established transect. Trees and shrubs intercepted by the tape will be identified, and the intercept distance recorded. Percent cover by species will then be calculated by adding the intercept distances and expressing them as a total proportion of the tape length.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. Percent survival of shrubs and trees will be evaluated in a 10-foot-wide strip along each established transect. The species and location of all shrubs and trees within this area will be recorded at the time of the baseline assessment and will be evaluated during each monitoring event to determine percent survival.

Photo Documentation

Locations will be established within the mitigation areas from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant communities. A review of the photos over time will provide a semi-quantitative representation of the success of the planting plan. Vegetation sampling plot and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

Wildlife

Birds, mammals, reptiles, amphibians, and invertebrates observed in the mitigation areas (either by direct or indirect means) will be identified and recorded during scheduled monitoring events, and at any other times observations are made. Direct observations include actual sightings, while indirect observations include tracks, scat, nests, song, or other indicative signs. The kinds and locations of the habitat with the greatest use by each species will be noted, as will any breeding or nesting activities.

Water Quality and Site Stability

Water quality will be assessed qualitatively unless it is evident there is a serious problem. In such an event, water quality samples will be taken and analyzed in a laboratory for suspected parameters.

Qualitative assessments of water quality include:

- oil sheen or other surface films;
- abnormal color or odor of water;
- stressed or dead vegetation or aquatic fauna;
- turbidity; and
- the absence of aquatic fauna.

Observations will be made of the general stability of slopes and soils in the mitigation areas during each monitoring event. Any erosion of soils or slumping of slopes will be recorded and corrective measures will be taken.

MAINTENANCE AND CONTINGENCY

Regular maintenance reviews will be performed according to the schedule presented in **Table 6** to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the Site will be implemented within ten (10) business days of submission of a maintenance memo to the maintenance contractor and permittee.

Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the permitting agencies to develop a Contingency Plan in order to get the project back into compliance with the performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, modifications to hydrology, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted by December 31st of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented during the course of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- During year one, replace all dead woody plant material (M).
- The irrigation system shall be programmed to provide 1/2-inch of water two times per week (one cycle with two start times per week or every three days) between June 15 – October 15 during the first two years after installation, and for the first two years after any replacement plantings (C & M).
- Replace dead plants with the same species or a substitute species that meet the goals and objectives of the mitigation plan, subject to Talasaea and agency approval (C).

- Re-plant area after the reason for failure has been identified (*e.g.,* moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, *etc.*) (C).
- After consulting with City staff, minor excavations, if deemed to be more beneficial to the existing conditions than currently exists, will be made to correct surface drainage patterns (C).
- Remove/control weedy or non-native invasive plants (*e.g.,* Scot's broom, reed canarygrass, Himalayan blackberry, purple loosestrife, Japanese knotweed, *etc.*) by manual or chemical means approved by permitting agencies. The use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful, and would require prior agency approval. All non-native vegetation must be removed and disposed of off-site (C & M).
- Weed all trees and shrubs to the dripline and provide 3-inch deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).
- Remove trash and other debris from the mitigation areas twice a year (M).
- Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (*e.g.,* thinning and removal of dead or diseased portions of trees/shrubs) (M).
- Repair or replace damaged structures including signs, fences, or bird boxes (M).

FINANCIAL GUARANTEE

The applicant shall post a bond or other financial assurance device as required by the City to ensure that the mitigation plan is fully implemented, monitored, and maintained through the end of the required monitoring period. Financial guarantees shall meet the requirements of BLUC 20.40.490. As stated in this section of the code, the amount of any required assurance device will be for 150% of the cost of improvements calculated at the end of the assurance period. For maintenance, the amount would cover at least 20% for replacement materials, as calculated on the last day of the performance period.

SUMMARY

The Sunset Hills Memorial Park Expansion Site (“Study Area”) is approximately 26.97 acres in size and consists of existing developed cemetery and undisturbed natural areas. The proposal will redevelop and develop approximately 6.8 acres of the Site to expand the cemetery operations. Nine (9) wetlands and five (5) streams were identified on, or adjacent to, the property. The wetlands were named Wetlands A through K. The five streams are named numerically as they occur south to north through the site and numbered one through five.

The project will involve grading approximately 3.7 acres of existing cemetery and 6.8 acres of undisturbed natural area. Of that, 3.6 acres will be fully restored to maintain critical area buffers that will provide greater protection and function when compared to the existing condition. Slopes will be reduced to a maximum of 5:1 over the majority of the Site. Some areas near the edge of the grading will have slopes at a maximum of 2:1, with no slopes exceeding 2:1 within any proposed area to be graded. The proposed site will be used as an addition to the western side of the existing cemetery to

allow for expansion of use and operations. Buffer averaging is proposed to offset permanent buffer reductions, and all areas along the proposed 2:1 slopes will be restored post-construction with native species of trees and shrubs. **No permanent impacts to wetlands or streams are proposed, but stream buffers will be modified. All impacts to wetland buffers were avoided entirely. The combined new areas of buffer provided on this project represent a 1.25:1 mitigation-to-impact ratio, more than the required 1:1 ratio.**

All mitigation areas will be monitored for five (5) years post-construction. All post-construction critical areas will be placed in a native growth protection area (NGPA) NGPE easement where placement of that easement does not interfere with the existing PSE and OP easements. Mitigation fencing appropriate for protection from steep slopes will be installed at the eastern perimeter of the buffer areas, and critical area signs will be installed at intervals determined by the City.

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FIGURES

NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E

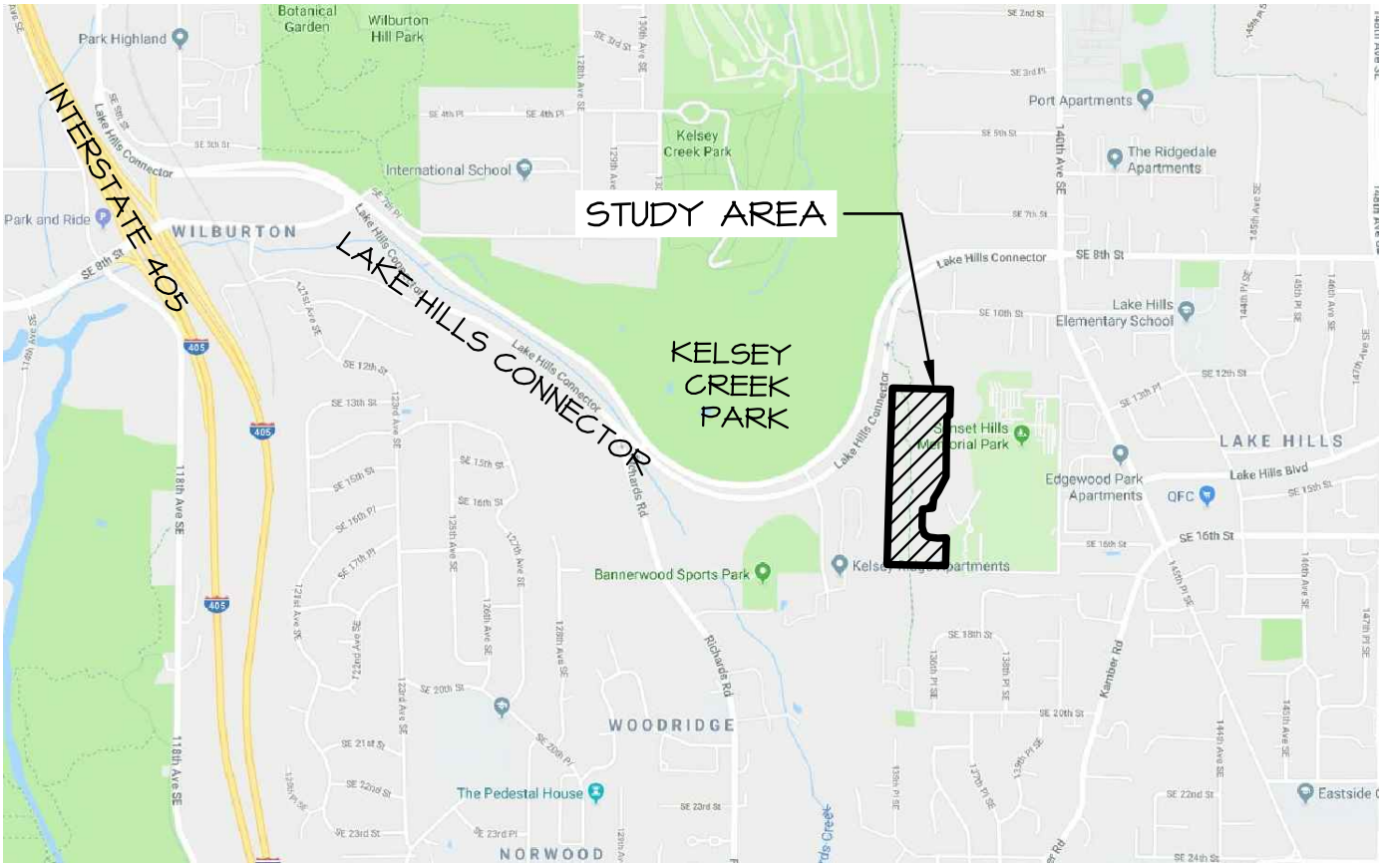

IMAGE SOURCE: GOOGLE MAPS, WWW.MAPS.GOOGLE.COM (ACCESSED 21 FEB 2019)

DRIVING DIRECTIONS:

1. FROM CITY OF BELLEVUE PLANNING DEPARTMENT, HEAD NORTH ON 112TH AVE NE TOWARD NE 8TH STREET. CONTINUE FOR 440 FT.
2. TAKE A SHARP RIGHT TO MERGE ONTO I-405 SOUTH. CONTINUE FOR 0.9 MILES.
3. TAKE EXIT 12 FOR SE 8TH STREET. CONTINUE FOR 0.2 MILES.
4. USE THE LEFT TWO LANDES TO TURN LEFT ONTO SE 8TH STREET. CONTINUE FOR 0.4 MILES.
5. TURN RIGHT ONTO LAKE HILLS CONNECTOR. CONTINUE FOR 1.5 MILES.
6. USE THE 2ND FROM THE RIGHT LANE TO TURN RIGHT ONTO 140TH AVE S. CONTINUE FOR 0.2 MILES.
7. TURN RIGHT ONTO SE 12TH STREET. CONTINUE FOR 0.2 MILES.
8. TURN LEFT, THE DESTINATION WILL BE ON THE RIGHT IN 15 FEET.
9. ARRIVE AT DESTINATION:

1215 145TH PLACE SOUTHEAST,
BELLEVUE, WA 98007

NORTH

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Resource & Environmental Planning
15020 Bear Creek Road Northeast
Woodinville, Washington 98077
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FIGURE #1

VICINITY MAP & DRIVING DIRECTIONS
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	FH	1789

SCALE: NTS
DATE: 4-8-2019
REVISED: 11-30-2020

1

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11/30/2020 8:33 AM

NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E. W.M.

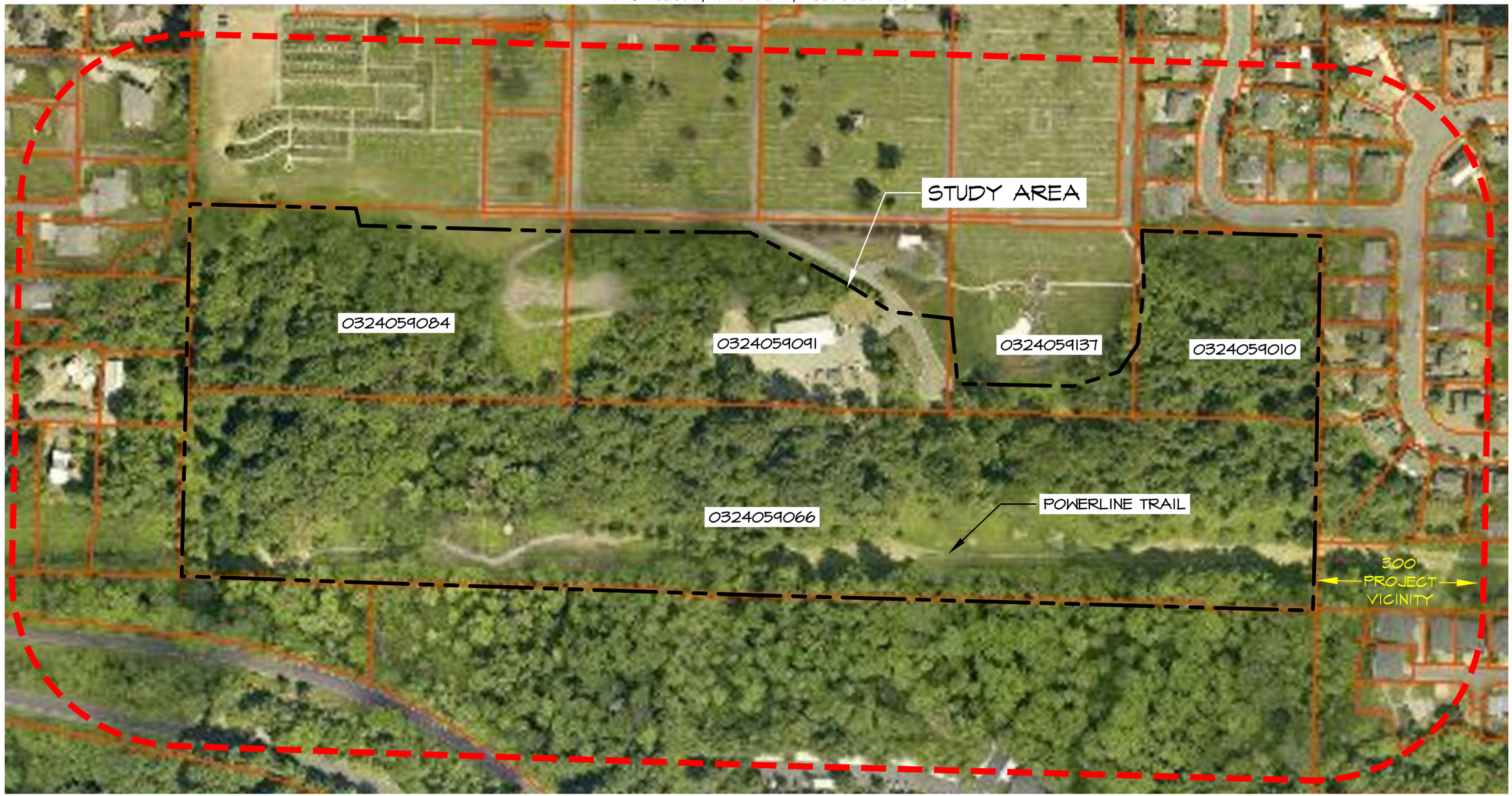

IMAGE SOURCE: KING COUNTY IMAP; HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY
(ACCESSED 8 APRIL 2019)

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FIGURE #2

PARCEL MAP
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	FH	1789

SCALE: NTS
DATE: 4-8-2019
REVISED: 11-30-2020

2

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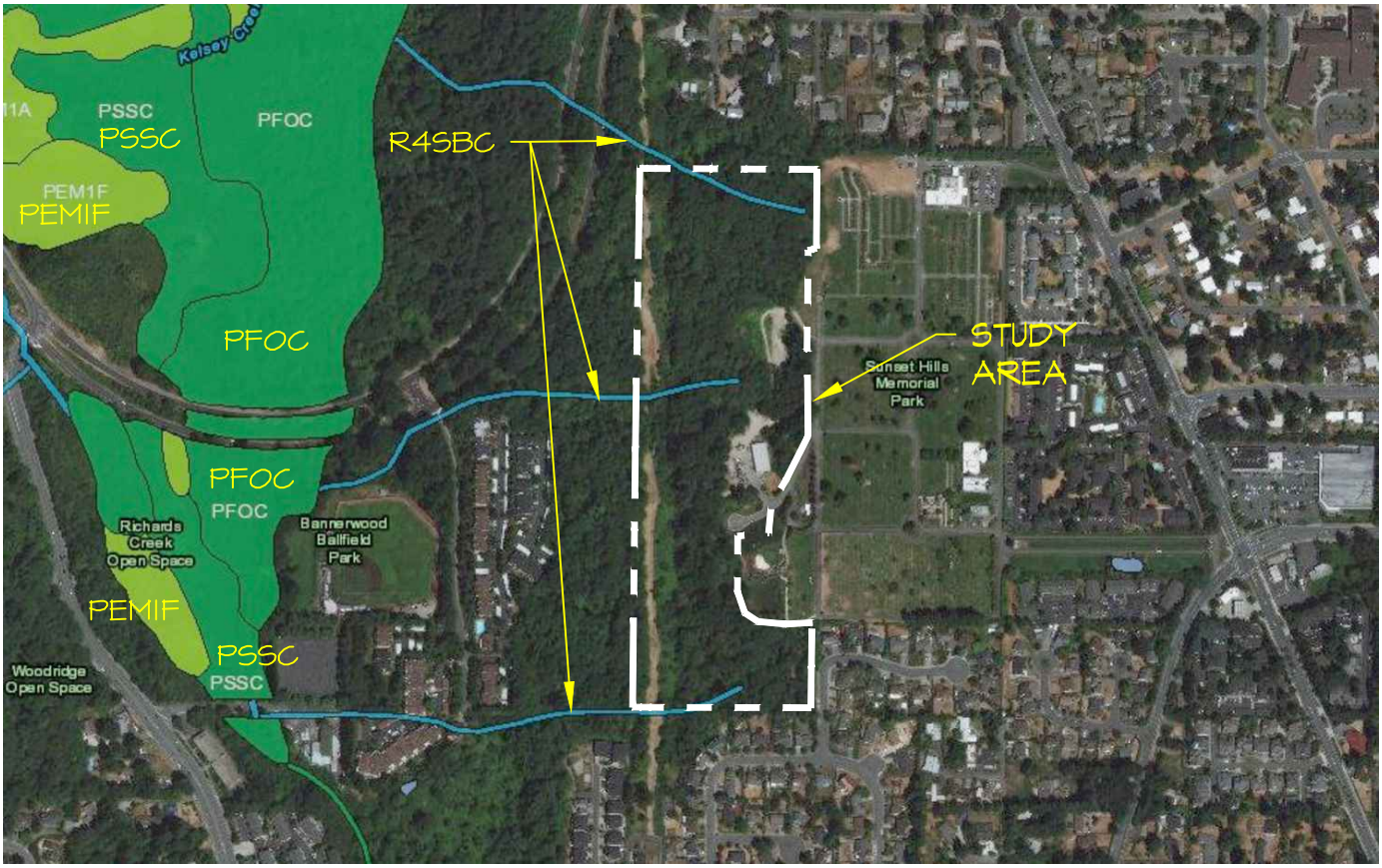
NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E



LEGEND

TYPE	DESCRIPTION
PEMIF	PALUSTRINE EMERGENT, PERSISTENT, SEMIPERMANENTLY FLOODED.
PSSC	PALUSTRINE SCRUB-SHRUB, SEASONALLY FLOODED.
PFOC	PALUSTRINE FORESTED, SEASONALLY FLOODED.
R4SBC	RIVERINE, INTERMITTENT STREAMBED, SEASONALLY FLOODED.

SOURCE: U.S. FISH AND WILDLIFE SERVICE, (FEB 2019). NATIONAL WETLANDS INVENTORY WEBSITE, U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, WASHINGTON D.C.
http://www.fws.gov/wetlands/data/wetland-codes.html

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FIGURE #3

NATIONAL WETLANDS INVENTORY MAP
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	FH	1789

SCALE: NTS
DATE: 4-8-2019
REVISED: 11-30-2020

3

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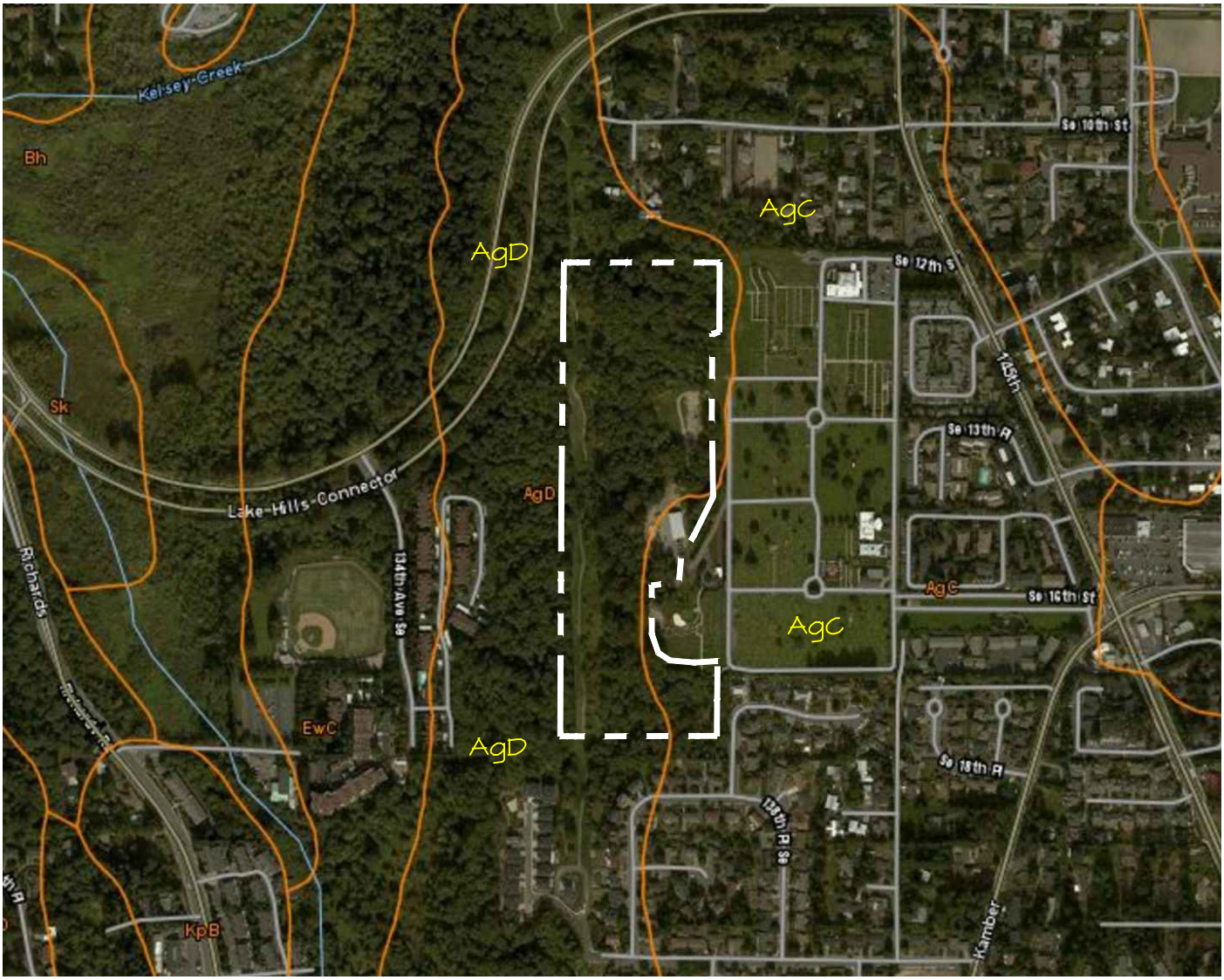
NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E



LEGEND

TYPE	DESCRIPTION, SLOPES
AgC	ALDERWOOD GRAVELLY SANDY LOAM, 8-15 PERCENT SLOPES.
AgD	ALDERWOOD GRAVELLY SANDY LOAM, 15-30 PERCENT SLOPES.

SOURCE: SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WEB SOIL SURVEY. AVAILABLE ONLINE AT http://websoilsurvey.nrcs.usda.gov/. ACCESSED (21 FEB 2019).

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FIGURE #4

NRCS SOILS MAP
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	FH	1789

SCALE: NTS
DATE: 4-8-2019
REVISED: 11-30-2020

4

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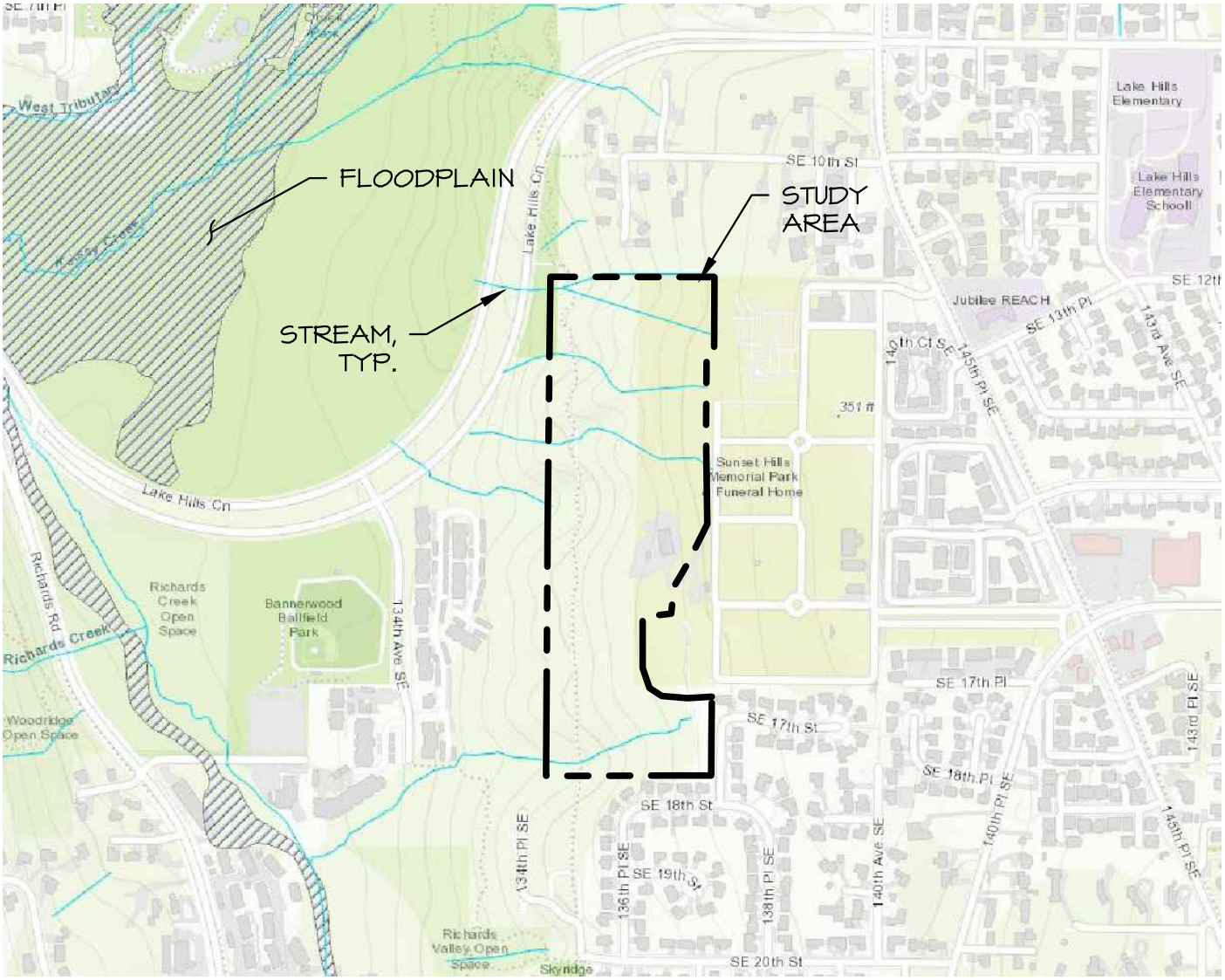
11/30/2020 8:40 AM

NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E



LEGEND

MAPPED FLOODPLAIN

SOURCE: CITY OF BELLEVUE GIS. AVAILABLE ONLINE AT <HTTP://COBGIS.MAPS.ARCGIS.COM/APPS/MAPSERIES/INDEX.HTML?APPID=8A2E50C0CE6D473F93054798085FF30F>. ACCESSED (21 FEB 2019).

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FIGURE #5

BELLEVUE GIS MAP
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	FH	1789

SCALE: NTS
DATE: 4-8-2019
REVISED: 11-30-2020

5

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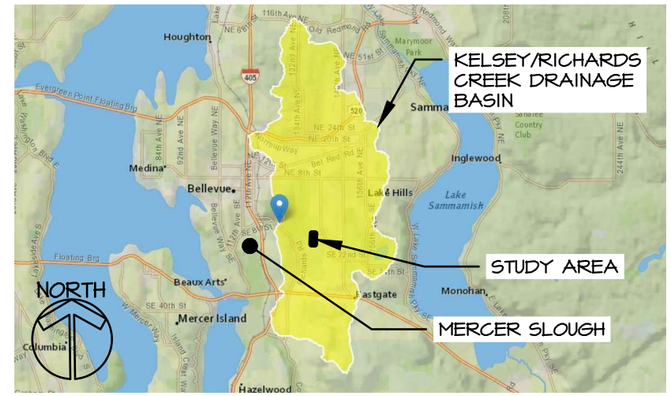
NW 1/4 SEC. 3, TWNSP. 24N, RGE. 05E. W.M.



MAP KEY

SCALE: NTS

IMAGE SOURCE: KING COUNTY IMAP; HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY (ACCESSED 1 DECEMBER 2020)

PLAN LEGEND

- STUDY AREA
- EXISTING ONSITE WETLAND
- SURVEYED STREAM CENTERLINE
- APPROXIMATE STREAM CENTERLINE

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FIGURE #6

BASIN OVERVIEW
SUNSET HILLS MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

DESIGN	DRAWN	PROJECT
	KM	1789

SCALE: NTS
DATE: 12-2-2020
REVISED
6

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Appendix A:

Wetland Delineation Data Sheets,

Talasaea Consultants, 2019

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP A1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.394228 Long: -122.092551 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Corylus cornuta*	70	Y	FACU
2. *Acer macrophyllum*	30	Y	FACU
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	40	Y	FAC
2. *Polystichum munitum*	30	Y	FACU
3. *Rubus armeniacus*	10	N	FAC
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 50	x 3 = 150
FACU species 130	x 4 = 520
UPL species _____	x 5 = _____
Column Totals: 180 (A)	670 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: TP is 8' south of A-14

SOIL

Sampling Point: TP A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100					sandy loam	root mass present
7-18	10YR 4/6	100					sandy loam	gravelly

[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 ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP A2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.354228 Long: -122.092551 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	15	Y	FAC
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	15	Y	FAC
2. *Polystichum munitum*	5	N	FACU
3. *Rubus armeniacus*	20	Y	FAC
4. *Convolvulus arvensis*	40	Y	FAC
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Equisetum telmateia*	70	Y	FACW
2. *Lysichiton Schott*	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (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 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 10' south of A-14

SOIL

Sampling Point: TP A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/2	100					silt loam	
15-20	10YR 6/1	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 5"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP C1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355226 Long: -122.092756 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Corylus cornuta*	65	Y	FACU
2. *Salix scouleriana*	25	Y	FAC
3. *Alnus rubra*	10	N	FAC
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	25	Y	FAC
2. *Polystichum munitum*	90	Y	FACU
3.			
4.			
5.			
	115	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 60	x 3 = 180
FACU species 155	x 4 = 620
UPL species _____	x 5 = _____
Column Totals: 215 (A)	800 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: TP is 10' north of C-41

SOIL

Sampling Point: TP C1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					loam	
6-20	10YR 4/4	100					loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP C2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355226 Long: -122.092756 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil Yes , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	Y	FAC
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	75	Y	FAC
2. *Polystichum munitum*	5	N	FACU
3. *Rubus armeniacus*	15	N	FAC
4.			
5.			
	95 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Equisetum telmateia*	25	Y	FACW
2. *Ranunculus repens*	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (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 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 8' south of C-42

SOIL

Sampling Point: TP C2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					loam	
5-18	10YR 2/1	100					loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Some landlide activity in the area resulting in problematic soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 12"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-31-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP D1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.355178 Long: -122.093230 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	Y	FAC
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	30	Y	FAC
2. *Polystichum munitum*	45	Y	FACU
3. *Rubus ursinus*	15	N	FACU
4. *Rubsu armeniacus*	30	Y	FAC
5. *Pteridum aquilinum*	10	N	FACU
	130 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 10' north of D-32

SOIL

Sampling Point: TP D1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					loam	
4-13	10YR 4/4	100					sandy loam	
13-20	10YR 5/3	90	10YR 4/6	10	C	M	sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-31-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP D2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): A Lat: 47.355178 Long: -122.093230 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Pteridum aquilinum*	10	N	FACU
2. *Fallopia japonica*	60	Y	FACU
3. *Rubus spectabilis*	20	Y	FAC
4. *Rubsu armeniacus*	5	N	FAC
5.			
	130 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Lysichiton schott*	20	Y	OBL
2. *Cardamine sp.*	20	Y	FAC
3. *Ranunculus repens*	15	Y	FAC
4. *Equisetum telmateia*	20	Y	FACW
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 10' south of D-31

SOIL

Sampling Point: TP D2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					loam	
16-20	10YR 4/2	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): surface

Water Table Present? Yes ☒ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP E1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.354983 Long: -122.092781 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil Yes, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Y	FAC
2. *Prunus laurocerasus*	25	Y	FACU
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	25	N	FAC
2. *Polystichum munitum*	20	N	FACU
3. *Rubus ursinus*	70	Y	FACU
4. *Fallopia japonica*	15	N	FACU
5.			
	130	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 75	x 3 = 225
FACU species 130	x 4 = 520
UPL species _____	x 5 = _____
Column Totals: 205 (A)	745 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: TP is 10' northeast of E-3

SOIL

Sampling Point: TP E1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/3	100					sandy loam	
14-20	10YR 4/2	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 15"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 10"

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-31-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP E2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.354983 Long: -122.02781 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation Yes, Soil Yes, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	Y	FAC
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	15	Y	FAC
2. *Rosa sp.*	2	N	FACU
3. *Fallopia japonica*	20	Y	FACU
4. *Rubus ursinus*	5	N	FACU
5.			
	42 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Geranium robertianum*	20	Y	FACU
2. *Tolmiea menziesii*	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species 60	x 3 = 180
FACU species 47	x 4 = 188
UPL species ____	x 5 = ____
Column Totals: 127 (A)	368 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: TP is 10' southwest of E-3. The vegetation and soils are significantly disturbed and sparse due to landslides.

SOIL

Sampling Point: TP E2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					sandy loam	gravelly
4-9	10YR 2/1	100					sandy loam	
9-20	10YR 3/3	100					loam	gravelly

[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** ☐

Remarks: Disturbed soils caused by landslides in the area.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP F1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355674 Long: -122.092829 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	Y	FAC
2. *Corylus cornuta*	30	Y	FACU
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	10	N	FAC
2. *Polystichum munitum*	80	Y	FACU
3. *Rubus ursinus*	15	N	FACU
4.			
5.			
	105 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 70	x 3 = 210
FACU species 135	x 4 = 540
UPL species _____	x 5 = _____
Column Totals: 205 (A)	750 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: TP is 10' east of F-2

SOIL

Sampling Point: TP F1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					loam	
8-20	10YR 3/3	100					loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP F2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355674 Long: -122.092829 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Y	FAC
2. *Corylus cornuta*	10	N	FACU
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Ribes lacustre*	20	Y	FAC
2. *Rubus armeniacus*	15	Y	FAC
3. *Oplopanax horridus*	20	Y	FAC
4.			
5.			
	55 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Tolmiea menxiesii*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 10' northwest of F-2

SOIL

Sampling Point: TP F2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					sandy loam	
9-14	10YR 4/2	90	10YR 4/6	10	C	M	sandy loam	
14-20	10YR 2/1	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)
- ☐ 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** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 7"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP G1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355966 Long: -122.092691 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	Y	FAC
2.			
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	5	N	FAC
2. *Polystichum munitum*	40	Y	FACU
3. *Rubus armeniacus*	90	Y	FAC
4.			
5.			
	135 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 8' south of G-14

SOIL

Sampling Point: TP G1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/3	100					loam	
15-20	10YR 5/3	95	10YR 5/6	5	C	PL	clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP G2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355966 Long: -122.092691 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	65	Y	FAC
2.			
3.			
4.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus spectabilis*	15	N	FAC
2. *Polystichum munitum*	5	N	FACU
3. *Rubus armeniacus*	90	Y	FAC
4.			
5.			
	110 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 5' east of G-14

SOIL

Sampling Point: TP G2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					loam	
14-20	10YR 2/1	100					loam	gravelly

[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 ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): surface

Water Table Present? Yes ☒ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP J1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355971 Long: -122.093047 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	Y	FAC
2. *Corylus cornuta*	60	Y	FACU
3.			
4.			
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Polystichum munitum*	20	N	FACU
3. *Rubus armeniacus*	80	Y	FAC
4.			
5.			
	130	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 10' east of J-4

SOIL

Sampling Point: TP J1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/3	100					loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**))
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP J2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355971 Long: -122.093047 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	Y	FAC
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Phalaris arundinacea*	30	Y	FACW
2. *Rubus spectabilis*	5	N	FAC
3. *Rubus armeniacus*	60	Y	FAC
4.			
5.			
	95 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Equisetum telmateia*	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (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 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 5' west of J-2

SOIL

Sampling Point: TP J2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					loam	restrictive layer at 12"

[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: Compact gravel

Depth (inches): 12

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: It is asumed hydric soils are present. There is a restrictive gravel layer along the road easement preventing deeper test pits.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): surface

Water Table Present? Yes ☒ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP K1

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355854 Long: -122.092857 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Y	FAC
2. *Acer circinatum*	75	Y	FACU
3.			
4.			
	125	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *rubus ursinus*	10	Y	FACU
2. *Polystichum munitum*	15	N	FACU
3. *Rubus armeniacus*	25	Y	FAC
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 75	x 3 = 225
FACU species 100	x 4 = 400
UPL species _____	x 5 = _____
Column Totals: 175 (A)	625 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: TP is 8' south of K-1

SOIL

Sampling Point: TP K1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					loam	
12-20	10YR 4/4	100					loam	gravelly

[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 ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: TAL-1789 City/County: Bellvue/King Sampling Date: 1-25-2019

Applicant/Owner: Sunset Hills Memorial State: WA Sampling Point: TP K2

Investigator(s): RT/AE Section, Township, Range: SE 1/4 S3, T24N, R5E W.M.

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): A Lat: 47.355854 Long: -122.092857 Datum: NAD 83

Soil Map Unit Name: Alderwood gravelly sandy loam - 8 to 30 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	Y	FAC
2. *Acer circinatum*	25	Y	FACU
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Hedera helix*	5	N	FACU
2. *Polystichum munitum*	2	N	FACU
3. *Rubus armeniacus*	70	Y	FAC
4.			
5.			
	77	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: TP is 2' south of K-1

SOIL

Sampling Point: TP K2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-13	10YR 2/1	100					loam	
13-18	10YR 4/2	100					loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: Hydric soils are asumed. It was difficult to distinguish clear redox features with the wet soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6(**LRR A**)
- ☐Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 4"

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

Appendix B:

Wetland Rating Forms
Washington State Department of Ecology Wetland Rating System for Western Washington, 2014 Update.

Talasaea Consultants, 2019

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland A Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H M (L)	H M (L)	H (M) L	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	5	4	6	15

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **1-2 = M** X **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
X___Emergent	3 structures: points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X___Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

X___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
____Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
X___Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
X___Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

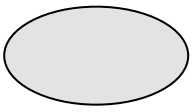
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

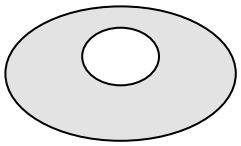
1

H 1.4. Interspersion of habitats

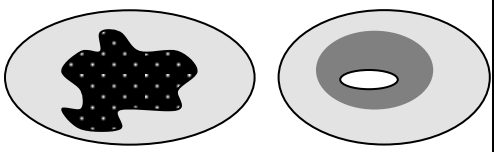
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

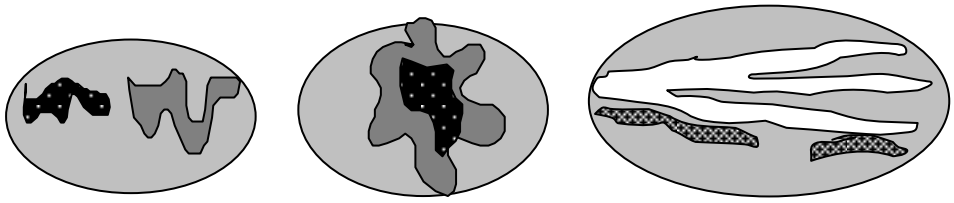


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	7

Rating of Site Potential If score is: ___ **15-18 = H** X **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland C Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	6	4	5	15

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	X

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number C

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number C

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number C

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	2
Total for S 1 Add the points in the boxes above	3

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number C

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

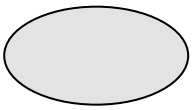
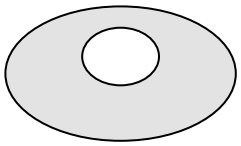
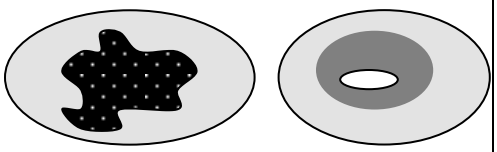
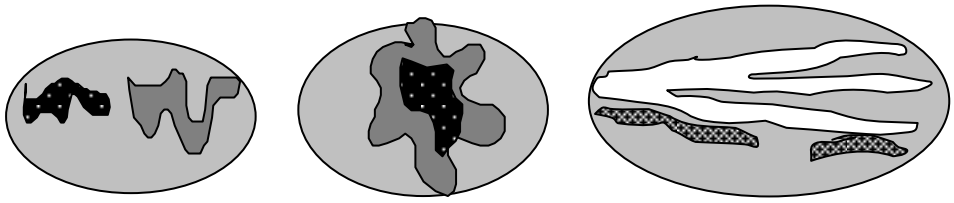
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number C

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 ____Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 __X__Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* __X__The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 __X__Saturated only — 1 type present: points = 0 __X__Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	1

Wetland name or number C

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	6

Rating of Site Potential If score is: ___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is**:** ___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number C

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland D Date of site visit: 1/31/19

Rated by RT/AE Trained by Ecology? __ Yes X No Date of training_____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H (M) L	H (M) L	
Landscape Potential	H (M) L	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	6	5	6	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number D

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number D

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number D

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number D

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows*. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: X **1 = M** ___ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

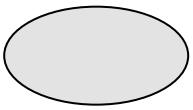
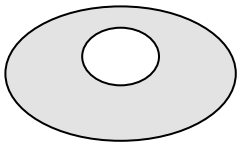
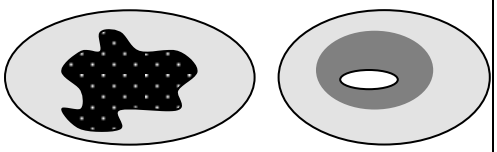
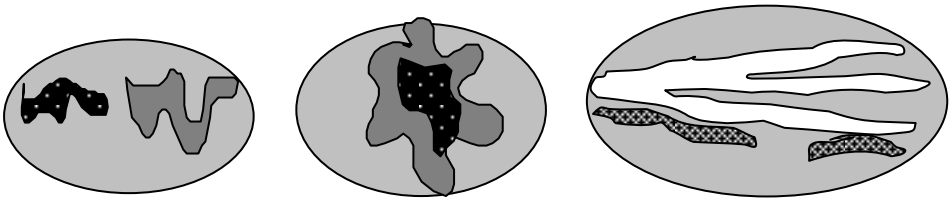
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number D

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 ____Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 __X__Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* __X__The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 __X__Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 __X__Saturated only — 1 type present: points = 0 __X__Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	1

Wetland name or number D

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	7

Rating of Site Potential If score is:___**15-18 = H** X **7-14 = M** ___**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is:___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number D

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number E

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland E Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	6	4	5	15

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number E

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number E

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number E

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number E

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number E

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

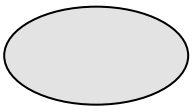
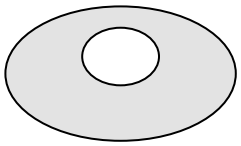
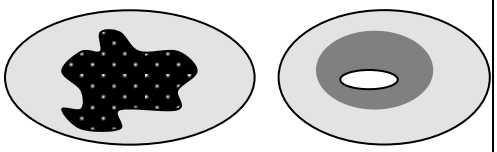
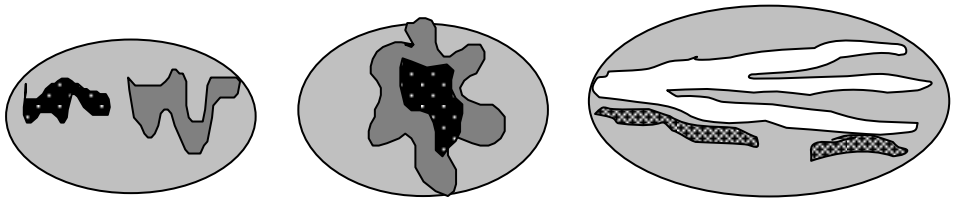
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number E

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 ____Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 X Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 X Saturated only — 1 type present: points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	0

Wetland name or number E

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X___Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	2

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is**:**___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number E

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland F Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H (M) L	
Landscape Potential	H (M) L	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	6	4	6	16

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number F

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number F

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number F

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number F

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number F

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows*. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number F___

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
X___Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X___Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

X___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
X___Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
X___Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
X___Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

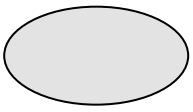
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

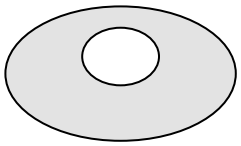
1

H 1.4. Interspersion of habitats

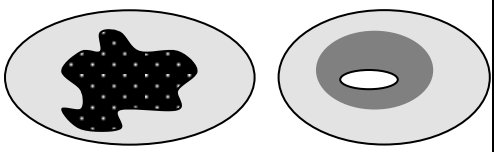
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

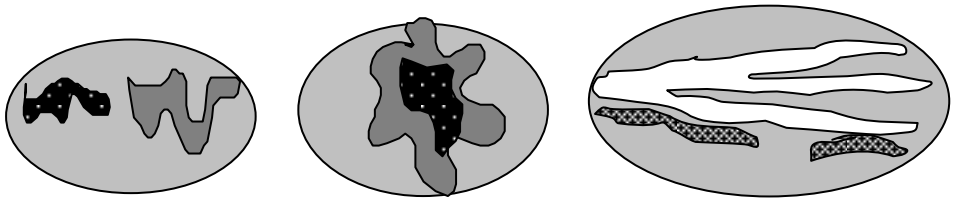


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



2

Wetland name or number F

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	9

Rating of Site Potential If score is:___**15-18 = H** X **7-14 = M** ___**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is:___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number F

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number G

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland G Date of site visit: 1/31/19

Rated by RT/AE Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H (M) L	H M (L)	
Landscape Potential	H (M) L	H (M) L	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	6	6	5	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number G

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number G

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number G

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	3
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number G

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows*. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: X **1 = M** ___ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1

Rating of Landscape Potential If score is: X **1 = M** ___ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number G

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
____Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
X Saturated only	1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

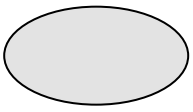
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

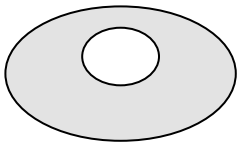
1

H 1.4. Interspersion of habitats

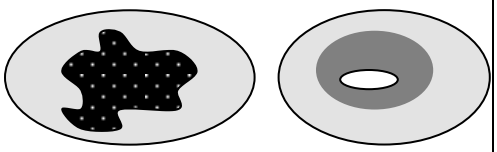
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

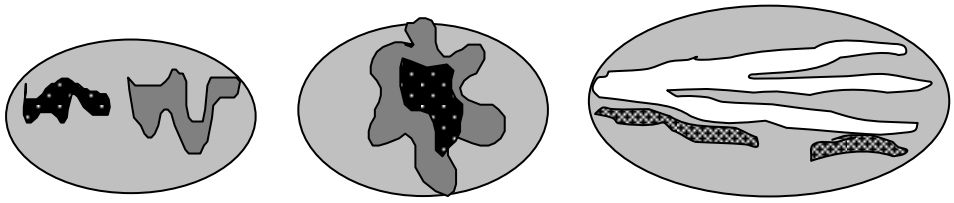


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number G

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	6

Rating of Site Potential If score is: ___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is: ___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number G

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number H

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland H Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes _X_ No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	H (M) L	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	7	5	5	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number H

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number H

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number H

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1 Add the points in the boxes above	7

Rating of Site Potential If score is: ___ **12 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is: X **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number H

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows*. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	1

Rating of Site Potential If score is: X **1 = M** ___ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

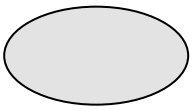
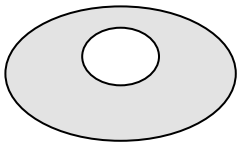
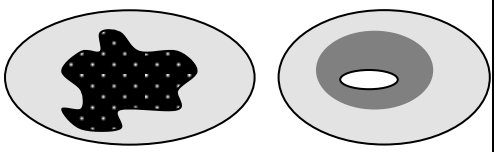
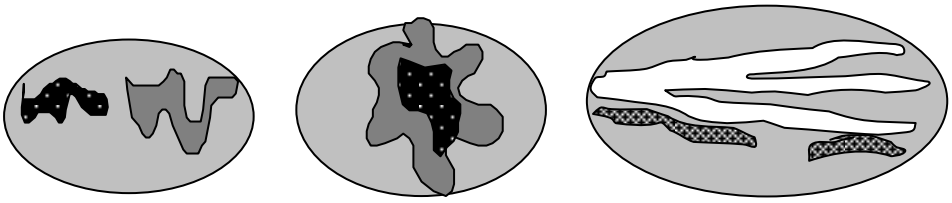
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number H

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 X ____Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ____Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 X ____Saturated only — 1 type present: points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland X ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	0

Wetland name or number H

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	2

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** _X_**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is:___**4-6 = H** ___**1-3 = M** _X_**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: _X_ **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number H

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number J

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland J Date of site visit: 1/25/19

Rated by RT Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) M L	H (M) L	(H) M L	**TOTAL**
Score Based on Ratings	5	4	5	14

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number J

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number J

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number J

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	1
Total for S 1 Add the points in the boxes above	2

Rating of Site Potential If score is: ___**12 = H** ___**6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___**1-2 = M** X **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number J

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows*. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

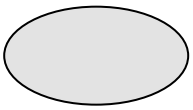
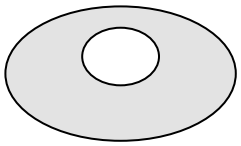
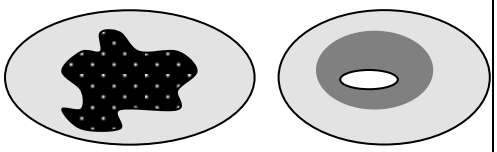
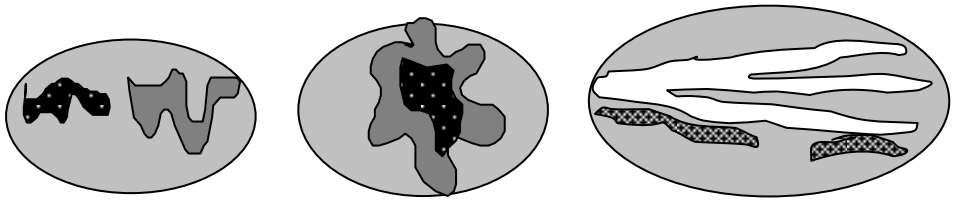
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number J____

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 ____Emergent — 3 structures: points = 2 X___Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ____Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 X___Saturated only — 1 type present: points = 0 X___Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	0

Wetland name or number J

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	1

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** _X_**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is:___**4-6 = H** ___**1-3 = M** _X_**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: _X_ **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number J

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number K

RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL 1789 - Wetland K Date of site visit: 1/31/19

Rated by RT/AE Trained by Ecology? __ Yes X No Date of training _____

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y X ___N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	H (M) L	H (M) L	(H) M L	TOTAL
Score Based on Ratings	4	4	5	13

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	X

Wetland name or number K

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number K

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO **– Saltwater Tidal Fringe (Estuarine)** **YES – Freshwater Tidal Fringe**

   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**

   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   _X_The wetland is on a slope (*slope can be very gradual*),
   _X_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   _X_The water leaves the wetland **without being impounded**.

   NO – go to 5 YES **–** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number K

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	0
Total for S 1 Add the points in the boxes above	1

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **1-2 = M** X **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	0
Total for S 3 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number K

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	0

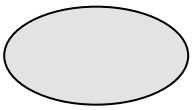
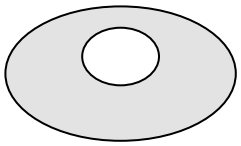
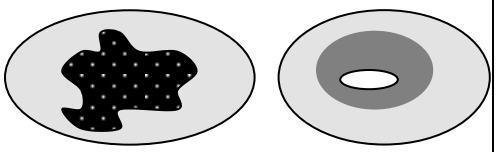
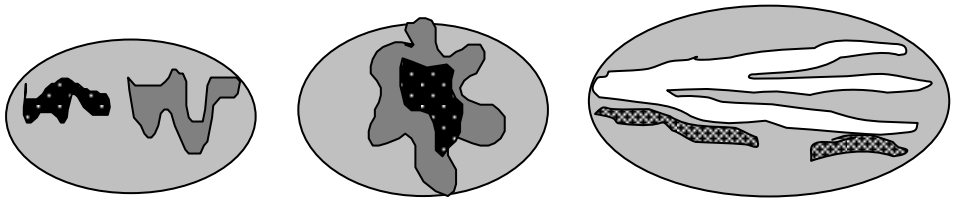
Rating of Landscape Potential If score is: ___ **1 = M** X **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number K

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 ____Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 __X__Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 __X__Saturated only — 1 type present: points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	0
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	1

Wetland name or number K

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	2

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-1

Rating of Landscape Potential If score is**:**___**4-6 = H** ___**1-3 = M** X **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 X It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: X **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number K

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

X **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

X **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

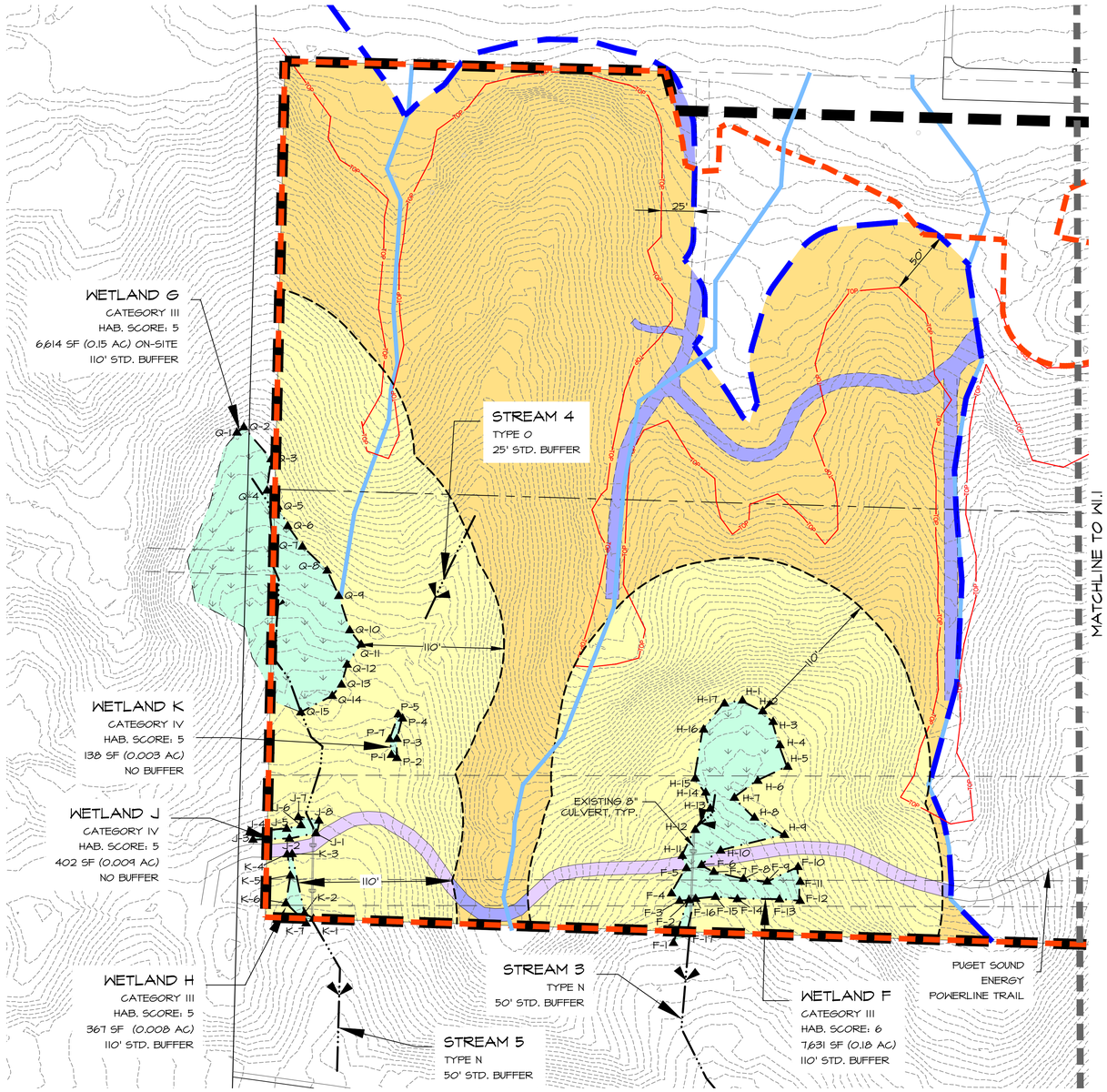
Appendix C:

Detailed Mitigation Plan

(Large plan sheets)

Sheet W1.0: Existing Conditions Plan – Wetlands & Streams
Sheet W1.1: Existing Conditions Plan – Wetlands & Streams
Sheet W1.2: Existing Conditions Plan – Slopes
Sheet W1.3: Existing Conditions Plan – Slopes
Sheet W2.0: Proposed Grading Plan & Stream Buffer Impacts
Sheet W2.1: Proposed Grading Plan & Slope Impacts
Sheet W3.0: Proposed Mitigation Overview Plan
Sheet W3.1: Proposed Clearing, Grubbing, & Habitat Feature Plan
Sheet W3.2: Clearing, Grubbing, and Planting Notes & Details
Sheet W4.0: Proposed Planting Plan
Sheet W4.1: Proposed Planting Plan Specifications and Details

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

NOTE: WETLAND NAMES WERE CHANGED POST-DELINEATION. FLAG NUMBERS REFLECT IN-FIELD CONDITIONS. WETLAND F CONTAINS FLAGS H-1 THROUGH H-11 AND F-1 THROUGH F-17. WETLAND H CONTAINS FLAGS K-1 THROUGH K-7. WETLAND K CONTAINS FLAGS P-1 THROUGH P-7. WETLAND G CONTAINS FLAGS Q-1 THROUGH Q-15.

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- ▲A-# WETLAND FLAG LOCATION
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

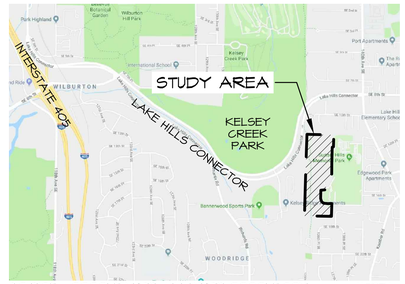
*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

BUFFER LEGEND

- WETLAND BUFFER ONLY
- STREAM BUFFER ONLY
- COMBINED WETLAND & STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER

VICINITY MAP

NTS



SOURCE: GOOGLE MAPS; WWW.MAPS.GOOGLE.COM (ACCESSED 3-7-2019)

NORTH

CONTACTS

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CONTACT: PATRICK HUSBAND

ENGINEER/SURVEYOR
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TACOMA, WA, 98402
PHONE: (206) 324-5500
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ENVIRONMENTAL CONSULTANT
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ECOLOGIST
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SHEET INDEX

Know what's below. Call before you dig.

NOTES

1. SURVEY AND SITE PLAN PROVIDED BY HUITT-ZOLLARS, 1102 BROADWAY, SUITE 301, TACOMA 98402. (206) 324-5500.
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Resource & Environmental Planning
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CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

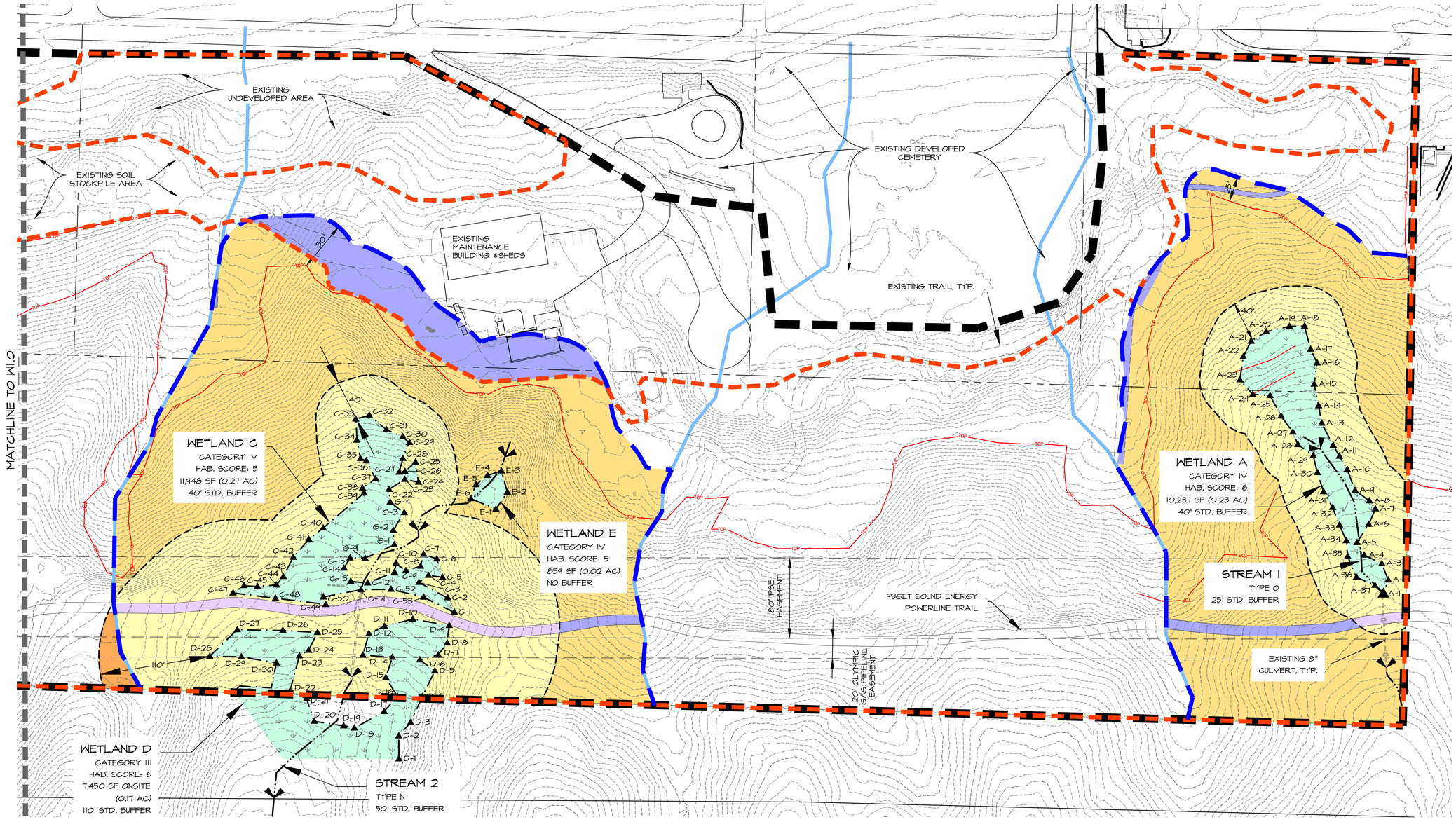
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MH
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS NOTED
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W1.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- A-# WETLAND FLAG LOCATION
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

BUFFER LEGEND

- WETLAND BUFFER
- STREAM BUFFER
- COMBINED WETLAND & STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER

NOTE: WETLAND NAMES WERE CHANGED POST-DELINEATION. FLAG NUMBERS REFLECT IN-FIELD CONDITIONS. WETLAND F CONTAINS FLAGS H-1 THROUGH H-11 AND F-1 THROUGH F-17. WETLAND H CONTAINS FLAGS K-1 THROUGH K-7. WETLAND K CONTAINS FLAGS P-1 THROUGH P-7. WETLAND G CONTAINS FLAGS Q-1 THROUGH Q-15.

Know what's **below.** **Call** before you dig.

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BELLEVUE, WASHINGTON

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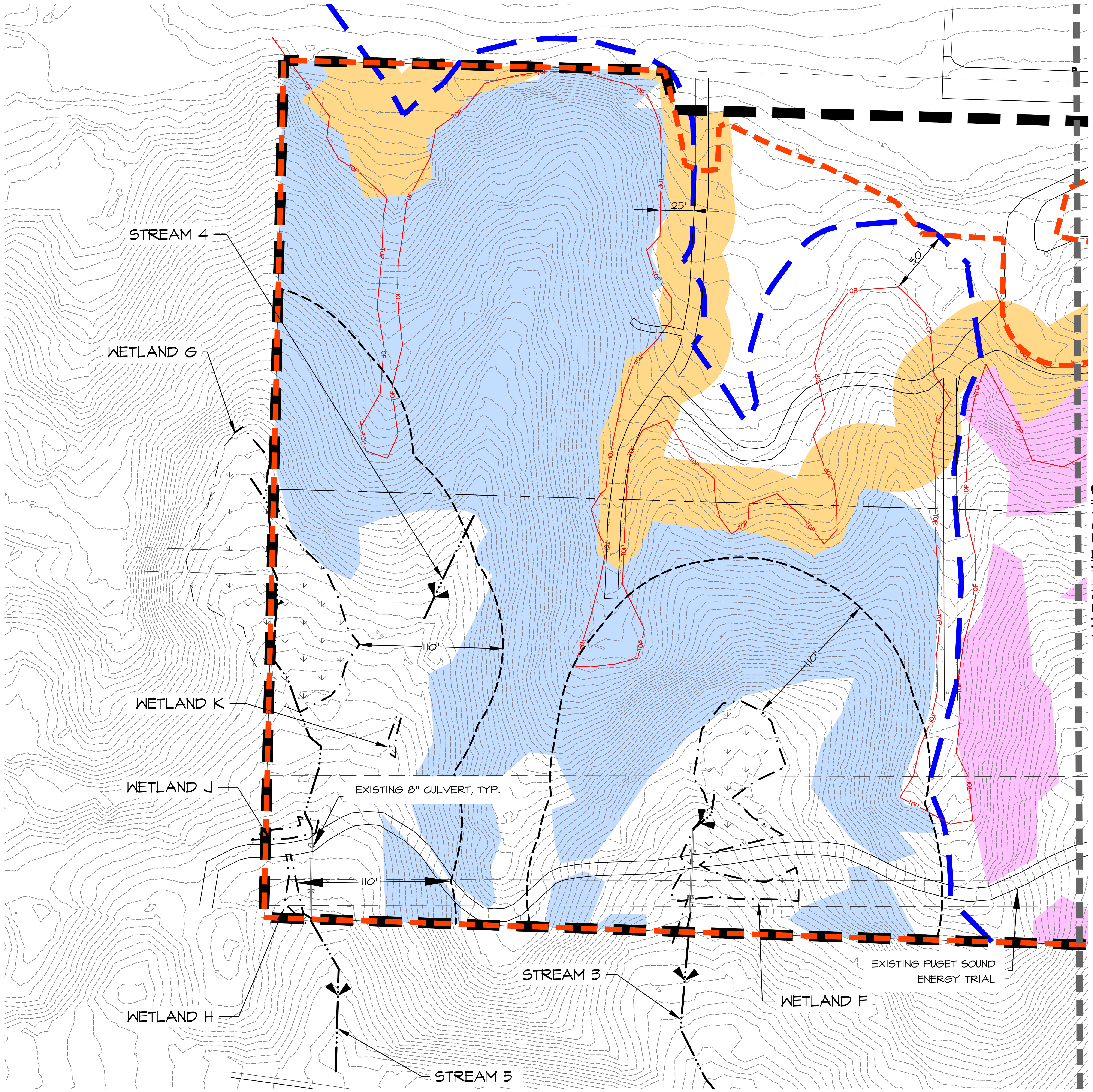
NW 1/4 SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE
(IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)
- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

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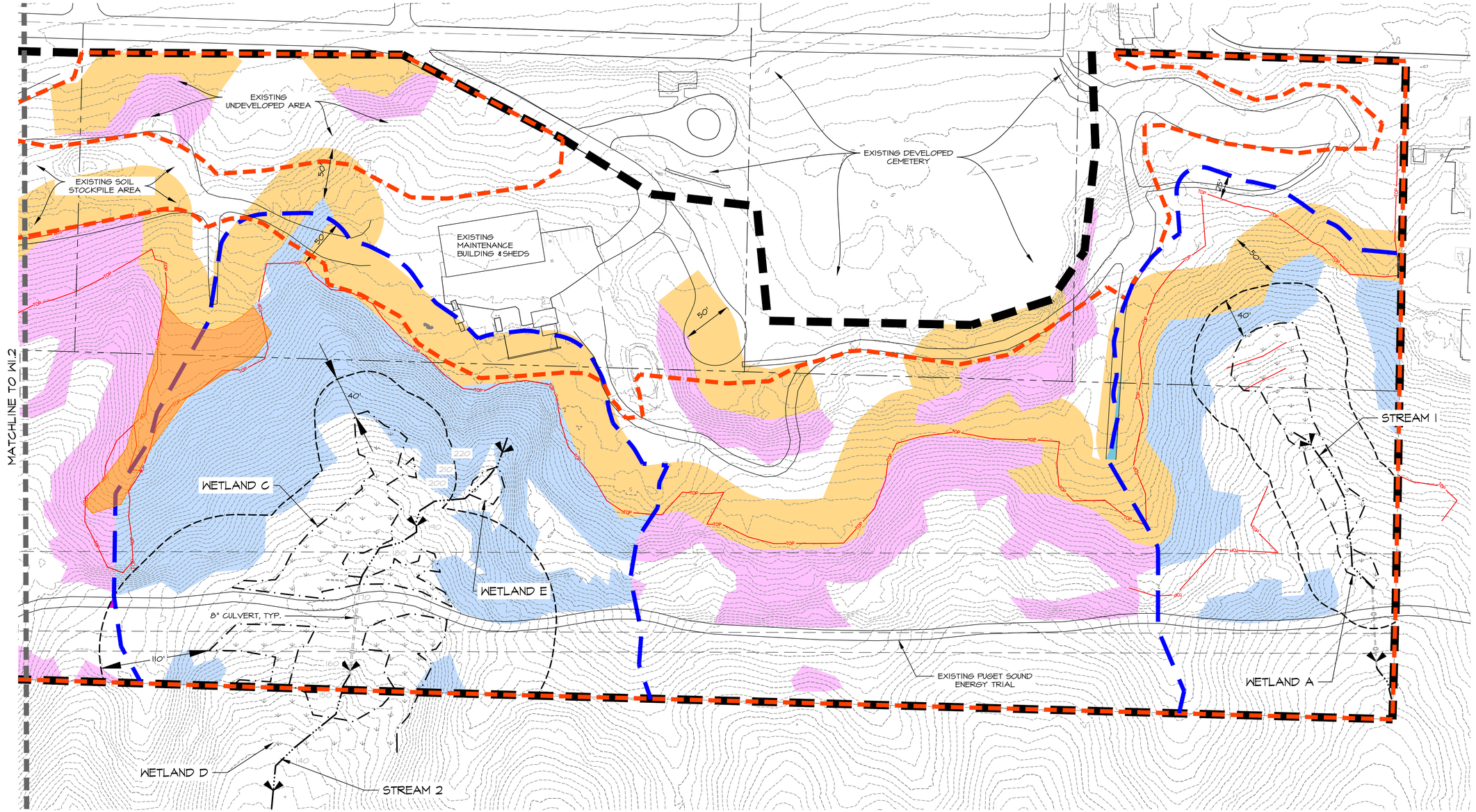

EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)
- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER (50' STD. FROM TOP OF SLOPE)

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

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CITY COMMENTS	12-1-2020	KM

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Sheet # WI.3

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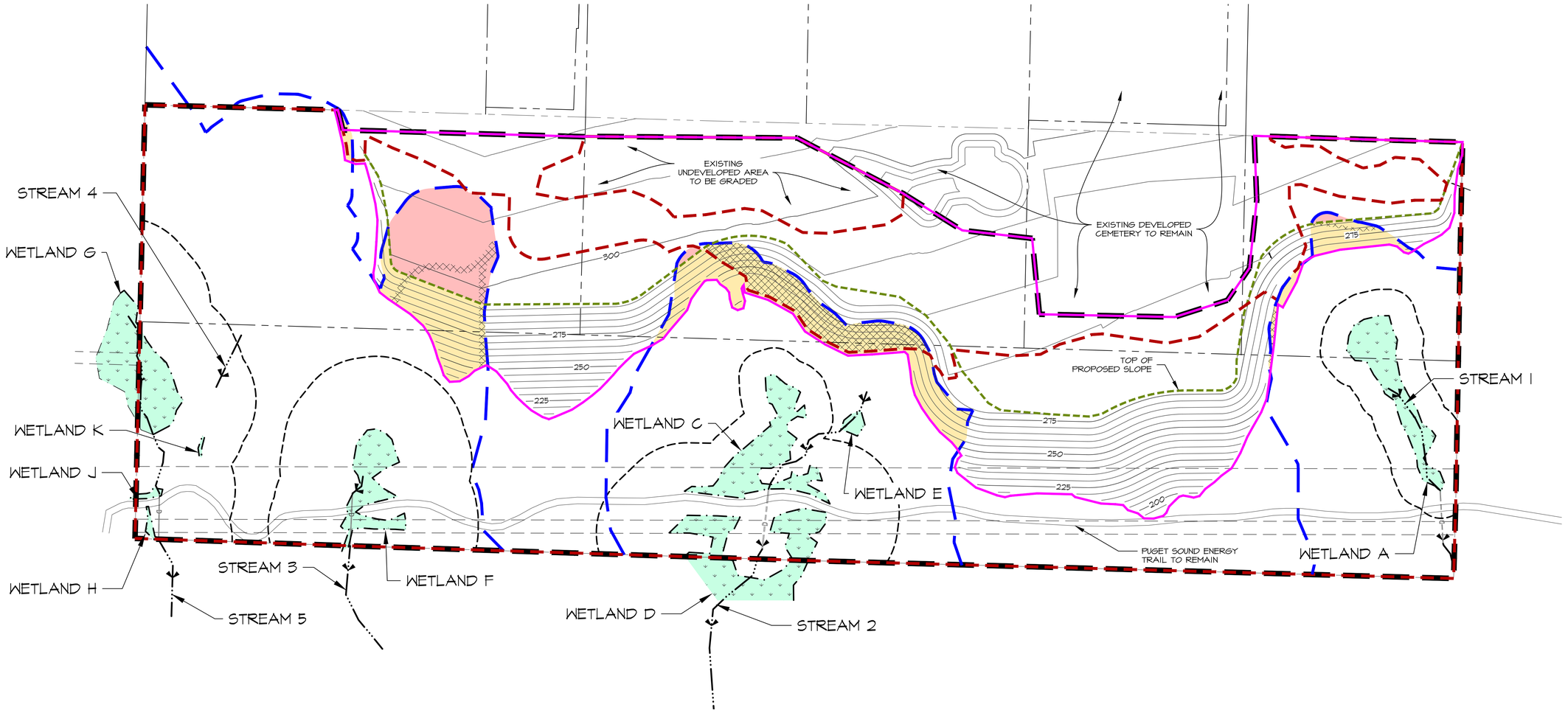

PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER
- EXISTING UNDEVELOPED AREAS

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STREAM BUFFER IMPACTS LEGEND

PERMANENT STREAM BUFFER IMPACTS

OUTSIDE OF EXISTING, NON-CONFORMING USES:	20,151 SF	(0.46 AC)
WITHIN EXISITNG, NON-CONFORMING USES	2,321 SF	(0.05 AC)
TOTAL:	22,472 SF	(0.51 AC)

PROPOSED GRADED STREAM BUFFER TO BE REVEGETATED

OUTSIDE OF EXISTING, NON-CONFORMING USES:	33,531 SF	(0.77 AC)
WITHIN EXISITNG, NON-CONFORMING USES	17,370 SF	(0.40 AC)
TOTAL:	50,901 SF	(1.17 AC)

TOTAL IMPACTS: 73,373 SF (1.68 AC)

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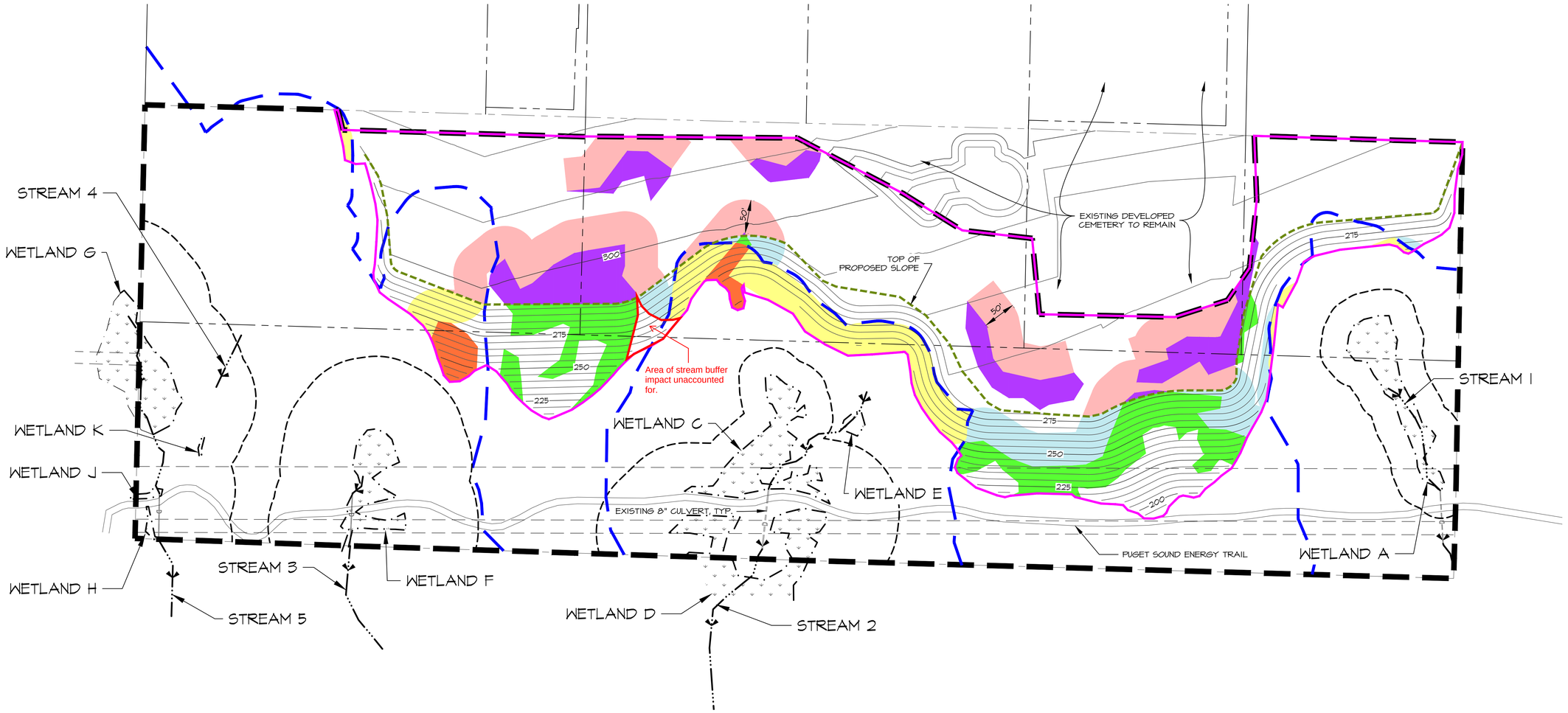

PROPOSED GRADING PLAN & STEEP SLOPE IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STEEP SLOPE IMPACTS LEGEND

PERMANENT STEEP SLOPE IMPACTS

	PERMANENT SLOPE IMPACTS:	36,831 SF	(0.85 AC)
	PERMANENT SLOPE BUFFER IMPACTS:	65,378 SF	(1.50 AC)
	TOTAL:	102,209 SF	(2.35 AC)

PROPOSED REGRADED STEEP SLOPE BUFFER TO BE REVEGETATED

	TEMPORARY SLOPE IMPACTS WITHIN STREAM BUFFERS	7,177 SF	(0.16 AC)
	TEMPORARY SLOPE IMPACTS OUTSIDE OF STREAM BUFFERS	39,962 SF	(0.92 AC)
	TEMPORARY SLOPE BUFFER IMPACTS WITHIN STREAM BUFFERS:	32,670 SF	(0.75 AC)
	TEMPORARY SLOPE BUFFER IMPACTS OUTSIDE OF STREAM BUFFERS:	23,960 SF	(0.55 AC)
	TOTAL:	103,769 SF	(2.38 AC)

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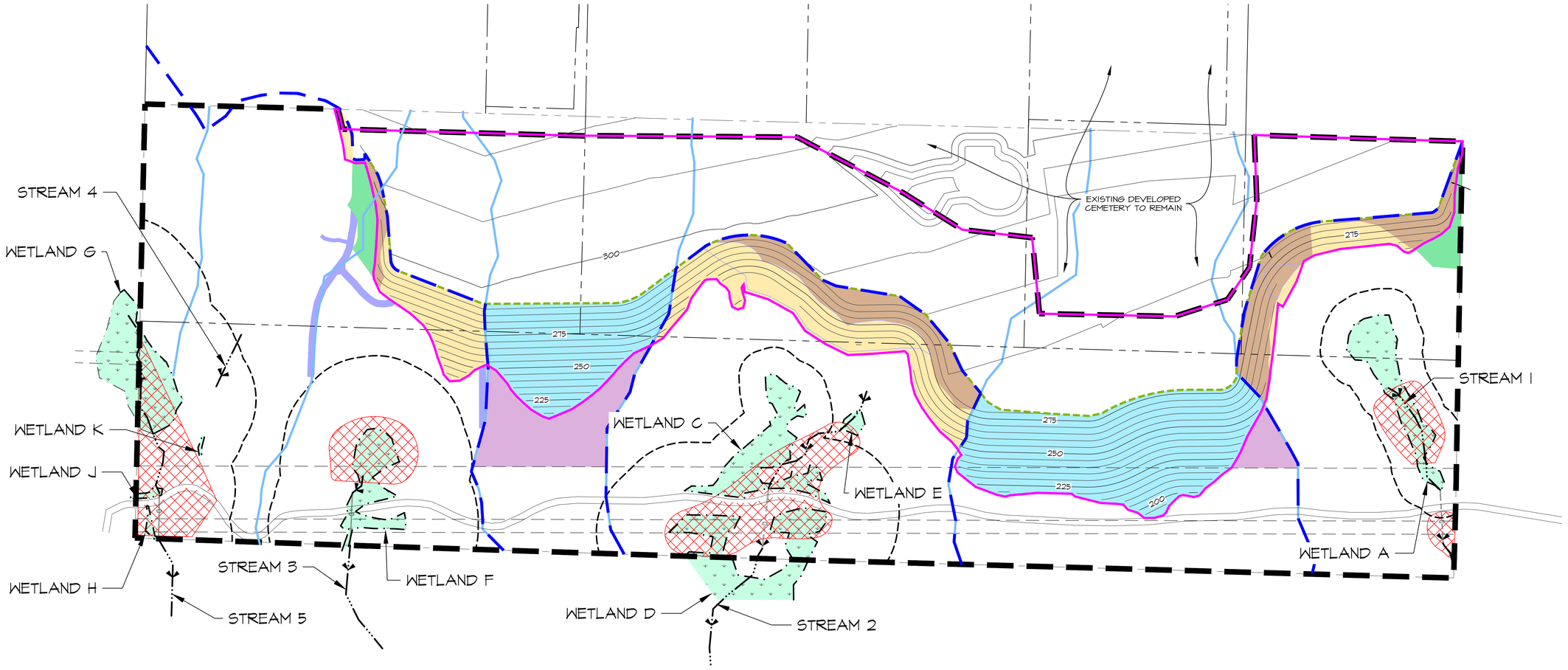

PROPOSED MITIGATION OVERVIEW PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

MITIGATION LEGEND

BUFFER CREATION			
	STREAM BUFFER CREATION FROM NATIVE UPLAND	8,625 SF	(0.20 AC.)
	STREAM BUFFER CREATION WITHIN REESTABLISHED GRADED AREAS	37,181 SF	(0.85 AC.)
BUFFER RESTORATION			
	FROM PRE-EXISTING BUFFER IMPACTS/ NON-CONFORMING USES	899 SF	(0.02 AC.)
	RESTORED GRADED STREAM BUFFER	50,901 SF	(1.17 AC.)
WETLAND/BUFFER ENHANCEMENT			
	INVASIVE SPECIES REMOVAL WITH ENHANCEMENT	70,273 SF	(1.61 AC.)
GENERAL HABITAT RESTORATION			
	SLOPE HABITAT RESTORATION IN GRADED AREAS	96,570 SF	(2.22 AC.)
	PRESERVED NATIVE FOREST	27,430 SF	(0.63 AC.)
TOTAL MITIGATION:		291,879 SF	(6.70 AC.)

Performance standards and monitoring only discusses these three areas.

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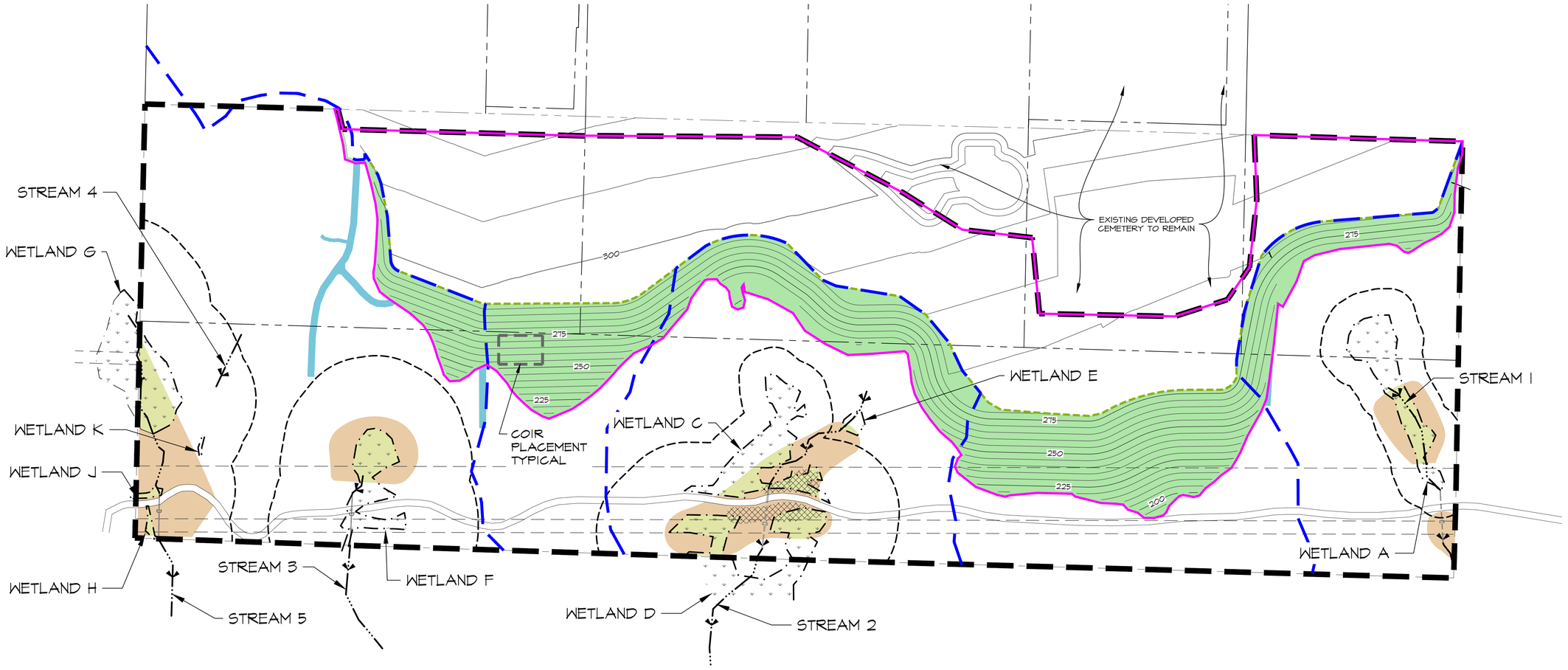


PROPOSED CLEARING, GRUBBING AND HABITAT FEATURE PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

GRADING LEGEND

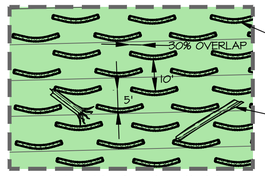
- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (3/R03)

CLEARING AND GRUBBING LEGEND

STRUCTURES TO BE DEMOLISHED; NEW 2:1 SLOPE TO BE CONSTRUCTED, SPRAYED WITH TOPSOIL, AND HYDROSEEDED WITH NATIVE GRASS SPECIES; COIR LOGS TO BE PLACED PER TYPICAL.	183,540 SF	(4.21 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; MULCH ENTIRE AREA; AND REPLANT WITH NATIVE SPECIES.	46,737 SF	(1.07 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; RE-PLANT WITH NATIVE SPECIES AND ADD A MULCH RING AROUND INDIVIDUAL PLANTS.	22,877 SF	(0.53 AC)
JAPANESE KNOTWEED TO BE INJECTED WITH HERBICIDE, GRUBBED WHEN CONFIRMED DEAD, AND REPLACED WITH NATIVE SPECIES.	5,617 SF	(0.13 AC)
DECOMPACT EXISTING TRAILS, AMEND WITH TOPSOIL AND MULCH, AND PLANT WITH NATIVE SPECIES	5,900 SF	(0.14 AC)

Info needed on hydroseed mix

Invasive removal total outside of regarded slope area - 75,231 SF (1.73 AC)



COIR PLACEMENT TYPICAL

SCALE: 1"=20'

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (1/R03)
- WOODY DEBRIS (DOWN LOGS) (2/R03)

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Sheet # W3.1

NOTES FOR CLEARING, GRUBBING, AND HABITAT FEATURE INSTALLATION

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION:

1. CONTRACTOR SHALL GIVE TALASAEA CONSULTANTS A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO BEGINNING CONSTRUCTION.

2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, TALASAEA CONSULTANTS, GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONSTRAINTS.

3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION PLAN AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. TALASAEA CONSULTANTS SHALL REVIEW ANY CONFLICTS WITH THE APPROVED MITIGATION PLAN PRIOR TO START OF CONSTRUCTION.

4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.

5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.

6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.

7. A QUALIFIED ECOLOGIST SHALL BE ON SITE, AS NECESSARY, TO MONITOR MITIGATION CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.

8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.

9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.

10. THE CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THIS MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, TALASAEA CONSULTANTS, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS.

2. SURVEY CLEARING LIMITS.

3. INSTALL SILT FENCE AND ANY OTHER EROSION AND SEDIMENTATION CONTROL BMPS NECESSARY FOR WORK IN THE MITIGATION AREAS.

4. CLEAR AND GRUB NON-NATIVE/INVASIVE VEGETATION FROM WETLAND AND BUFFER AREAS

5. ON PROPOSED GRADED SLOPES (PLANTING TYPICALS #1 AND #2), AMEND PLANTING AREAS WITH 8-INCH MINIMUM OF TOPSOIL AND PLACE LARGE WOODY MATERIAL. NO TOPSOIL AMENDMENT IS NECESSARY WITHIN PLANTING TYPICALS #2 AND #3.

6. HYDROSEED ALL GRADED AREAS WITHIN PLANTING TYPICAL AREAS #1 AND #2 WITH A NATIVE MEADOW GRASS MIX.

7. COMPLETE SITE CLEANUP AND INSTALL PLANT MATERIAL ONCE THE HYDROSEED GRASS MIX HAS MATURED, AS INDICATED ON THE MITIGATION PLANTING PLAN.

8. INSTALL BARRIER FENCE AND CRITICAL AREA SIGNS.

1.2 PROJECT CONDITIONS

A. PROTECTION AND MAINTENANCE OF OFF-SITE AREAS: CONTRACTOR SHALL ENSURE THAT CONSTRUCTION RELATED ACTIVITIES DO NOT DAMAGE OFF-SITE FEATURES OR ADJACENT VEGETATION. TALASAEA CONSULTANTS SHALL BE NOTIFIED IMMEDIATELY IF ACCIDENTAL DAMAGE OCCURS. CONTRACTOR SHALL ENSURE THAT ADJACENT ROADS ARE MAINTAINED AND KEPT CLEAR OF SOIL AND/OR OTHER DEBRIS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH THE GOVERNING JURISDICTION'S CODES REGARDING STREET MAINTENANCE/CLEANING DURING CONSTRUCTION.

B. PLAN CHANGES AND MODIFICATIONS: ANY CHANGES OR MODIFICATIONS TO THE MITIGATION PLANS OR SPECIFICATIONS MUST RECEIVE PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

1.3 WARRANTY

A. WARRANTY TERMS AND CONDITIONS: A CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL CLEARING/GRUBBING, HABITAT FEATURE PLACEMENT, PLANTING, IRRIGATION, AND SEED PHASES OF SUCH WORK HAVE BEEN COMPLETED AND ARE ACCEPTED BY THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

PART 2: PRODUCTS AND MATERIALS

2.1 HABITAT FEATURES

A. DOWN LOGS: DOWN LOGS SHALL BE CEDAR OR FIR SPECIES, HAVE A 20 FOOT MINIMUM LENGTH, WITH OR WITHOUT ROOTS, AND A MINIMUM DIAMETER OF 18 INCHES. BARK SHALL BE KEPT INTACT. ENDS THAT HAVE BEEN CUT SHALL BE DISTRESSED AND NOT BLUNT. DOWN LOGS MAY BE SOURCED FROM CLEARED TREES ONSITE, OR IMPORTED FROM OFFSITE.

2.3 TOPSOIL

A. TOPSOIL: TOPSOIL THAT HAS BEEN STOCKPILED ON-SITE FOR REUSE IN PROJECT AREA(S) OR IMPORTED FROM OFF-SITE SOURCES SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

2.4 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

PART 3: EXECUTION

A. SURVEY/STAKE/FLAG LIMITS OF CLEARING:

1. PRIOR TO ANY CONSTRUCTION, A LICENSED SURVEYOR SHALL SURVEY, STAKE, AND FLAG CLEARING LIMITS. CLEARING LIMITS ARE DEPICTED ON THE MITIGATION PLANS. TALASAEA CONSULTANTS SHALL REVIEW AND APPROVE FLAGGING OF CLEARING LIMITS PRIOR TO ANY VEGETATION REMOVAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATIONS OF VEGETATION TO BE SAVED AND REQUEST THAT TALASAEA CONSULTANTS MODIFY THE MITIGATION PLAN AS NECESSARY TO AVOID ALL SIGNIFICANT NATIVE VEGETATION.

B. FLAG AND PROTECT EXISTING VEGETATION TO REMAIN:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING DISTURBANCE TO EXISTING VEGETATION LOCATED OUTSIDE THE CLEARING LIMITS. NO REMOVAL OF ANY VEGETATION SHALL OCCUR WITHOUT PRIOR APPROVAL BY TALASAEA CONSULTANTS.

2. TALASAEA CONSULTANTS SHALL FLAG EXISTING VEGETATION TO REMAIN LOCATED WITHIN THE MITIGATION AREA. FLAGGED VEGETATION SHALL NOT BE DISTURBED, UNLESS APPROVED IN WRITING BY TALASAEA CONSULTANTS.

3. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, AND BRANCHES OF TREES AND SHRUBS TO REMAIN. ANY WOODY PLANT TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED IMMEDIATELY AFTER DAMAGE OCCURS, AND TALASAEA CONSULTANTS SHALL BE NOTIFIED OF INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

C. PLACE EROSION CONTROL MEASURES:

1. CONTRACTOR IS RESPONSIBLE FOR, AND SHALL INSTALL, SILT FENCING AND OTHER EROSION CONTROL BMPS PRIOR TO ANY MITIGATION CONSTRUCTION ACTIVITY. OTHER EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY OR AS REQUIRED. TALASAEA CONSULTANTS SHALL VERIFY AND APPROVE LOCATIONS OF EROSION CONTROL MEASURES WITHIN MITIGATION AREAS PRIOR TO COMMENCING MITIGATION CONSTRUCTION. EROSION CONTROL MEASURES FOR MITIGATION WORK SHALL BE COORDINATED WITH EROSION CONTROL FOR CIVIL SITE WORK AS NECESSARY.

2. CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES FOR THE DURATION OF THE PROJECT. THESE MEASURES SHALL REMAIN IN PLACE UNTIL AUTHORIZATION IS GIVEN BY TALASAEA CONSULTANTS FOR REMOVAL OR LOCATION ADJUSTMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL EROSION CONTROL MEASURES WITHIN AND/OR ADJACENT TO SENSITIVE AREAS WHEN AUTHORIZED BY TALASAEA CONSULTANTS.

3. AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY TALASAEA CONSULTANTS TO ENSURE CONTINUED EROSION/SEDIMENTATION CONTROL.

4. WHERE POSSIBLE, NATURAL GROUND COVER VEGETATION SHALL BE MAINTAINED FOR EROSION CONTROL.

D. INVASIVE/NON-NATIVE VEGETATION REMOVAL FROM MITIGATION AREAS:

1. CONTRACTOR SHALL GRUB OUT ALL NON-NATIVE AND INVASIVE VEGETATION WITHIN BUFFER MITIGATION AREAS AS SHOWN ON THE MITIGATION PLANS, WITH THE EXCEPTION OF JAPANESE KNOTWEED AND FLAGGED EXISTING VEGETATION TO REMAIN. IN AREAS OF EXISTING VEGETATION, CONTRACTOR SHALL REMOVE INVASIVE SPECIES INCLUDING, BUT ARE NOT LIMITED TO: SCOT'S BROOM, ENGLISH IVY, HIMALAYAN AND EVERGREEN BLACKBERRY, PURPLE LOOSESTRIFE, HEDGE BINDWEED (MORNING GLORY), CANADA THISTLE, AND CREEPING NIGHTSHADE. INVASIVE/NON-NATIVE VEGETATION SHALL BE REMOVED BY HAND WITH MINIMAL DISTURBANCE TO THE EXISTING NATIVE VEGETATION TO REMAIN. ALL ROOTS SHALL BE REMOVED TO THE MAXIMUM EXTENT PRACTICABLE.

2. JAPANESE KNOTWEED CONTROL: JAPANESE KNOTWEED SHALL BE TREATED THROUGH INJECTION WITH AN HERBICIDE APPROVED FOR USE IN AQUATIC AREAS (E.G., RODEO, OR EQUAL). HERBICIDE TREATMENT SHALL BE APPLIED TO EACH INDIVIDUAL CANE OF THE PLANT. IF, AFTER ONE (1) GROWING SEASON, THE JAPANESE KNOTWEED HAS PERSISTED, IT WILL REQUIRE RE-TREATMENT.

3. ALL GRUBBED VEGETATION SHALL BE EXPORTED FROM THE SITE AND DISPOSED OF IN AN APPROVED MANNER FOLLOWING ALL APPLICABLE LOCAL/STATE/FEDERAL REGULATIONS.

4. TALASAEA CONSULTANTS SHALL DESIGNATE ANY ADDITIONAL PLANT SPECIES TO BE REMOVED DURING MITIGATION CONSTRUCTION.

F. TOPSOIL

1. TOPSOIL SHALL BE SCRAPED AND SCREENED FROM PROPOSED CLEARING AND GRADING AREAS AND STOCKPILED FOR REUSE ON THE NEW PROPOSED SLOPE.

2. IN ALL CLEARED AND GRUBBED BUFFER MITIGATION AREAS, EXISTING SOIL SHALL BE AMENDED TO PROVIDE A 9-INCH MINIMUM DEPTH OF TOPSOIL.

G. HYDROSEED: AREAS GRADED AT A 2:1 SLOPE SHALL BE TREATED WITH HYDROSEED GRASS MIX. SPECIES SHALL BE OF A NATIVE GRASS VARIETY (E.G. RED FESCUE, TUFTED HAIRGRASS, BLUE WILDRYE,

H. HABITAT FEATURES: PLACE HABITAT FEATURES UPON COMPLETION OF TOPSOIL AND/OR SOIL AMENDMENT PLACEMENT, AS DEPICTED ON THE MITIGATION PLANS AND DETAILS. TALASAEA CONSULTANTS SHALL APPROVE LOCATIONS PRIOR TO PLACEMENT.

I. DOWN LOGS: TO CUT/BREAK DOWN LOGS, FIRST SCORE THE LOG AT THE DESIRED LENGTH BY MECHANICAL MEANS, THEN SNAP THE LOG AT THE SCORED LOCATION TO CREATE A NATURAL LOOK TO THE BREAK. TWIST BROKEN ENDS TO DISGUISE SAW CUTS. HABITAT FEATURES THAT HAVE BEEN CUT SHALL HAVE NO BLUNT ENDS.

I. MULCH CLEARED/GRUBBED BUFFER AREAS: TALASAEA CONSULTANTS SHALL BE PROVIDED A MULCH SAMPLE PRIOR TO IT BEING DELIVERED TO THE SITE. NO BUFFER AREAS SHALL BE SEEDED.

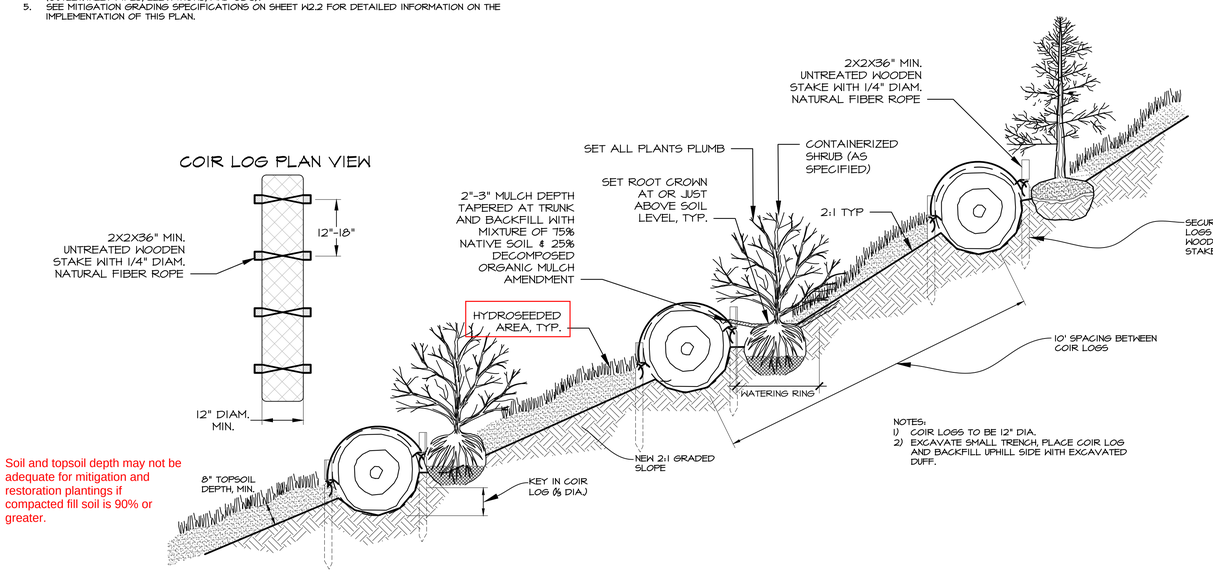
I. CONTRACTOR SHALL SPREAD MULCH OVER ALL GRADED BUFFER AREAS TO ACHIEVE A UNIFORM DEPTH OF 3 INCHES. NOTE: 3-INCH DEPTH IS THE MINIMUM AFTER SETTLING. IF MULCH IS INSTALLED BY BLOWER TRUCK IT SHALL BE INSTALLED AT A 4-INCH DEPTH TO PROVIDE A MINIMUM 3-INCH DEPTH AFTER SETTLING.

J. INSPECTIONS: PRIOR TO PLANT INSTALLATION, TALASAEA CONSULTANTS SHALL APPROVE ALL CLEARING/GRUBBING WORK AND HABITAT FEATURE PLACEMENT. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY TALASAEA CONSULTANTS AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, TALASAEA CONSULTANTS SHALL REVIEW THE PROJECT FOR FINAL ACCEPTANCE OF PUNCH LIST ITEMS, AND PLANTING MAY THEN PROCEED.

K. SOIL STABILIZATION. IF THERE IS A DELAY IN CONSTRUCTION FOR ANY REASON, CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EROSION CONTROL MEASURES, DRAINAGE, AND TEMPORARY IRRIGATION DURING CONSTRUCTION DELAY PERIOD, UNLESS OTHERWISE STATED IN WRITING.

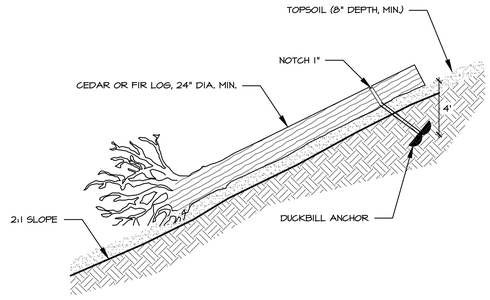
GENERAL GRADING NOTES

1. SILT FENCING AS SHOWN ON PLANS AND ANY OTHER NECESSARY EROSION CONTROL BMPS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE MITIGATION AREAS.
2. SEE CIVIL PLANS FOR CLEARING/GRADING, DRAINAGE, AND EROSION CONTROL BMPS FOR SITE CONSTRUCTION OUTSIDE OF MITIGATION AREAS. SILT FENCING AND OTHER EROSION CONTROL BMPS IN THE MITIGATION AREAS SHALL BE COORDINATED WITH EROSION CONTROL BMPS FOR CIVIL SITE WORK WHERE NECESSARY.
3. PROJECT BIOLOGIST AND/OR ECOLOGIST SHALL FLAG EXISTING VEGETATION TO REMAIN PRIOR TO ANY CLEARING, GRUBBING, OR GRADING WORK IN MITIGATION AREAS. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND FLAGGED VEGETATION TO REMAIN PRIOR TO WORK IN MITIGATION AREAS.
4. SEE CIVIL PLANS FOR ALL CONSTRUCTION INFORMATION RELATING TO STORMWATER INFRASTRUCTURE (OUTLET/INLET PIPES, ELEVATIONS, AND CBS).
5. SEE MITIGATION GRADING SPECIFICATIONS ON SHEET W2.2 FOR DETAILED INFORMATION ON THE IMPLEMENTATION OF THIS PLAN.



Soil and topsoil depth may not be adequate for mitigation and restoration plantings if compacted fill soil is 90% or greater.

1 SLOPE PLANTING IN BUFFER RESTORATION AREAS (TYP.)
N.T.S.



NOTES:
1. LOG TO BE 24" DIA. MIN., CONIFER (CEDAR OR FIR SPECIES), 20' LENGTH MIN.
2. PLACEMENT OF HABITAT LOG TO BE DETERMINED IN THE FIELD BY TALASAEA CONSULTANTS.
3. ANCHOR LOG WITH DUCKBILL ANCHOR:
4. DRIVE ANCHOR A MIN. OF 4' INTO THE GROUND WITH A HAMMER AND DRIVE STEEL. ONCE THE ANCHOR IS AT THE PROPER DEPTH, REMOVE THE DRIVE STEEL.
5. WRAP THE STEEL CABLE AROUND THE DRIVE STEEL AND PULL UPWARD A DISTANCE SLIGHTLY LONGER THAN THE LENGTH OF THE ANCHOR BODY.
6. THIS WILL ROTATE THE ANCHOR INTO A PERPENDICULAR POSITION.
7. NOTCH THE BARK OF THE LOG A MINIMUM OF 1" AROUND THE CIRCUMFERENCE OF THE LOG AS SHOWN.
8. WRAP THE STEEL CABLE OF THE DUCKBILL ANCHOR IN THE NOTCH AROUND THE LOG IN SUCH A WAY THAT THE CABLE IS HIDDEN.

2 LOG ANCHORING DETAIL
N.T.S.

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NOTES

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2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
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CRITICAL AREAS MITIGATION PLAN CLEARING AND GRUBBING NOTES AND DETAILS. SUNSET MEMORIAL PARK EXPANSION BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

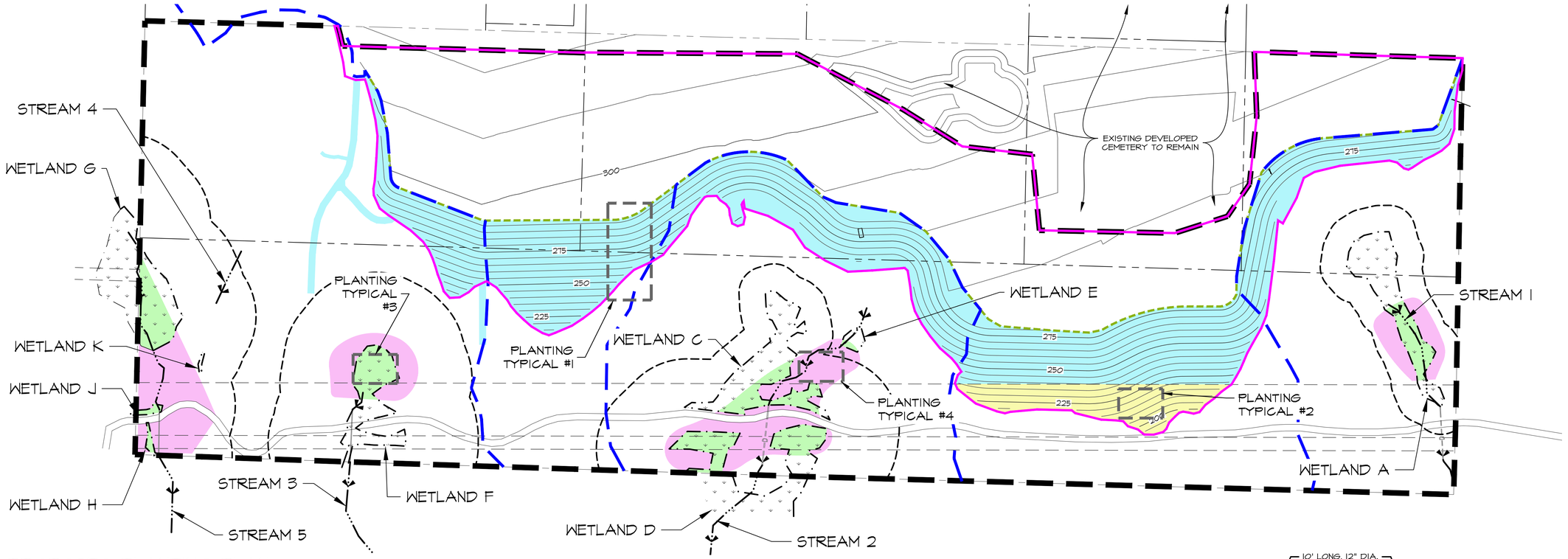
Date	4-10-2019
Scale	AS SHOWN
Designed	KM
Drawn	FH
Checked	AO
Approved	BS

Project # 1789

Sheet # W3.2

Z:\DRAWING\1700-1799\TAL1789\Plans\TAL-1789 WP 2020-11_recover.dwg
Plotted: November 30, 2020

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED PLANTING PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (4 / W47)

CLEARING AND GRUBBING LEGEND

	PLANTING TYPICAL #1: NATIVE FOREST PLANT COMMUNITY ON GRADED SLOPE AND RESTORED TRAILS	170,566 SF	(3.92 AC)
	PLANTING TYPICAL #2: NATIVE SHRUB PLANT COMMUNITY ON GRADED SLOPE	18,055 SF	(0.41 AC)
	PLANTING TYPICAL #3: WETLAND SHRUB ENHANCMENT	22,877 SF	(0.53 AC)
	PLANTING TYPICAL #4: BUFFER SHRUB ENHANCEMENT	44,346 SF	(1.02 AC)

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (1 / W83)
- WOODY DEBRIS (DOWN LOGS) (2 / W83)

PLANT SCHEDULE

LARGE TREES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	204	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	THUJA PLICATA	WESTERN RED CEDAR	FAC	171	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	FACU	225	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY

SMALL TREES/LARGE SHRUBS

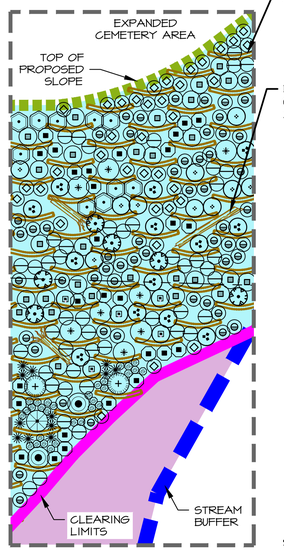
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	ACER CIRCINATUM	VINE MAPLE	FAC	269	65	-	24	AS SHOWN	4' HT.	SINGLE TRUNK, WELL BRANCHED
	AMELANCHIER ALNIFOLIA	SERVICEBERRY	FAC	215	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	CORYLUS CORNUTA	BEAKED HAZELNUT	FACU	349	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	HOLODISCUS DISCOLOR	OCEAN SPRAY	FACU	269	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	OEMLERIA CERASIFORMIS	INDIAN PLUM	FAU	-	-	-	104	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	FACW	-	-	-	160	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PRUNUS EMARGINATA	BITTER CHERRY	FACU	134	-	-	-	5' O.C.	24" HT.	SINGLE TRUNK, WELL BRANCHED
	RIBES BRACTEOSUM	STINK CURRANT	FAC	-	-	-	80	AS SHOWN	24" HT.	MULTI-CANE (3 MIN.)
	RIBES SANGUINEUM	RED CURRANT	NL	-	-	-	48	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SAMBUCUS RACEMOSA	RED ELDERBERRY	FACU	753	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SORBUS SITCHENSIS	SITKA MOUNTAIN ASH	FAC	161	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED

MASSING SHRUBS

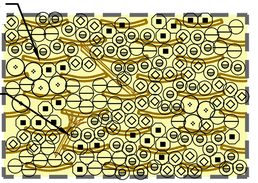
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	CORNUS ALBA	RED-OSIER DOGWOOD	FACW	-	-	95	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	GAULTHERIA SHALLON	SALAL	FACU	806	-	-	-	2' O.C.	1 GAL.	FULL & BUSHY
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY	FAC	-	-	62	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	MAHONIA AQUIFOLIUM	OREGONGRAPE	FACU	753	195	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	ROSA PISOCARPA	CLUSTERED WILD ROSE	FAC	968	358	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	1,452	404	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	RUBUS SPECTABILIS	SALMONBERRY	FAC	-	-	95	-	4' O.C.	1 GAL.	FULL & BUSHY
	SPIREA DOUGLASII	WESTERN SPIREA	FACW	-	-	78	-	4' O.C.	1 GAL.	FULL & BUSHY
	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	FACU	1,263	274	-	160	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)

GROUND COVERS AND EMERGENTS

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	POLYSTICHUM MUNITUM	SWORD FERN	FACU	323	-	-	208	36" O.C.	1 GAL.	FULL & BUSHY
	LYSICHITUM AMERICANUM	SKUNK CABBAGE	OBL	-	-	390	-	AS SHOWN	1 GAL.	



TYPICAL #1
SCALE: 1"=20'



TYPICAL #2
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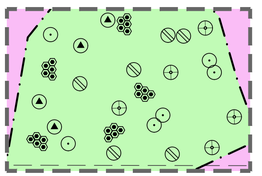
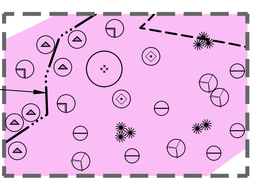


TYPICAL #3
SCALE: 1"=20'



TYPICAL #4
SCALE: 1"=20'

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CRITICAL AREAS MITIGATION PLAN
PROPOSED PLANTING PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W4.0

PLANTING SPECIFICATIONS

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION

1. CONTRACTOR SHALL GIVE THE PROJECT BIOLOGIST OR ECOLOGIST A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO COMMENCING CONSTRUCTION.
2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, THE PROJECT BIOLOGIST OR ECOLOGIST, THE GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONSTRAINTS.
3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS, AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL RESOLVE ANY CONFLICTS WITH THE APPROVED GRADING PLAN PRIOR TO START OF CONSTRUCTION.
4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.
5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.
6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.
7. A QUALIFIED WETLAND CONSULTANT SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.
8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.
9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.
10. PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THE PLANTING PORTION OF THE MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, THE PROJECT BIOLOGIST OR ECOLOGIST, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS, STAGING/STOCKPILE AREAS, AND MATERIAL DISPOSAL AREAS.
2. PLANT TREES AND SHRUBS AS INDICATED ON MITIGATION PLANS.
3. MULCH INSTALLED PLANTS AND TREES.
4. INSTALL TEMPORARY IRRIGATION SYSTEM AND PROGRAM FOR 0.5 INCHES OF WATER EVERY 3 DAYS.
5. INSTALL FENCING AND CRITICAL AREA PROTECTION SIGNS.

1.2 SUBMITTALS

A. PRODUCT DATA: FURNISH THE FOLLOWING WITH EACH PLANT MATERIAL DELIVERY:

1. INVOICES INDICATING SIZES AND VARIETY OF PLANT MATERIAL.
2. CERTIFICATES OF INSPECTION REQUIRED BY STATE AND FEDERAL AGENCIES.

B. QUALITY CONTROL SUBMITTALS:

1. PRIOR TO DELIVERY OF MATERIALS, CERTIFICATES OF COMPLIANCE ATTESTING THAT MATERIALS MEET THE SPECIFIED REQUIREMENTS SHALL BE FURNISHED FOR THE FOLLOWING: PLANTS, TOPSOIL, FERTILIZER, AND ORGANIC MULCH. CERTIFIED COPIES OF THE MATERIAL CERTIFICATES SHALL INCLUDE THE FOLLOWING:
   a. PLANT MATERIALS: BOTANICAL NAME, COMMON NAME, SIZE, QUANTITY BY SPECIES, AND LOCATION WHERE GROWN.
   b. IMPORTED TOPSOIL: PARTICLE SIZE, PH, ORGANIC MATTER CONTENT, TEXTURAL CLASS, SOLUBLE SALTS, CHEMICAL AND MECHANICAL ANALYSES.
   c. FERTILIZER: CHEMICAL ANALYSIS AND PERCENT COMPOSITION.
   d. IMPORTED MULCH: COMPOSITION AND SOURCE.

1.3 REFERENCES

A. SIZE AND GRADING STANDARDS: SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

1.4 QUALITY ASSURANCE

A. WORKER'S QUALIFICATIONS: THE PERSONS PERFORMING THE PLANTING AND THEIR SUPERVISOR(S) SHALL BE PERSONALLY EXPERIENCED WITH PLANTING AND CARING FOR PLANT MATERIAL, AND SHALL HAVE BEEN REGULARLY EMPLOYED BY A COMPANY ENGAGED IN PLANTING AND CARING FOR PLANT MATERIAL FOR A MINIMUM OF 2 YEARS.

B. PLANT MATERIAL: ALL PLANT MATERIALS SHALL BE LOCALLY GROWN OR REGIONALLY ACCLIMATIZED TO THE PACIFIC NORTHWEST.

1.5 DELIVERY, INSPECTION, STORAGE AND HANDLING

A. DELIVERY: A DELIVERY SCHEDULE SHALL BE PROVIDED AT LEAST 10 CALENDAR DAYS PRIOR TO THE FIRST DAY OF DELIVERY. PLANT MATERIALS SHALL BE DELIVERED TO THE JOB SITE NOT MORE THAN 7 WORKING DAYS PRIOR TO THEIR RESPECTIVE PLANTING DATES.

B. PROTECTION DURING DELIVERY: PLANT MATERIAL SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION AND DAMAGE TO THE BRANCHES, TRUNK, ROOT SYSTEM, OR EARTH BALL. BRANCHES SHALL BE PROTECTED BY TYING-IN. EXPOSED BRANCHES SHALL BE COVERED DURING TRANSPORT.

C. FERTILIZER: FERTILIZER SHALL BE DELIVERED IN MANUFACTURER'S STANDARD SIZED BAGS SHOWING WEIGHT, ANALYSIS, AND MANUFACTURER'S NAME. STORE UNDER A WATERPROOF COVER OR IN A DRY PLACE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

D. INSPECTION: ALL PLANT MATERIALS SHALL BE INSPECTED UPON ARRIVAL AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE FOR CONFORMITY TO TYPE AND QUANTITY WITH REGARD TO THEIR RESPECTIVE SPECIFICATIONS.

E. MULCH: A MULCH SAMPLE SHALL BE INSPECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO THE MULCH BEING DELIVERED TO THE SITE.

F. STORAGE:

1. PLANT MATERIAL NOT INSTALLED ON THE DAY OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED AREAS. PLANTS STORED ON THE PROJECT SITE SHALL BE PROTECTED FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS OR CONTAINERS WITH SAWDUST, SOIL, COMPOST, BARK OR WOODCHIPS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN. BARE-ROOT PLANT MATERIAL SHALL BE HEELED-IN. CUTTINGS AND EMERGENT PLANTS MUST BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HEELED-IN WITH MOIST SOIL OR OTHER INSULATING MATERIAL. ALL PLANT MATERIAL STORED ON-SITE SHALL BE WATERED DAILY UNTIL INSTALLED.
2. STORAGE OF OTHER MATERIALS SHALL BE IN DESIGNATED AREAS.

1.6 SCHEDULING

A. PLANTING SEASON: INSTALL WOODY PLANTS BETWEEN OCTOBER 1 AND FEBRUARY 15 WHENEVER THE TEMPERATURE IS ABOVE 32 DEGREES F AND THE SOIL IS IN A WORKABLE CONDITION, UNLESS OTHERWISE APPROVED IN WRITING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST.

B. PLANT INSTALLATION: EXCEPT FOR CONTAINER-GROWN PLANT MATERIAL, THE MAXIMUM TIME BETWEEN THE DIGGING AND INSTALLATION OF PLANT MATERIAL SHALL BE 21 DAYS. THE MAXIMUM TIME BETWEEN PLANT INSTALLATION AND MULCH PLACEMENT SHALL BE 72 HOURS.

1.7 WARRANTY

A. WARRANTY PERIOD: THE CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL GRADING, PLANTING, IRRIGATION, AND RELATED WORK HAS BEEN COMPLETED AND IS ACCEPTED BY THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

B. WARRANTY TERMS: CONTRACTOR'S WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS DUE TO MORTALITY (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). PLANTS REPLACED UNDER THIS WARRANTY SHALL BE WARRANTED FOR AN ADDITIONAL YEAR AFTER REPLACEMENT.

C. EXCEPTIONS: LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS), OR CASES OF NEGLECT BY OWNER, OR CASES OF ABUSE/DAMAGE BY OTHERS.

PART 2: PRODUCTS AND MATERIALS

2.1 PLANTS

A. GENERAL: ALL PLANT MATERIAL WILL CONFORM TO THE VARIETIES SPECIFIED OR SHOWN IN THE PLANT LIST(S) INDICATED ON THE MITIGATION PLANS AND BE TRUE TO BOTANICAL NAME AS LISTED IN: HITCHCOCK, C.L., AND A. CRONQUIST. 1973. FLORA OF THE PACIFIC NORTHWEST. UNIVERSITY OF WASHINGTON PRESS.

B. SHRUBS AND TREES:

1. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL EXAMINE PLANT MATERIAL PRIOR TO PLANTING. ANY MATERIAL NOT MEETING THE REQUIRED SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED WITH LIKE MATERIAL THAT MEETS THE REQUIRED STANDARDS. PLANT MATERIAL SHALL MEET THE REQUIREMENTS OF STATE AND FEDERAL LAWS WITH RESPECT TO PLANT DISEASE AND INFESTATIONS. INSPECTION CERTIFICATES, REQUIRED BY LAW, SHALL ACCOMPANY EACH AND EVERY SHIPMENT AND SHALL BE SUBMITTED TO THE PROJECT BIOLOGIST OR ECOLOGIST UPON CONTRACTOR'S RECEIPT OF PLANT MATERIAL.
2. PLANT MATERIALS SHALL BE LOCALLY GROWN (WESTERN WASHINGTON, WESTERN OREGON, OR WESTERN BC), HEALTHY, BUSHY, IN VIGOROUS GROWING CONDITION, AND GUARANTEED TO BE TRUE TO SIZE, NAME, AND VARIETY. IF REPLACEMENT OF PLANT MATERIAL IS NECESSARY DUE TO CONSTRUCTION DAMAGE OR PLANT FAILURE WITHIN ONE YEAR OF INSTALLATION, THE SIZES, SPECIES, AND QUANTITIES SHALL BE EQUAL TO SPECIFIED PLANTS, AS INDICATED ON THE PLANS.
3. PLANTS SHALL BE NURSERY GROWN, WELL-ROOTED, OF NORMAL GROWTH AND CHARACTER, AND FREE FROM DISEASE OR INFESTATION. THE PROJECT BIOLOGIST OR ECOLOGIST RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF ANY PLANTS DEEMED UNSUITABLE.
4. TREES SHALL HAVE UNIFORM BRANCHING, SINGLE STRAIGHT TRUNKS (UNLESS SPECIFIED AS MULTI-STEM, MULTI-CANE, OR MULTI-TRUNK), AND AN INTACT AND UNDAMAGED CENTRAL LEADER. CONTAINER STOCK SHALL HAVE BEEN GROWN IN A CONTAINER FOR AT LEAST ONE FULL GROWING SEASON AND SHALL HAVE A WELL DEVELOPED ROOT SYSTEM. PLANT MATERIAL THAT IS ROOT-BOUND OR HAS DAMAGED ROOT ZONES OR BROKEN ROOT BALLS WILL NOT BE ACCEPTED.
5. CONIFEROUS TREES SHALL BE NURSERY GROWN, FULL AND BUSHY, WITH UNIFORM BRANCHING AND A NATURAL, NON-SHEARED FORM. ORIGINAL CENTRAL LEADER MUST BE HEALTHY AND UNDAMAGED. MAXIMUM GAP BETWEEN BRANCHING SHALL NOT EXCEED 9 INCHES, AND LENGTH OF TOP LEADER SHALL NOT EXCEED 12 INCHES.
6. SHRUBS SHALL HAVE A MINIMUM OF THREE STEMS AND SHALL BE A MINIMUM HEIGHT OF 18 INCHES.
7. TREES AND SHRUBS SHALL HAVE DEVELOPED ROOT AND BRANCH SYSTEMS. DO NOT PRUNE BRANCHES BEFORE DELIVERY.
8. PLANTS SHALL BE FREE OF SPLITS AND CHECKS, BARK ABRASIONS, AND DISFIGURING KNOTS.
9. FOR DECIDUOUS PLANTS, BUDS SHALL BE INTACT AND REASONABLY CLOSED AT TIME OF PLANTING, IF DORMANT.
10. PLANTS SHALL CONFORM TO SIZES INDICATED ON THE PLANT SCHEDULE. PLANTS MAY BE LARGER THAN THE MINIMUM SIZES SPECIFIED.

C. NOXIOUS SPECIES: ALL PLANT STOCK AND OTHER RE-VEGETATION MATERIALS SHALL BE FREE FROM THE SEED OR OTHER PLANT COMPONENTS OF ANY NOXIOUS OR INVASIVE SPECIES, AS IDENTIFIED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

D. SUBSTITUTIONS: SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST AND APPROVAL FROM THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

2.2 PLANTING SOIL

A. TOPSOIL: IF SUITABLE STOCKPILED NATIVE TOPSOIL IS NOT AVAILABLE FOR MITIGATION PLANTINGS, TOPSOIL SHALL BE OBTAINED FROM OUTSIDE SOURCES. STOCKPILED OR IMPORTED TOPSOIL SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

C. COMPOST: COMPOST SHALL MEET THE DEFINITION FOR COMPOSTED MATERIALS AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

D. SOIL AMENDMENTS:

D.A. FERTILIZER: WOODY PLANTINGS SHALL BE FERTILIZED WITH A SLOW-RELEASE GENERAL GRANULAR FERTILIZER (16-16-16), WITH APPLICATION RATES AS SPECIFIED BY MANUFACTURER. FERTILIZER SHALL BE APPLIED AFTER PLANTING PIT IS BACKFILLED, AND PRIOR TO APPLICATION OF MULCH. FERTILIZER SHALL NOT BE APPLIED BETWEEN NOVEMBER AND MARCH. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.

D.B. SOIL MOISTURE RETENTION AGENT: A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUAL, SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

2.3 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE, OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

2.4 MISCELLANEOUS MATERIALS

A. STAKES, DEADMEN AND GUY STAKES: SOUND, DURABLE, WESTERN RED CEDAR, OR OTHER APPROVED WOOD, FREE OF INSECT OR FUNGUS INFESTATION.

PART 3: EXECUTION

3.1 SOIL PREPARATION

A. PLANTING AREA CONDITIONS: CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE PROJECT AREA(S). ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR DRAINAGE, COMPACTED SOILS, SIGNIFICANT EXISTING OR INVASIVE VEGETATION, OR OTHER OBSTRUCTIONS, CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO PLANTING. THE BEGINNING OF WORK BY THE CONTRACTOR CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

B. PLANTING IN UNDISTURBED, NON-GRADED AREAS: PLANTS INSTALLED IN UNDISTURBED AREAS SHALL BE INTEGRATED WITH EXISTING NATIVE VEGETATION AND PLANTED IN A RANDOM, NATURALISTIC PATTERN. PRIOR TO INSTALLATION OF PLANTINGS, ALL CONSTRUCTION DEBRIS, TRASH, AND NON-NATIVE INVASIVE PLANT MATERIAL SHALL BE REMOVED FROM THE PROJECT AREA. IN NON-GRADED AREAS, TREES AND SHRUBS SHALL BE PIT PLANTED AS SHOWN IN TYPICAL PLANTING DETAILS. PLANTING PITS SHALL BE BACKFILLED WITH A 50/50 MIXTURE OF IMPORTED, WEED-FREE TOPSOIL AND THE SOIL FROM THE PLANTING PIT.

C. PLANTING IN GRADED AREAS: IN GRADED PLANTING AREAS PLANTS SHALL BE INSTALLED IN NEWLY PLACED TOPSOIL.

D. SOIL DECOMPACTION/SCARIFICATION: SOILS IN GRADED/DISTURBED AREAS THAT ARE COMPACTED AND UNSUITABLE FOR PROPER PLANT GROWTH SHALL BE DECOMPACTED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6" PRIOR TO TOPSOIL INSTALLATION.

3.2 PLANTING

A. PLANT LAYOUT: PROPOSED LOCATIONS OF TREES AND SHRUBS SHALL BE STAKED AND IDENTIFIED WITH AN APPROVED CODING SYSTEM OR BY PLACEMENT OF THE ACTUAL PLANT MATERIAL. FOR LARGE GROUPINGS OF A SINGLE SPECIES OF SHRUB, LANDSCAPE CONTRACTOR MAY STAKE THE PLANTING BOUNDARIES.

B. OBTAIN LAYOUT APPROVAL FROM THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO EXCAVATION OF PLANTING PITS.

C. PLANTING PIT DIMENSIONS:

3. PIT DEPTH: NOT TO EXCEED THE CONTAINER DEPTH.
4. PIT WIDTH: MEASURED AT THE GROUND SURFACE, 2 TIMES THE WIDTH OF THE CONTAINER, AS INDICATED IN TYPICAL PLANTING DETAILS.
   a. BARE-ROOT PLANTS: DIAMETER EQUAL TO THE WIDTH OF THE ROOT SPREAD.

D. SETTING PLANTS:

1. BARE-ROOT PLANTS: PRUNE BRUISED OR BROKEN ROOTS. SET PLANT IN POSITION AND PLACE WETLAND PLANTING SOIL AROUND ROOTS. USE CARE TO AVOID BRUISING OR BREAKING ROOTS WHEN FIRMING SOIL. SETTLE WITH WATER.
2. SHRUB/TREE CONTAINER PLANTING: SHRUB AND TREE STOCK SHALL BE PLANTED IN HAND-DUG HOLES ACCORDING TO PLANTING DETAILS SHOWN ON THE MITIGATION PLANS. SHRUB AND TREE ROOT BALLS SHALL BE SET SO THAT ROOT COLLARS ARE 1 INCH ABOVE ADJACENT GRADE. ALL BACKFILL SHALL BE GENTLY TAMPED IN PLACE.
3. SURFACE FINISH: FORM A SAUCER AS INDICATED ON TYPICAL PLANTING DETAILS, OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON THE LOWER SIDE OF SLOPE PLANTINGS TO CATCH AND RETAIN WATER.
4. IN FORESTED AREAS, CONTRACTOR SHALL LOOSELY TIE A 2 FOOT PIECE OF BIODEGRADABLE FLAGGING TO THE TOP PORTION OF ALL PLANTED VEGETATION, BUT NOT ON A CENTRAL LEADER, TO FACILITATE POST-CONSTRUCTION PERFORMANCE AND MAINTENANCE REVIEW BY THE PROJECT BIOLOGIST OR ECOLOGIST AND REGULATORY AGENCIES.
5. ACTUAL PLANT SYMBOL QUANTITIES SHOWN ON THE PLANS SHALL PREVAIL OVER QUANTITIES SHOWN ON THE PLANT SCHEDULE IN THE EVENT OF A DISCREPANCY.

E. MULCHING:

1. IN GRADED AND NON-GRADED BUFFER AREAS: IMMEDIATELY FOLLOWING INSTALLATION OF PLANT MATERIAL, CONTRACTOR SHALL SPREAD ARBORIST WOOD CHIPS OVER ALL BUFFER AREAS (AREAS ABOVE OHWM OF WETLANDS) TO ACHIEVE A UNIFORM MINIMUM DEPTH OF 4 INCHES. A DEPTH OF 4-INCHES IS THE MINIMUM REQUIRED AFTER SETTLING. ENSURE MULCH IS NOT PILED UP AGAINST PLANT TRUNKS/STEMS; MAINTAIN AREA AT BASE OF PLANTS FREE AND CLEAR OF WOOD CHIPS. PROVIDE A 36-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH TREE, AND A 24-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH SHRUB.
2. WATER PLANTS THOROUGHLY AFTER MULCHING.

F. PRUNING: PRUNE IMMEDIATELY AFTER PLANTING ONLY AS DIRECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. TREE STAKES AND TIES: STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET OR OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR BALL, IN LINE WITH THE PREVAILING WIND, AND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK. LOOSELY ATTACH STAKE TO TREE USING CHAIN-LOCK TIES; TREE SHOULD BE ABLE TO SWAY.

H. INSTALLING TEMPORARY IRRIGATION

1. GENERAL REQUIREMENTS: CONTRACTOR SHALL PROVIDE AN ABOVE-GROUND TEMPORARY IRRIGATION SYSTEM CAPABLE OF FULL HEAD-TO-HEAD COVERAGE OF ALL PLANTED PROJECT AREAS. THE TEMPORARY IRRIGATION SYSTEM SHALL EITHER UTILIZE CONTROLLER AND POINT OF CONNECTION (POC) FROM THE SITE IRRIGATION SYSTEM OR SHALL INCLUDE A SEPARATE POC AND CONTROLLER WITH A BACKFLOW PREVENTION DEVICE PER WATER JURISDICTION INSPECTION AND APPROVAL. THE SYSTEM SHALL BE ZONED TO PROVIDE OPTIMAL PRESSURE AND UNIFORMITY OF COVERAGE, AS WELL AS SEPARATION BETWEEN AREAS OF FULL SUN AND SHADE AND FOR SLOPES IN EXCESS OF 5 PERCENT. THE SYSTEM SHALL BE OPERATIONAL FOR A MINIMUM OF THE FIRST TWO GROWING SEASONS AFTER PLANTING (THE FIRST TWO YEARS OF THE PERFORMANCE MONITORING PERIOD), OR LONGER IF REQUIRED TO ENSURE PROPER PLANT ESTABLISHMENT. THE SYSTEM SHALL BE REMOVED UPON FINAL APPROVAL OF THE MITIGATION PROJECT AT THE END OF THE PERFORMANCE MONITORING PERIOD.
2. SYSTEM DESIGN AND MATERIALS: ELECTRONIC VALVES SHALL BE THE SAME MANUFACTURER AS THOSE USED FOR THE SITE IRRIGATION SYSTEM, OR SHALL BE RAIN BIRD PEB SERIES OR EQUAL IF SYSTEM IS NOT CONTIGUOUS WITH THE SITE SYSTEM. VALVES SHALL BE SIZED TO ACCOMMODATE PRESSURE AND ZONE CONSUMPTION REQUIREMENTS OF THE SYSTEM AND SHALL BE INSTALLED BELOW GRADE IN CARSON (OR EQUAL) VALVE BOXES. WIRING SHALL BE INSULATED MULTI-STRAND, TAPED TO THE MAIN AT 6-INCH INTERVALS WITH DUCT TAPE WRAPS. ON-GRADE MAIN AND LATERAL LINES SHALL BE CLASS 200 PVC BELL PIPE WITH SOLVENT WELDED FITTINGS, SECURED IN-PLACE WITH WIRE STAPLES WHERE NECESSARY ON SLOPED AREAS. LINES SHALL BE PLACED 12 INCHES BELOW GRADE IN 4 INCH PCV SLEEVES WHERE VEHICULAR OR MAINTENANCE ACCESS IS NEEDED ACROSS LINES TO THE PROJECT AREA(S). MAXIMUM MAIN LINE SIZE SHALL BE 1½ INCHES AND MAY BE LOOPED BACK TO THE POC TO REDUCE PRESSURE LOSS. LATERAL LINES SHALL BE SIZED IN DECREASING DOWNSTREAM ORDER PER RAIN BIRD DESIGN STANDARDS; THE MINIMUM LATERAL SIZE SHALL BE ¾ INCH. HEADS SHALL BE ROTOR OR IMPACT TYPE INSTALLED 4 FEET ABOVE FINISHED GRADE ON 2-INCH DIAMETER WOOD TREE STAKES. STAKES SHALL BE SECURE IN THE GROUND, EMBEDDED TO A MINIMUM DEPTH OF 24 INCHES. HEADS AND ¾ INCH PVC RISERS SHALL BE SECURED TO STAKES WITH CONSTRICTING HOSE CLAMPS; NO FUNNY PIPE SHALL BE USED. HEADS AND NOZZLES SHALL PROVIDE MATCHED PRECIPITATION RATES FOR EACH ZONE.
3. PROGRAMMING: IRRIGATION SYSTEM SHALL BE PROGRAMMED TO PROVIDE APPROXIMATELY 1/2 INCH OF WATER EVERY THREE DAYS DURING THE DRY SEASON (APPROXIMATELY JUNE 15TH TO OCTOBER 15TH). IRRIGATION AMOUNTS IN ZONES LOCATED IN THE SHADE OR ON STEEP SLOPES MAY BE REDUCED IF APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST OR THE PROJECT ECOLOGIST/BIOLOGIST.
4. WATER AND POWER SUPPLY FOR SYSTEM: THE OWNER SHALL PROVIDE WATER AND ELECTRICITY FOR THE SYSTEM.
5. AS-BUILT DRAWING: A CHART DESCRIBING THE LOCATION OF ALL INSTALLED OR OPEN ZONES AND CORRESPONDING CONTROLLER NUMBERS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED INSIDE THE CONTROLLER AND GIVEN TO THE OWNER'S REPRESENTATIVE.
6. WARRANTY: THE IRRIGATION SYSTEM SHALL INCLUDE A ONE-YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL PROJECT ACCEPTANCE. THE WARRANTY SHALL INCLUDE SYSTEM ACTIVATION AND WINTERIZATION FOR THE FIRST YEAR AND IMMEDIATE REPAIR OF THE SYSTEM IF IT IS OBSERVED TO BE MALFUNCTIONING.

J. CRITICAL AREAS FENCE AND SIGNS: INSTALL CRITICAL AREAS FENCE AND CRITICAL AREAS SIGNS WHERE SHOWN ON PLANS.

K. RESTORE EXISTING NATURAL OR LANDSCAPED AREAS:

1. EXISTING NATURAL OR LANDSCAPED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS IMPROVEMENTS OR MODIFICATIONS ARE SPECIFIED FOR THOSE AREAS.
2. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, OR BRANCHES OF ANY TREES OR SHRUBS THAT ARE TO REMAIN. ANY LIVING, WOODY PLANT THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED WITHIN 24 HOURS OF OCCURRENCE, AND THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE NOTIFIED IMMEDIATELY OF THE INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

L. FINAL INSPECTION AND APPROVAL: THE CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST IN WRITING AT LEAST TEN DAYS PRIOR TO THE REQUESTED DATE OF A PROJECT COMPLETION INSPECTION. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY THE PROJECT BIOLOGIST OR ECOLOGIST AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE PROJECT BIOLOGIST OR ECOLOGIST SHALL REVIEW THE PROJECT AGAIN FOR FINAL ACCEPTANCE OF PLAN IMPLEMENTATION. IF PUNCH LIST ITEMS REQUIRE PLANT REPLACEMENT, AND THE INSPECTION OCCURS OUTSIDE OF A SUITABLE PLANTING SEASON, PLANTS SHALL BE REPLACED DURING THE NEXT PLANTING SEASON.

M. AS-BUILT PLAN: CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT LOCATIONS AND QUANTITIES ON THE PLANT SCHEDULE WITH THOSE REPRESENTED AS SYMBOLS ON THE MITIGATION PLANS. CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF RECORDING IN-THE-FIELD CHANGES OR MODIFICATIONS TO THE APPROVED PLANS. THIS INFORMATION SHALL BE UPDATED ON A DAILY BASIS AS NECESSARY.

PART 4: ONE YEAR CONTRACTOR WARRANTY

NOTE: THESE MAINTENANCE SPECIFICATIONS APPLY TO THE ONE-YEAR CONTRACTOR WARRANTY PERIOD ONLY. IF THIS MITIGATION PROJECT REQUIRES LONG-TERM PERFORMANCE MONITORING, AS DETERMINED BY THE GOVERNING JURISDICTION, THE MAINTENANCE SPECIFICATIONS AND GUIDELINES ASSOCIATED WITH THE PERFORMANCE MONITORING STANDARDS ARE INCLUDED IN THE MITIGATION REPORT ASSOCIATED WITH THIS PLAN SET, AND MAY ALSO BE INCLUDED ON A SEPARATE PLAN SHEET IF REQUIRED.

A. REVIEW OF MAINTENANCE REQUIREMENTS: CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE RECOMMENDATIONS WITH A QUALIFIED WETLAND BIOLOGIST FROM THE PROJECT BIOLOGIST OR ECOLOGIST WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE PROJECT PLAN.

B. MAINTENANCE ACTIVITIES: CONTRACTOR SHALL MAINTAIN TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE IN ORDER TO MAINTAIN HEALTHY GROWTH AND HABITAT DIVERSITY. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT ARE NOT LIMITED TO: (A) REPLACING PLANTS DUE TO MORTALITY, (B) TIGHTENING AND REPAIRING TREE STAKES, (C) RESETTING PLANTS TO PROPER GRADES AND UPRIGHT POSITIONS, AND (D) CORRECTING DRAINAGE PROBLEMS AS REQUIRED.

C. IRRIGATION:

1. SYSTEM MAINTENANCE AND REPAIR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTIVATING, WINTERIZING, MAINTAINING, AND CONTINUALLY VERIFYING THE ADEQUATE OPERATION OF THE TEMPORARY IRRIGATION SYSTEM FOR THE FIRST GROWING SEASON FOLLOWING INSTALLATION. SYSTEM FUNCTION (INCLUDING ELECTRONIC VALVE AND CONTROLLER FUNCTION) SHALL BE INSPECTED FOR OPERATION AND FULL COVERAGE OF ALL PLANTED AREAS DURING EACH MAINTENANCE VISIT. THE SYSTEM SHALL BE REPAIRED IMMEDIATELY IF FOUND TO BE DAMAGED OR MALFUNCTIONING. SYSTEM SHALL BE PROGRAMMED AND MAINTAINED TO PROVIDE APPROXIMATELY ½ INCH OF WATER EVERY THREE DAYS.

D. EROSION AND DRAINAGE: CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS REQUIRED.

E. IRRIGATION SYSTEM REMOVAL: CONTRACTOR SHALL REMOVE IRRIGATION SYSTEM APPROXIMATELY 3 YEARS AFTER PLANTING, OR AS APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

F. FINAL MAINTENANCE INSPECTION AND APPROVAL: UPON COMPLETION OF THE ONE-YEAR MAINTENANCE PERIOD, AN INSPECTION BY THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE CONDUCTED TO CONFIRM THAT THE PROJECT AREA WAS PROPERLY MAINTAINED. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR FOR CORRECTION. UPON CORRECTION OF THE PUNCH LIST ITEMS, THE PROJECT SHALL BE REVIEWED BY THE PROJECT BIOLOGIST OR ECOLOGIST FOR FINAL CLOSEOUT OF PLAN IMPLEMENTATION.

Know what's below. Call before you dig.

NOTES

1. SURVEY AND SITE PLAN PROVIDED BY HUITT-ZOLLARS, 1102 BROADWAY, SUITE 301, TACOMA 98402. (206) 324-5500.
2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15020 Bear Creek Road Northeast – Woodinville, Washington 98077
Bus (425) 861-7550 – Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
PLANTING SPECIFICATIONS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MW
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W4.1

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Plotted December 1, 2020

Critical Areas Report and Mitigation Plan - Addendum

Sunset Hills Memorial Park
Expansion Project

Bellevue, Washington

9 November 2021

wet.land

PREPARED FOR:
Huitt-Zollars, Inc.

PREPARED BY:
Jennifer Marriott, PWS
Wet.land, LLC
813-846-1684
Wet.land
jen@wet.land

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0. Report Purpose – Executive Summary

0.1 Project Name and Purpose

The Sunset Hills Memorial Park Expansion project proposes a facility expansion of an existing cemetery to accommodate increased demand in the area. The expansion requires redevelopment of the maintenance area that currently exists on the site, as well as expanding facilities into previously undeveloped areas. Several critical areas, including wetlands, streams, steep slopes, and their respective buffers, all occur within the areas targeted for expansion.

0.2 Applicant

The Applicant for the Sunset Hills Memorial Park Expansion Project is the Huitt-Zollars, represented by William Dunning:

William Dunning, Huitt-Zollars, 1102 Broadway, Suite 301, Tacoma, WA 98402
Office: (253) 627-9131
Email: bdunning@huitt-zollars.com

0.3 Report Purpose

This report has been prepared in accordance with the requirements of the City of Bellevue Land Use Code (BLUC) Part 20.25H *Critical Areas Overlay District*. This report has also been prepared in light of applicable State and Federal regulations.

This report is intended to serve as an addendum to the *Critical Areas Report and Mitigation Plan* previously prepared by Talasaea Consultants, dated 11 December 2020 (referenced as the *2020 CAR* after this point). This report will discuss the modified site plan that shows significantly reduced critical areas impacts from what was previously evaluated. This report mirrors the previous CAR in for table of contents with clear directions on where text has been updated to reflect new information. This was determined the most efficient way to amend previously prepared information without losing the previously completed work on this Project.

0.4 Report Changes from 2020 CAR

This section will outline what the significant changes are from the 2020 CAR prepared by Talasaea Consultants for ease of reading.

The Project footprint has been reduced by adding significant walls at two (2) locations that has reduced the slope and stream buffer impacts accordingly. The Project footprint reduction also reduced the final mitigation needed to offset impacts, as well as reducing the area of steep slope that will require restoration post-construction. Table XX outlines the changes in Project impacts and mitigation relating to critical areas and compares those values between the 2020 site plan and the current 2021 site plan. Only the revised chapters are included within this report, as outlined in the list below.

2020 CAR to 2021 CAR chapter comparisons:

- Introduction — No Change
- Property Overview — No Change
- Methodology — No Change
- Results — No Change
- Analysis of Critical Areas Regulations — No Change
- **Site Development Plan** — **Changed**
- **Assessment of Development Impacts** — **Changed**
- **Proposed Mitigation** — **Changed**
- **Construction Sequencing** — **Changed**
- Monitoring Plan — No Change
- Maintenance and Contingency — No Change
- Financial Guarantee — No Change
- **Summary** — **Changed**
- References — No Change

0.5 Preparer Qualifications

Field investigations were previously completed by other consultants, and the results of their work are presented within this and other referenced reports. No field delineations were completed by Wet.land, LLC staff. The existing conditions and critical areas present within the Site were verified by Jennifer Marriott, PWS, Senior Ecologist, while an employee of Talasaea Consultants. Ms. Marriott has continued her role as the environmental consultant for this Project after leaving Talasaea Consultants and shifting direction to her own company, Wet.land, LLC.

Jennifer Marriott has a Bachelor's Degree and a Master's Degree in Biology from University of Central Florida, and a second Master's Degree in Environmental Soil Science from the University of Florida. She has 18 years of experience in wetland delineations and environmental permitting (**Appendix A**).

1. Introduction

No change from 2020 CAR.

2. Property Overview

No change from 2020 CAR.

3. Methodology

No change from 2020 CAR.

4. Results

No change from 2020 CAR.

Additional information has been provided regarding the Stream 2 typing of non-fish bearing, as requested by the City, with the detailed response provided within the 9 November 2021 response letter to the City.

5. Analysis of Critical Areas Regulations

No change from 2020 CAR.

6. Site Development Plan

This section has changed from the 2020 CAR.

6.1 Site Plan

A detailed assessment of site plan alternatives was previously outlined and provided to the City. Additional analysis was completed to reassess the question of walls within the project area and the feasibility of adding walls to further reduce critical areas impacts. The Project site plan was reevaluated for wall placement to determine where walls would be feasible to construct from both an engineering and cost perspective that could have the best effect on the landscape to reduce critical area impacts. The previous site plan used heavily regraded slopes with no walls, which created extensive impacts to the steep slopes. The revise site plan proposes three (3) walls to reduce critical area impacts with two (2) located northeast of the Wetland A/Stream 1 complex, and the third wall proposed northeast of the Wetlands C, D, E/Stream 2 complex (see **Appendix B, Supplemental Mitigation Plan Sheets CA 2.0, 2.1 and 3.0**). In addition to the supplemental mitigation plan sheets which outline the proposed project impacts and mitigation regarding critical areas, an **annotated copy of the Mitigation Plan prepared by Talasaea Consultants** is provided as **Appendix C**. A detailed discussion of the project's impacts to critical areas is provided below in Chapter 7.

6.2 Stormwater Facilities

Stormwater will be managed through the use of five (5) vaults on the uphill side of the walls at the edge of the proposed facility expansion with dispersion trenches located immediately downslope of the retaining walls for each of the vaults. The vaults are distributed along the entire slope to ensure the dispersion trenches are all facing different directions to ensure proper hydrology continues downslope consistent with the pre-development condition. More details on the stormwater facility can be found in the documents prepared by Huitt-Zollars.

7. Assessment of Development Impacts

This section has changed from the 2020 CAR.

No impacts to wetlands, streams, wetland buffers, or combined wetland/stream buffers are proposed. Modifications are proposed to stream only buffers, steep slopes, and steep slope buffers. Stream buffers, steep slopes, and steep slope buffers overlap in numerous places, so impact values cannot be totaled between these critical areas. Preservation of native forest that falls outside of any wetland, stream, or wetland and/or stream buffer will total 1.03 acres. The remainder of the onsite areas identified for long-term preservation are contained with designated critical areas. The Project impact discussion is separated into two (2) parts: for stream buffers and for steep slope buffers.

The 2020 CAR called out two (2) types of impacts for both stream buffer and steep slope buffers as permanent and temporary. The intent of the wording at the time was that the temporary impacts were being revegetated after construction and would not be a permanent loss of the habitat. However, as the City noted, these areas would still be permanent conversions from their previous condition, and as such, the City requested the word temporary be removed from this description as these impacts are not temporary in nature. Despite this, there is still a need to separate the two (2) types of permanent impacts as there is a clear difference between them. For the sake of discussion, in order to separate the two types of permanent impacts, “Permanent Impact” will only be used to reflect those areas where a permanent, long-term impact is going to occur such that these areas will cease to be a native habitat after the Project is complete. The phrase “Regraded Buffer” will be used to describe those areas where a permanent conversion of forested buffer, either stream or steep slope, will occur. The areas of regraded buffer will become forested buffer again in the future, though their angle of slope may change, but with a time lag applied for the maturation of the trees to be planted within this area. A discussion on time lag and mitigation types will be provided below in Chapter 8.

A detailed impact and mitigation table has been prepared comparing the 2020 site plan impacts to the 2021 site plan impacts to critical areas (see **Impact & Mitigation table, Appendix D to 2021 CAR**). Note that stream buffer impacts and steep slope buffer impacts can not be combined together as these areas overlap in some places. Therefore, it is important to assess mitigation carefully as the stream and steep slope areas of impact partially overlap, and as such, the mitigation proposed is not an exact match based on areas alone. A stream-lined impact table is provided below, as Table 1 of this report.

Table 1. Condensed Impact & Mitigation Summary Table (Expanded version = Appendix D)

	Existing Condition	Permanent Impacts	Regraded Impacts	Unimpacted	Change	Mitigation Area (acres)	
			(acres)			*New Buffer Added*	*Restored/ Enhanced Buffer*
Wetland Buffer Only	0.04	0	0	0.04	0	0	0
Stream Buffer Only	7.93	0.73	0.43	6.77	-1.16	0.53	0.35
Combined Wetland & Stream Buffer	4.95	0	0	4.95	0	0	(11.66)[1]
Pre-Existing Non-Conforming Uses within Stream Buffer	0.68	0.08	0.07	0.53	-0.15	0	0.30
Pre-Existing Non-Conforming Uses within Combined Wetland & Stream Buffer	0.22	0	0	0.22	0	0	1.61
Total Wetland/ Stream Buffers	**13.82**	**0.81**	**0.5**	**12.51**	**-1.31**	**0.53**	**2.26 (13.92)[1]**
Steep Slope/Other Areas Outside of Utility Easements	0	0	0	0	0	0	(1.03)[1]
Steep Slope and Buffer	13.54	3.08	1	9.46	-4.08	0	0.69[3]
Total Steep Slope and Buffer	**13.54**	**3.08**	**1**	**9.46**	**-4.08**	**0**	**0.69 (1.72)[1]**
TOTALS						**0.53**	**2.95 (15.64)[1]**
							3.48 (16.18)[1]

Note: Any discrepancies in values between this table and the Appendix D table are due to rounding as the base spreadsheet continues each number to many significant figures in the equations behind these values.

[1]Number in () includes the areas that will be enhanced through understory enhancement plantings of conifer seedings.

[2]Number is the Preserved Native Forest that occurs outside of a wetland/stream buffer that will be enhanced through understory enhancement plantings of conifer seedings.

7.1 Avoidance of Critical Area Impacts

Avoidance of impacts to critical areas broadly has been improved over time. The June 2019 site plan reflected 13.8 acres of undisturbed areas with temporary grading over 5.2 acres. This has been increased over subsequent site plan iterations to the current proposal showing temporary grading reduced to 1.26 acres.

Avoidance of stream buffer impacts were reduced as much as feasible, and have been avoided except where the stream buffers extend well over the steep slope and their buffers.

Avoidance of impacts to steep slopes and their buffers has been successful as the vast majority (70%) of the steep slopes and their buffers onsite have not been impacted. Of the remaining steep slopes and buffers that will be impacted, 17% of those impacted areas will be enhanced post-construction as habitat restoration. While these regraded areas will take time to become functional, forested buffer, shrub dominated ecosystems provide habitat for a wide range of species and will simply provide a different type of habitat in the intervening years until the trees reach a minimum level of maturity.

7.2 Minimization of Critical Area Impacts

Minimization of impacts has been evaluated numerous times over the course of this Project's permitting process as the site plan has been reevaluated based on various comments and feedback. Stream buffer impacts have been reduced to the minimum areas where the stream buffers extend well over the steep slopes into the core area necessary to accommodate the proposed project footprint. Steep slope and steep slope buffer impacts were further minimized through the incorporation of walls into the site design.

7.3 Impacts to Stream Buffers

The incorporation of walls into the site plan has resulted in a 57% reduction to regraded stream buffer impacts where stream buffer was proposed to be regraded and revegetated. However, permanent stream buffer impacts where regrading and revegetating is not proposed increased from 0.52-acre to 0.81-acre, an increase of 56%. Despite the increase to permanent stream buffer impacts over regraded buffer impacts, total stream buffer impacts were reduced by 23% to only 1.3 acres, down from the previously proposed 1.68 acres (see **Impact & Mitigation table, Appendix D to 2021 CAR**). Stream buffer impacts are targeted at the upper limits of the stream buffers where they extend above the top of the slope, as defined for the purposes of stream ordinary high water mark (OHWM) determinations.

Note that of the stream buffer area identified onsite, 0.68-acres was identified as pre-existing non-conforming uses within stream buffers. Most of this area occurs at the top of the slope where an existing maintenance building and sheds are located. Of this total area, 0.08-acre will be permanently impacted, 0.07-acre will be regraded and then restored, while another 0.3-acre is targeted for full restoration outside of the proposed development area.

A total of 1.16 acres of stream buffer will be reduced, divided between permanent and regraded stream buffer impacts, with another 0.15-acre of stream buffer impacts to areas with pre-existing, non-conforming uses present that are currently not functional buffer. Mitigation for the stream buffer impacts include the addition of 0.53-acre

of new stream buffer; restoration of 0.35-acre of regraded buffer; restoration of 0.14-acre of pre-existing, non-conforming stream buffer to functional buffer; and enhancement of 1.61 acres of wetland and buffer through removal of invasive species and subsequent revegetation of these areas. This is a total of 0.53-acre of new stream buffer and 2.1 acres of wetland and buffer restoration to compensate for the loss of 1.16 acres of functional, vegetated stream buffer.

7.4 Impacts to Steep Slope and Steep Slope Buffers

The current inclusion of the walls has reduced the total steep slope and slope buffer impacts by 14% in total when averaged across all of the steep slope and steep slope buffer impacts. This reflects an increase of permanent impacts to steep slopes and steep slope buffers by 29% and 33%, respectively, for a total increase of 31%. However, the regraded slopes (permanent conversion) impacts were reduced a total of 58% (2.38 acres of impact reduced to only 1.0 acre of impact) across the four (4) identified categories of slope impacts within stream buffers (85% reduction), slope impacts outside of stream buffers (52% reduction), slope buffer impacts within stream buffers (54% reduction), and slope buffer impacts outside of stream buffers (65% reduction). The steep slope impacts are primarily at the east side of the Site where maintaining the steep slopes would require more impacts to slopes further west to provide a continuous and contiguous area for the facility expansion. Impacts to steep slopes and their buffers have been thorough assessed and successively and successfully reduced with each iteration of the site plan. Further reductions to impacts to steep slopes or their buffers will be increasingly difficult and cost prohibitive as a minimum area of expansion to the facility is necessary to offset the costs of the expansion.

8. Proposed Mitigation

This section has changed from the 2020 CAR.

8.1 Agency Policies and Guidance

The proposed mitigation plan was designed in accordance with the policies and guidance provided in the following documents:

- BLUC, Part 20.25H – *Critical Areas Overlay District*;
- The Washington State Department of Ecology (DOE) Publication #06-06-011a, Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance, and Part 2: Developing Mitigation Plans (Version 1), dated March 2006 (Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10 2006a, 2006b); and
- The Federal Compensatory Mitigation for Losses of Aquatic Resources Final Rule (33 CFR Parts 325 and 332, April 10, 2008), effective June 9, 2008 (U.S. Army Corps of Engineers Seattle District and U.S. Environmental Protection Agency Region 10 2008).

All proposed mitigation shall be based on best available science and shall demonstrate no net loss of critical area functions and values.

8.2 Mitigation Sequencing

Mitigation sequencing has been applied to the proposed project pursuant to the mitigation definition and preferred sequence definition outlined in BLUC 20.25H.215. The City mitigation sequencing requirements are as follows, and are consistent with the USACE requirements:

A. Avoiding the impact altogether by not taking a certain action or parts of an action;

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

C. Performing the following types of *mitigation* (listed in order of preference):

1. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
2. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
3. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;

D. Monitoring the hazard or other required *mitigation* and taking remedial action when necessary.

No impacts to wetlands, streams, wetland buffers, or combined wetland/stream buffers are proposed. Modifications are proposed to stream only buffers, steep slopes, and steep slope buffers and impact avoidance and minimization of these areas is described above. The remainder of the undeveloped areas onsite will be protected long-term along with the project mitigation. Mitigation actions include the addition of new stream buffer;

restoration of regraded stream buffer; restoration of pre-existing, non-conforming stream buffer to functional buffer; enhancement wetland and stream buffer through removal of invasive species and subsequent revegetation of these areas; Enhancement/restoration of the regraded steep slopes and buffers; Select enhancement of the remainder of the wetland/stream buffers onsite through removal of invasive species and supplemental plantings of conifers within this deciduous-dominated forest. All mitigation areas will be monitored for a minimum of five (5) years as part of the performance monitoring program.

8.3 Proposed Mitigation Components

This section has not substantially changed from the 2020 CAR. Rather, this section has been expanded to include the added understory enhancement mitigation action, as well as clarify the previously proposed mitigation elements.

The mitigation plan includes the following elements to compensate for the project impacts to critical areas:

- Existing Canopy Present
  - Stream Buffer Creation from Native Upland 0.31-acre
  - Invasive Species Removal with Enhancement 1.61 acres
  - Conifer Enhancement of Preserved Forest 12.69 acres
- Existing Canopy Lacking or Full Planting Required
  - Stream Buffer Creation within Reestablished Graded Areas 0.22-acre
  - Pre-existing Buffer Impacts/Non-Conforming Uses 0.3-acre
  - Restored Graded Stream Buffer 0.35-acre
  - Slope Habitat Restoration in Graded Areas 0.7-acre

New elements for this mitigation plan:

1. Addition of understory supplemental plantings of conifers to enhance the existing forest to remain – one (1) gallon conifers of a variety of species will be added at roughly 100 to 150 foot on center spacing within the existing forest to provide a conifer understory that is currently lacking, and has not naturally recruited.
2. Clarification of how to incorporate wood removed from the Site for land clearing activities back into the mitigation site – this specifically targets retention of large trees as habitat features and turning the remainder of the wood into wood chips to be used in the planting areas. Discussed in more detail below.

8.4 Mitigation Design Elements

8.4.1 Habitat Features

No change from 2020 CAR, except to expand and clarify that trees removed from onsite will be retained and reincorporated into the mitigation plan either as habitat features, or converted into arborist wood chips to be used in the plantings.

Also note a change in snag placement and incorporation. Installing snags uphill of a large wall is challenging and a potential risk. Snag placement will be targeted to regraded slopes and locations where they can safely be installed

to ensure no risk to downslope objects/structures. Snag placement will be targeted specifically to the north and south ends of the mitigation site where they can be installed near existing retained forests where snags will be more beneficial to pileated woodpeckers. The Site outside of the proposed disturbance areas will be evaluated with the City inspector to target existing trees onsite within the forested area for conversion to large, mature snags that would be better suited as pileated woodpecker habitat. Where snags are installed, installation will coincide with site regrading to ensure proper snag installation with minimal impact to the regraded steep slopes or the restored slopes after soil has been placed.

8.4.2 Mulch

Mulch to be used will be arborist wood chips to ensure diversity of sizes of mulch that is better suited to soil development in a mitigation site of this type. Trees and shrubs not incorporated into the mitigation site as habitat features will be converted to arborist wood chips onsite and incorporated into the mitigation site for minimal loss of biomass broadly between developed areas to natural areas.

8.4.3 Plantings

No change from 2020 CAR, except also reference updated **supplemental mitigation plan sheets CA3.0** (**Appendix B**).

8.4.4 Irrigation

No change from 2020 CAR. An above-ground temporary irrigation system will be provided. Details outlined in the 2020 CAR and on **Sheet W4.1**.

8.4.5 Fencing and Critical Area Signs

No change from 2020 CAR.

8.5 Mitigation Goals, Objectives, and Performance Standards

The primary goal of the mitigation is to compensate for impacts to buffers and restore the temporarily impacted buffers. To accomplish these goals, the proposed project will:

- Critical Area Enhancement/Restoration – Canopy Present **14.61 acres**
- Critical Area Enhancement/Restoration –Canopy Lacking **1.57 acres**

Mitigation actions will be evaluated through the following objectives and performance standards. See **Chapter 10 of 2020 CAR** for a full description of the monitoring methods that will be used to evaluate the approved performance standards. Mitigation monitoring will be performed by a qualified biologist.

Objective A: Create habitat structure and plant species diversity in all of the mitigation areas where an existing canopy exists. These areas are only being selectively replanted.

- Stream Buffer Creation from Native Upland 0.31-acre
- Invasive Species Removal with Enhancement 1.61 acres
- Conifer Enhancement of Preserved Forest 12.69 acres

Performance Standard A1: Percent survival of all installed species must be at least 100% at the end of Year 1 (per contactor warranty), and at least 80% at the end of Years 2 and 3.

Performance Standard A2: At least 8 species of desirable native plant species will be present in the mitigation areas with an existing canopy. Species may be comprised of both planted and naturally colonized vegetation.

No performance objectives for coverage are provided where an existing canopy exists, as these plantings are more sporadic in nature.

Objective B: Create habitat structure and plant species diversity in all of the mitigation areas where an existing canopy is lacking. These mitigation areas are being fully replanted.

- Stream Buffer Creation within Reestablished Graded Areas 0.22-acre
- Pre-existing Buffer Impacts/Non-Conforming Uses 0.3-acre
- Restored Graded Stream Buffer 0.35-acre
- Slope Habitat Restoration in Graded Areas 0.7-acre

Performance Standard B1: Percent survival of all installed species must be at least 100% at the end of Year 1 (per contactor warranty), and at least 80% at the end of Years 2 and 3.

Performance Standard B2: At least 12 species of desirable native plant species will be present in the mitigation areas lacking an existing canopy. Species may be comprised of both planted and naturally colonized vegetation.

Performance Standard B3: Total percent areal woody plant (planted or volunteer) coverage must be no less than 20% by the end of Year 1, no less than 30% by the end of Year 3, and no less than 50% by the end of Year 5.

Woody plant coverage may be comprised of both planted and recolonized native species.

Objective C: Remove and control invasive plants to less than 10% cover in mitigation areas.

Performance Standard C1: After construction and throughout the 5-year monitoring period, areal coverage by non-native invasive plant species shall be maintained at 10% or less throughout the mitigation site. These species include, but are not limited to: Scot's broom, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed, and bittersweet nightshade.

9. Construction Sequencing

9.1 Mitigation Construction Sequencing

The following provides the general sequence of activities anticipated to construct this mitigation project. Some of these activities may be conducted concurrently as the project progresses.

1. Conduct a site meeting between the Contractor, project Biologist or Ecologist, and the Owner's Representative to review the project plans, staging/stockpile areas, and material disposal areas.
2. A pre-construction meeting with City staff will be required in advance of beginning any construction activities.
3. Survey clearing/grading limits.
4. The project Biologist or Ecologist shall review clearing limits and shall flag trees and other existing vegetation to remain within the work area. They shall also flag any woody material to be saved and stockpiled for later use as habitat features (stumps, snags, down logs).
5. Install silt fence and any other erosion and sedimentation control BMPs necessary for work in the project areas.
6. Complete site grading per civil site development plans. Retain vegetation, trees, and soil onsite to be reused in mitigation plan as outlined. Trees to be selectively retained as habitat features. Remainder of trees and shrubs to be mulched onsite into arborist wood chips and reused on mitigation site. Soil to be retained and reused in mitigation plantings.
7. Clear and grub designated areas to remove non-native, invasive species. Invasive species removal to be done by hand where indicated. Invasive species to be removed offsite for disposal.
8. De-compact soils and place topsoil or soil amendments as required/identified on site plans.
9. Plant cleared and grubbed areas per the planting typicals/plans.
10. Mulch all grubbed and cleared areas and provide a three-inch-deep mulch ring around all container-planted material outside of wetland.
11. Install irrigation system. Ensure that the system is capable of head-to-head coverage.
12. Install critical area fencing and signs where designated.
13. Complete site cleanup.

9.2 Post-Construction Approval

Once construction is approved, a qualified biologist shall conduct a post-construction assessment. The purpose of this assessment will be to establish baseline conditions at Year 0 of the required monitoring period. A Baseline Assessment report including “as-built” drawings will be submitted to all of the required agencies. The as-built plan set will identify and describe any changes in grading, planting, or other constructed features in relation to the original approved plan.

9.3 Post-Construction Assessment

The Permittee or representative shall notify the permitting agencies (City) when the mitigation plan has been fully installed and is ready for a final site inspection and subsequent final approval. Once final approval is obtained in writing, and “as-built” plans are approved, the monitoring period will begin.

10. Monitoring Plan

No change from 2020 CAR.

11. Maintenance and Contingency

No change from 2020 CAR.

12. Financial Guarantees

No change from 2020 CAR.

13. Summary

The Project proposes to expand the Sunset Hills Memorial Park to provide additional facilities as has been determined necessary based on current use and projected need. The available area for the facility expansion includes redeveloping the area where the current maintenance facilities are located and the undeveloped adjacent areas. This expansion requires modification of the critical areas in the vicinity of the maintenance facilities that includes wetlands, streams, steep slopes and their buffers.

The previous environmental consultant identified nine (9) wetlands and five (5) streams as at least partially occurring onsite that extend buffers on the Site. Steep slopes overlay the above areas and also apply a buffer. No change to the existing conditions of the Site have resulted from the change in consultant.

No impacts to wetlands, streams, wetland buffers, or combined wetland/stream buffers are proposed. Modifications are proposed to stream only buffers, steep slopes, and steep slope buffers. Stream buffers, steep slopes, and steep slope buffers overlap in numerous places, so impact values can not be totaled between these critical areas. Preservation of native forest that falls outside of any wetland, stream, or wetland and/or stream buffer will total 1.03 acres. The remainder of the onsite areas identified for long-term preservation are contained with designated critical areas.

A total of 1.16 acres of stream buffer will be reduced, divided between permanent and regraded stream buffer impacts, with another 0.15-acre of stream buffer impacts to areas with pre-existing, non-conforming uses present that are currently not functional buffer. Mitigation for the stream buffer impacts include the addition of 0.53-acre of new stream buffer; restoration of 0.35-acre of regraded buffer; restoration of 0.3-acre of pre-existing, non-conforming stream buffer to functional buffer; and enhancement of 1.61 acres of wetland and buffer through removal of invasive species and subsequent revegetation of these areas. This is a total of 0.53-acre of new stream buffer and 2.26 acres of wetland and buffer restoration to compensate for the loss of 1.16 acres of functional, vegetated stream buffer.

Permanent loss of steep slopes and steep slope buffer of 3.08 acres will result from the Project with another 1.0 acre lost due to permanent regrading. Steep slope buffers will effectively remain, but are proposed to be permanently converted from one cover type to another as these areas will become part of the active operations of the cemetery. These areas will be retained as lawn spaces that are actively managed long-term, and will not be converted to developed areas such as buildings or parking lots. Therefore, while there is a loss of habitat within these areas that were at least partially forested in the existing conditions, these areas will still provide a different type of habitat in the future. Regraded steep slopes and buffers totaling 0.69-acre will be revegetated post-construction and will become native habitat again. There is a time lag to the habitat restoration in these instances that has been addressed through the proposed mitigation actions.

The final element of the mitigation plan includes partial enhancement of the remainder of the wetland/stream buffers onsite, that occur at least partially over steep slopes, to include removal by hand of invasive species and supplemental plantings of conifers within this deciduous-dominated forest. All mitigation areas will be monitored for a minimum of five (5) years as part of the performance monitoring program.

14. References

No change from 2020 CAR.

APPENDIX A

Resume, Jennifer Marriott, PWS

Jennifer M. Marriott, PWS

15803 Bear Creek Parkway, Unit E513, Redmond, WA 98052
jen@wet.land
Cell: 813-846-1684

QUALIFICATIONS

- Master of Science, Soil Science, University of Florida, Gainesville, FL, 2010
- Master of Science, Biology (Ecology), University of Central Florida, Orlando, FL, 2003
- Bachelor of Science, Biology, University of Central Florida, Orlando, FL, 2001
- Professional Wetland Scientist (No. 1891)

FOCUS AND EXPERTISE

- Project Management
- Environmental Planning (Critical Areas Regulations, Shoreline Jurisdiction)
- Experience in 7 states – FL, NC, WV, PA, OH, NY, WA; and 4 USACE regions;
- Project Summaries and Rapid Environmental Due Diligence Reports
- Wetland and Stream Delineations/Habitat Evaluation
- Wetland (Critical Areas) Permitting
- Mitigation Planning
- Wetland Functional Assessment
- Hydric Soil Determinations
- Training and mentoring of Junior staff

EXPERIENCE

Wet.land; Owner (WA); March 2020 - present
Senior Ecologist/Project Manager; Talasaea Consultants, Inc. (WA); June 2015 – March 2020
Senior Project Scientist; BL Companies, Inc. (PA/OH); July 2012 – July 2014
Environmental Scientist 3; RETTEW Associates, Inc. (PA); March 2011 – February 2012
Ecologist; Cardno-ENTRIX, Inc. (fka Biological Research Associates, FL); July 2003 – March 2011

SKILLS/TRAINING

Washington (Coastal Training Program Workshops)

- Revised Washington State Wetland Rating System, 2014 (April 2015)
- Using the Credit-Debit Method for Estimating Mitigation Needs (October 2015)
- Using Field Indicators for Hydric Soils (November 2015)
- Grass, Sedge, and Rush Identification for Western WA Puget Lowland Habitats (March 2016)
- How to Determine the Ordinary High Water Mark (September 2016)

Other Technical Training

- Professional Wetland Scientist, 2009 - present
- Soil Workshop, PAPSS, 2011
- Hydric Soils Workshops, 2004, 2008, 2009
- FAESS Florida State Certification Short Course, March 12-13, 2009

APPENDIX B

Supplemental Mitigation Plan Sheets, CA 1.4, 1.5, 2.0, 2.1, 3.0

Prepared for Wet.land, LLC, 9 November 2021

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.

EXISTING CONDITIONS OVERVIEW - WETLANDS & STREAMS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP — TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

NOTE: SEE SHEETS W1.0 AND W1.1 FOR WETLAND FLAG LOCATIONS AND RATING SUMMARIES.

WETLAND & STREAM BUFFER LEGEND

WETLAND BUFFER ONLY	0.04 ACRES
STREAM BUFFER ONLY	7.93 ACRES
COMBINED WETLAND & STREAM BUFFER	4.95 ACRES
PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER	0.68 ACRES
PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER	0.22 ACRES
TOTAL:	13.82 ACRES

811 Know what's below. Call before you dig.

NOTES

1. SITE PLAN AND SURVEY PROVIDED BY HUITT-ZOLLARS.
2. THE SOURCE DRAWING WAS MODIFIED BY EASTSIDE ENVIRONMENTAL PROS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020, REVISED BY WET.LAND IN 2021.

EASTSIDE ENVIRONMENTAL PROS, INC.
14221 NE 181ST PLACE, SUITE P304
Woodinville, Washington 98072
BUS (425) 949-8659

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS OVERVIEW - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

AS SHOWN

Scale
Drawn

EE-163

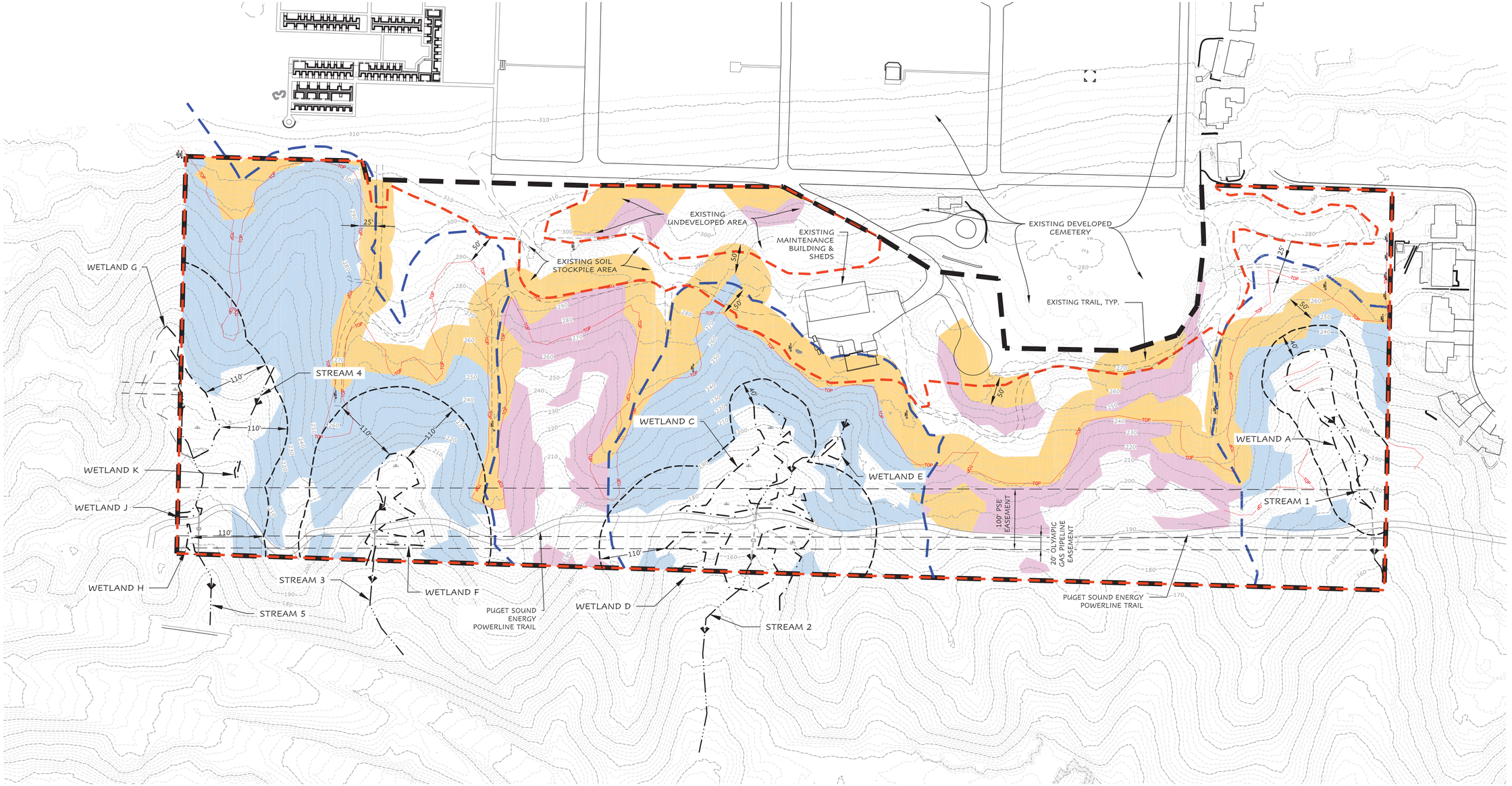
Date 11-08-2021
Revised

PREPARED FOR

wet.land

Sheet # CA1.4

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



EXISTING CONDITIONS OVERVIEW - STEEP SLOPES

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)*
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

STEEP SLOPE LEGEND

STEEP SLOPE WITHIN STREAM BUFFERS	6.53 ACRES
STEEP SLOPE OUTSIDE OF STREAM BUFFERS	2.55 ACRES
STEEP SLOPE BUFFER	4.74 ACRES
TOTAL:	13.54 ACRES

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE.

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NOTES

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Woodinville, Washington 98072
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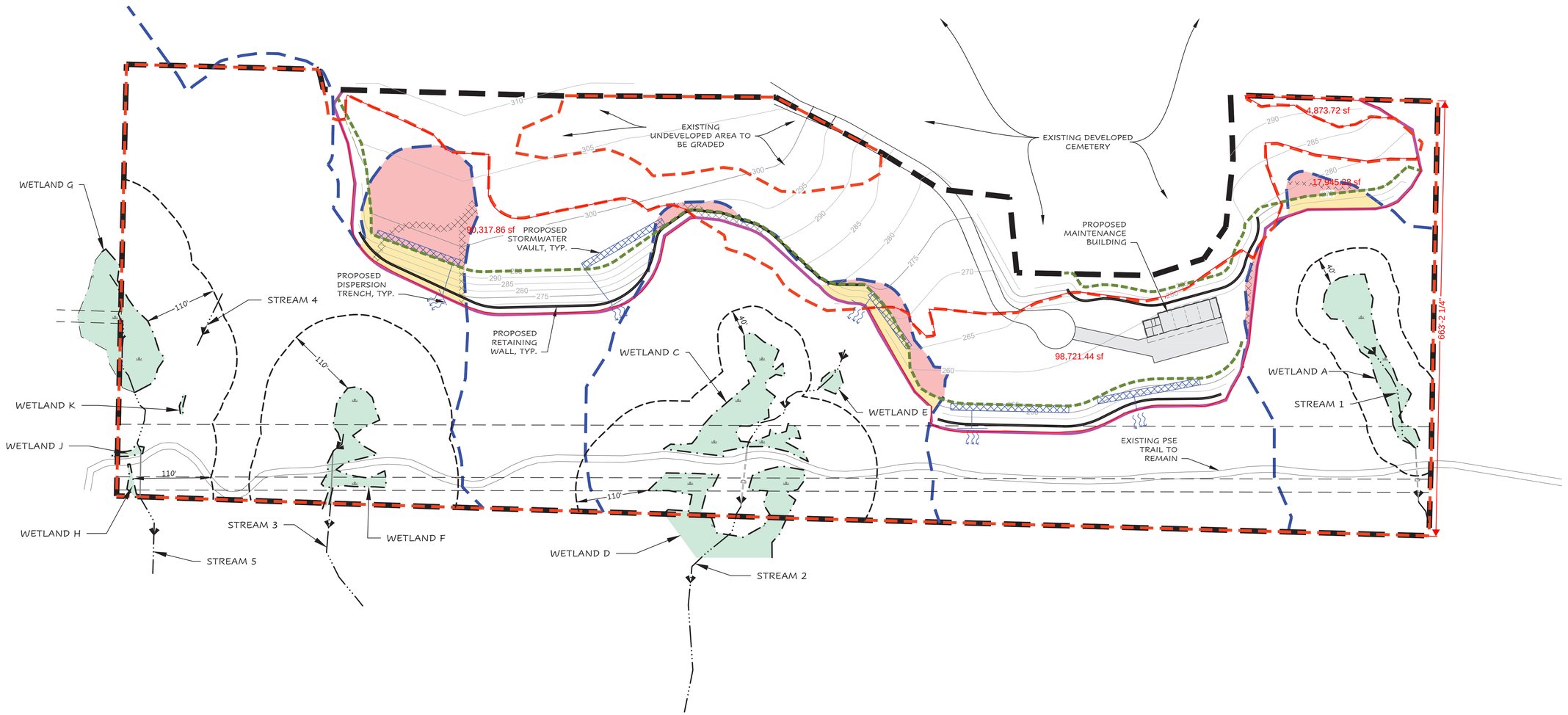
CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS OVERVIEW - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

AS SHOWN
Scale
Drawn
EE-163
Date 11-08-2021
Revised

PREPARED FOR
wet.land

Sheet # CA1.5

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80"
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER
- EXISTING UNDEVELOPED AREAS

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STREAM BUFFER IMPACTS LEGEND

	PERMANENT STREAM BUFFER IMPACTS		
	OUTSIDE OF EXISTING, NON-CONFORMING USES:	31,758 SF	(0.73 AC)
	WITHIN EXISITNG, NON-CONFORMING USES	3,331 SF	(0.08 AC)
	TOTAL:	35,089 SF	(0.81 AC)
	PROPOSED GRADED STREAM BUFFER TO BE REVEGETATED		
	OUTSIDE OF EXISTING, NON-CONFORMING USES:	18,719 SF	(0.43 AC)
	WITHIN EXISITNG, NON-CONFORMING USES	3,006 SF	(0.07 AC)
	TOTAL:	21,725 SF	(0.50 AC)
	TOTAL IMPACTS:	56,814 SF	(1.31 AC)

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NOTES

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CRITICAL AREAS MITIGATION PLAN
PROPOSED SITE PLAN & STREAM BUFFER IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Scale AS SHOWN
Drawn

EE-163

Date 11-08-2021
Revised

PREPARED FOR

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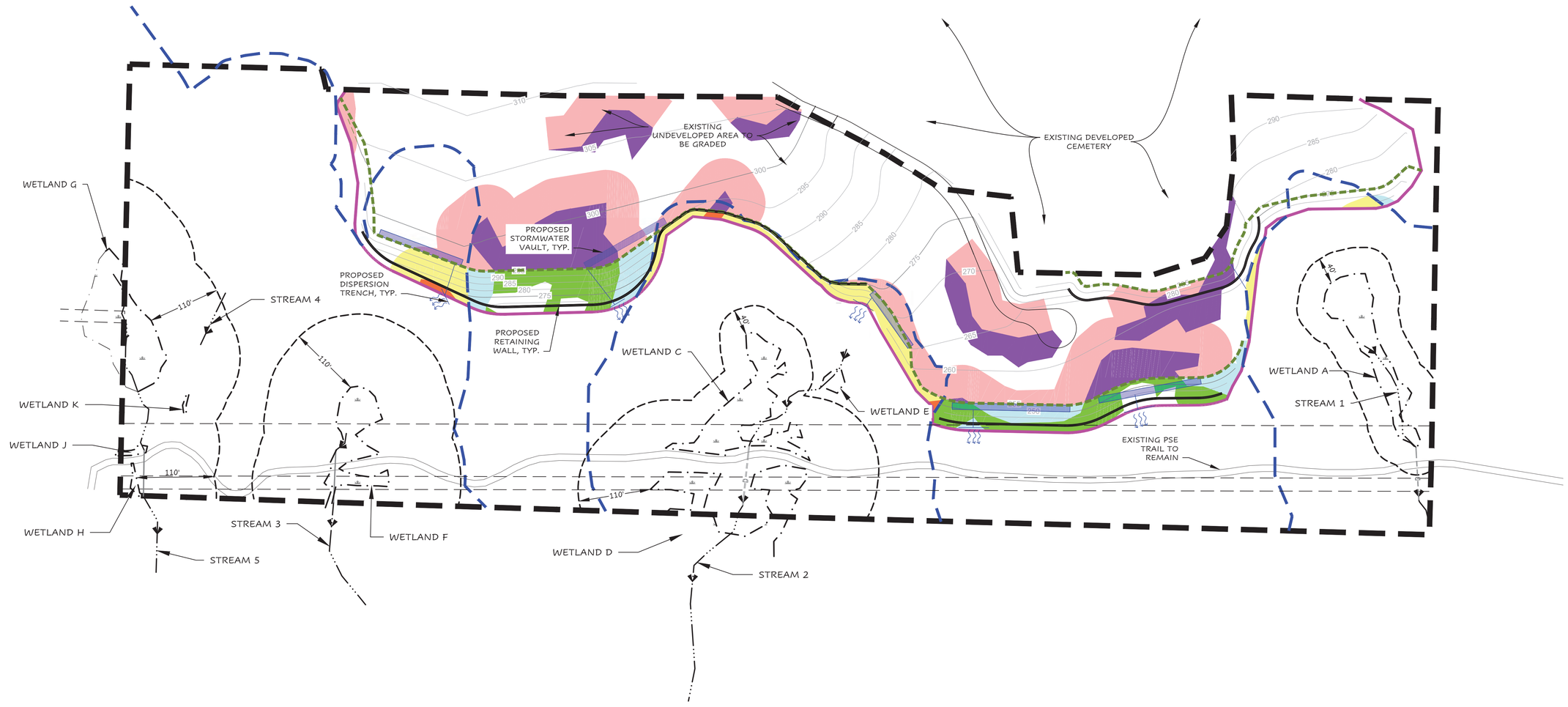
Sheet # **CA2.0**

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED GRADING PLAN & SLOPE IMPACTS

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80'
(IN FEET)

N

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STEEP SLOPE IMPACTS LEGEND

PERMANENT STEEP SLOPE IMPACTS

	SLOPE IMPACTS:	47,687 SF	(1.09 AC)
	SLOPE BUFFER IMPACTS:	86,657 SF	(1.99 AC)
	TOTAL:	134,344 SF	(3.08 AC)

PROPOSED REGRADED STEEP SLOPE IMPACTS

	SLOPE IMPACTS WITHIN STREAM BUFFERS	1,065 SF	(0.02 AC)
	SLOPE IMPACTS OUTSIDE OF STREAM BUFFERS	19,375 SF	(0.44 AC)
	SLOPE BUFFER IMPACTS WITHIN STREAM BUFFERS:	14,887 SF	(0.35 AC)
	SLOPE BUFFER IMPACTS OUTSIDE OF STREAM BUFFERS:	8,400 SF	(0.19 AC)
	TOTAL:	43,727 SF	(1.00 AC)

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EASTSIDE ENVIRONMENTAL PROS, INC.
14221 NE 181ST PLACE, SUITE P304
Woodinville, Washington 98072
Bus (425) 949-8639

CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & SLOPE IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

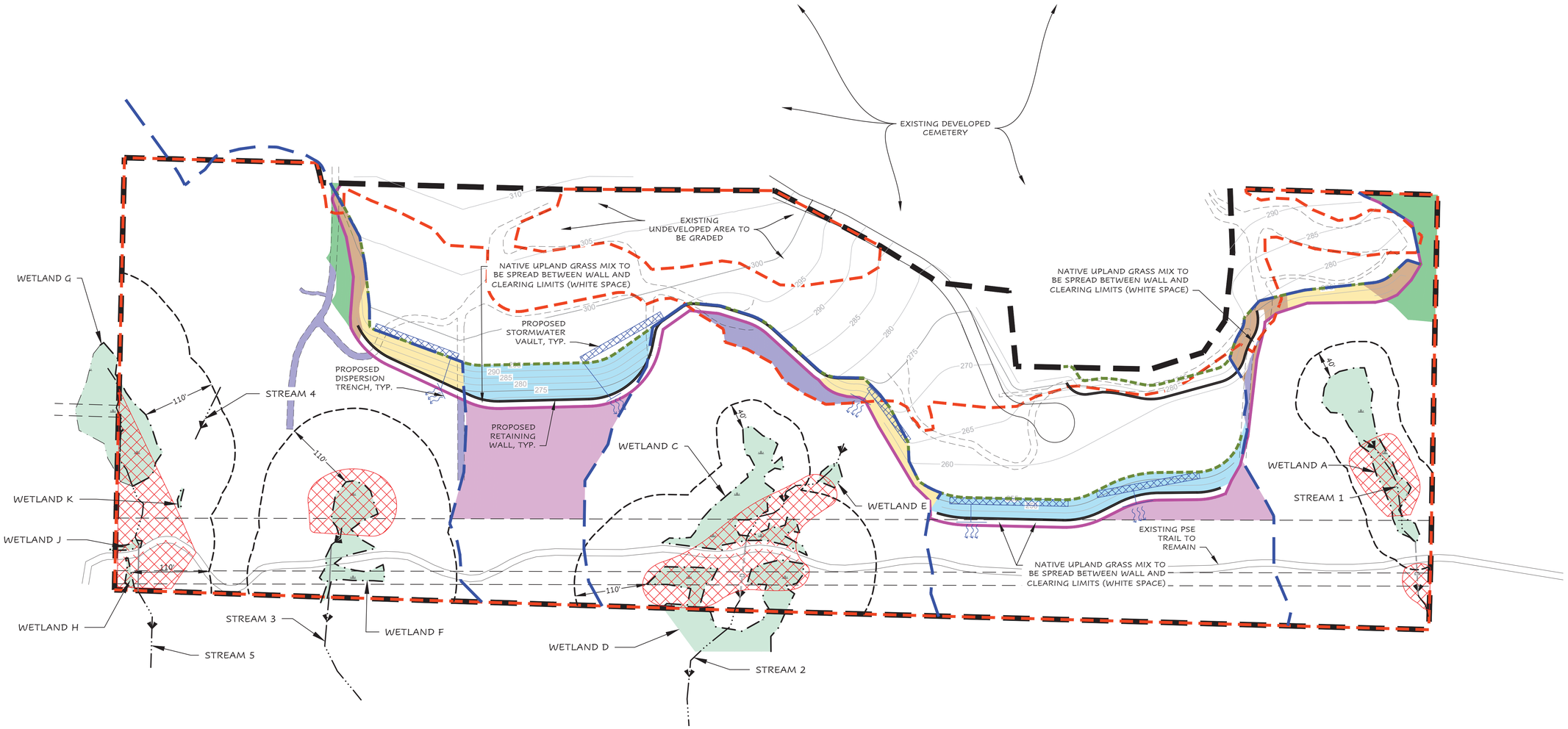
Scale AS SHOWN
Drawn

EE-163

Date 10-27-2021
Revised

Sheet # CA2.1

NW ¼ SECTION 3, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M.



PROPOSED MITIGATION OVERVIEW PLAN

GRAPHIC SCALE
0 40' 80' 160'
GRAPHIC SCALE 1"=80"
(IN FEET)

N

PLAN LEGEND

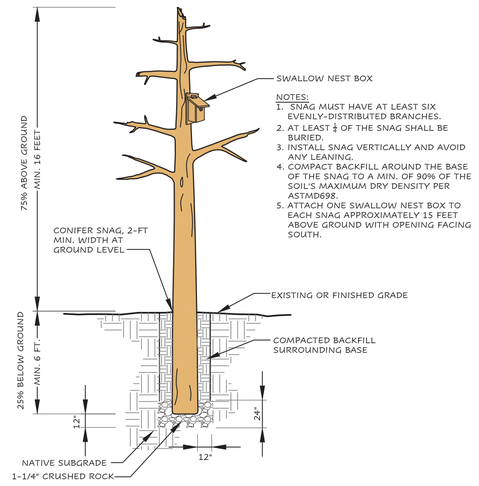
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

PROPOSED GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

MITIGATION LEGEND

BUFFER CREATION		
STREAM BUFFER CREATION FROM NATIVE UPLAND	13,588 SF	(0.31 AC)
STREAM BUFFER CREATION WITHIN REESTABLISHED GRADED AREAS	9,655 SF	(0.22 AC)
BUFFER RESTORATION		
FROM PRE-EXISTING BUFFER IMPACTS/ NON-CONFORMING USES	13,188 SF	(0.30 AC)
RESTORED GRADED STREAM BUFFER	15,221 SF	(0.35 AC)
WETLAND/BUFFER ENHANCEMENT		
INVASIVE SPECIES REMOVAL WITH ENHANCEMENT	70,273 SF	(1.61 AC)
GENERAL HABITAT RESTORATION		
SLOPE HABITAT RESTORATION IN GRADED AREAS	30,076 SF	(0.70 AC)
TOTAL MITIGATION:	152,001 SF	(3.49 AC)
PRESERVED NATIVE FOREST	43,788 SF	(1.03 AC)



NOTES:
1. SNAG MUST HAVE AT LEAST SIX EVENLY-DISTRIBUTED BRANCHES.
2. AT LEAST ⅓ OF THE SNAG SHALL BE BURIED.
3. INSTALL SNAG VERTICALLY AND AVOID ANY LEANING.
4. COMPACT BACKFILL AROUND THE BASE OF THE SNAG TO A MIN. OF 90% OF THE SOIL'S MAXIMUM DRY DENSITY PER ASTMD698.
5. ATTACH ONE SWALLOW NEST BOX TO EACH SNAG APPROXIMATELY 15 FEET ABOVE GROUND WITH OPENING FACING SOUTH.

2 SNAG DETAIL
SCALE: NTS

Native Upland Grass Mix #9

30%	*Elymus glaucus*	**(BLUE WILDRYE)**
25%	*Bromus carinatus*	**(CALIFORNIA BROME)**
10%	*Hordeum brachyantherum*	**(MEADOW BARLEY)**
10%	*Festuca roemeri*	**(ROEMER'S FESCUE)**
10%	*Deschampsia elongata*	**(SLENDER HAIRGRASS)**
5%	*Agrostis exarata*	**(SPIKE BENTRGRASS)**
5%	*Deschampsia cespitosa*	**(TUFTED HAIRGRASS)**
5%	*Festuca rubra rubra*	**(RED FESCUE)**

NATIVE UPLAND SEED MIX

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NOTES

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EASTSIDE ENVIRONMENTAL PROS, INC.
14221 NE 181ST PLACE, SUITE P304
Woodinville, Washington 98072
Bus (425) 949-8639

CRITICAL AREAS MITIGATION PLAN
PROPOSED MITIGATION OVERVIEW PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Scale AS SHOWN
Drawn

EE-163

Date 11-08-2021
Revised

PREPARED FOR

wet.land

Sheet # CA3.0

APPENDIX C

Annotated Mitigation Plan

Prepared by Talasaea Consultants, dated 1 December 2020

Annotated by Wet.land, LLC, 9 November 2021

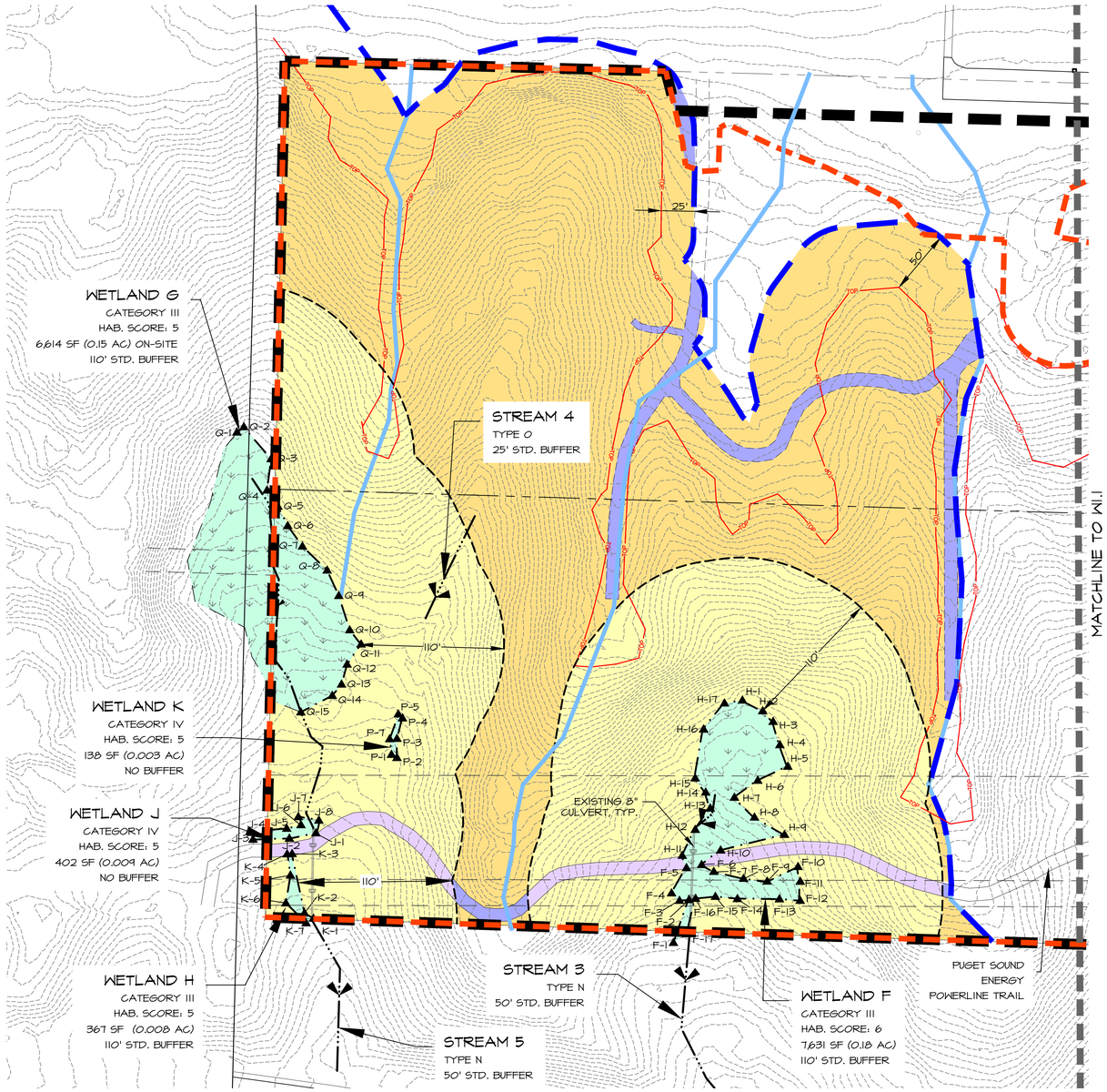
Appendix C:

Detailed Mitigation Plan

(Large plan sheets)

Sheet W1.0: Existing Conditions Plan – Wetlands & Streams
Sheet W1.1: Existing Conditions Plan – Wetlands & Streams
Sheet W1.2: Existing Conditions Plan – Slopes
Sheet W1.3: Existing Conditions Plan – Slopes
Sheet W2.0: Proposed Grading Plan & Stream Buffer Impacts
Sheet W2.1: Proposed Grading Plan & Slope Impacts
Sheet W3.0: Proposed Mitigation Overview Plan
Sheet W3.1: Proposed Clearing, Grubbing, & Habitat Feature Plan
Sheet W3.2: Clearing, Grubbing, and Planting Notes & Details
Sheet W4.0: Proposed Planting Plan
Sheet W4.1: Proposed Planting Plan Specifications and Details

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- ▲A-# WETLAND FLAG LOCATION
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

*THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

BUFFER LEGEND

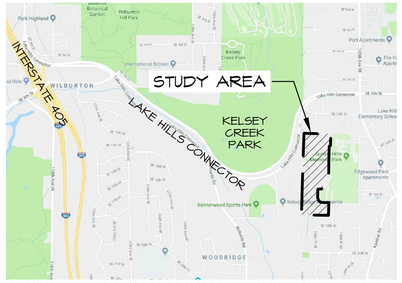
- WETLAND BUFFER ONLY
- STREAM BUFFER ONLY
- COMBINED WETLAND & STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER

NOTE: WETLAND NAMES WERE CHANGED POST-DELINEATION. FLAG NUMBERS REFLECT IN-FIELD CONDITIONS. WETLAND F CONTAINS FLAGS H-1 THROUGH H-11 AND F-1 THROUGH F-17. WETLAND H CONTAINS FLAGS K-1 THROUGH K-7. WETLAND K CONTAINS FLAGS P-1 THROUGH P-7. WETLAND G CONTAINS FLAGS Q-1 THROUGH Q-15.

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.4 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.0 AND W1.1.

VICINITY MAP

NTS



SOURCE: GOOGLE MAPS; WWW.MAPS.GOOGLE.COM (ACCESSED 3-7-2019)

NORTH

CONTACTS

APPLICANT/OWNER
NAME: SUNSET HILLS MEMORIAL PARK
ADDRESS: 1215 145TH PL SE, BELLEVUE, WA 98007
PHONE: (425) 746-1400
CONTACT: PATRICK HUSBAND

ENGINEER/SURVEYOR
NAME: HUITT-ZOLLARS
ADDRESS: 1102 BROADWAY, SUITE 301, TACOMA, WA, 98402
PHONE: (206) 324-5500
CONTACT: BILL DUNNING, PM
E-MAIL BDUNNING@HUITT-ZOLLARS.COM

ENVIRONMENTAL CONSULTANT
NAME: TALASAEA CONSULTANTS, INC.
ADDRESS: 15020 BEAR CREEK RD. NE, WOODINVILLE, WA 98077
PHONE: (425) 861-7550
CONTACT 1: BILL SHIELS, PRINCIPAL, SENIOR PROJECT MANAGER
E-MAIL: BSHIELS@TALASAEA.COM
CONTACT 2: AARON ELLIG, ECOLOGIST
E-MAIL: AELLIG@TALASAEA.COM

SHEET INDEX

Know what's below. Call before you dig.

NOTES

1. SURVEY AND SITE PLAN PROVIDED BY HUITT-ZOLLARS, 1102 BROADWAY, SUITE 301, TACOMA 98402. (206) 324-5500.
2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
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TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15020 Bear Creek Road Northeast – Woodinville, Washington 98077
Bus (425) 861-7550 – Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

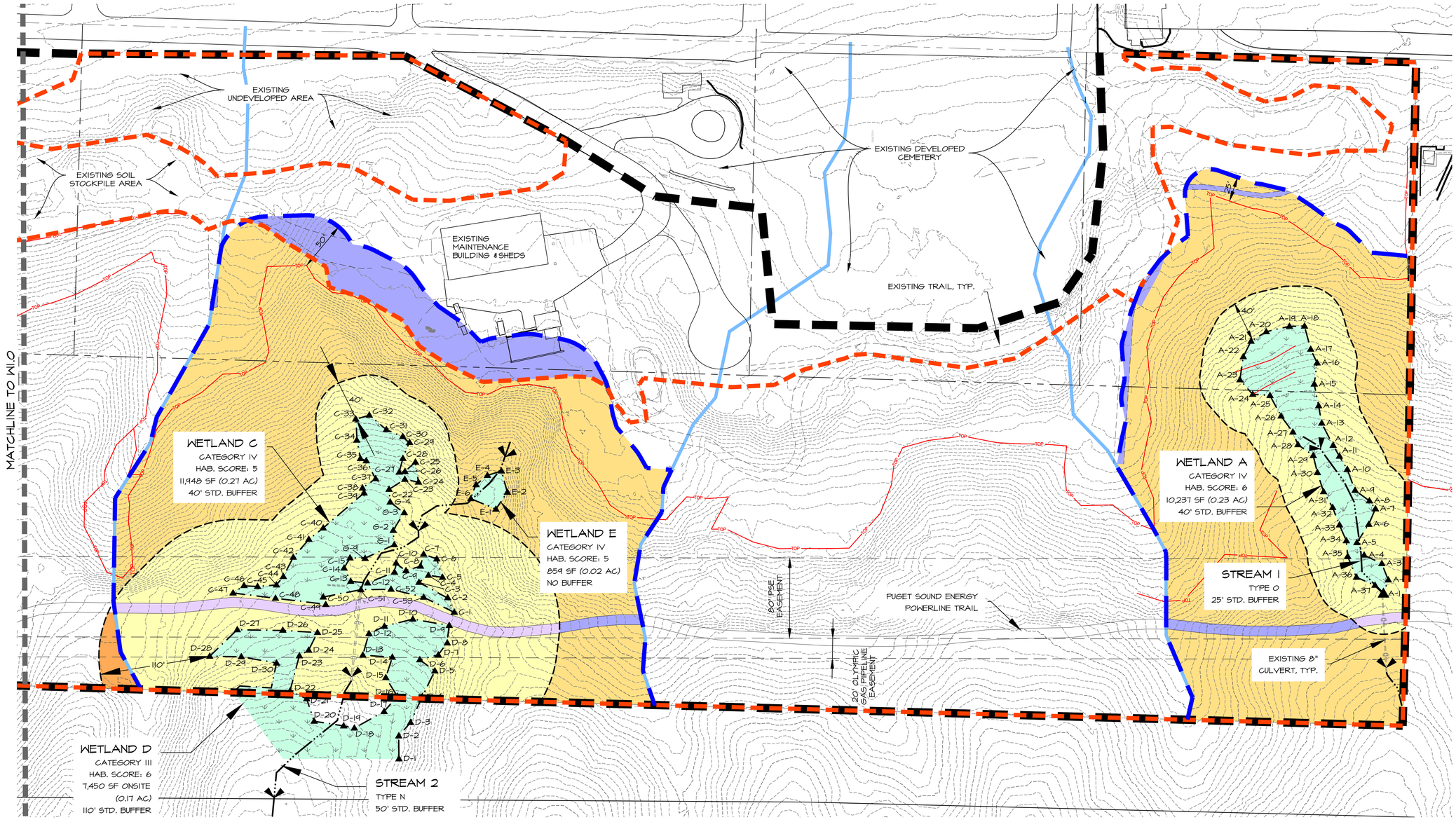
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MH
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS NOTED
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W1.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - WETLANDS, STREAMS, AND ASSOCIATED BUFFERS

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- A-# WETLAND FLAG LOCATION
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP TOP OF BANK (PROVIDED BY GEOTECH)*
- DRAINAGE BASIN DIVIDE
- EXISTING UNDEVELOPED AREAS

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BUFFER LEGEND

- WETLAND BUFFER
- STREAM BUFFER
- COMBINED WETLAND & STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN STREAM BUFFER
- PRE-EXISTING NON-CONFORMING USES WITHIN COMBINED WETLAND & STREAM BUFFER

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ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.4 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.0 AND W1.1.

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Resource & Environmental Planning
15020 Bear Creek Road Northeast - Woodinville, Washington 98077
Box (425) 861-7500 - Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - WETLANDS & STREAMS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

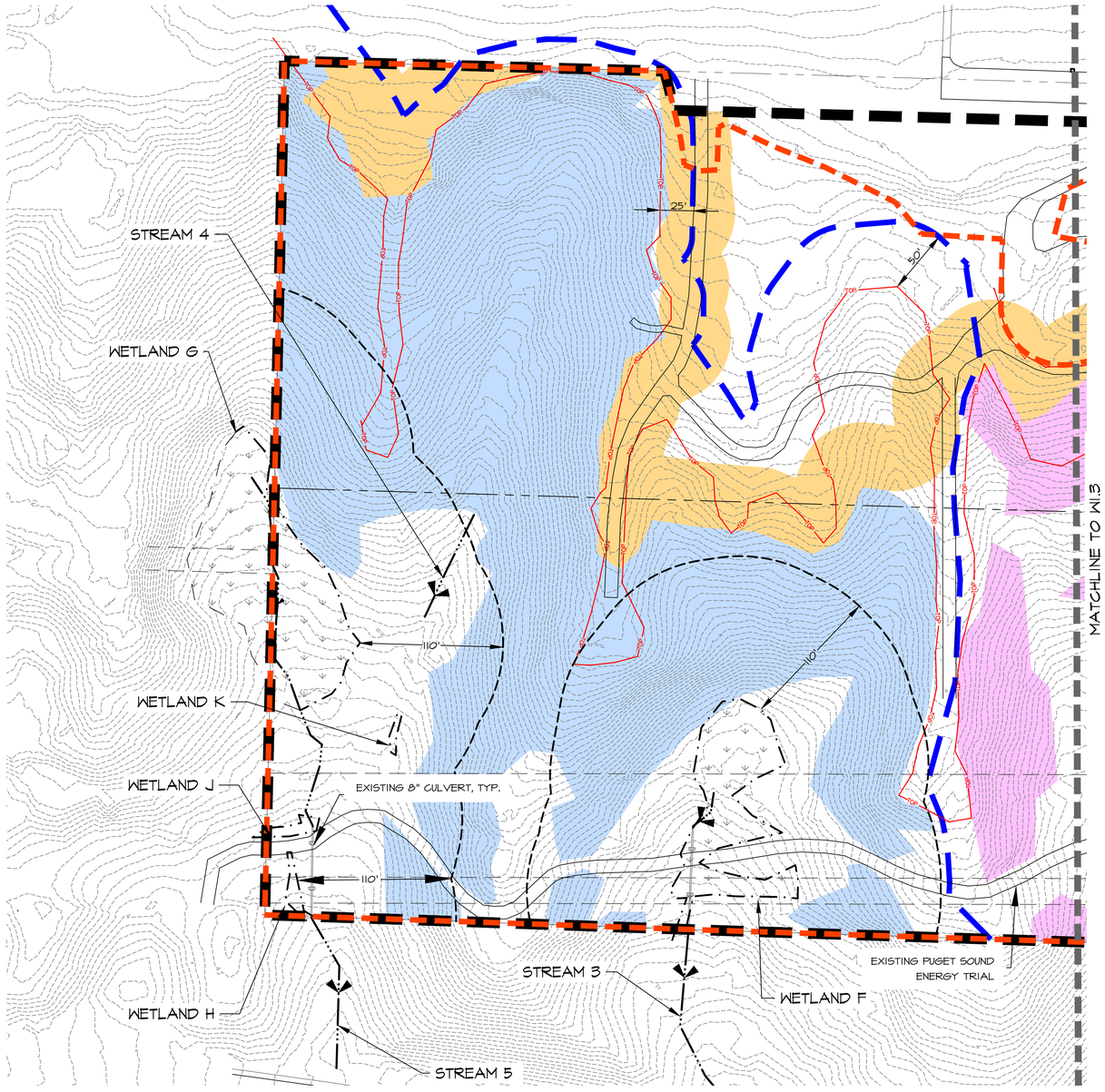
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MW
CITY COMMENTS	12-1-2020	KM

Date	4-10-2019
Scale	AS SHOWN
Designed	KM
Drawn	FH
Checked	AO
Approved	BS

Project # 1789

Sheet # W1.1

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)
- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.5 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.2 AND W1.3.

811 Know what's below. Call before you dig.

NOTES

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3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
15400 Bear Creek Road Northeast - Woodinville, Washington 98077
Box (425) 861-7500 - Fax (425) 861-7549

CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MH
CITY COMMENTS	12-1-2020	KM

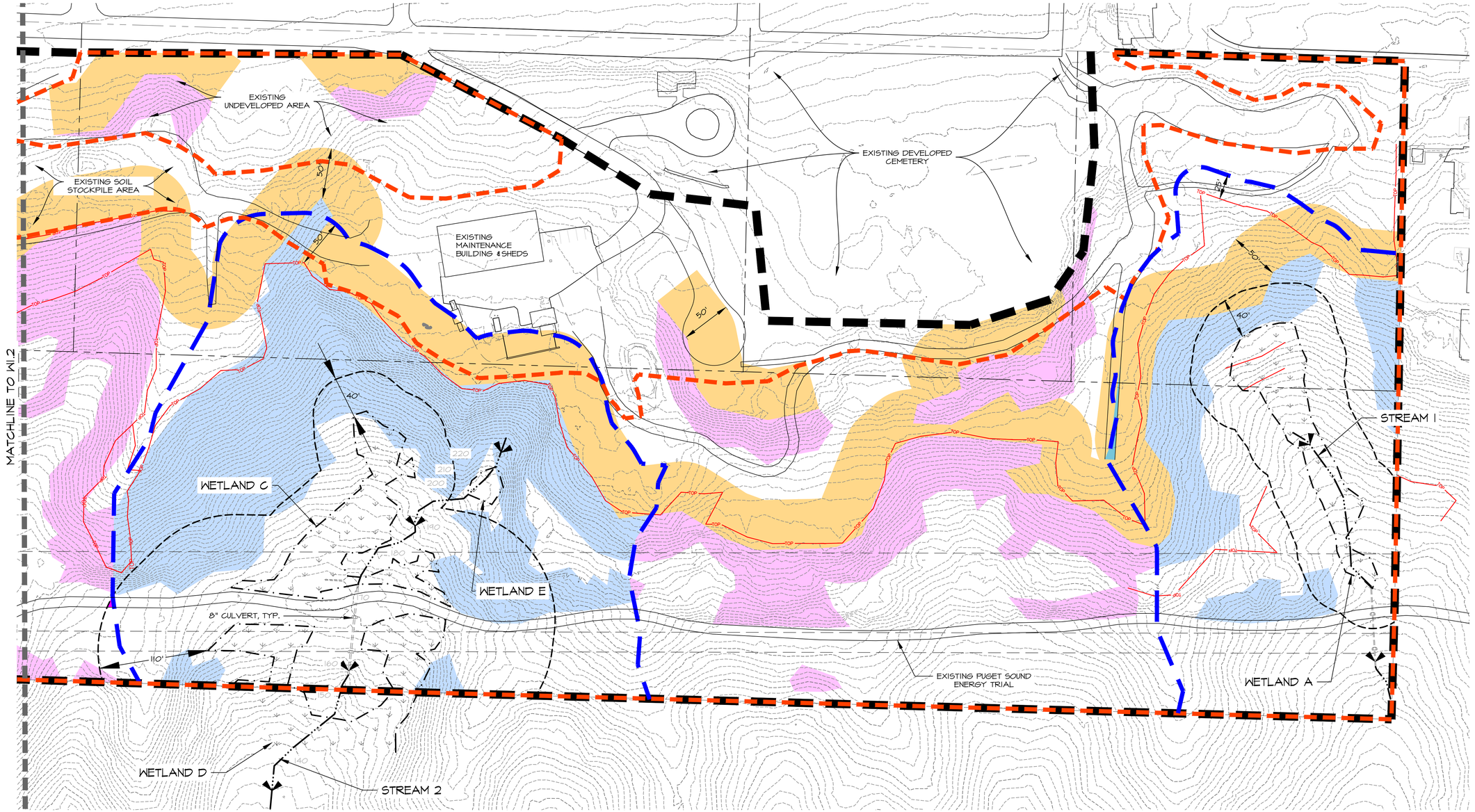
Date 4-10-2019
Scale AS NOTED
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W1.2

Z:\DRAWING\1700-1799\TAL1789\Plank\TAL-1789 WP 2020-11_recover.dwg
Plotted: November 30, 2020

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



EXISTING CONDITIONS PLAN - STEEP SLOPES

GRAPHIC SCALE (IN FEET)
0 25 50 100
SCALE: 1"=50'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- APPROXIMATE WETLAND LINE
- WETLAND BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- EXISTING 2-FOOT CONTOUR
- TOP OF BANK (PROVIDED BY GEOTECH)
- EXISTING UNDEVELOPED AREAS

STEEP SLOPE LEGEND

- STEEP SLOPE WITHIN STREAM BUFFERS
- STEEP SLOPE OUTSIDE OF STREAM BUFFERS
- STEEP SLOPE BUFFER (50' STD. FROM TOP OF SLOPE)

NOTE: STEEP SLOPES PROVIDED BY GEOTECH. STEEP SLOPES ARE DEFINED AS HAVING >40% SLOPE. THE TOP-OF-BANK LINE IS THE TOP OF AREAS CONTAINING 33% SLOPES, PER BLUC §20.50.048

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ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA1.5 (PREPARED BY WET.LAND, LLC) FOR COMBINED MAP OF TALASAEA SHEETS W1.2 AND W1.3.

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CRITICAL AREAS MITIGATION PLAN
EXISTING CONDITIONS PLAN - STEEP SLOPES
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	2-6-2020	MN
CITY COMMENTS	12-1-2020	KM

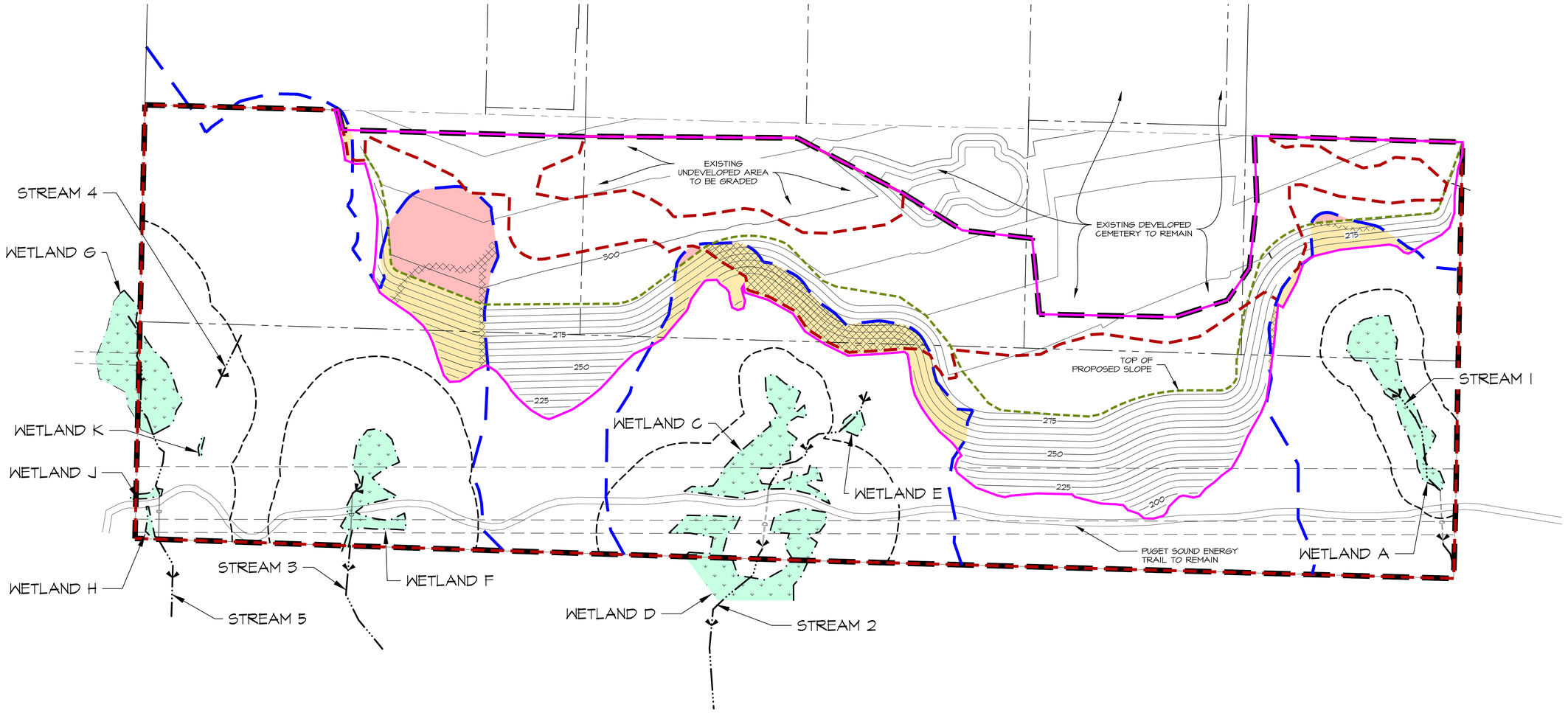
Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AD
Approved BS

Project # 1789

Sheet # W1.3

Z:\DRAWINGS\1700-1799\TAL1789\Plans\TAL-1789 WF 2020-11_recover.dwg
Plotted November 30, 2020

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER
- EXISTING UNDEVELOPED AREAS

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STREAM BUFFER IMPACTS LEGEND

PERMANENT STREAM BUFFER IMPACTS

OUTSIDE OF EXISTING, NON-CONFORMING USES:	20,151 SF	(0.46 AC)
WITHIN EXISITNG, NON-CONFORMING USES	2,321 SF	(0.05 AC)
TOTAL:	22,472 SF	(0.51 AC)

PROPOSED GRADED STREAM BUFFER TO BE REVEGETATED

OUTSIDE OF EXISTING, NON-CONFORMING USES:	33,531 SF	(0.77 AC)
WITHIN EXISITNG, NON-CONFORMING USES	17,370 SF	(0.40 AC)
TOTAL:	50,901 SF	(1.17 AC)

TOTAL IMPACTS: 73,373 SF (1.68 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA2.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED STREAM IMPACT MAP TO REPLACE TALASEA SHEET W2.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & STREAM BUFFER IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

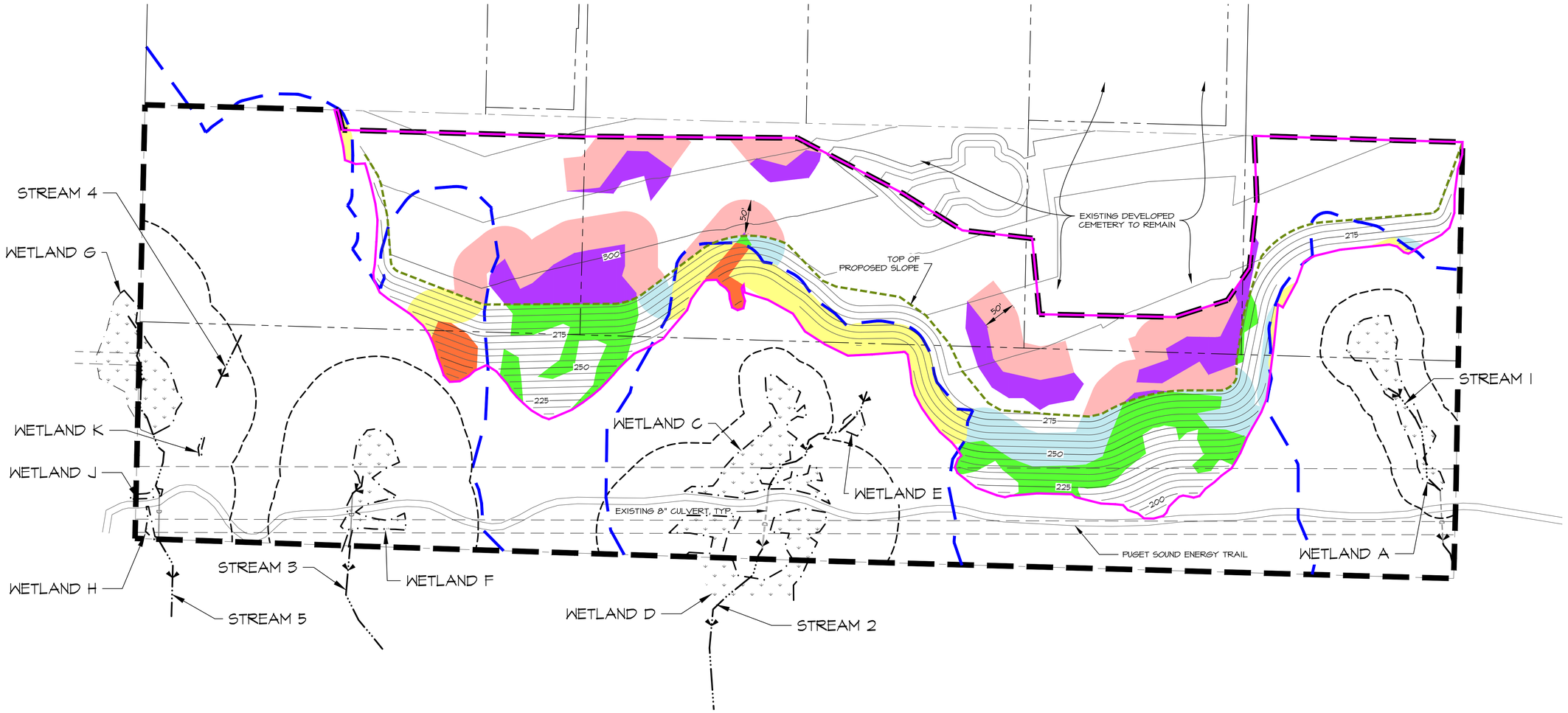
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W2.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED GRADING PLAN & STEEP SLOPE IMPACTS

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- PROPERTY LINE
- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- EXISTING STREAM BUFFER

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

STEEP SLOPE IMPACTS LEGEND

PERMANENT STEEP SLOPE IMPACTS

	PERMANENT SLOPE IMPACTS:	36,831 SF	(0.85 AC)
	PERMANENT SLOPE BUFFER IMPACTS:	65,378 SF	(1.50 AC)
	TOTAL:	102,209 SF	(2.35 AC)

PROPOSED REGRADED STEEP SLOPE BUFFER TO BE REVEGETATED

	TEMPORARY SLOPE IMPACTS WITHIN STREAM BUFFERS	7,177 SF	(0.16 AC)
	TEMPORARY SLOPE IMPACTS OUTSIDE OF STREAM BUFFERS	39,962 SF	(0.92 AC)
	TEMPORARY SLOPE BUFFER IMPACTS WITHIN STREAM BUFFERS:	32,670 SF	(0.75 AC)
	TEMPORARY SLOPE BUFFER IMPACTS OUTSIDE OF STREAM BUFFERS:	23,960 SF	(0.55 AC)
	TOTAL:	103,769 SF	(2.38 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA2.1 (PREPARED BY WET.LAND, LLC) FOR UPDATED STEEP SLOPE IMPACT MAP TO REPLACE TALASEA SHEET W2.1.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED GRADING PLAN & SLOPE IMPACTS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

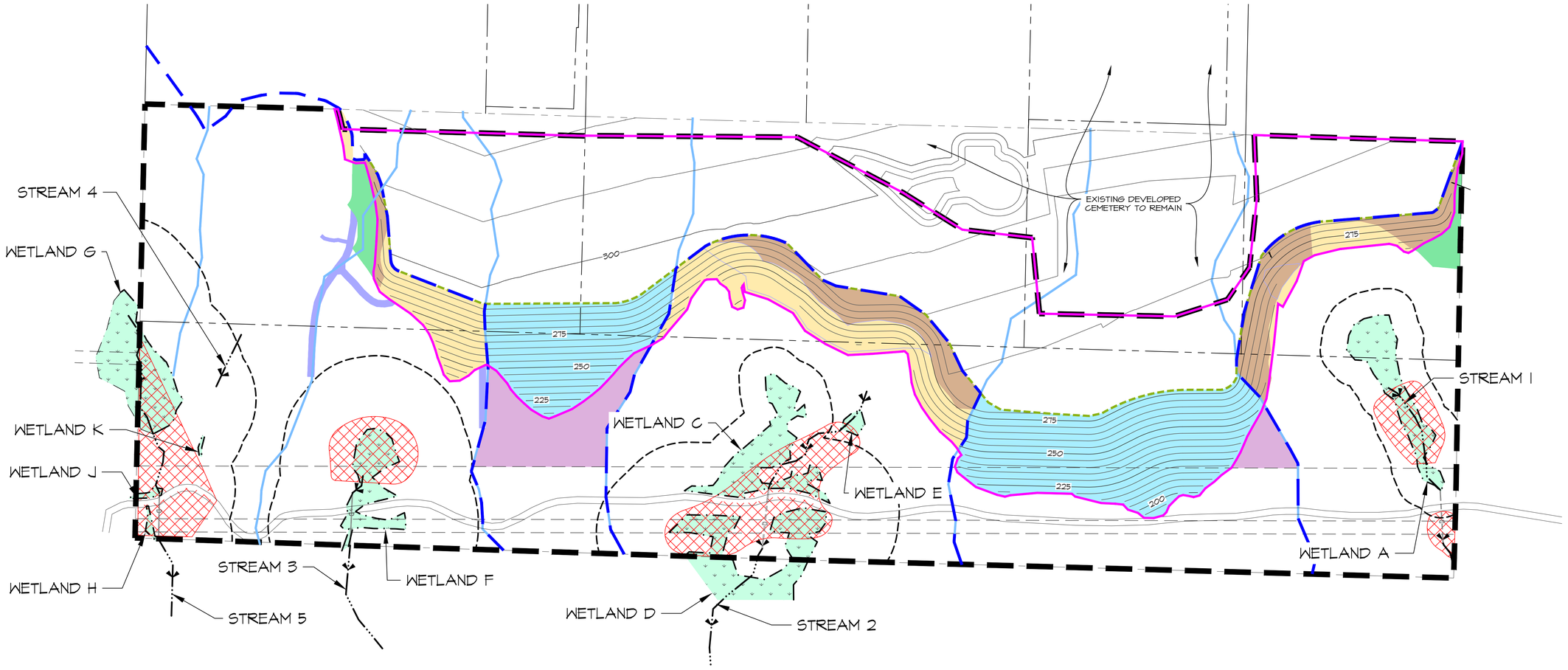
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W2.1

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED MITIGATION OVERVIEW PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE

MITIGATION LEGEND

BUFFER CREATION			
	STREAM BUFFER CREATION FROM NATIVE UPLAND	8,625 SF	(0.20 AC)
	STREAM BUFFER CREATION WITHIN REESTABLISHED GRADED AREAS	37,181 SF	(0.85 AC)
BUFFER RESTORATION			
	FROM PRE-EXISTING BUFFER IMPACTS/ NON-CONFORMING USES	899 SF	(0.02 AC)
	RESTORED GRADED STREAM BUFFER	50,901 SF	(1.17 AC)
WETLAND/BUFFER ENHANCEMENT			
	INVASIVE SPECIES REMOVAL WITH ENHANCEMENT	70,273 SF	(1.61 AC)
GENERAL HABITAT RESTORATION			
	SLOPE HABITAT RESTORATION IN GRADED AREAS	96,570 SF	(2.22 AC)
	PRESERVED NATIVE FOREST	27,430 SF	(0.63 AC)
TOTAL MITIGATION:		291,879 SF	(6.70 AC)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED MITIGATION OVERVIEW PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

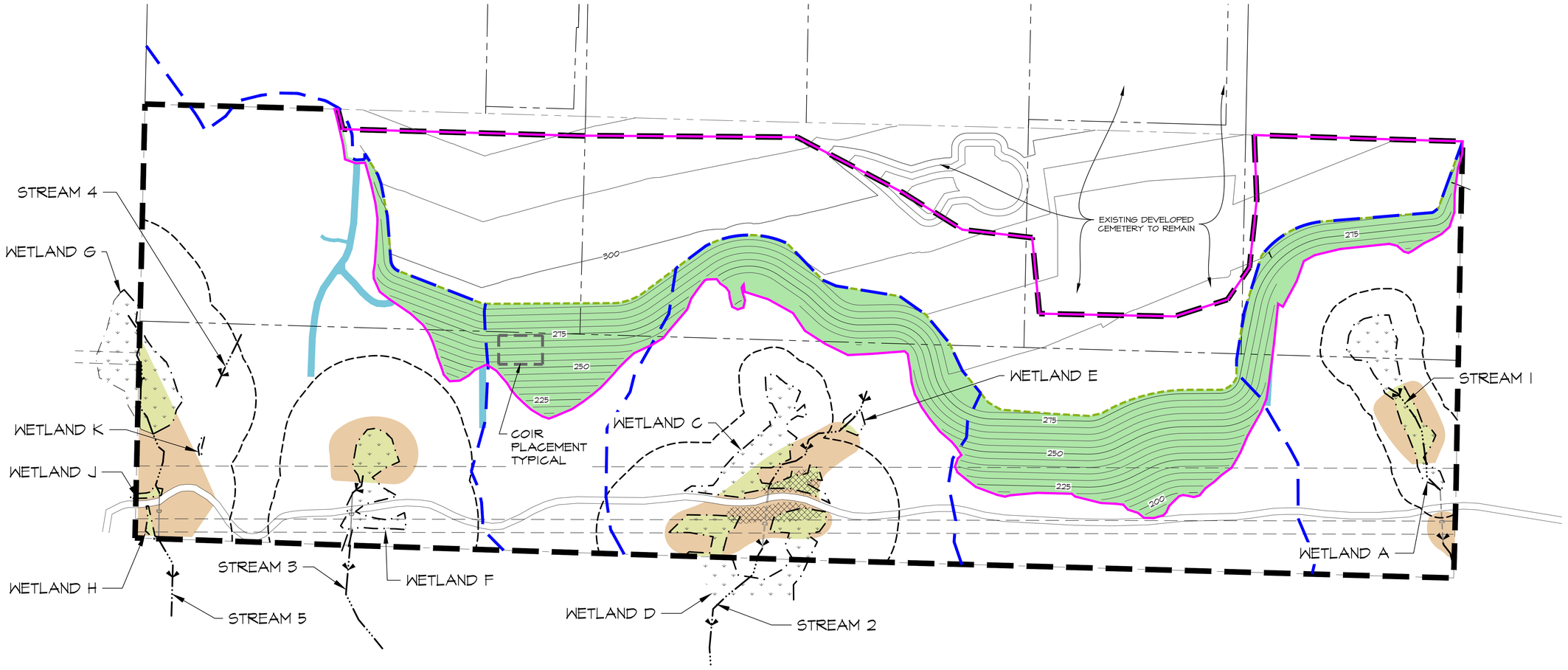
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.0

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED CLEARING, GRUBBING AND HABITAT FEATURE PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE
- POST-CONSTRUCTION STREAM BUFFER
- EXISTING DRAINAGE BASIN DIVIDE

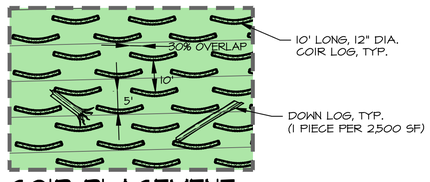
GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (3/R03)

CLEARING AND GRUBBING LEGEND

STRUCTURES TO BE DEMOLISHED; NEW 2:1 SLOPE TO BE CONSTRUCTED, SPRAYED WITH TOPSOIL, AND HYDROSEEDED WITH NATIVE GRASS SPECIES; COIR LOGS TO BE PLACED PER TYPICAL.	183,540 SF	(4.21 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; MULCH ENTIRE AREA; AND REPLANT WITH NATIVE SPECIES.	46,737 SF	(1.07 AC)
INVASIVE SPECIES TO BE GRUBBED BY HAND; RE-PLANT WITH NATIVE SPECIES AND ADD A MULCH RING AROUND INDIVIDUAL PLANTS.	22,877 SF	(0.53 AC)
JAPANESE KNOTWEED TO BE INJECTED WITH HERBICIDE, GRUBBED WHEN CONFIRMED DEAD, AND REPLACED WITH NATIVE SPECIES.	5,617 SF	(0.13 AC)
DECOMPACT EXISTING TRAILS, AMEND WITH TOPSOIL AND MULCH, AND PLANT WITH NATIVE SPECIES	5,900 SF	(0.14 AC)

INSERT NEW NUMBERS HERE BY HATCH - GREEN HATCH CHANGES ONLY (?)



COIR PLACEMENT TYPICAL
SCALE: 1"=20'

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (1/R03)
- WOODY DEBRIS (DOWN LOGS) (2/R03)

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0 AND 3.1.

THE ONLY EFFECTIVE CHANGE TO THIS MAP IS THAT THE GREEN HATCHED AREA IS NOW REDUCED TO XXXXX ACRES, AS REFLECTED ON SHEET CA3.0.

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CRITICAL AREAS MITIGATION PLAN
PROPOSED CLEARING, GRUBBING, AND HABITAT FEATURE PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-14	FH
NEW SITE PLAN	8-6-2020	KM
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.1

NOTES FOR CLEARING, GRUBBING, AND HABITAT FEATURE INSTALLATION

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION:

1. CONTRACTOR SHALL GIVE TALASAEA CONSULTANTS A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO BEGINNING CONSTRUCTION.

2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, TALASAEA CONSULTANTS, GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONSTRAINTS.

3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION PLAN AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. TALASAEA CONSULTANTS SHALL REVIEW ANY CONFLICTS WITH THE APPROVED MITIGATION PLAN PRIOR TO START OF CONSTRUCTION.

4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.

5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.

6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.

7. A QUALIFIED ECOLOGIST SHALL BE ON SITE, AS NECESSARY, TO MONITOR MITIGATION CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.

8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.

9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.

10. THE CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THIS MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, TALASAEA CONSULTANTS, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS.

2. SURVEY CLEARING LIMITS.

3. INSTALL SILT FENCE AND ANY OTHER EROSION AND SEDIMENTATION CONTROL BMPS NECESSARY FOR WORK IN THE MITIGATION AREAS.

4. CLEAR AND GRUB NON-NATIVE/INVASIVE VEGETATION FROM WETLAND AND BUFFER AREAS

5. ON PROPOSED GRADED SLOPES (PLANTING TYPICALS #1 AND #2), AMEND PLANTING AREAS WITH 8-INCH MINIMUM OF TOPSOIL AND PLACE LARGE WOODY MATERIAL. NO TOPSOIL AMENDMENT IS NECESSARY WITHIN PLANTING TYPICALS #2 AND #3.

6. HYDROSEED ALL GRADED AREAS WITHIN PLANTING TYPICAL AREAS #1 AND #2 WITH A NATIVE MEADOW GRASS MIX.

7. COMPLETE SITE CLEANUP AND INSTALL PLANT MATERIAL ONCE THE HYDROSEED GRASS MIX HAS MATURED, AS INDICATED ON THE MITIGATION PLANTING PLAN.

8. INSTALL BARRIER FENCE AND CRITICAL AREA SIGNS.

1.2 PROJECT CONDITIONS

A. PROTECTION AND MAINTENANCE OF OFF-SITE AREAS: CONTRACTOR SHALL ENSURE THAT CONSTRUCTION RELATED ACTIVITIES DO NOT DAMAGE OFF-SITE FEATURES OR ADJACENT VEGETATION. TALASAEA CONSULTANTS SHALL BE NOTIFIED IMMEDIATELY IF ACCIDENTAL DAMAGE OCCURS. CONTRACTOR SHALL ENSURE THAT ADJACENT ROADS ARE MAINTAINED AND KEPT CLEAR OF SOIL AND/OR OTHER DEBRIS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH THE GOVERNING JURISDICTION'S CODES REGARDING STREET MAINTENANCE/CLEANING DURING CONSTRUCTION.

B. PLAN CHANGES AND MODIFICATIONS: ANY CHANGES OR MODIFICATIONS TO THE MITIGATION PLANS OR SPECIFICATIONS MUST RECEIVE PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

1.3 WARRANTY

A. WARRANTY TERMS AND CONDITIONS: A CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL CLEARING/GRUBBING, HABITAT FEATURE PLACEMENT, PLANTING, IRRIGATION, AND SEED PHASES OF SUCH WORK HAVE BEEN COMPLETED AND ARE ACCEPTED BY THE OWNER'S REPRESENTATIVE, TALASAEA CONSULTANTS, AND APPLICABLE AGENCIES.

PART 2: PRODUCTS AND MATERIALS

2.1 HABITAT FEATURES

A. DOWN LOGS: DOWN LOGS SHALL BE CEDAR OR FIR SPECIES, HAVE A 20 FOOT MINIMUM LENGTH, WITH OR WITHOUT ROOTS, AND A MINIMUM DIAMETER OF 18 INCHES. BARK SHALL BE KEPT INTACT. ENDS THAT HAVE BEEN CUT SHALL BE DISTRESSED AND NOT BLUNT. DOWN LOGS MAY BE SOURCED FROM CLEARED TREES ONSITE, OR IMPORTED FROM OFFSITE.

2.3 TOPSOIL

A. TOPSOIL: TOPSOIL THAT HAS BEEN STOCKPILED ON-SITE FOR REUSE IN PROJECT AREA(S) OR IMPORTED FROM OFF-SITE SOURCES SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

2.4 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

PART 3: EXECUTION

A. SURVEY/STAKE/FLAG LIMITS OF CLEARING:

1. PRIOR TO ANY CONSTRUCTION, A LICENSED SURVEYOR SHALL SURVEY, STAKE, AND FLAG CLEARING LIMITS. CLEARING LIMITS ARE DEPICTED ON THE MITIGATION PLANS. TALASAEA CONSULTANTS SHALL REVIEW AND APPROVE FLAGGING OF CLEARING LIMITS PRIOR TO ANY VEGETATION REMOVAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATIONS OF VEGETATION TO BE SAVED AND REQUEST THAT TALASAEA CONSULTANTS MODIFY THE MITIGATION PLAN AS NECESSARY TO AVOID ALL SIGNIFICANT NATIVE VEGETATION.

B. FLAG AND PROTECT EXISTING VEGETATION TO REMAIN:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING DISTURBANCE TO EXISTING VEGETATION LOCATED OUTSIDE THE CLEARING LIMITS. NO REMOVAL OF ANY VEGETATION SHALL OCCUR WITHOUT PRIOR APPROVAL BY TALASAEA CONSULTANTS.

2. TALASAEA CONSULTANTS SHALL FLAG EXISTING VEGETATION TO REMAIN LOCATED WITHIN THE MITIGATION AREA. FLAGGED VEGETATION SHALL NOT BE DISTURBED, UNLESS APPROVED IN WRITING BY TALASAEA CONSULTANTS.

3. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, AND BRANCHES OF TREES AND SHRUBS TO REMAIN. ANY WOODY PLANT TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED IMMEDIATELY AFTER DAMAGE OCCURS, AND TALASAEA CONSULTANTS SHALL BE NOTIFIED OF INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

C. PLACE EROSION CONTROL MEASURES:

1. CONTRACTOR IS RESPONSIBLE FOR, AND SHALL INSTALL, SILT FENCING AND OTHER EROSION CONTROL BMPS PRIOR TO ANY MITIGATION CONSTRUCTION ACTIVITY. OTHER EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY OR AS REQUIRED. TALASAEA CONSULTANTS SHALL VERIFY AND APPROVE LOCATIONS OF EROSION CONTROL MEASURES WITHIN MITIGATION AREAS PRIOR TO COMMENCING MITIGATION CONSTRUCTION. EROSION CONTROL MEASURES FOR MITIGATION WORK SHALL BE COORDINATED WITH EROSION CONTROL FOR CIVIL SITE WORK AS NECESSARY.

2. CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES FOR THE DURATION OF THE PROJECT. THESE MEASURES SHALL REMAIN IN PLACE UNTIL AUTHORIZATION IS GIVEN BY TALASAEA CONSULTANTS FOR REMOVAL OR LOCATION ADJUSTMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL EROSION CONTROL MEASURES WITHIN AND/OR ADJACENT TO SENSITIVE AREAS WHEN AUTHORIZED BY TALASAEA CONSULTANTS.

3. AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY TALASAEA CONSULTANTS TO ENSURE CONTINUED EROSION/SEDIMENTATION CONTROL.

4. WHERE POSSIBLE, NATURAL GROUND COVER VEGETATION SHALL BE MAINTAINED FOR EROSION CONTROL.

D. INVASIVE/NON-NATIVE VEGETATION REMOVAL FROM MITIGATION AREAS:

1. CONTRACTOR SHALL GRUB OUT ALL NON-NATIVE AND INVASIVE VEGETATION WITHIN BUFFER MITIGATION AREAS AS SHOWN ON THE MITIGATION PLANS, WITH THE EXCEPTION OF JAPANESE KNOTWEED AND FLAGGED EXISTING VEGETATION TO REMAIN. IN AREAS OF EXISTING VEGETATION, CONTRACTOR SHALL REMOVE INVASIVE SPECIES INCLUDING, BUT ARE NOT LIMITED TO: SCOT'S BROOM, ENGLISH IVY, HIMALAYAN AND EVERGREEN BLACKBERRY, PURPLE LOOSESTRIFE, HEDGE BINDWEED (MORNING GLORY), CANADA THISTLE, AND CREEPING NIGHTSHADE. INVASIVE/NON-NATIVE VEGETATION SHALL BE REMOVED BY HAND WITH MINIMAL DISTURBANCE TO THE EXISTING NATIVE VEGETATION TO REMAIN. ALL ROOTS SHALL BE REMOVED TO THE MAXIMUM EXTENT PRACTICABLE.

2. JAPANESE KNOTWEED CONTROL: JAPANESE KNOTWEED SHALL BE TREATED THROUGH INJECTION WITH AN HERBICIDE APPROVED FOR USE IN AQUATIC AREAS (E.G., RODEO, OR EQUAL). HERBICIDE TREATMENT SHALL BE APPLIED TO EACH INDIVIDUAL CANE OF THE PLANT. IF, AFTER ONE (1) GROWING SEASON, THE JAPANESE KNOTWEED HAS PERSISTED, IT WILL REQUIRE RE-TREATMENT.

3. ALL GRUBBED VEGETATION SHALL BE EXPORTED FROM THE SITE AND DISPOSED OF IN AN APPROVED MANNER FOLLOWING ALL APPLICABLE LOCAL/STATE/FEDERAL REGULATIONS.

4. TALASAEA CONSULTANTS SHALL DESIGNATE ANY ADDITIONAL PLANT SPECIES TO BE REMOVED DURING MITIGATION CONSTRUCTION.

F. TOPSOIL

1. TOPSOIL SHALL BE SCRAPED AND SCREENED FROM PROPOSED CLEARING AND GRADING AREAS AND STOCKPILED FOR REUSE ON THE NEW PROPOSED SLOPE.

2. IN ALL CLEARED AND GRUBBED BUFFER MITIGATION AREAS, EXISTING SOIL SHALL BE AMENDED TO PROVIDE A 9-INCH MINIMUM DEPTH OF TOPSOIL.

G. HYDROSEED: AREAS GRADED AT A 2:1 SLOPE SHALL BE TREATED WITH HYDROSEED GRASS MIX. SPECIES SHALL BE OF A NATIVE GRASS VARIETY (E.G. RED FESCUE, TUFTED HAIRGRASS, BLUE WILDRYE,

H. HABITAT FEATURES: PLACE HABITAT FEATURES UPON COMPLETION OF TOPSOIL AND/OR SOIL AMENDMENT PLACEMENT, AS DEPICTED ON THE MITIGATION PLANS AND DETAILS. TALASAEA CONSULTANTS SHALL APPROVE LOCATIONS PRIOR TO PLACEMENT.

I. DOWN LOGS: TO CUT/BREAK DOWN LOGS, FIRST SCORE THE LOG AT THE DESIRED LENGTH BY MECHANICAL MEANS, THEN SNAP THE LOG AT THE SCORED LOCATION TO CREATE A NATURAL LOOK TO THE BREAK. TWIST BROKEN ENDS TO DISGUISE SAW CUTS. HABITAT FEATURES THAT HAVE BEEN CUT SHALL HAVE NO BLUNT ENDS.

I. MULCH CLEARED/GRUBBED BUFFER AREAS: TALASAEA CONSULTANTS SHALL BE PROVIDED A MULCH SAMPLE PRIOR TO IT BEING DELIVERED TO THE SITE. NO BUFFER AREAS SHALL BE SEEDED.

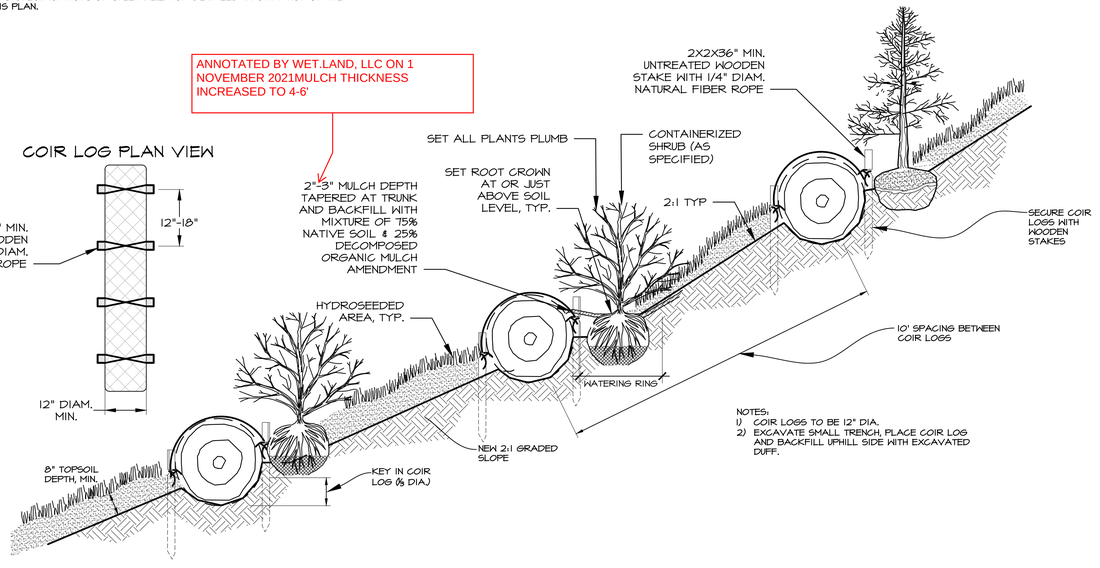
I. CONTRACTOR SHALL SPREAD MULCH OVER ALL GRADED BUFFER AREAS TO ACHIEVE A UNIFORM DEPTH OF 3 INCHES. NOTE: 3-INCH DEPTH IS THE MINIMUM AFTER SETTLING. IF MULCH IS INSTALLED BY BLOWER TRUCK IT SHALL BE INSTALLED AT A 4-INCH DEPTH TO PROVIDE A MINIMUM 3-INCH DEPTH AFTER SETTLING.

J. INSPECTIONS: PRIOR TO PLANT INSTALLATION, TALASAEA CONSULTANTS SHALL APPROVE ALL CLEARING/GRUBBING WORK AND HABITAT FEATURE PLACEMENT. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY TALASAEA CONSULTANTS AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, TALASAEA CONSULTANTS SHALL REVIEW THE PROJECT FOR FINAL ACCEPTANCE OF PUNCH LIST ITEMS, AND PLANTING MAY THEN PROCEED.

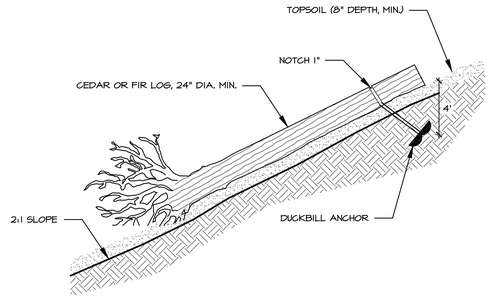
K. SOIL STABILIZATION. IF THERE IS A DELAY IN CONSTRUCTION FOR ANY REASON, CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EROSION CONTROL MEASURES, DRAINAGE, AND TEMPORARY IRRIGATION DURING CONSTRUCTION DELAY PERIOD, UNLESS OTHERWISE STATED IN WRITING.

GENERAL GRADING NOTES

1. SILT FENCING AS SHOWN ON PLANS AND ANY OTHER NECESSARY EROSION CONTROL BMPS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE MITIGATION AREAS.
2. SEE CIVIL PLANS FOR CLEARING/GRADING, DRAINAGE, AND EROSION CONTROL BMPS FOR SITE CONSTRUCTION OUTSIDE OF MITIGATION AREAS. SILT FENCING AND OTHER EROSION CONTROL BMPS IN THE MITIGATION AREAS SHALL BE COORDINATED WITH EROSION CONTROL BMPS FOR CIVIL SITE WORK WHERE NECESSARY.
3. PROJECT BIOLOGIST AND/OR ECOLOGIST SHALL FLAG EXISTING VEGETATION TO REMAIN PRIOR TO ANY CLEARING, GRUBBING, OR GRADING WORK IN MITIGATION AREAS. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND FLAGGED VEGETATION TO REMAIN PRIOR TO WORK IN MITIGATION AREAS.
4. SEE CIVIL PLANS FOR ALL CONSTRUCTION INFORMATION RELATING TO STORMWATER INFRASTRUCTURE (OUTLET/INLET PIPES, ELEVATIONS, AND CBS).
5. SEE MITIGATION GRADING SPECIFICATIONS ON SHEET W2.2 FOR DETAILED INFORMATION ON THE IMPLEMENTATION OF THIS PLAN.



1 SLOPE PLANTING IN BUFFER RESTORATION AREAS (TYP.)
N.T.S.



NOTES:
1. LOG TO BE 24" DIA. MIN., CONIFER (CEDAR OR FIR SPECIES), 20' LENGTH MIN.
2. PLACEMENT OF HABITAT LOG TO BE DETERMINED IN THE FIELD BY TALASAEA CONSULTANTS.
3. ANCHOR LOG WITH DUCKBILL ANCHOR:
4. DRIVE ANCHOR A MIN. OF 4' INTO THE GROUND WITH A HAMMER AND DRIVE STEEL. ONCE THE ANCHOR IS AT THE PROPER DEPTH, REMOVE THE DRIVE STEEL.
5. WRAP THE STEEL CABLE AROUND THE DRIVE STEEL AND PULL UPWARD A DISTANCE SLIGHTLY LONGER THAN THE LENGTH OF THE ANCHOR BODY.
6. THIS WILL ROTATE THE ANCHOR INTO A PERPENDICULAR POSITION.
7. NOTCH THE BARK OF THE LOG A MINIMUM OF 1" AROUND THE CIRCUMFERENCE OF THE LOG AS SHOWN.
8. WRAP THE STEEL CABLE OF THE DUCKBILL ANCHOR IN THE NOTCH AROUND THE LOG IN SUCH A WAY THAT THE CABLE IS HIDDEN.

2 LOG ANCHORING DETAIL
N.T.S.

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NOTES

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2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
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15020 Bear Creek Road Northeast - Woodinville, Washington 98077
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CRITICAL AREAS MITIGATION PLAN CLEARING AND GRUBBING NOTES AND DETAILS. SUNSET MEMORIAL PARK EXPANSION BELLEVUE, WASHINGTON

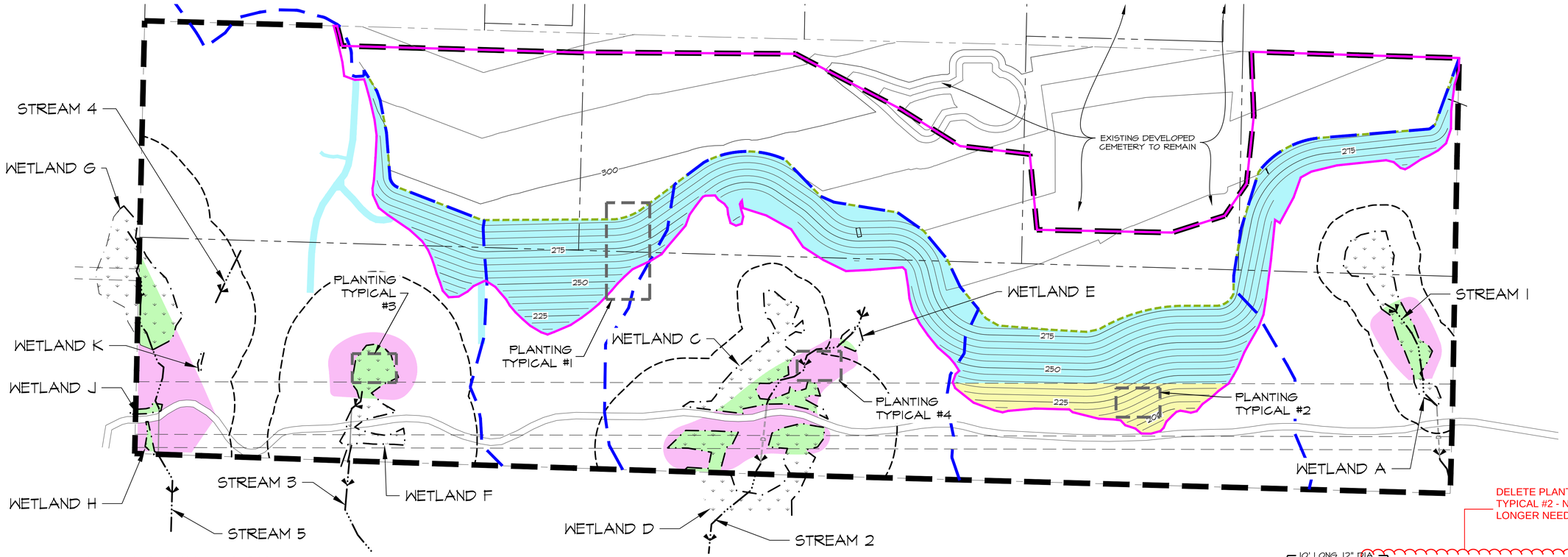
Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W3.2

NW ¼ SEC. 3, TWNSP. 24N, RGE. 5E, W.M.



PROPOSED PLANTING PLAN

GRAPHIC SCALE (IN FEET)
0 40 80 160
SCALE: 1"=80'

NORTH

PLAN LEGEND

- STUDY AREA
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- STREAM CENTERLINE

GRADING LEGEND

- CLEARING AND GRADING LIMITS
- PROPOSED 5-FOOT CONTOUR
- TOP OF PROPOSED SLOPE & CRITICAL AREA FENCING (4 / W47)

DELETE PLANTING TYPICAL #2 - NO LONGER NEEDED

CLEARING AND GRUBBING LEGEND

PLANTING TYPICAL #1: NATIVE FOREST PLANT COMMUNITY ON GRADED SLOPE AND RESTORED TRAILS	170,566 SF	(3.92 AC)
PLANTING TYPICAL #2: NATIVE SHRUB PLANT COMMUNITY ON GRADED SLOPE	18,055 SF	(0.41 AC)
PLANTING TYPICAL #3: WETLAND SHRUB ENHANCMENT	22,877 SF	(0.53 AC)
PLANTING TYPICAL #4: BUFFER SHRUB ENHANCEMENT	44,346 SF	(1.02 AC)

HABITAT FEATURE LEGEND

- COIR LOG SLOPE STABILIZER (10" Ø)
- WOODY DEBRIS (DOWN LOGS) (2 / Ø12")

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021
SEE SHEET CA3.0 (PREPARED BY WET.LAND, LLC) FOR UPDATED MITIGATION MAP TO REPLACE TALASEA SHEET W3.0 AND 3.1.

THE ONLY EFFECTIVE CHANGE TO THIS MAP IS THAT THE BLUE HATCHED AREA IS NOW REDUCED TO XXXXX ACRES, AS REFLECTED ON SHEET CA3.0.

REVISED TABLE FOUND ON SHEET CAXX.XX

PLANT SCHEDULE

LARGE TREES

SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	204	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	THUJA PLICATA	WESTERN RED CEDAR	FAC	171	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	FACU	225	-	-	-	AS SHOWN	1 GAL.	FULL & BUSHY

SMALL TREES/LARGE SHRUBS

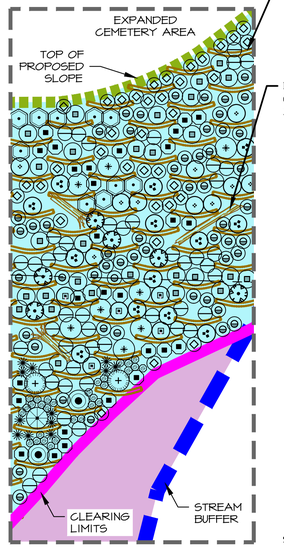
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	ACER CIRCINATUM	VINE MAPLE	FAC	269	65	-	24	AS SHOWN	4' HT.	SINGLE TRUNK, WELL BRANCHED
	AMELANCHIER ALNIFOLIA	SERVICEBERRY	FAC	215	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	CORYLUS CORNUTA	BEAKED HAZELNUT	FACU	349	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	HOLODISCUS DISCOLOR	OCEAN SPRAY	FACU	269	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	OEMLERIA CERASIFORMIS	INDIAN PLUM	FAU	-	-	-	104	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	FACW	-	-	-	160	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	PRUNUS EMARGINATA	BITTER CHERRY	FACU	134	-	-	-	5' O.C.	24" HT.	SINGLE TRUNK, WELL BRANCHED
	RIBES BRACTEOSUM	STINK CURRANT	FAC	-	-	-	80	AS SHOWN	24" HT.	MULTI-CANE (3 MIN.)
	RIBES SANGUINEUM	RED CURRANT	NL	-	-	-	48	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SAMBUCUS RACEMOSA	RED ELDERBERRY	FACU	753	-	-	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SORBUS SITCHENSIS	SITKA MOUNTAIN ASH	FAC	161	-	-	-	5' O.C.	5-6' HT.	SINGLE TRUNK, WELL BRANCHED

MASSING SHRUBS

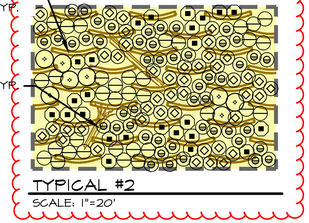
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	CORNUS ALBA	RED-OSIER DOGWOOD	FACW	-	-	95	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	GAULTHERIA SHALLON	SALAL	FACU	806	-	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	LONICERA INVOLUCRATA	BLACK TWIN-BERRY	FAC	-	-	62	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	MAHONIA AQUIFOLIUM	OREGONGRAPE	FACU	753	195	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	ROSA PISOCARPA	CLUSTERED WILD ROSE	FAC	968	358	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
	RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	1,452	404	-	-	4' O.C.	1 GAL.	FULL & BUSHY
	RUBUS SPECTABILIS	SALMONBERRY	FAC	-	-	95	-	4' O.C.	1 GAL.	FULL & BUSHY
	SPIREA DOUGLASII	WESTERN SPIREA	FACW	-	-	78	-	4' O.C.	1 GAL.	FULL & BUSHY
	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	FACU	1,263	274	-	160	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)

GROUND COVERS AND EMERGENTS

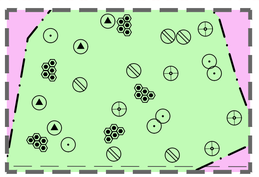
SYMBOL	SCIENTIFIC NAME	COMMON NAME	WL STATUS	QUANTITY TYP #1	TYP #2	TYP #3	TYP #4	SPACING	SIZE (MIN.)	NOTES
	POLYSTICHUM MUNITUM	SWORD FERN	FACU	323	-	-	208	36" O.C.	1 GAL.	FULL & BUSHY
	LYSICHITUM AMERICANUM	SKUNK CABBAGE	OBL	-	-	390	-	AS SHOWN	1 GAL.	



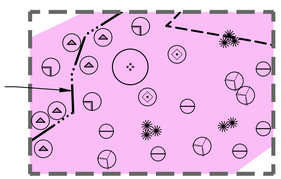
TYPICAL #1
SCALE: 1"=20'



TYPICAL #2
SCALE: 1"=20'



TYPICAL #3
SCALE: 1"=20'



TYPICAL #4
SCALE: 1"=20'

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CRITICAL AREAS MITIGATION PLAN
PROPOSED PLANTING PLAN
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MK
CITY COMMENTS	12-1-2020	KM

Date	4-10-2019
Scale	AS SHOWN
Designed	KM
Drawn	FH
Checked	AO
Approved	BS

Project # 1789

Sheet # W4.0

PLANTING SPECIFICATIONS

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION

1. CONTRACTOR SHALL GIVE THE PROJECT BIOLOGIST OR ECOLOGIST A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO COMMENCING CONSTRUCTION.
2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, THE PROJECT BIOLOGIST OR ECOLOGIST, THE GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONSTRAINTS.
3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS, AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL RESOLVE ANY CONFLICTS WITH THE APPROVED GRADING PLAN PRIOR TO START OF CONSTRUCTION.
4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.
5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.
6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.
7. A QUALIFIED WETLAND CONSULTANT SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.
8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.
9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.
10. PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION: THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THE PLANTING PORTION OF THE MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, THE PROJECT BIOLOGIST OR ECOLOGIST, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS, STAGING/STOCKPILE AREAS, AND MATERIAL DISPOSAL AREAS.
2. PLANT TREES AND SHRUBS AS INDICATED ON MITIGATION PLANS.
3. MULCH INSTALLED PLANTS AND TREES.
4. INSTALL TEMPORARY IRRIGATION SYSTEM AND PROGRAM FOR 0.5 INCHES OF WATER EVERY 3 DAYS.
5. INSTALL FENCING AND CRITICAL AREA PROTECTION SIGNS.

1.2 SUBMITTALS

A. PRODUCT DATA: FURNISH THE FOLLOWING WITH EACH PLANT MATERIAL DELIVERY:

1. INVOICES INDICATING SIZES AND VARIETY OF PLANT MATERIAL.
2. CERTIFICATES OF INSPECTION REQUIRED BY STATE AND FEDERAL AGENCIES.

B. QUALITY CONTROL SUBMITTALS:

1. PRIOR TO DELIVERY OF MATERIALS, CERTIFICATES OF COMPLIANCE ATTESTING THAT MATERIALS MEET THE SPECIFIED REQUIREMENTS SHALL BE FURNISHED FOR THE FOLLOWING: PLANTS, TOPSOIL, FERTILIZER, AND ORGANIC MULCH. CERTIFIED COPIES OF THE MATERIAL CERTIFICATES SHALL INCLUDE THE FOLLOWING:
   a. PLANT MATERIALS: BOTANICAL NAME, COMMON NAME, SIZE, QUANTITY BY SPECIES, AND LOCATION WHERE GROWN.
   b. IMPORTED TOPSOIL: PARTICLE SIZE, PH, ORGANIC MATTER CONTENT, TEXTURAL CLASS, SOLUBLE SALTS, CHEMICAL AND MECHANICAL ANALYSES.
   c. FERTILIZER: CHEMICAL ANALYSIS AND PERCENT COMPOSITION.
   d. IMPORTED MULCH: COMPOSITION AND SOURCE.

1.3 REFERENCES

A. SIZE AND GRADING STANDARDS: SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

1.4 QUALITY ASSURANCE

A. WORKER'S QUALIFICATIONS: THE PERSONS PERFORMING THE PLANTING AND THEIR SUPERVISOR(S) SHALL BE PERSONALLY EXPERIENCED WITH PLANTING AND CARING FOR PLANT MATERIAL, AND SHALL HAVE BEEN REGULARLY EMPLOYED BY A COMPANY ENGAGED IN PLANTING AND CARING FOR PLANT MATERIAL FOR A MINIMUM OF 2 YEARS.

B. PLANT MATERIAL: ALL PLANT MATERIALS SHALL BE LOCALLY GROWN OR REGIONALLY ACCLIMATIZED TO THE PACIFIC NORTHWEST.

1.5 DELIVERY, INSPECTION, STORAGE AND HANDLING

A. DELIVERY: A DELIVERY SCHEDULE SHALL BE PROVIDED AT LEAST 10 CALENDAR DAYS PRIOR TO THE FIRST DAY OF DELIVERY. PLANT MATERIALS SHALL BE DELIVERED TO THE JOB SITE NOT MORE THAN 7 WORKING DAYS PRIOR TO THEIR RESPECTIVE PLANTING DATES.

B. PROTECTION DURING DELIVERY: PLANT MATERIAL SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION AND DAMAGE TO THE BRANCHES, TRUNK, ROOT SYSTEM, OR EARTH BALL. BRANCHES SHALL BE PROTECTED BY TYING-IN. EXPOSED BRANCHES SHALL BE COVERED DURING TRANSPORT.

C. FERTILIZER: FERTILIZER SHALL BE DELIVERED IN MANUFACTURER'S STANDARD SIZED BAGS SHOWING WEIGHT, ANALYSIS, AND MANUFACTURER'S NAME. STORE UNDER A WATERPROOF COVER OR IN A DRY PLACE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

D. INSPECTION: ALL PLANT MATERIALS SHALL BE INSPECTED UPON ARRIVAL AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE FOR CONFORMITY TO TYPE AND QUANTITY WITH REGARD TO THEIR RESPECTIVE SPECIFICATIONS.

E. MULCH: A MULCH SAMPLE SHALL BE INSPECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO THE MULCH BEING DELIVERED TO THE SITE.

F. STORAGE:

1. PLANT MATERIAL NOT INSTALLED ON THE DAY OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED AREAS. PLANTS STORED ON THE PROJECT SITE SHALL BE PROTECTED FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS OR CONTAINERS WITH SAWDUST, SOIL, COMPOST, BARK OR WOODCHIPS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN. BARE-ROOT PLANT MATERIAL SHALL BE HEELED-IN. CUTTINGS AND EMERGENT PLANTS MUST BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HEELED-IN WITH MOIST SOIL OR OTHER INSULATING MATERIAL. ALL PLANT MATERIAL STORED ON-SITE SHALL BE WATERED DAILY UNTIL INSTALLED.
2. STORAGE OF OTHER MATERIALS SHALL BE IN DESIGNATED AREAS.

1.6 SCHEDULING

A. PLANTING SEASON: INSTALL WOODY PLANTS BETWEEN OCTOBER 1 AND FEBRUARY 15 WHENEVER THE TEMPERATURE IS ABOVE 32 DEGREES F AND THE SOIL IS IN A WORKABLE CONDITION, UNLESS OTHERWISE APPROVED IN WRITING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST.

B. PLANT INSTALLATION: EXCEPT FOR CONTAINER-GROWN PLANT MATERIAL, THE MAXIMUM TIME BETWEEN THE DIGGING AND INSTALLATION OF PLANT MATERIAL SHALL BE 21 DAYS. THE MAXIMUM TIME BETWEEN PLANT INSTALLATION AND MULCH PLACEMENT SHALL BE 72 HOURS.

1.7 WARRANTY

A. WARRANTY PERIOD: THE CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL GRADING, PLANTING, IRRIGATION, AND RELATED WORK HAS BEEN COMPLETED AND IS ACCEPTED BY THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

B. WARRANTY TERMS: CONTRACTOR'S WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS DUE TO MORTALITY (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). PLANTS REPLACED UNDER THIS WARRANTY SHALL BE WARRANTED FOR AN ADDITIONAL YEAR AFTER REPLACEMENT.

C. EXCEPTIONS: LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS), OR CASES OF NEGLECT BY OWNER, OR CASES OF ABUSE/DAMAGE BY OTHERS.

PART 2: PRODUCTS AND MATERIALS

2.1 PLANTS

A. GENERAL: ALL PLANT MATERIAL WILL CONFORM TO THE VARIETIES SPECIFIED OR SHOWN IN THE PLANT LIST(S) INDICATED ON THE MITIGATION PLANS AND BE TRUE TO BOTANICAL NAME AS LISTED IN: HITCHCOCK, C.L., AND A. CRONQUIST. 1973. FLORA OF THE PACIFIC NORTHWEST. UNIVERSITY OF WASHINGTON PRESS.

B. SHRUBS AND TREES:

1. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL EXAMINE PLANT MATERIAL PRIOR TO PLANTING. ANY MATERIAL NOT MEETING THE REQUIRED SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED WITH LIKE MATERIAL THAT MEETS THE REQUIRED STANDARDS. PLANT MATERIAL SHALL MEET THE REQUIREMENTS OF STATE AND FEDERAL LAWS WITH RESPECT TO PLANT DISEASE AND INFESTATIONS. INSPECTION CERTIFICATES, REQUIRED BY LAW, SHALL ACCOMPANY EACH AND EVERY SHIPMENT AND SHALL BE SUBMITTED TO THE PROJECT BIOLOGIST OR ECOLOGIST UPON CONTRACTOR'S RECEIPT OF PLANT MATERIAL.
2. PLANT MATERIALS SHALL BE LOCALLY GROWN (WESTERN WASHINGTON, WESTERN OREGON, OR WESTERN BC), HEALTHY, BUSHY, IN VIGOROUS GROWING CONDITION, AND GUARANTEED TO BE TRUE TO SIZE, NAME, AND VARIETY. IF REPLACEMENT OF PLANT MATERIAL IS NECESSARY DUE TO CONSTRUCTION DAMAGE OR PLANT FAILURE WITHIN ONE YEAR OF INSTALLATION, THE SIZES, SPECIES, AND QUANTITIES SHALL BE EQUAL TO SPECIFIED PLANTS, AS INDICATED ON THE PLANS.
3. PLANTS SHALL BE NURSERY GROWN, WELL-ROOTED, OF NORMAL GROWTH AND CHARACTER, AND FREE FROM DISEASE OR INFESTATION. THE PROJECT BIOLOGIST OR ECOLOGIST RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF ANY PLANTS DEEMED UNSUITABLE.
4. TREES SHALL HAVE UNIFORM BRANCHING, SINGLE STRAIGHT TRUNKS (UNLESS SPECIFIED AS MULTI-STEM, MULTI-CANE, OR MULTI-TRUNK), AND AN INTACT AND UNDAMAGED CENTRAL LEADER. CONTAINER STOCK SHALL HAVE BEEN GROWN IN A CONTAINER FOR AT LEAST ONE FULL GROWING SEASON AND SHALL HAVE A WELL DEVELOPED ROOT SYSTEM. PLANT MATERIAL THAT IS ROOT-BOUND OR HAS DAMAGED ROOT ZONES OR BROKEN ROOT BALLS WILL NOT BE ACCEPTED.
5. CONIFEROUS TREES SHALL BE NURSERY GROWN, FULL AND BUSHY, WITH UNIFORM BRANCHING AND A NATURAL, NON-SHEARED FORM. ORIGINAL CENTRAL LEADER MUST BE HEALTHY AND UNDAMAGED. MAXIMUM GAP BETWEEN BRANCHING SHALL NOT EXCEED 9 INCHES, AND LENGTH OF TOP LEADER SHALL NOT EXCEED 12 INCHES.
6. SHRUBS SHALL HAVE A MINIMUM OF THREE STEMS AND SHALL BE A MINIMUM HEIGHT OF 18 INCHES.
7. TREES AND SHRUBS SHALL HAVE DEVELOPED ROOT AND BRANCH SYSTEMS. DO NOT PRUNE BRANCHES BEFORE DELIVERY.
8. PLANTS SHALL BE FREE OF SPLITS AND CHECKS, BARK ABRASIONS, AND DISFIGURING KNOTS.
9. FOR DECIDUOUS PLANTS, BUDS SHALL BE INTACT AND REASONABLY CLOSED AT TIME OF PLANTING, IF DORMANT.
10. PLANTS SHALL CONFORM TO SIZES INDICATED ON THE PLANT SCHEDULE. PLANTS MAY BE LARGER THAN THE MINIMUM SIZES SPECIFIED.

C. NOXIOUS SPECIES: ALL PLANT STOCK AND OTHER RE-VEGETATION MATERIALS SHALL BE FREE FROM THE SEED OR OTHER PLANT COMPONENTS OF ANY NOXIOUS OR INVASIVE SPECIES, AS IDENTIFIED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

D. SUBSTITUTIONS: SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST AND APPROVAL FROM THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

2.2 PLANTING SOIL

A. TOPSOIL: IF SUITABLE STOCKPILED NATIVE TOPSOIL IS NOT AVAILABLE FOR MITIGATION PLANTINGS, TOPSOIL SHALL BE OBTAINED FROM OUTSIDE SOURCES. STOCKPILED OR IMPORTED TOPSOIL SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.

B. ORGANIC CONTENT: IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-194.

C. COMPOST: COMPOST SHALL MEET THE DEFINITION FOR COMPOSTED MATERIALS AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

D. SOIL AMENDMENTS:

D.A. FERTILIZER: WOODY PLANTINGS SHALL BE FERTILIZED WITH A SLOW-RELEASE GENERAL GRANULAR FERTILIZER (16-16-16), WITH APPLICATION RATES AS SPECIFIED BY MANUFACTURER. FERTILIZER SHALL BE APPLIED AFTER PLANTING PIT IS BACKFILLED, AND PRIOR TO APPLICATION OF MULCH. FERTILIZER SHALL NOT BE APPLIED BETWEEN NOVEMBER AND MARCH. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.

D.B. SOIL MOISTURE RETENTION AGENT: A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUAL, SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

2.3 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE, OR WATER QUALITY. SAWDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE.

2.4 MISCELLANEOUS MATERIALS

A. STAKES, DEADMEN AND GUY STAKES: SOUND, DURABLE, WESTERN RED CEDAR, OR OTHER APPROVED WOOD, FREE OF INSECT OR FUNGUS INFESTATION.

PART 3: EXECUTION

3.1 SOIL PREPARATION

A. PLANTING AREA CONDITIONS: CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE PROJECT AREA(S). ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR DRAINAGE, COMPACTED SOILS, SIGNIFICANT EXISTING OR INVASIVE VEGETATION, OR OTHER OBSTRUCTIONS, CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO PLANTING. THE BEGINNING OF WORK BY THE CONTRACTOR CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

B. PLANTING IN UNDISTURBED, NON-GRADED AREAS: PLANTS INSTALLED IN UNDISTURBED AREAS SHALL BE INTEGRATED WITH EXISTING NATIVE VEGETATION AND PLANTED IN A RANDOM, NATURALISTIC PATTERN. PRIOR TO INSTALLATION OF PLANTINGS, ALL CONSTRUCTION DEBRIS, TRASH, AND NON-NATIVE INVASIVE PLANT MATERIAL SHALL BE REMOVED FROM THE PROJECT AREA. IN NON-GRADED AREAS, TREES AND SHRUBS SHALL BE PIT PLANTED AS SHOWN IN TYPICAL PLANTING DETAILS. PLANTING PITS SHALL BE BACKFILLED WITH A 50/50 MIXTURE OF IMPORTED, WEED-FREE TOPSOIL AND THE SOIL FROM THE PLANTING PIT.

C. PLANTING IN GRADED AREAS: IN GRADED PLANTING AREAS PLANTS SHALL BE INSTALLED IN NEWLY PLACED TOPSOIL.

D. SOIL DECOMPACTION/SCARIFICATION: SOILS IN GRADED/DISTURBED AREAS THAT ARE COMPACTED AND UNSUITABLE FOR PROPER PLANT GROWTH SHALL BE DECOMPACTED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6" PRIOR TO TOPSOIL INSTALLATION.

3.2 PLANTING

A. PLANT LAYOUT: PROPOSED LOCATIONS OF TREES AND SHRUBS SHALL BE STAKED AND IDENTIFIED WITH AN APPROVED CODING SYSTEM OR BY PLACEMENT OF THE ACTUAL PLANT MATERIAL. FOR LARGE GROUPINGS OF A SINGLE SPECIES OF SHRUB, LANDSCAPE CONTRACTOR MAY STAKE THE PLANTING BOUNDARIES.

B. OBTAIN LAYOUT APPROVAL FROM THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO EXCAVATION OF PLANTING PITS.

C. PLANTING PIT DIMENSIONS:

3. PIT DEPTH: NOT TO EXCEED THE CONTAINER DEPTH.
4. PIT WIDTH: MEASURED AT THE GROUND SURFACE, 2 TIMES THE WIDTH OF THE CONTAINER, AS INDICATED IN TYPICAL PLANTING DETAILS.
   a. BARE-ROOT PLANTS: DIAMETER EQUAL TO THE WIDTH OF THE ROOT SPREAD.

D. SETTING PLANTS:

1. BARE-ROOT PLANTS: PRUNE BRUISED OR BROKEN ROOTS. SET PLANT IN POSITION AND PLACE WETLAND PLANTING SOIL AROUND ROOTS. USE CARE TO AVOID BRUISING OR BREAKING ROOTS WHEN FIRMING SOIL. SETTLE WITH WATER.
2. SHRUB/TREE CONTAINER PLANTING: SHRUB AND TREE STOCK SHALL BE PLANTED IN HAND-DUG HOLES ACCORDING TO PLANTING DETAILS SHOWN ON THE MITIGATION PLANS. SHRUB AND TREE ROOT BALLS SHALL BE SET SO THAT ROOT COLLARS ARE 1 INCH ABOVE ADJACENT GRADE. ALL BACKFILL SHALL BE GENTLY TAMPED IN PLACE.
3. SURFACE FINISH: FORM A SAUCER AS INDICATED ON TYPICAL PLANTING DETAILS, OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON THE LOWER SIDE OF SLOPE PLANTINGS TO CATCH AND RETAIN WATER.
4. IN FORESTED AREAS, CONTRACTOR SHALL LOOSELY TIE A 2 FOOT PIECE OF BIODEGRADABLE FLAGGING TO THE TOP PORTION OF ALL PLANTED VEGETATION, BUT NOT ON A CENTRAL LEADER, TO FACILITATE POST-CONSTRUCTION PERFORMANCE AND MAINTENANCE REVIEW BY THE PROJECT BIOLOGIST OR ECOLOGIST AND REGULATORY AGENCIES.
5. ACTUAL PLANT SYMBOL QUANTITIES SHOWN ON THE PLANS SHALL PREVAIL OVER QUANTITIES SHOWN ON THE PLANT SCHEDULE IN THE EVENT OF A DISCREPANCY.

E. MULCHING:

1. IN GRADED AND NON-GRADED BUFFER AREAS: IMMEDIATELY FOLLOWING INSTALLATION OF PLANT MATERIAL, CONTRACTOR SHALL SPREAD ARBORIST WOOD CHIPS OVER ALL BUFFER AREAS (AREAS ABOVE OHWM OF WETLANDS) TO ACHIEVE A UNIFORM MINIMUM DEPTH OF 4 INCHES. A DEPTH OF 4-INCHES IS THE MINIMUM REQUIRED AFTER SETTLING. ENSURE MULCH IS NOT PILED UP AGAINST PLANT TRUNKS/STEMS; MAINTAIN AREA AT BASE OF PLANTS FREE AND CLEAR OF WOOD CHIPS. PROVIDE A 36-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH TREE, AND A 24-INCH DIAMETER, 4-INCH DEEP MULCH RING AROUND THE BASE OF EACH SHRUB.
2. WATER PLANTS THOROUGHLY AFTER MULCHING.

F. PRUNING: PRUNE IMMEDIATELY AFTER PLANTING ONLY AS DIRECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. TREE STAKES AND TIES: STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET OR OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR BALL, IN LINE WITH THE PREVAILING WIND, AND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK. LOOSELY ATTACH STAKE TO TREE USING CHAIN-LOCK TIES; TREE SHOULD BE ABLE TO SWAY.

H. INSTALLING TEMPORARY IRRIGATION

1. GENERAL REQUIREMENTS: CONTRACTOR SHALL PROVIDE AN ABOVE-GROUND TEMPORARY IRRIGATION SYSTEM CAPABLE OF FULL HEAD-TO-HEAD COVERAGE OF ALL PLANTED PROJECT AREAS. THE TEMPORARY IRRIGATION SYSTEM SHALL EITHER UTILIZE CONTROLLER AND POINT OF CONNECTION (POC) FROM THE SITE IRRIGATION SYSTEM OR SHALL INCLUDE A SEPARATE POC AND CONTROLLER WITH A BACKFLOW PREVENTION DEVICE PER WATER JURISDICTION INSPECTION AND APPROVAL. THE SYSTEM SHALL BE ZONED TO PROVIDE OPTIMAL PRESSURE AND UNIFORMITY OF COVERAGE, AS WELL AS SEPARATION BETWEEN AREAS OF FULL SUN AND SHADE AND FOR SLOPES IN EXCESS OF 5 PERCENT. THE SYSTEM SHALL BE OPERATIONAL FOR A MINIMUM OF THE FIRST TWO GROWING SEASONS AFTER PLANTING (THE FIRST TWO YEARS OF THE PERFORMANCE MONITORING PERIOD), OR LONGER IF REQUIRED TO ENSURE PROPER PLANT ESTABLISHMENT. THE SYSTEM SHALL BE REMOVED UPON FINAL APPROVAL OF THE MITIGATION PROJECT AT THE END OF THE PERFORMANCE MONITORING PERIOD.
2. SYSTEM DESIGN AND MATERIALS: ELECTRONIC VALVES SHALL BE THE SAME MANUFACTURER AS THOSE USED FOR THE SITE IRRIGATION SYSTEM, OR SHALL BE RAIN BIRD PEB SERIES OR EQUAL IF SYSTEM IS NOT CONTIGUOUS WITH THE SITE SYSTEM. VALVES SHALL BE SIZED TO ACCOMMODATE PRESSURE AND ZONE CONSUMPTION REQUIREMENTS OF THE SYSTEM AND SHALL BE INSTALLED BELOW GRADE IN CARSON (OR EQUAL) VALVE BOXES. WIRING SHALL BE INSULATED MULTI-STRAND, TAPED TO THE MAIN AT 6-INCH INTERVALS WITH DUCT TAPE WRAPS. ON-GRADE MAIN AND LATERAL LINES SHALL BE CLASS 200 PVC BELL PIPE WITH SOLVENT WELDED FITTINGS, SECURED IN-PLACE WITH WIRE STAPLES WHERE NECESSARY ON SLOPED AREAS. LINES SHALL BE PLACED 12 INCHES BELOW GRADE IN 4 INCH PCV SLEEVES WHERE VEHICULAR OR MAINTENANCE ACCESS IS NEEDED ACROSS LINES TO THE PROJECT AREA(S). MAXIMUM MAIN LINE SIZE SHALL BE 1½ INCHES AND MAY BE LOOPED BACK TO THE POC TO REDUCE PRESSURE LOSS. LATERAL LINES SHALL BE SIZED IN DECREASING DOWNSTREAM ORDER PER RAIN BIRD DESIGN STANDARDS; THE MINIMUM LATERAL SIZE SHALL BE ¾ INCH. HEADS SHALL BE ROTOR OR IMPACT TYPE INSTALLED 4 FEET ABOVE FINISHED GRADE ON 2-INCH DIAMETER WOOD TREE STAKES. STAKES SHALL BE SECURE IN THE GROUND, EMBEDDED TO A MINIMUM DEPTH OF 24 INCHES. HEADS AND ¾ INCH PVC RISERS SHALL BE SECURED TO STAKES WITH CONSTRICTING HOSE CLAMPS; NO FUNNY PIPE SHALL BE USED. HEADS AND NOZZLES SHALL PROVIDE MATCHED PRECIPITATION RATES FOR EACH ZONE.
3. PROGRAMMING: IRRIGATION SYSTEM SHALL BE PROGRAMMED TO PROVIDE APPROXIMATELY 1/2 INCH OF WATER EVERY THREE DAYS DURING THE DRY SEASON (APPROXIMATELY JUNE 15TH TO OCTOBER 15TH). IRRIGATION AMOUNTS IN ZONES LOCATED IN THE SHADE OR ON STEEP SLOPES MAY BE REDUCED IF APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST OR THE PROJECT ECOLOGIST/BIOLOGIST.
4. WATER AND POWER SUPPLY FOR SYSTEM: THE OWNER SHALL PROVIDE WATER AND ELECTRICITY FOR THE SYSTEM.
5. AS-BUILT DRAWING: A CHART DESCRIBING THE LOCATION OF ALL INSTALLED OR OPEN ZONES AND CORRESPONDING CONTROLLER NUMBERS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED INSIDE THE CONTROLLER AND GIVEN TO THE OWNER'S REPRESENTATIVE.
6. WARRANTY: THE IRRIGATION SYSTEM SHALL INCLUDE A ONE-YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL PROJECT ACCEPTANCE. THE WARRANTY SHALL INCLUDE SYSTEM ACTIVATION AND WINTERIZATION FOR THE FIRST YEAR AND IMMEDIATE REPAIR OF THE SYSTEM IF IT IS OBSERVED TO BE MALFUNCTIONING.

J. CRITICAL AREAS FENCE AND SIGNS: INSTALL CRITICAL AREAS FENCE AND CRITICAL AREAS SIGNS WHERE SHOWN ON PLANS.

K. RESTORE EXISTING NATURAL OR LANDSCAPED AREAS:

1. EXISTING NATURAL OR LANDSCAPED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS IMPROVEMENTS OR MODIFICATIONS ARE SPECIFIED FOR THOSE AREAS.
2. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, OR BRANCHES OF ANY TREES OR SHRUBS THAT ARE TO REMAIN. ANY LIVING, WOODY PLANT THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED WITHIN 24 HOURS OF OCCURRENCE, AND THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE NOTIFIED IMMEDIATELY OF THE INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

L. FINAL INSPECTION AND APPROVAL: THE CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST IN WRITING AT LEAST TEN DAYS PRIOR TO THE REQUESTED DATE OF A PROJECT COMPLETION INSPECTION. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY THE PROJECT BIOLOGIST OR ECOLOGIST AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE PROJECT BIOLOGIST OR ECOLOGIST SHALL REVIEW THE PROJECT AGAIN FOR FINAL ACCEPTANCE OF PLAN IMPLEMENTATION. IF PUNCH LIST ITEMS REQUIRE PLANT REPLACEMENT, AND THE INSPECTION OCCURS OUTSIDE OF A SUITABLE PLANTING SEASON, PLANTS SHALL BE REPLACED DURING THE NEXT PLANTING SEASON.

M. AS-BUILT PLAN: CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT LOCATIONS AND QUANTITIES ON THE PLANT SCHEDULE WITH THOSE REPRESENTED AS SYMBOLS ON THE MITIGATION PLANS. CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF RECORDING IN-THE-FIELD CHANGES OR MODIFICATIONS TO THE APPROVED PLANS. THIS INFORMATION SHALL BE UPDATED ON A DAILY BASIS AS NECESSARY.

PART 4: ONE YEAR CONTRACTOR WARRANTY

NOTE: THESE MAINTENANCE SPECIFICATIONS APPLY TO THE ONE-YEAR CONTRACTOR WARRANTY PERIOD ONLY. IF THIS MITIGATION PROJECT REQUIRES LONG-TERM PERFORMANCE MONITORING, AS DETERMINED BY THE GOVERNING JURISDICTION, THE MAINTENANCE SPECIFICATIONS AND GUIDELINES ASSOCIATED WITH THE PERFORMANCE MONITORING STANDARDS ARE INCLUDED IN THE MITIGATION REPORT ASSOCIATED WITH THIS PLAN SET, AND MAY ALSO BE INCLUDED ON A SEPARATE PLAN SHEET IF REQUIRED.

A. REVIEW OF MAINTENANCE REQUIREMENTS: CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE RECOMMENDATIONS WITH A QUALIFIED WETLAND BIOLOGIST FROM THE PROJECT BIOLOGIST OR ECOLOGIST WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE PROJECT PLAN.

B. MAINTENANCE ACTIVITIES: CONTRACTOR SHALL MAINTAIN TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE IN ORDER TO MAINTAIN HEALTHY GROWTH AND HABITAT DIVERSITY. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT ARE NOT LIMITED TO: (A) REPLACING PLANTS DUE TO MORTALITY, (B) TIGHTENING AND REPAIRING TREE STAKES, (C) RESETTING PLANTS TO PROPER GRADES AND UPRIGHT POSITIONS, AND (D) CORRECTING DRAINAGE PROBLEMS AS REQUIRED.

C. IRRIGATION:

1. SYSTEM MAINTENANCE AND REPAIR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTIVATING, WINTERIZING, MAINTAINING, AND CONTINUALLY VERIFYING THE ADEQUATE OPERATION OF THE TEMPORARY IRRIGATION SYSTEM FOR THE FIRST GROWING SEASON FOLLOWING INSTALLATION. SYSTEM FUNCTION (INCLUDING ELECTRONIC VALVE AND CONTROLLER FUNCTION) SHALL BE INSPECTED FOR OPERATION AND FULL COVERAGE OF ALL PLANTED AREAS DURING EACH MAINTENANCE VISIT. THE SYSTEM SHALL BE REPAIRED IMMEDIATELY IF FOUND TO BE DAMAGED OR MALFUNCTIONING. SYSTEM SHALL BE PROGRAMMED AND MAINTAINED TO PROVIDE APPROXIMATELY ½ INCH OF WATER EVERY THREE DAYS.

D. EROSION AND DRAINAGE: CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS REQUIRED.

E. IRRIGATION SYSTEM REMOVAL: CONTRACTOR SHALL REMOVE IRRIGATION SYSTEM APPROXIMATELY 3 YEARS AFTER PLANTING, OR AS APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

F. FINAL MAINTENANCE INSPECTION AND APPROVAL: UPON COMPLETION OF THE ONE-YEAR MAINTENANCE PERIOD, AN INSPECTION BY THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE CONDUCTED TO CONFIRM THAT THE PROJECT AREA WAS PROPERLY MAINTAINED. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR FOR CORRECTION. UPON CORRECTION OF THE PUNCH LIST ITEMS, THE PROJECT SHALL BE REVIEWED BY THE PROJECT BIOLOGIST OR ECOLOGIST FOR FINAL CLOSEOUT OF PLAN IMPLEMENTATION.

ANNOTATED BY WET.LAND, LLC ON 1 NOVEMBER 2021

TALASAEA SHEET W4.1 RETAINED WITH NO MODIFICATIONS.

Know what's below. Call before you dig.

NOTES

1. SURVEY AND SITE PLAN PROVIDED BY HUITT-ZOLLARS, 1102 BROADWAY, SUITE 301, TACOMA 98402. (206) 324-5500.
2. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
3. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN DEC. 2020.

TALASAEA CONSULTANTS, INC.
Resource & Environmental Planning
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CRITICAL AREAS MITIGATION PLAN
PLANTING SPECIFICATIONS
SUNSET MEMORIAL PARK EXPANSION
BELLEVUE, WASHINGTON

Revisions	Date	By
CITY COMMENTS	6-03-19	FH
NEW SITE PLAN	8-6-2020	MW
CITY COMMENTS	12-1-2020	KM

Date 4-10-2019
Scale AS SHOWN
Designed KM
Drawn FH
Checked AO
Approved BS

Project # 1789

Sheet # W4.1

Z:\DRAWING\1700-1799\TAL1789\Plans\TAL-1789 WP 2020-11_recover.dwg
Plotted December 1, 2020

APPENDIX D

Critical Areas Impact and Mitigation Table

21-107343-LB
21-107348-LO
21-107349-LS

Sunset Hills Memorial Park Expansion

	2020		2021		Change (red #s = decrease in number, decrease in impact)		
	square feet	acres	square feet	acres	square feet	acres	% Change
STREAM BUFFER							
Permanent Stream Buffer Impacts							
Outside of existing, non-conforming uses	20,151.00	0.46	31,758.00	0.73	11,607.00	0.27	58%
Within existing, non-conforming uses	2,321.00	0.05	3,331.00	0.08	1,010.00	0.02	44%
	22,472.00	**0.52**	**35,089.00**	**0.81**	**12,617.00**	**0.29**	**56%**
Regraded Stream Buffer to be Revegetated							
Outside of existing, non-conforming uses	33,531.00	0.77	18,719.00	0.43	(14,812.00)	(0.34)	-44%
Within existing, non-conforming uses	17,370.00	0.40	3,006.00	0.07	(14,364.00)	(0.33)	-83%
	50,901.00	**1.17**	**21,725.00**	**0.50**	**(29,176.00)**	**(0.67)**	**-57%**
TOTAL STREAM BUFFER IMPACTS	**73,373.00**	**1.68**	**56,814.00**	**1.30**	**(16,559.00)**	**(0.38)**	**-23%**
STEEP SLOPES							
Permanent Steep Slope Impacts							
Permanent Steep Slope Impacts	36,831.00	0.85	47,687.00	1.09	10,856.00	0.25	29%
Permanent Steep Slope Buffer Impacts	65,378.00	1.50	86,657.00	1.99	21,279.00	0.49	33%
	102,209.00	**2.35**	**134,344.00**	**3.08**	32,135.00	0.74	31%
Regraded Steep Slope Buffer to be Revegetated							
Temporary slope impacts within Stream Buffers	7,177.00	0.16	1,065.00	0.02	(6,112.00)	(0.14)	-85%
Temporary slope impacts outside of stream buffers	39,962.00	0.92	19,375.00	0.44	(20,587.00)	(0.47)	-52%
Temporary slope buffer impacts within stream buffers	32,670.00	0.75	14,887.00	0.34	(17,783.00)	(0.41)	-54%
Temporary slope buffer impacts outside of stream buffers	23,960.00	0.55	8,400.00	0.19	(15,560.00)	(0.36)	-65%
	103,769.00	**2.38**	**43,727.00**	**1.00**	**(60,042.00)**	**(1.38)**	-58%
TOTAL STEEP SLOPE IMPACTS	**205,978.00**	**4.73**	**178,071.00**	**4.09**	**(27,907.00)**	**(0.64)**	**-14%**
MITIGATION							
Buffer Creation							
Stream Buffer Creation from Native Upland	8,625.00	0.20	13,588.00	0.31	4,963.00	0.11	58%
Stream Buffer Creation within Reestablished Graded Areas	37,181.00	0.85	9,655.00	0.22	(27,526.00)	(0.63)	-74%
	45,806.00	**1.05**	**23,243.00**	**0.53**	(22,563.00)	(0.52)	**-49%**
Buffer Restoration							
From Pre-existing buffer impacts/non-conforming uses	899.00	0.02	13,188.00	0.30	12,289.00	0.28	1367%
Restored Graded Stream Buffer	50,901.00	1.17	15,221.00	0.35	(35,680.00)	(0.82)	-70%
	51,800.00	**1.19**	**28,409.00**	**0.65**	(23,391.00)	(0.54)	**-45%**
Wetland/Buffer Enhancement							
Invasive species removal with enhancement	70,273.00	1.61	70,273.00	1.61	0.00	0.00	0%
Invasive species removal (site-wide)	0.00	0.00		0.00	0.00	0.00	
	70,273.00	**1.61**	**70,273.00**	**1.61**	0.00	0.00	**0%**
General Habitat Restoration							
Slope Habitat Restoration in Graded Areas	**96,570.00**	**2.22**	**30,076.00**	**0.69**	(66,494.00)	(1.53)	**-69%**
Preserved Native Forest (Not Included in Total Mitigation #)	**27,430.00**	**0.63**	**44,711.00**	**1.03**	17,281.00	0.40	63%
Combined Wetland/Stream/Buffer Targeted for Select Understory Enhancement	**0.00**	**0.00**	**577,912.00**	**11.66**	577,912.00	13.27	N/A
TOTAL MITIGATION	**264,449.00**	**6.07**	**152,001.00**	**3.49**	(112,448.00)	(2.58)	**-43%**
TOTAL MITIGATION INCLUDING SELECT UNDERSTORY ENHANCEMENT	**264,449.00**	**6.07**	**774,624.00**	**16.18**	**510,175.00**	**11.71**	**193%**

Wet.land, LLC
Jennifer Marriott, PWS
15803 Bear Creek Parkway
Unit E513
Redmond, WA 98052

9 November 2021

David Wong
City of Bellevue
Development Services Department

PROJECT: Sunset Hills Memorial Cemetery Project, Bellevue, Washington

SUBJECT: Response to Comments

Dear David,

Comments to this Project were provided to us in a letter dated 10 September 2021. City comments are below in **bold** font, while our responses follow in a normal font. This response letter addresses comments related to *Critical Areas Land Use Permit – Critical Areas Report* for Streams and Wetlands, Habitat, and Mitigation Plans.

Critical Areas Land Use Permit – Critical Areas Report

Streams & Wetlands

- **Stream 2 is classified as a Type-N stream using justification that physical and topographic barriers prevent resident fish from accessing. Classification of Type-F (fish-bearing) is determined based on the presence of fish or fish habitat. More information is needed about this stream to concur with the stream typing.**

  The City of Bellevue (BLUC 20.25H.075.B clarifies the difference between Type F and Type N waters based on the presence (or potential presence) of fish or fish habitat, where Type N streams do not meet the Type F definition. Fish habitat is not well defined in the BLUC except to note that fish habitat is "any habitat which is used by any fish at any life stage at any time of the year, including potential habitat… (BLUC 20.50.020 *Fish Habitat*)." The Washington Administrative Code (WAC) further defines the requirements for fish use (potential for fish habitat) as those streams that have a defined channel (2) feet or greater in width

and possess a gradient of 16% or less (or less than or equal to 20% if the basin is at least 50 acres in size) [WAC 222-16-031 *Interim Water Typing System*]. All of the streams onsite, including Stream 2, have a channel width less than two (2) feet with steep gradients. Stream 2 has a stream gradient onsite of 63% (**FIGURE**). Fish are unable to use steep stream reaches, such as this one, which is typical of headwater streams such as these. **Therefore, this segment of Stream 2 does not contain fish habitat or the potential for fish habitat, and would be typed as a Type N water due to the narrow channel width and steep gradient.**

This stream is expected to transition to a Type F stream at some point lower in the landscape before entering Kelsey Creek. However, that transition location is unknown at this time as it occurs beyond the boundaries of this property where field investigations were completed. The exact location of that transition from Type N to Type F is not relevant to this project as the stream typing downstream would not affect the stream typing on this property or applicable buffers on this property.

- **Stormwater discharged to wetland and stream buffers will need to be considered treated per COB Utilities and DOE stormwater requirements to comply with stream and wetland performance standard 20.25H.100.D.**

  See response prepared by Huitt-Zollars.

- **Critical Areas Land Use Permit plans need to include proposed stormwater facilities.**

  Stormwater facilities have been added to the Mitigation Plan. See Mitigation Plan Supplement **Sheet CA2.0 and CA2.1** as prepared by Wet.land, LLC.

Habitat

- **Project will need to demonstrate compliance with management recommendations from WDFW for Pileated woodpecker.**

  The WDFW document *Management Recommendations for Washington's Priority Species – Volume IV: Birds* was used as a reference document to evaluate the Project's impacts and subsequent mitigation for consistency with the management recommendations for the pileated woodpecker. This document's citation is as follows:

  - *Management Recommendations for Washington's Priority Species – Volume IV: Birds*
    - Lewis, J. C. and J.M. Azerrad. 2004. Pileated woodpecker. Pages 29-1 – 29-9 *in* E. Larsen, J.M. Azerrad, N. Nordstrom, editors. Management Recommendations for Washington's Priority Species, Volume IV: Birds. Washington Department of Fish and Wildlife, Olympia, Washington, USA. [Citation reference: WDFW 2004]

- Abbreviated version of above document – *Management Recommendations for Washington's Priority Species – Pileated Woodpecker (Dryocopus pileatus)*, January 2005 [Citation reference: WDFW 2005].

The WDFW 2004 management document was intended to help guide management decisions of existing forests across the entire range of the habitat for the targeted species. This document also clearly notes in its introduction that the provided management guidelines are generalized and not intended as site-specific suggestions. WDFW 2005 states that WDFW's *Management Recommendations for Washington's Priority Species* do NOT have regulatory authority and are intended as recommendations only that should be implemented consistently across a landscape, and not intended to be site-specific. Broadly – this document is better applied by the City across their jurisdiction rather than on a site-specific nature as is the case here. The Applicant only controls the forest within their common ownership.

The pileated woodpecker is found across the Pacific Northwest and is considered a "keystone habitat modifier" due to the many holes is creates in trees that are often used by many other species of a forest. The target of pileated woodpecker protections measures include retaining large snags and large decaying live trees that these woodpeckers use for nesting and roosting. Pileated woodpeckers prefer mature and old-growth forests, as well as second-growth forests with large snags and fallen trees, though have been observed using forests under 40-years old. Preferential tree species and sizes for nesting and roosting vary by area. WDFW 2004 only compares nest vs tree data for the Olympic Peninsula, Western Oregon and Northeastern Oregon. Western Oregon is the most similar to the Bellevue area, and so data from Western Oregon was used as a reference point against which the Project's proposed forest impacts and mitigation could be compared. In Western Oregon, the average tree of a pileated woodpecker nest tree was a Douglas Fir (*Pseudotsuga menziesii*) or Grand Fir (*Abies grandis*), average DBH of 27 inches with an average height of 87 feet (Table 1, Page 29-2, WDFW 2004). Despite this, at the time of research, 88% of all roosts were found in old or mature forests. Limiting factors for pileated woodpeckers are the "removal of large snags, large decaying live trees and downed woody debris of the appropriate species, size and decay class" (WDFW 2004, page 29-4). Unfortunately, little detail is given on pileated woodpeckers in urban landscapes as only one (1) study had been completed on the subject at the time of the writing of this management document. The report speculates that ensuring larger tracts with trees of the appropriate species (conifer preferred), size (larger, generally above 20" DBH and 70+ feet in height), and where the trees are allowed to decay naturally such that live decaying trees and snags remain in the landscape. Recommended management activities include providing/maintaining a "sufficient number of appropriate large snags and large decaying live trees…" through in-situ snag creation by topping or girdling an appropriately sized tree; uneven-aged management of forest stands, and protection of riparian habitat to retain adequate foraging habitat. WDFW 2004 clearly notes that current information to define appropriate riparian buffers for pileated woodpeckers in managed forests is lacking.

This document also outlines suggests foraging snags to be targeted for retention, but this discussion is not appropriate for this Site. This conversation is targeted at forest managers for large tracts of managed forests that are either under some level of protection or being actively managed for timber. This

discussion also uses a baseline targeted forest that is far different than the existing forest onsite. This discussion targets forests that are dominated by conifers (greater than 70% conifer stems), which the forest on this Site and adjacent to it are mostly lacking. The onsite forest is dominated by deciduous tree species, such as black cottonwood, and conifers are very few in total number.

A subsection of recommendations targets urban/suburban areas and provides generalized recommendations with a note that more research is necessary. A clear summary of the management guidelines in urban/suburban areas was provided in a January 2005 memo based on the WDFW 2004 report (attached), and listed below, with a discussion of each recommendation as it applies to the Project Site:

- General Recommendations
    - Management should be conducted within use areas (home ranges) of pileated woodpeckers.

      The Project Site is located within the home range of the pileated woodpecker, which extends across all of western Washington.

    - Maintain large standing dead trees (snags) and large decaying live trees for nesting and roosting within home ranges.

      The caveat of all the management guidelines is that the target is maintaining existing snags or creating snags from live trees through girdling or topping select large trees. This management strategy is counter-intuitive on a Site where regulations require protection of the trees, and may require additional conversations with the City.

    - Retain large naturally formed stumps and numerous large logs in various stages of decay to improve foraging habitat within home ranges.

      Large stumps and logs that are found within portions of the Site targeted for clearing will be retained and placed strategically downslope, as feasible with the equipment being used. Note that construction feasibility and safety are key considerations to where mitigation actions can occur within portions of the forest to be preserved undisturbed. Certain mitigation activities, such as snag installment and moving large wood around, may cause more damage to the forest to get equipment safely in place than what may be feasible.

    - Use average size standards (rather than minimums) for managing pileated woodpecker habitat (e.g. If >/= 5 snags/acre is recommended, that does not imply that a landowner retain exactly 5 snags on every acre. In this instance, variability in the number of snags from acre-to-acre is preferred).

      Noted. Variability will be provided as feasible/possible.

    - A variety of snag creation techniques are available and such techniques can produce suitable snags for pileated woodpeckers in older second growth forests (e.g., removal of tree-top, girdling).

Noted. Snag creation will be determined on a tree-specific case in the field and finalized onsite in conjunction with the Project Biologist and City Inspector/Designated City Staff.

- Western Washington
  - Estimated nesting/breeding home ranges average 1480 acres surrounding nests west of the Cascades. Larger home ranges are estimated at just over 2100 acres on the Olympic Peninsula.

    Noted. This Site is roughly 27 acres in size. The relatively undisturbed habitat in proximity to the Site, including the private and public lands to the west, south and north, are roughly 200 acres in size. This is a very small area relative to the typical home ranges. It is anticipated that the population of pileated woodpeckers using this area is a relatively low number given the home range requirements of pileated woodpeckers.

  - Maintain coniferous forests (stands with >70% conifer trees) of about 60 years of age or older at 70% canopy cover. Manage these forests for an average of 2 snags/10 acres that are 30" in diameter.

    The properties to the west have a far higher density of conifers within the tree stands than what is found on the Site, so the onsite habitat would be of a lower quality given the deciduous-dominant landscape. There are no areas onsite that meet the requirement of a stand of trees with more than 70% conifer canopy, as even where conifers are present, they are not large enough to be canopy trees. Therefore, the existing forest can not be managed within the guidelines for pileated woodpeckers.

    The existing forest to be retained post-construction will be retained in its current condition with regards to snags and logs. No snags or logs will be removed from the Site except where they occur within the project limits of the proposed expansion. Wherever feasible, any snags or logs removed from within the work area will be placed downslope of the Project area for retention into the landscape.

  - Retain an average of 7 snags/acre >/= 90 feet in height with diameters ranging between 61-122" in forests used for both nesting and roosting.

    This guideline targets large stands of trees to be managed and does not apply to the Project Site. Snags will be retained as they currently exist within the forest targeted for retention. Tree sizes targeted by this measure do not occur on the Site.

  - In addition to snags retained for nesting and roosting, retain an average of 12 snags/acre as foraging trees in the following size classes: (10-20" diameter, >/= 7 per acre; 20-30" diameter, >/= 3 per acre; >30" diameter, >/= 2 per acre).

    This guideline targets large stands of trees to be managed and does not apply to the Project Site.

- Urban/Suburban Areas
  - Some of the above recommendations may not be possible due to the availability of trees, snags, and habitat on a proposed development in urban/suburban areas. Where habitat and tree availability is sufficient, follow the western…Washington guidelines above. Where availability is insufficient we recommend the following guidelines:

- Target larger forest patches with large trees and snags for conservation during the planning process.

  This recommendation is targeted at the planning level with the City (or other jurisdiction) and is not targeted at individual property owners.

- Retain forest in the largest patches available (>74 acres would be considered large). Where large patches are unavailable, smaller patches should be retained; the average size of smaller patches should be no less than approximately 7 acres. This acreage could be attained through cumulative retention by various adjacent landowners within an urban landscape.

  The Site is rough 27 acres in size with around 19 acres of forest targeted to be retained in its existing condition. This exceeds the minimum 7-acre size outlined here.

- Retain or create snags as well as retain live trees in the largest size classes available in the stand.

  Any snags in the forest will be retained where no disturbances are proposed. Any decaying trees will be retained in place to fall in the woods naturally. Creation of new snags by girdling or topping existing large trees is less ideal in this setting because tree species are not ideal species. The black cottonwood trees are prolific on this property, and are a naturally short-lived tree, especially in comparison with the native conifers. The black cottonwood trees onsite will naturally age and decay in place until they fall. The Project will not affect this natural process.

  There was a discussion on installing new snags as part of the mitigation process. New snag installation through the importation of snags will be restricted to where snags can safely be installed above the newly proposed walls. Importing snags large enough to meet the pileated woodpecker requirements will be challenging, and not effective if they can only be placed at the edge of a forest. Unfortunately, the ideal placement of snags would be within the dense forest, but this is not feasible as these areas occur on steep slopes with limited access. The process to import and install a snag is difficult as heavy machinery is necessary to move the wood. The snag requirements for pileated woodpeckers are massive enough that finding suitably sized snags and transporting them to the Site would be difficult. This is why the pileated woodpecker snag requirements focus on retention of snags or creation of new snags from in-situ living trees, rather than discussing the importation of snags.

  That said – at least five (5) snags will be installed within the mitigation areas, to be field located during construction with approval from the City Inspector and Project Biologist. These snags will not meet the pileated woodpecker requirements for size due to transportation and accessibility constraints. These snags will be sized accordingly for a typical mitigation site based on what is generally available and feasible to have transported to the Site and installed around the proposed infrastructure (walls) proposed. Snag installation must be done within the reach of the heavy machinery to be used onsite during construction. Snags will be installed concurrently with the regrading of the slope and prior to installation of the coir logs so that snags can be placed during

slope grading to ensure the most secure snag installation. These snags are expected to provide limited nesting and roosting for pileated woodpeckers but will provide habitat for a wide variety of other species. It is anticipated that the pileated woodpeckers will use other large, existing, trees on this Site or adjacent properties.

Lastly, with regards to mitigation activities relating to pileated woodpeckers, supplemental plantings of 1-gallon conifers into the remaining forest targeted for preservation post-construction is proposed in order to supplement the conifer seeding process in this area and support a transition to a blended forest that contains both deciduous and coniferous tree species.

To summarize, many of the management guidelines for pileated woodpeckers are not appropriate for a project of this type/size. This Project is compliant with the applicable pileated woodpecker management guidelines as follows:

1. Retain a forest patch of roughly 19 acres, which is far greater than the minimum size threshold of seven (7) acres.
2. Retain both live trees and snags in the largest size classes possible onsite.
3. Evaluate onsite trees within preserved forest for targeted conversion of existing, large trees to snags, as determined appropriate by the Project Biologist and City Inspector, to be determined in the field during construction.
4. Add 1-gallon conifers to the onsite preserved forest at a ratio of roughly 1 tree per 100 feet on center to improve the stand composition for future use by woodpeckers

Mitigation Plans

- **Proposed mitigation amounts note "Preserved Native Forest" as a form of mitigation for the impacts. This is a method of avoidance and not mitigation and should not factor towards the overall mitigation ratio.**

  Noted. The area of "Preserved Native Forest" remains listed on the mitigation drawings, but a clear note has been added that these areas have not been included in the final mitigation calculations.

- **The report notes the undisturbed area as being dominated by understory invasive coverage removal proposed site-wide in all critical areas and buffers. Plan sheet W3.0 and 3.1 note invasive removal in limited areas and the table on page iv (Executive Summary dated December 11, 2020) of the Critical Areas Report notes slightly different numbers. Additionally, the Executive Summary dated April 7, 2021 notes "Full removal of invasive species in all critical areas onsite". Please clarify the areas and limits where invasive species removal will occur.**

Dense pockets of invasive species occur at the locations indicated on Sheet W3.0, however, this does not represent a full inventory of the Site for invasive species. In other areas where invasive species are present, but not as dominant, then they will be removed and additional plantings will be added as needed to restore those areas. This discrepancy was not well worded but was intended to reflect that large areas of dense, invasive species coverage were identified during field work, but a complete inventory of all invasive species presence across the Site was not documented.

- **There are concerns about the soil depths (top and fill) and compaction levels. Plan details note approximately 8" of topsoil (Sheet W3.2) to be placed on fill soil compacted to 90% (Geotech 4.2.3). This is far less topsoil than recommended for urban landscape planting with similar compaction rates of underlying material. Provide real world examples of successful mitigation/restoration projects that have created or significantly filled a slope and were able to successfully reestablish forested conditions using same or similar volumes and topsoil and fill with similar compaction rates.**

  Additional topsoil was not placed on the steep slope due to concerns about slope stability and wanting to ensure that topsoil does not erode downslope after rain events. To counter this risk, but still ensure a suitable soil medium, the harvested trees and shrubs from the land clearing activities that are not suitably sized for use as a snag or large will be mulched up as arborist wood chips, and this material will then be used for the mitigation area plantings. Additional arborist wood chips will be imported as necessary to provide the volume necessary. The Talasaea Mitigation Plan (Sheet W3.2) noted 2-3" mulch. This has been increased to 4-6" of arborist wood chip mulch to ensure a more solid substrate that will decompose into additional soil material as the plantings grow. See the annotated version of the Mitigation Plans prepared by Talasaea Consultants, as annotated by Wet.land, LLC. This combination of only 8" of topsoil with a thicker depth of arborist wood chips over top was determined to be the ideal combination to ensure soil and mulch are retained in place as much as possible despite regional rainfall to protect the plants as they mature.

- **Plans will need to include a snag detail and note the location of the snags. This may also need to incorporate priority habitat species management recommendations from WDFW for Pileated woodpecker.**

  A snag detail has been added to **Sheet CA3.0** of the Mitigation Plan supplement as prepared by Wet.land, LLC.

  As described above:

  > *That said – at least five (5) snags will be installed within the mitigation areas, to be field located during construction with approval from the City Inspector and Project Biologist. These snags will not meet the pileated woodpecker requirements for size due to transportation and accessibility constraints. These snags will be sized accordingly for a typical mitigation site based on what is generally available and feasible to have transported to the Site and installed around the proposed infrastructure (walls) proposed. Snag installation must be done within the reach of the heavy*

machinery to be used onsite during construction. Snags will be installed concurrently with the regrading of the slope and prior to installation of the coir logs so that snags can be placed during slope grading to ensure the most secure snag installation. These snags are expected to provide limited nesting and roosting for pileated woodpeckers but will provide habitat for a wide variety of other species. It is anticipated that the pileated woodpeckers will use other large, existing, trees on this Site or adjacent properties.

Addressing the pileated woodpecker management recommendations is being done through the addition of conifers into the onsite preserved forest to improve the stand composition for future use by woodpeckers; evaluation of trees onsite during construction for targeted conversion of existing, large trees to snags; and retention of dead and dying trees within the preserved forest for use by woodpeckers.

- **Objectives A and B only include performance standards for enhanced buffers and restored buffers, which only covers 46% of the mitigation, restoration, and enhancement areas. Performance standards are needed for steep slope mitigation and areas of buffer creation.**

  Performance objectives have been modified (from those previously identified) by clarifying which performance objective is suitable for which mitigation areas.

  Performance Objective A is for all areas where an existing canopy is present and only supplemental plantings are required in the understory. Performance Objective A applies to the following mitigation areas:

  - Stream Buffer Creation from Native Upland
  - Invasive Species Removal with Enhancement
  - Conifer Enhancement of Preserved Forest

  Performance Objective B is for all areas where an existing canopy is lacking, and a full compliment of plantings are necessary to rebuild the canopy as well as understory. Performance Objective B applies to the following mitigation areas:

  - Stream Buffer Creation within Reestablished Graded Areas
  - Pre-existing Buffer Impacts/Non-Conforming Uses
  - Restored Graded Stream Buffer
  - Slope Habitat Restoration in Graded Areas

- **Will the planting be affected by vegetation management that occurs within the easement? Increases in grade elevation coupled with location may result in area needing regular vegetation maintenance and would result in an unmitigated permanent impact. Please consult with the easement holders (PSE and OP) on proposed grading and planting and provide documentation of consultation.**

  Grading and planting is no longer proposed within the easements, so this question no longer applies.

- **Provide combined sheets for W1.0-1.1 and W1.2-1.3 to remove match line.**

  Change made as requested. See Mitigation Plan Supplemental Sheets CA1.4 and CA1.5.

- **Update W1.0-1.3 with 10-foot elevation values on contours.**

  Change made as requested. See Mitigation Plan Supplemental Sheets CA1.4 and CA1.5.

- **(Added Comment) Additional City comments within Mitigation Plan, but not in comment letter:**
  - **Sheets W1.2, W1.3, W2.0, W2.1 – Area of unidentified steep slope buffer**

    Unidentified areas of steep slope have been included within an existing hatch color as appropriate.

  - **Sheet W2.1 – Regrading of slope is a permanent impact**

    Noted. These areas are no longer labeled as temporary impacts, but are now called regraded steep slopes to recognize that these areas are separate from the permanent steep slope impacts that will be permanent conversions to a non-steep slope condition. The newly labeled regraded steep slope areas are targeted for restoration post-construction and replanted with native species so that these areas will provide wildlife habitat, though it will take time before these areas contain the large trees being removed. However, it is important to note that the quality of a habitat is not tied to the height or age of the trees, and these restored areas will provide quality habitat in their interim years for a different assemblage of wildlife than what are typically identified as using dense forests.

  - **Sheet W3.0 – Performance standards and monitoring only discusses these three areas.**

    Noted – performance standards have been adjusted accordingly.

  - **Sheet W3.0 – Preservation is not a form of mitigation credit unless enhancement is taking place within this area. Avoidance would be required by mitigation sequencing if avoidance if possible.**

    Noted. Note added that preservation not included within mitigation calculations.

  - **Sheet W3.1 – Info needed on hydroseed mix**

    Noted. Hydroseed mix details provided on Mitigation Plan Supplement Sheet CA3.0

  - **Sheet W3.1 – Invasive removal total outside of regarded (*sic*) slope area – 75,231 SF (1.73 AC)**

Noted. Invasive species removal clarified in response above from comment letter.

- **Sheet W3.2 – Hydroseeded Area, typical**

  Noted. Hydroseed mix details provided on Mitigation Plan Supplement Sheet CA3.0.

- **Sheet W3.2 – Soil and topsoil depth may not be adequate for mitigation and restoration plantings if compacted fill soil is 90% or greater.**

  Noted. Details discussed above in response to comment in letter and provided on Annotated Mitigation Plan Sheet W3.1.

- **Sheet W4.0 – Spacing distance exceeds those recommended in the Critical Areas Handbook for highlighted species and critical area/buffer type.**

  This comment notes "…for highlighted species and critical area/buffer type" but none of the plant species were highlighted or indicated. Plant spacings were selected to maximize planting densities. Any deviations from the handbook for plant spacings was done with intent. Please clarify if there were specific species of concern.

Should you have any questions or require additional information regarding this Project, please contact me at *jen@wet.land* (cell: 813-846-1684).

Jennifer Marriott, PWS

Owner, Wet.land, LLC

Attachments:

Critical Areas Report Addendum to the 2020 Critical Areas Report (prepared by Talasaea Consultants), as prepared by Wet.land, LLC

Cc: Mike Green, Clark & Green
William Dunning, Huitt-Zollars

DW

Geotechnical Engineering Report

Proposed West Slope Expansion
Sunset Hills Memorial Park
Bellevue, Washington

April 26, 2019
Terracon Project No. 81185198

Prepared for:
SCI Funeral and Cemetery Cooperative, Inc.
1929 Allen Parkway, 7th Floor
Houston, Texas 77019

Prepared by:
Terracon Consultants, Inc.
Mountlake Terrace, Washington

April 26, 2019

Terracon

SCI Funeral and Cemetery Cooperative, Inc.
1929 Allen Parkway, 7th Floor
Houston, Texas 77019

Attn: Mr. Patrick Husband
P: 281.830.1056
E: patrick.husband@sci-us.com

Re: Geotechnical Engineering Report
Proposed West Slope Expansion
Sunset Hills Memorial Park SCI Loc 208
Bellevue, Washington
Terracon Project Number: 81185198

Dear Mr. Husband:

Terracon Consultants, Inc. (Terracon) has completed our geotechnical engineering services for the above referenced project. These services were performed in accordance with our proposal dated January 8, 2019 and in accordance with our existing Master Services Agreement with SCI Funeral and Cemetery Cooperative, Inc, dated January 13, 2006. This geotechnical engineering report presents the results of our surface reconnaissance, subsurface exploration, and provides geotechnical recommendations concerning earthwork and other design considerations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us at (425) 771-3304.

Sincerely,
Terracon Consultants, Inc.

4/26/19

ROBERT WILLIAM SARGENT
STATE OF WASHINGTON
50114
REGISTERED
PROFESSIONAL ENGINEER

Robert W. Sargent, P.E.
Senior Engineer

Dennis R. Stettler, P.E.
Senior Engineering Consultant

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EXECUTIVE SUMMARY

A geotechnical exploration program has been performed for the proposed west slope expansion of the existing Sunset Hills Memorial Park located in Bellevue, Washington. Terracon's geotechnical scope of services included the advancement of 12 soil test borings to approximate depths of 25½ to 61½ feet below existing site grades. The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the borings and our current understanding of the proposed development. The following geotechnical considerations were identified:

- Stability of the proposed 2 Horizontal: 1 Vertical (2H: 1V) slopes is contingent upon proper site preparation, adequate drainage provisions, suitability of fill materials, benching of existing slopes, adequate fill placement and compaction, control of surface run-off, and long-term protection of the slope face from erosion. Observations of site work during construction is highly recommended and is considered critical for successful completion of the proposed slope grading and development.

- Based on engineering judgement, analyses, and evaluation of the proposed site development, the proposed slope configurations and regrading should be considered acceptable to the City of Bellevue and in accordance with the City of Bellevue Land Use Code. The proposed development of the west slope at the project site does not create adverse effects to adjacent properties or existing structures from a geotechnical perspective. Other critical areas of the site such as wetlands and drainages have established buffer zones which are being handled by other project consultants and are not addressed in this report.

- The on-site soil contains a significant fraction of fines (silt passing the #200 mesh sieve) making the soil highly sensitive to moisture. However, the soil may be suitable for reuse as structural fill, provided the soil can be placed and compacted near the soil's optimum moisture content. Additional care should be taken to prevent an increase in soil moisture content.

- The 2015 International Building Code (IBC) seismic site classification for this site is C.

Close monitoring of the construction operations discussed herein will be critical in achieving the design stability of the slope. We therefore recommend that Terracon be retained to monitor this portion of the work. This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **GENERAL COMMENTS** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
SUNSET HILLS MEMORIAL PARK
PROPOSED WEST SLOPE EXPANSION
BELLEVUE, WASHINGTON

Terracon Project No. 81185198
April 26, 2019

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed west slope expansion of the existing Sunset Hills Memorial Park in Bellevue, Washington. Our geotechnical engineering scope of services for this project included the advancement of twelve (12) exploratory soil borings to depths ranging from approximately 25½ to 61½ feet. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork considerations
- slope benching and drainage
- seismic considerations
- slope stability

2.0 PROJECT INFORMATION

2.1 Site Location and Description

Item	Description
Parcel Information	The project is located along the western slope of the property at Sunset Hills Memorial Park. The site address is 1215 145th PL SE Bellevue, Washington 98007 Latitude: 47.5986° N; Longitude: 122.1574° W
Existing Improvements	Metal-framed maintenance shed, cemetery equipment staging on fill pad
Current Ground Cover	Trees, dense brush, and other vegetation. Abundant decaying leaf matter.
Existing Topography	Gentle to steeply sloping surface topography. Although the site topography predominantly slopes downward to the west, the overall slope is interrupted by several east-west trending spurs, which produce a somewhat scalloped slope surface. This morphology may be indicative of ancient landslide activity. The City of Bellevue 'Critical Hazards Maps' designates portions of the site as steep slopes with grades greater than 40% and the remaining portions of the slopes as severe erosion hazard areas. During field investigation activities we did not observe any evidence of recent or ongoing slope instability or erosion.

2.2 Project Description

ITEM	DESCRIPTION
Information Provided	Site Master Plan provided by Clark & Green Associates dated June 20, 2018. Project slope cross sections of proposed fill options provided by Clark & Green Associates on March 18, 2019.
Project Description	The proposed project consists of improvement areas with planned usable areas of 8.96 acres. Fills placed on level benches and terraced areas with fill thicknesses of up to approximately 50 feet at as shown on cross section A-A' and up to 30 feet at cross section C-C' are anticipated.
Building Construction	n No new structures. Graded areas to be used as gardens
Grading/Slopes	n Varies across site with maximum proposed slope inclinations of 2 Horizontal to 1 Vertical (2H: 1V)

3.0 SUBSURFACE CONDITIONS

3.1 Geology

The surficial geology of the site is mapped as Qvt - Pleistocene Vashon Stade till and Qvtm – Vashon subglacial meltout till – according to the Geologic Map of King County, February 2006. The soil units observed in the subsurface explorations were generally consistent with the geologic mapped units.

3.2 Typical Profile

Based on the results of the borings and surface reconnaissance of the existing slope, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/ Density
1	0 to 7[1]	Fill of primarily silty sand with variable silt and gravel content (FILL)	Loose to Medium Dense
2	Undertermined[2]	Silty sand with variable silt and gravel content (Glacial Till)	Very Dense

1. Borings B-3 indicated approximately 9 ½ feet of fill. Local areas of fill and colluvium may be deeper but were not observed at boring locations.
2. Deeper borings were terminated within this stratum.

Exploration at the site indicates subsurface conditions generally consist of very dense/very stiff, strong, glacially-overidden till consisting primarily of sandy silts and silty sands, with lesser amounts of gravel and cobbles. Atop these dense soils there are local accumulations of looser surficial soil and – in some cases – wet soils. These looser soils are generally shallow (several feet or less) and likely arise from a combination of weathering, slope creep, and precipitation infiltration. Some slope movement may have occurred on the property and landslides are known to be present on the slope located in the northern third of this slope. Based upon the results of drilling, it seems likely that previous landslide activity likely involved only these weaker surficial soils.

Stratums 1 and 2 were characterized by observations from soil borings and surface reconnaissance. Specific conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Exploration at the site indicates subsurface conditions generally consist of very dense/very stiff, strong, glacially-overidden till consisting primarily of sandy silts and silty sands, with lesser amounts of gravel and cobbles. Atop these dense soils there are local accumulations of looser surficial soil and – in some cases – wet soils. These looser soils are generally shallow (several feet or less) and likely arise from a combination of weathering, slope creep, and precipitation infiltration.

Some slope movement may have occurred on the property and landslides are known to be present on the slope located in the northern third of this slope outside of the planned area of development. Based upon the results of drilling, it seems likely that previous landslide activity likely involved only these weaker surficial soils. Details for each of the borings can be found on the boring logs included in Appendix A of this report.

Laboratory tests were conducted on selected soil samples which targeted characterization of Stratums 1 and 2. The test results are presented in Appendix B.

3.3 Groundwater

The soil borings were observed during advancement for the presence and level of groundwater. We observed evidence of groundwater within 5 of the 12 borings. A summary of the observed groundwater depth within the soil boring are provided below:

Boring	Approximate Water Level Depth (feet)	Date of Reading
B-1	21 (Elev. 307)	1/15/19
	28 (Elev. 300)	1/18/19
	29 (Elev. 299)	1/22/19
B-2	22 ½ (Elev. 244)	1/15/19

Boring	Approximate Water Level Depth (feet)	Date of Reading
B-3	20 (Elev. 273)	1/17/19
B-11	30 (Elev. 234)	1/17/19
	30 (Elev. 234)	1/18/19
	31 (Elev. 233)	1/22/19
B-12	5 (Elev. 261)	1/16/19
	11 (Elev. 255)	1/18/19
	8 (Elev. 258)	1/22/19

Perched groundwater was encountered in borings B-1, B-2, B-3, B-11, and B-12 atop the much denser and glacially-consolidated soils, and likely results from irrigation associated with up-slope cemetery operation (B-1 and B-12) or stormwater flow from an up-slope residential neighborhood (B-11). Wet samples were encountered at greater depth in these and other borings; these zones of wet soil are typically isolated and do not appear to represent a regional groundwater condition.

Groundwater level fluctuations are expected to occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. In addition, perched water can develop over low-permeability soil, but may not be present after long periods of dry weather. Therefore, groundwater levels during construction or at other times in the life of the site may be higher or lower than the levels indicated on the boring logs.

3.4 Environmentally Critical Areas Considerations

The City of Bellevue 'Critical Hazards Maps' designates portions of the site as steep slopes with grades greater than 40% per the criteria described in Section 20.25H.120 of the City of Bellevue Land Use Code. The remaining portions of the slopes as severe erosion hazard areas. During field investigation activities we did not observe any evidence of recent or ongoing slope instability or erosion.

Section 20.25H.125 of the City of Bellevue Land Use Code details the performance standards for development in landslide hazard and steep slope areas. Evidence of historic landslides was observed in areas north of proposed development areas during the site reconnaissance and review of historic aerial photos of the area; however, landslides appear limited to shallow surface erosion on the order of a few feet or sloughing of slope colluvium in local areas. The planned area of development does not exhibit evidence of historic landslides. The sloping portions of the site are generally steeper than 15 percent and generally consist of relatively permeable loose to medium dense silty sands and gravels over relatively impermeable glacially consolidated soil.

As no new structures are planned and developments are outside of historic landslide areas, the proposed developments do not appear to be in a landslide hazard area. Through proper site

preparation, grading, and filling operations the proposed slope developments will not create a landslide hazard zone or create adverse impacts to adjacent properties from a geotechnical standpoint, in our opinion.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

Based on the results of our explorations, the site appears suitable for the proposed construction. Geotechnical engineering recommendations for earthwork-connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of data presented herein, engineering analyses, and our current understanding of the proposed project.

ASTM and Washington State Department of Transportation (WSDOT) specification codes cited herein respectively refer to the current manual published by ASTM International and the 2018 edition of the WSDOT *Standard Specifications for Road, Bridge, and Municipal Construction* (Publication M41-10).

The soils onsite within the project limits are comprised of moderate to high silt content. Precaution should be taken when construction is performed during wet weather. The higher silt content soils at the site may be sensitive to moisture and will make for difficult earthwork and construction during wet weather.

Placement of new fill on an existing slope can be problematic because a zone of weakness can be present at the contact between the existing slope and the new fill. This is particularly critical when fill is delivered to its location by dumping loose fill from the top of a slope. This zone of weakness can be related to either disturbance of the existing slope creating a loose soil zone that has fill placed on top of it, or the zone of weakness can be created because it is difficult to achieve good compaction of new fill adjacent to an existing slope. To address this issue of a zone of weakness between the new fill and existing slope, it is common design and construction practice to key the new fill into the existing slope by cutting horizontal benches into the existing slope and placing and compacting the new fill on the bench cuts. Discussion regarding benching and fill placement are discussed in the sections below.

4.2 Earthwork

The following text presents recommendations for site preparation, subgrade improvements, and placement of slope fills for the project. The recommendations presented for design and construction of project elements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of structural fill and slope preparation, and other geotechnical conditions exposed during the construction of the project. We recommend that earthwork be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through May), it may be necessary to take extra precautionary measures to protect exposed soils. We also recommend that limited areas of the slope be stripped prior to filling to avoid exposure of large areas of the slope to periods of inclement weather.

4.2.1 Site Preparation

We anticipate that this project will require cuts and fills. Site preparation should include the removal of all vegetation, root mass, and any deleterious debris from slope areas, or those locations where new slope fill is to be placed.

Following clearing and grubbing, organic-rich topsoil and litter debris will need to be removed. Site soils with high organic contents are problematic with regards to slope stability as they tend to create weak soil zones, become oversaturated compared to surrounding soils, and typically do not compact adequately. Localized areas of deeper organics, such as root systems associated with trees and shrubs, may be encountered within the project site and should likewise be removed. Any excavations that extend below finish grades should be backfilled with compacted fill as outlined subsequently in this report. In our opinion, the topsoil is not suitable for reuse as structural fill and should therefore be exported from the site or used for landscaping purposes.

4.2.2 Slope Fill and Benching

For the purposes of this report, structural fill and slope fill are defined as any fill placed as part of the filling operations to raise site grades and create the proposed 2H: 1V slopes. Prior to placement of structural fill, the subgrade should be in a firm and non-yielding condition and free from organics, existing fill, or loose debris.

The suitability of soil used for structural fill depends primarily on its grain-size distribution and moisture content when it is placed. As the fines content (the soil fraction passing the U.S. No. 200 Sieve) increases, soil becomes more sensitive to small changes in moisture content. Soil containing more than about 5 percent fines (by weight) cannot be consistently compacted to a firm, unyielding condition when the moisture content is more than about 2 percentage points above or below optimum. Optimum moisture content is the moisture content at which the maximum dry density for the material is achieved in the laboratory following ASTM procedures.

The shallow silty sand fill and glacial till observed in our borings throughout the site generally appears to be suitable for reuse as structural fill from a compositional perspective. However, these soils are moisture sensitive and may become unusable if exposed to moisture. During periods of wet weather, we recommend that soil stockpiles intended for reuse be covered with plastic sheeting after excavation to maintain their native moisture content.

We understand that as part of the project development soil imported to the project site as fill will most likely come from a variety of sources and consist of a variety of soil types. Slope stability analyses for the project have assumed minimum soil strength parameters such that the proposed development of the planned 2H: 1V fill slopes and existing slopes can remain adequately stable. Recommendations regarding soil types that meet the minimum criteria are as follows:

The following soil types should NOT be used:

- CH and CL – high/low plasticity clay-rich soil
- MH – high plasticity silt

Need to understand more about where the fill will be coming from and the quality control for importing fill. A number of large sites around Bellevue have contaminated soils that would not be suitable for use around streams, wetlands, and habitat areas.

Soil types such as sand, gravel, silty sand, and silty sand and gravel would be recommended as the most applicable for use as slope fill for the project. Soils high in silt content of low or no plasticity, ML classification, would be applicable for use assuming the sand and gravel content of the soil greater than 30 percent.

We strongly recommend that soils brought to the site to be used as structural fill be observed by a Terracon site representative for acceptance such that the soils can be placed and compacted adequately and meet the project intent that the soils will provide the minimum assumed soil strength properties. All imported and any reused site soils should be free of deleterious debris and contain less than 5 percent of organic materials.

During extended periods of inclement weather where stockpiled and imported soils cannot be maintained at or near optimum moisture contents we recommend that imported soil intended for use as structural fill consist of “common” or “select” granular material, depending on the weather conditions at the time of placement and the anticipated weather conditions until the fill is protected. Delays due to inclement weather are common, even when using select granular fill. These materials are defined below:

- **Select Fill** - “Select” granular fill is recommended for use in wet weather conditions. Select fill should meet the general requirements of WSDOT Section 9-03.14(1), Gravel Borrow or Section 9-03.14(2), Select Borrow. The percent passing the US No. 200 mesh sieve should, however, be modified from the WSDOT specification to a maximum of 5 percent by weight. Select fill can generally be placed and compacted in a wider variety of weather conditions than Common fill.

- **Common Fill** - “Common” fill generally consists of lesser quality, more moisture-sensitive soil that can be compacted to a firm and non-yielding condition if near the optimum moisture content. Common Fill should meet the requirements of WSDOT Section 9-03.14(3), Common Borrow.

Fill placed on existing slopes steeper than 4H: 1V should be keyed and benched into the slope. We recommend that the hillside grading be constructed by benching the fill into the existing slope. Each bench should penetrate the existing fill a minimum of five feet horizontally and have a maximum vertical face height of four feet. The horizontal bench should slope inward at 0.05 feet per foot. We do not recommend the use of sliver fills (fills placed directly over the sloping embankment face). Placed fills should be overbuilt and then cut back to the planned slope inclinations.

4.2.3 Compaction Requirements

Slope fill materials should be placed in horizontal lifts not exceeding about 12 inches in loose thickness. We recommend that each lift then be thoroughly compacted with a mechanical compactor to a uniform density of at least 90 percent, based on the modified Proctor test (ASTM D 1557). Excavated soil that will be reused as structural fill should be protected from rain and other factors to aid in preventing an increase in moisture content. Moisture contents at the time of compaction should be within 2 percent of the optimum moisture content.

4.2.4 Grading and Drainage

Adequate positive drainage of exposed subgrades should be provided during construction and maintained throughout the life of the development to prevent an increase in moisture content of the slope grades. Surface water drainage should be controlled to prevent undermining of fill slopes and erosion of exposed soils. As part of the planned slope grades we recommend that the face of the slopes have an intermediate terrace or other means to reduce the velocity of surface run-off that may be traveling down the slope during periods of heavy rainfall. We recommend the civil engineer include provisions or features that can address this concern.

During site preparation, site grading, and benching, zones of seepage not previously observed during field operations may be observed. Introduction of groundwater seepage into fill soils may affect the overall stability of the newly placed fill slopes. In order to handle seepage and potential groundwater, we recommend that a system of drainage pipe be placed near horizontal on the benched sloped face at a minimum of every 50 vertical feet. Additional drains may be necessary to connect localized zones of seepage to the drainage system. These conditions are best determined during the construction phase. Slope fill would then be placed over the piping system and construction of the slope would proceed.

Drains may consist of rigid wall, 4-inch diameter perforated PVC pipe embedded in a drainage zone consisting of coarse sand and gravel. The zone of free-draining material should extend at least 12 inches around the pipe and the zone of free-draining material enveloped in a separation fabric such as a Mirafi 140N, or equivalent, to prohibit the migration of fines from surrounding slope fill soils into the drains making them less effective over time. The drainpipes should lead to a suitable discharge.

Details for hydroseeding

Permanent slopes should be hydroseeded, planted with deep rooting ground cover, or otherwise protected from erosion. Temporary erosion control may be necessary until permanent vegetation is established. Satisfactory performance of slopes is strongly affected by drainage and runoff. Care must be taken that drainage is not directed to flow over the slope face. This can be accomplished by using appropriate combinations of swales, berms, or curbs at the top of the slope.

4.2.5 Construction Considerations

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment, although cobbles and boulders may be encountered.

Upon completion of grading and preparation, care should be taken to maintain the subgrade moisture content prior to further construction. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to placement of new fill and observed by Terracon.

Surface water should not be allowed to pond on the site and soak into the soil during construction. Construction staging should provide drainage of surface water and precipitation away. Any water that collects over or adjacent to construction areas should be promptly removed, along with any softened or disturbed soils. Surface water control in the form of sloping surfaces, drainage ditches and trenches, will be important to avoid ponding and associated delays due to precipitation and seepage.

Temporary excavations will likely be required during grading operations. The grading contractor, by contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state and federal safety regulations, including the current Occupational Health and Safety Administration (OSHA) Excavation and Trench Safety Standards. All excavations should be sloped or braced as required by OSHA regulations to provide stability and safe working conditions.

Construction site safety is the sole responsibility of the contractor who controls the means, methods and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean that Terracon is assuming any responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

4.3 Slope Stability Analysis and Considerations

We performed limit equilibrium method global stability analyses to evaluate critical sections of the proposed slope development and fill placement. We used the computer program SLIDE 2018 (RocScience) to evaluate the global stability at critical sections using the Spencer method. Both circular surface failure and an optimal surface failure, which is a software automatically generated surface were used to compute the minimum factor of safety. Per design sheet 25, Geotechnical Report and Stability Analysis Requirements, the City of Bellevue requires the long-term global stability for all permanent slopes to have a targeted safety factor of 1.40 and 1.10, respectively, for static and seismic (dynamic) conditions. Based on the results of our analyses, the proposed 2H: 1V fill slopes meet the global stability provided the site is prepared and fill is placed in accordance with recommendations provided in this report.

Per City requirements, output of analyzed sections for global stability are provided in Appendix D of this report. Global stability analyses were performed for the cross sections shown in Exhibits A-4 through A-6 for cross sections A-A', B-B', and C-C'. A summary of soil parameters of soil units observed at the project site is provided below.

Stratum	Material Description	Consistency/ Density	Unit Weight (pounds per cubic foot)	Strength Properties
1	Newly placed and compacted Fill	-	120 pcf	Static Friction Angle - 34 degrees Cohesion – 0 psf Seismic Friction Angle – 34 degrees Cohesion – 100 psf
2	Existing fill or colluvium	Loose to Medium Dense	115 pcf	Static Friction Angle - 30 degrees Cohesion – 0 psf Seismic Friction Angle - 30 degrees Cohesion – 50 psf
3	Silty sand with variable silt and gravel content (Glacial Till)	Dense to Very Dense	135 pcf	Static Friction Angle - 38 degrees Cohesion – 150 psf Static Friction Angle - 38 degrees Cohesion – 250 psf

Slope stability analyses performed can be considered to be conservative as loose, existing fill and colluvium zones observed during field explorations have been included in the analyses. Per the Construction Considerations and recommended Site Preparations sections of this report these soils have been recommended to be removed and recompacted as well as the existing slope benched to facilitate placement of new fill materials. These improvements are intended to increase the stability of the slope.

4.4 Seismic Considerations

Seismic design parameters provided below are based on a 10 percent probability of exceedance in 50 years, 475-year return period per City requirements. The peak ground acceleration, PGA, corresponding to the above return period is 0.28g.

Code Used	Site Classification
2015 International Building Code (IBC)[1]	C
Site Latitude	47.5986° N
Site Longitude	122.1574° W
S_s – Short Period Spectral Acceleration for Site Class B	0.65 g
S_1 – 1-Second Period Spectral Acceleration for Site Class B	0.18 g
F_a – Short Period Site Coefficient	1.0
F_v – 1-Second Period Site Coefficient	1.3
A_s – Peak ground acceleration modified for site effects	0.34g

1. The 2015 International Building Code indicates that the seismic site classification is based on the average soil and bedrock properties in the top 100 feet. The current scope does not include a 100-foot soil profile determination. This seismic site class definition considers that soils encountered at depth in our boring continue below the termination depth. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

The risk of liquefaction was evaluated and based on our understanding of groundwater and geology at the site, it is our opinion that the risk of liquefaction is negligible.

5.0 GENERAL COMMENTS

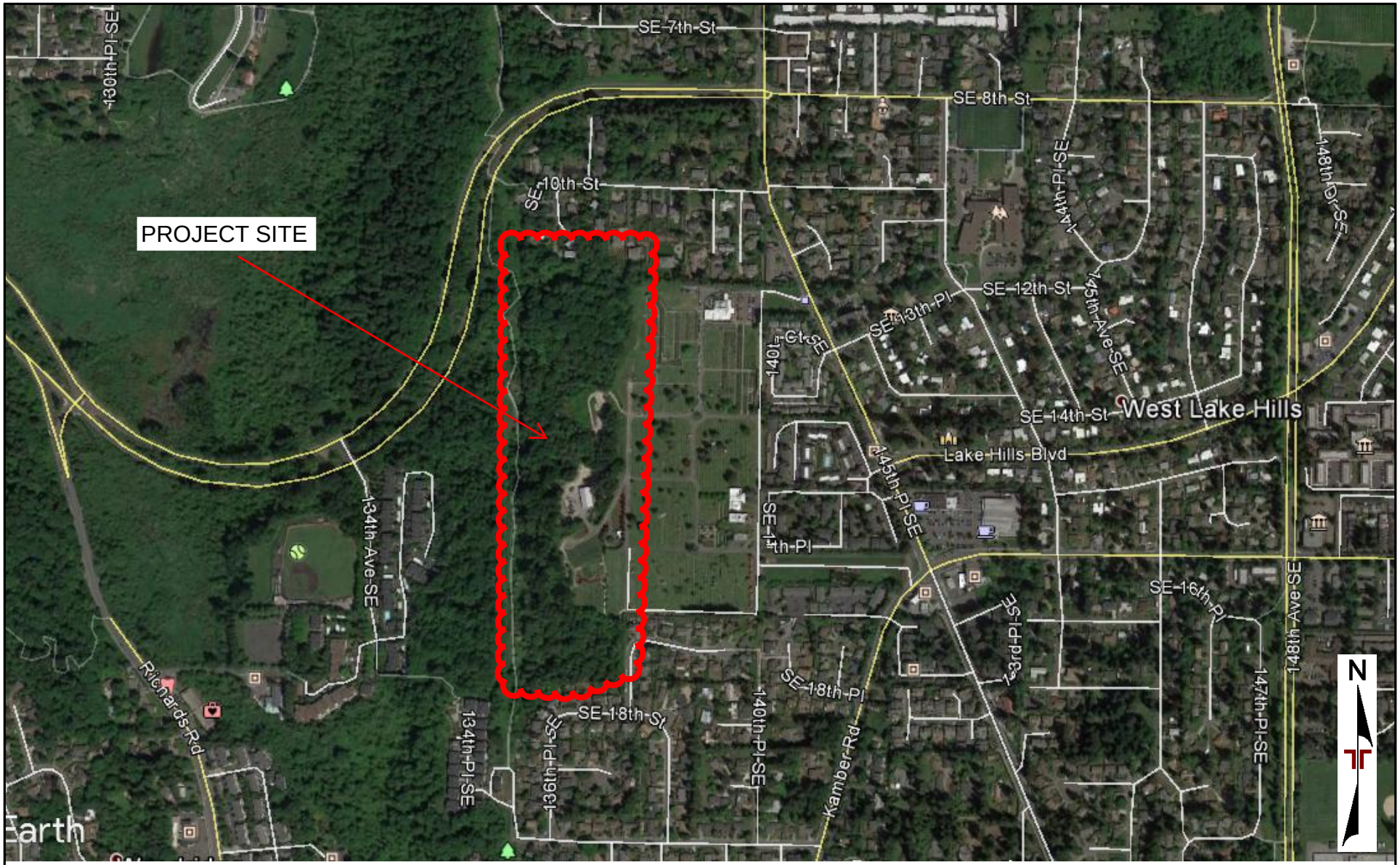
Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of SCI Funeral and Cemetery Cooperative and their agents for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	CTM
Drawn by:	RWS
Checked by:	RWS
Approved by:	DS

Project No.	81185198
Scale:	NTS
File Name:	N/A
Date:	4/18/2019

Terracon
Consulting Engineers and Scientists
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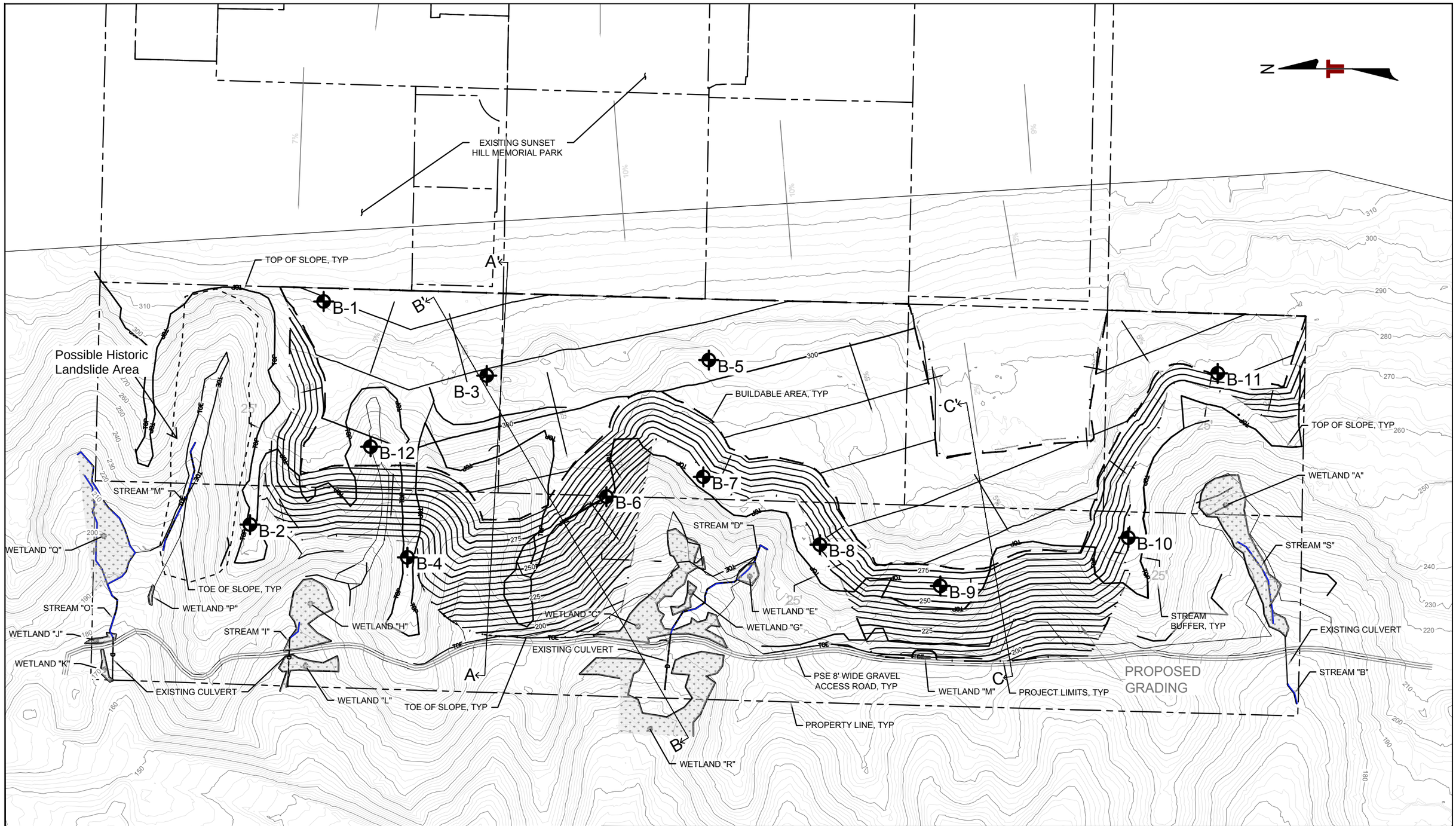
PH. (425) 771-3304 FAX. (425) 771-3549

SITE VICINITY MAP

Sunset Hills Memorial Park West Slope Expansion
1215 145th Place SE
Bellevue, Washington

Exhibit

A-1



LEGEND

B-8	APPROXIMATE BORING LOCATION AND NUMBER
B B'	CROSS SECTION PROFILE LOCATION AND NUMBER

150 0 50 100 150
SCALE IN FEET

Project Mngr:	RWS
Drawn By:	AMP
Checked By:	RWS
Approved By:	RWS
Project No.	81185198
Scale:	AS SHOWN
File No.	Exhibit 2
Date:	April 2019

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SITE AND EXPLORATION PLAN

Sunset Hills Memorial Park West Slope Expansion
1215 145th Place SE
Bellevue, Washington

EXHIBIT
A-2

Field Exploration Description

The proposed boring locations were laid out in the field by a Terracon representative using the smartphone mapping application Maprika and an electronic version of a site plan provided by the client. Several locations were adjusted due to close proximity to large trees or difficult terrain. Ground surface elevations indicated on the boring logs were obtained from surveying completed by the design team following exploration. The locations and elevations of the borings should be considered accurate only to the degree implied by the survey methods used to determine them.

The twelve (12) soil borings were drilled using a track-mounted Diedrich D-50 drill rig using hollow-stem augers to advance the boreholes. Samples of the soil encountered in the borings were obtained using the split-barrel sampling procedures. In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (SPT-N). This value is used to estimate the in situ relative density of cohesionless soils and consistency of cohesive soils.

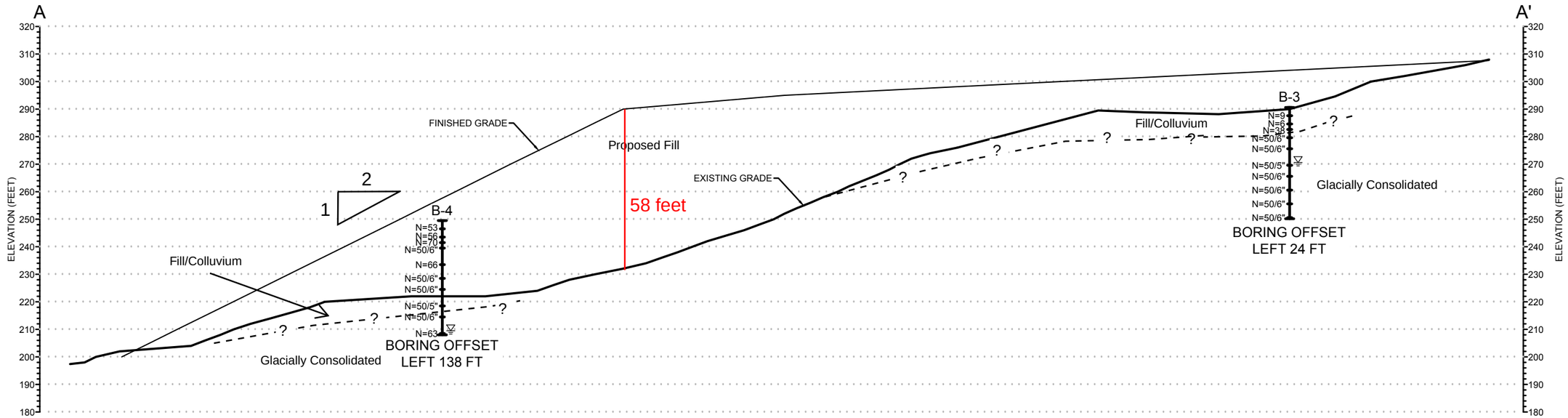
An automatic SPT hammer (autohammer) was used to advance the split-barrel sampler in the borings performed on this site. The autohammer efficiency has been recently reported by the subcontract driller as 75%.

The samples were tagged for identification, sealed to reduce moisture loss, and taken to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions.

A field log of each boring was prepared by a Terracon geotechnical engineer or geologist. These logs included visual classifications of the materials encountered during drilling as well as the engineer’s or geologist’s interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

Monitoring wells were installed in three of the borings; these wells were installed in accordance with Washington Department of Ecology regulations. Other borings (where no well was installed) were backfilled with bentonite chips and abandoned in accordance with Ecology regulations. The three monitoring wells were outfitted and sealed with flush-mount monuments, and marked with a steel T-post extending several feet above the ground surface. Other borings are currently marked with a wood stake and survey flagging.

Due to the steep terrain and trees, we subcontracted with a local excavator to provide access paths to several of the drilling locations. Following drilling, we spread straw mulch over all ground that was disturbed by these temporary paths.



A
EXH.3

CROSS SECTION A-A'

40 0 10 20 40

SCALE IN FEET

LEGEND

B-4 - BORING NAME

N=50/6" - SPT BLOWCOUNTS

WATER LEVEL

Project Mngr:	RWS
Drawn By:	AMP
Checked By:	RWS
Approved By:	RWS
Project No.	81185198
Scale:	AS SHOWN
File No.	Exhibit 3
Date:	April 2019

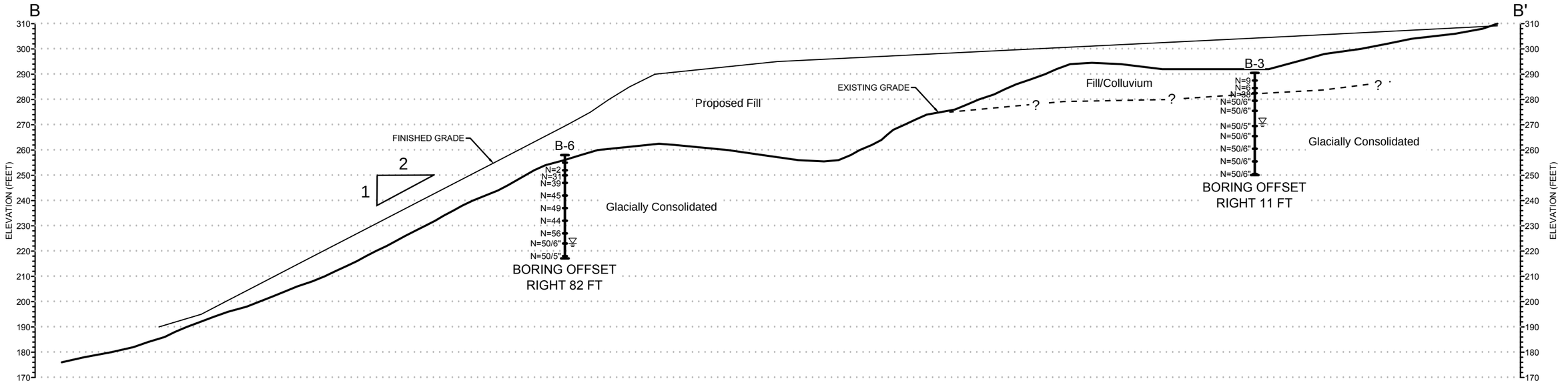
Terracon
Consulting Engineers and Scientists
21905 64th Avenue W, Ste 100 Mountlake Terrace, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

CROSS SECTION A-A'

Sunset Hills Memorial Park West Slope Expansion
1215 145th Place SE
Bellevue, Washington

EXHIBIT

A-4



B
EXH.4

CROSS SECTION B-B'

40 0 10 20 40

SCALE IN FEET

LEGEND

B-4 - BORING NAME

N=50/6" - SPT BLOWCOUNTS

WATER LEVEL

Project Mngr:	RWS
Drawn By:	AMP
Checked By:	RWS
Approved By:	RWS
Project No.	81185198
Scale:	AS SHOWN
File No.	Exhibit 4
Date:	April 2019

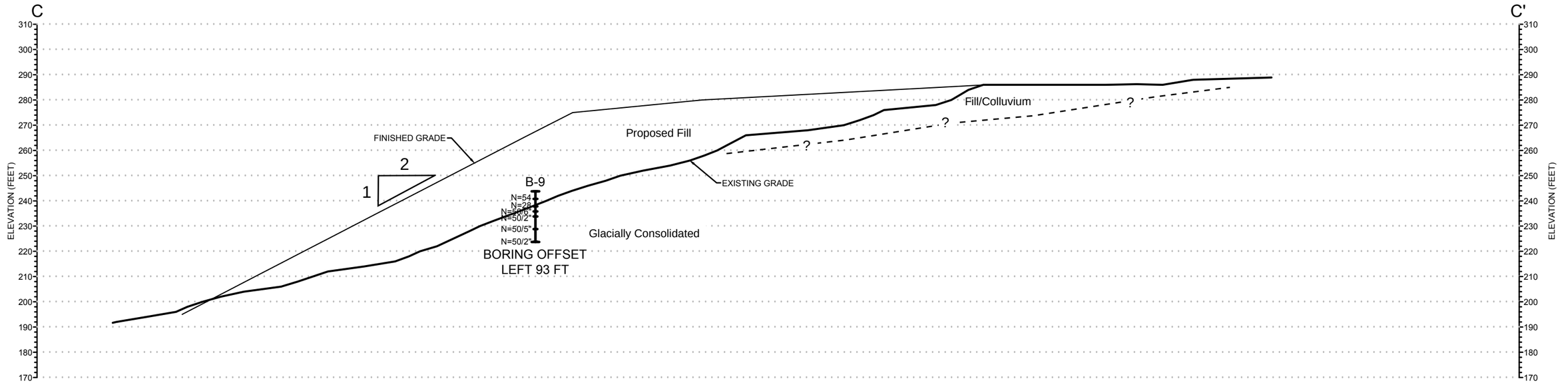
Terracon
Consulting Engineers and Scientists
21905 64th Avenue W, Ste 100 Mountlake Terrace, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

CROSS SECTION B-B'

Sunset Hills Memorial Park West Slope Expansion
1215 145th Place SE
Bellevue, Washington

EXHIBIT

A-5



C
EXH.5

CROSS SECTION C-C'

40 0 10 20 40

SCALE IN FEET

LEGEND

B-4 - BORING NAME

N=50/6" - SPT BLOWCOUNTS

Project Mngr:	RWS
Drawn By:	AMP
Checked By:	RWS
Approved By:	RWS
Project No.	81185198
Scale:	AS SHOWN
File No.	Exhibit 5
Date:	April 2019

Terracon
Consulting Engineers and Scientists
21905 64th Avenue W, Ste 100 Mountlake Terrace, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

CROSS SECTION C-C'

Sunset Hills Memorial Park West Slope Expansion
1215 145th Place SE
Bellevue, Washington

EXHIBIT

A-6

BORING LOG NO. B-1

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.599° Longitude: -122.1562°

Approximate Surface Elev.: 328 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.2	328+/-	**FILL - TOPSOIL (SM)**, moist, loose, manicured grass turf
		FILL - SILTY SAND (SM), with gravel, reddish-brown, moist to wet, very loose, trace of fine roots
5.5	322.5+/-	**SILTY SAND WITH GRAVEL (SM)**, gray, moist, dense to very dense
		-- faint rust staining at 11 feet
13.0	315+/-	**SAND (SP)**, and SILTY SAND interbeds, brown to grayish-brown, moist, medium dense
18.0	310+/-	**SAND WITH SILT AND GRAVEL (SW-SM)**, gray-brown, moist, very dense
		-- wet zone around 21 feet
23.0	305+/-	**SILTY SAND (SM)**, with gravel, gray, moist, very dense

INSTALLATION DETAILS: Well Cap; Top of Concrete Seal; Top of Bentonite Chips; Top of 10/20 Colorado Sand

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		X	12	1-2-3 N=5	14		29
5		X	12	10-17-30 N=47			
			6				
		X	12	32-50/6"	7		25
10		X	18	18-21-25 N=46			
15		X	18	15-12-14 N=26			
20	▽	X	18	22-27-41 N=68	12		11
25							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, 35', 15' of screen and 10' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Wet seams, perched*

▽ *1/18/2019*

▼ *1/22/2019*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-15-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-7

BORING LOG NO. B-1

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.599° Longitude: -122.1562°

Approximate Surface Elev.: 328 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), with gravel, gray, moist, very dense *(continued)*				6	50/6"	7		
		-- difficult drilling								
		Top of 10/20 Colorado Sand Top of Sch. 40 PVC slotted pipe Top of Sch. 40 PVC slotted pipe	30			4	50/4"	7		
		-- difficult drilling, returned auger cuttings are wet								
35.0	293+/-									
		Auger Refusal at 35 Feet	35			0	50/0" no recovery			

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, 35', 15' of screen and 10' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

- *Wet seams, perched*
- *1/18/2019*
- *1/22/2019*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-15-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-7

BORING LOG NO. B-2

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5993° Longitude: -122.1577°

Approximate Surface Elev.: 264.5 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Stratigraphic Description
0.1	264.5+/-	**TOPSOIL (SM)**, with organics, dark brown to dark gray, moist, loose, forest floor organics and silty sand
		SILTY SAND (SW-SM), trace gravel, (gravel: <0.5" to 2"), dark gray to gray, moist, very dense
		-- trace rust staining
10.0	254.5+/-	**SAND WITH SILT (SP-SM)**, trace gravel, grayish brown to light gray brown, moist, dense
13.5	251+/-	**SAND WITH SILT AND GRAVEL (SW-SM)**, light gray to light tan gray, moist, very dense, rock fragments in sampler, blow count likely overstated
20.0	244.5+/-	**SAND WITH GRAVEL (SP)**, with silt, (gravel: 0.75" to 1"), gray, moist, very dense, rock fragments in sampler, blow count likely overstated
22.5	242+/-	**SILTY SAND WITH GRAVEL (SP-SM)**, (gravel: 0.5" to 3.5"), dark gray brown, moist, very dense, gravel increase in size with depth, ock fragments in sampler, blow count likely overstated

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	PERCENT FINES
5		18	15-26-24 N=50	6	
		18	13-36-50/6"	7	23
		18	22-36-50/6"		
10		16	17-32-29 N=61		
15		18	15-18-27 N=45	5	6
20		3	50/3"		
25					

STRENGTH TEST: TEST TYPE; COMPRESSIVE STRENGTH (tsf); STRAIN (%)

ATTERBERG LIMITS: LL-PL-PI

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

While sampling, perched water to 22.5'

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-15-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-8

BORING LOG NO. B-2

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5993° Longitude: -122.1577°

Approximate Surface Elev.: 264.5 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND WITH GRAVEL (SP-SM), (gravel: 0.5" to 3.5"), dark gray brown, moist, very dense, gravel increase in size with depth, ock fragments in sampler, blow count likely overstated *(continued)*										
					3	50/3"						
30					15	25-43-50/3"						
35					0	50/1" no recovery						
40					5	50/6"						
40.5	224+/-	***Auger Refusal at 40.5 Feet***										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling, perched water to 22.5'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-15-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-8

BORING LOG NO. B-3

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5983° Longitude: -122.1567°

Approximate Surface Elev.: 293 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0	293+/-	**FILL - SANDY SILT (SM)**, trace gravel, dark brown to grayish brown, moist, loose
4.5	288.5+/-	**FILL - SILTY SAND (SP-SM)**, with gravel, (gravel: 0.25" to 1"), grayish brown, moist, very loose, rock fragements in sampler, blow count likely overstated
7.5	285.5+/-	**SILTY SAND (SP-SM)**, with gravel, (gravel: 0.25" to 1"), grayish brown to gray brown, moist, dense, rock fragements in sampler, blow count likely overstated
9.5	283.5+/-	**SILTY SAND WITH GRAVEL (SM)**, gray brown to gray, moist, very dense
19.0	274+/-	**SAND WITH SILT (SP)**, with gravel, brown to gray brown, wet, very dense
20.7	272.5+/-	**SILTY SAND (SM)**, with trace pea size gravel, brown to gray brown, moist, very dense, -- trace orange coloring to silt
23.0	270+/-	**SAND WITH GRAVEL (SW)**, trace silt, (gravel: 0.75"), gray, moist

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	PERCENT FINES
5		2	4-4-5 N=9	13	
		9	3-2-1 N=3	9	27
10		8	3-16-22 N=38		
		18	17-30-50/6"		
15		10	33-50/6"	3	
20		9 7	30-32-50/5"	8	28
25					

STRENGTH TEST: TEST TYPE; COMPRESSIVE STRENGTH (tsf); STRAIN (%)

ATTERBERG LIMITS: LL-PL-PI

WATER LEVEL OBSERVATIONS

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *perched water table, 20' to 20.7'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-9

BORING LOG NO. B-3

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5983° Longitude: -122.1567°

Approximate Surface Elev.: 293 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
			30			12	37-50/6"						
			35			12	37-50/6"						
						11	37-50/5"						
	40.5	252.5+/-	40			5	50/6"						

SAND WITH GRAVEL (SW), trace silt, (gravel: 0.75"), gray, moist *(continued)*

Auger Refusal at 40.4 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *perched water table, 20' to 20.7'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-9

BORING LOG NO. B-4

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5986° Longitude: -122.1579°

Approximate Surface Elev.: 247 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.1	247+/-	**TOPSOIL (SM)**, with organics, dark brown to dark gray, moist, loose, forest floor organics and silty sand
		SAND WITH SILT AND GRAVEL (SW-SM), gray to tan brown, moist, very dense
7.0	240+/-	**SAND WITH GRAVEL (SP)**, gray brown, very dense, rock fragments in sampler, blow count likely overstated -- 2" silt layer at 8.4'
12.5	234.5+/-	**SAND WITH SILT AND GRAVEL (SP-SM)**, gray brown to light gray brown, very dense
20.4	226.5+/-	**SILT (ML)**, trace sand and gravel, dark gray, moist, hard
23.0	224+/-	**SAND WITH SILT AND GRAVEL (SP)**, gray tan to brown, moist, very dense, some silt chunks

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		18	12-23-30 N=53			
5						
		18	22-26-30 N=56	7		11
		18	16-35-35 N=70			
10		12	27-50/6"	4		
15		18	22-32-34 N=66	6		
20		13 5	24-37-50/6"	17	25-18-7	
25						

STRENGTH TEST

TEST TYPE	COMPRESSIVE STRENGTH (tsf)	STRAIN (%)

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *moist to wet material observed at the base of the sample*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-10

BORING LOG NO. B-4

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5986° Longitude: -122.1579°

Approximate Surface Elev.: 247 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
						12	37-50/6"						
			30			17	20-30-50/5"						
			35			12	31-50/6"						
37.5	209.5+/-												
			40	▽		16	20-31-32 N=63				16		
41.5	205.5+/-												

SAND WITH SILT AND GRAVEL (SP), gray tan to brown, moist, very dense, some silt chunks *(continued)*

SANDY SILT (ML), trace gravel, nonplastic, gray, hard

Boring Terminated at 41.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *moist to wet material observed at the base of the sample*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-15-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-10

BORING LOG NO. B-5

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5973° Longitude: -122.1565°

Approximate Surface Elev.: 283 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		FILL - SILTY SAND (SM), trace organics and gravel, dark brown to orangey brown, moist, loose											
					X	12	2-2-2 N=4				15		26
4.5	278.5+/-												
		FILL - SILTY SAND WITH GRAVEL (SM), trace organics, (gravel: 1"), orangey tan gray to tan, moist, medium dense, rock fragments	5		X	12	6-5-6 N=11						
7.0	276+/-												
		SILTY SAND (SM), trace gravel, (gravel: 0.5" to 2.5"), gray, moist, very dense, rock fragments -- trace rust staining at 7.6' and 8.5'			X	18	15-23-32 N=55				10		21
			10		X	10	35-50/6"						
			15		X	18	29-24-32 N=56				9		
17.5	265.5+/-												
		SAND WITH SILT (SP), with gravel, gray, moist, very dense, rock fragments	20		X	18	16-31-38 N=69						
22.0	261+/-												
		SAND (SP), trace silt, gray to gray brown, moist	25										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-11

BORING LOG NO. B-5

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5973° Longitude: -122.1565°

Approximate Surface Elev.: 283 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SAND (SP), trace silt, gray to gray brown, moist *(continued)*											
27.5	255.5+/-												
		SAND WITH SILT (SP-SM), gray brown to brownish gray, moist											
			30			18	14-22-30 N=52						
						18	18-24-39 N=63						
		-- dense	35			18	17-19-27 N=46						
		-- sand coarsens with depth from 40'	40			18	15-29-40 N=69						
41.5	241.5+/-												
		Boring Terminated at 41.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-11

BORING LOG NO. B-6

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5977° Longitude: -122.1575°

Approximate Surface Elev.: 260 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
						no sample taken						
5.2	255+/-	5										
					12	1-1-1 N=2				10		
					18	9-14-17 N=31						
		10			18	12-17-22 N=39				7		13
		15			18	13-19-26 N=45						
		20			18	15-21-28 N=49				9		16
		25										

FILL - SAND WITH SILT (SP), with organics, tan brown to gray brown, moist, loose

SILTY SAND (SP), trace pea size gravel, brown to gray brown, moist, dense

-- 2" layer of orangey gray extra moist sand, more dense than surrounding sample material

-- thin silt lenses at 16.3" for <2"

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *moist to wet material observed in sampler at 35' and 40'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-12

BORING LOG NO. B-6

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5977° Longitude: -122.1575°

Approximate Surface Elev.: 260 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND (SP), trace pea size gravel, brown to gray brown, moist, dense *(continued)*				18	13-20-24 N=44						
27.5	232.5+/-												
		SILT, with interebdded sand with gravel, light brown to grayish brown, moist, hard	30			8 9	23-26-30 N=56				22	33-24-9	
32.5	227.5+/-												
		SAND WITH SILT, trace pea size gravel, dark gray brown to brown gray, moist, very dense											
		-- moist to wet silt interbeds at 35'	35	▽		12	27-50/6"						
37.5	222.5+/-												
		SILTY SAND, trace pea size gravel, gray to grayish brown, moist, very dense, -- drill rig chatter and bogging	40			11	40-50/5"						
40.9	219+/-												
		Auger Refusal at 40.9 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *moist to wet material observed in sampler at 35' and 40'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-12

BORING LOG NO. B-7

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5973° Longitude: -122.1573°

Approximate Surface Elev.: 265 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0		**FILL - SILTY SAND (SM)**, gravelly, (gravel: 0.25" to 0.75"), dark tan brown to tan brown, moist, very loose, -- trace organics
4.5	260.5+/-	**SILTY SAND (SM)**, trace pea size gravel, grayish tan to brown, moist, dense
7.0	258+/-	**SAND WITH SILT (SW-SM)**, trace pea size gravel, grayish tan brown to gray, moist, medium dense to dense
12.5	252.5+/-	**SAND (SP)**, trace silt, grayish brown to grayish tan, moist, very dense, homogeneous
22.5	242.5+/-	**SAND (SP)**, with silt, grayish tan, moist, very dense, homogeneous

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	PERCENT FINES
5		10	2-2-1 N=3	11	21
		18	12-18-24 N=42		
10		18	14-18-20 N=38		
		16	12-12-13 N=25	14	11
15		18	18-22-30 N=52		
20		18	18-24-33 N=57	7	
25					

STRENGTH TEST: TEST TYPE; COMPRESSIVE STRENGTH (tsf); STRAIN (%)

ATTERBERG LIMITS: LL-PL-PI

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Wet material observed in sampler from 45.6' to 60.7'

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-18-2019 | Boring Completed: 01-18-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-13

BORING LOG NO. B-7

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5973° Longitude: -122.1573°

Approximate Surface Elev.: 265 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SAND (SP), with silt, grayish tan, moist, very dense, homogeneous *(continued)*			18	18-22-30 N=52						
30					18	18-22-30 N=52						
35					18	16-24-32 N=56				9		
40					18	17-23-33 N=56				14		
45.0	220+/-											
45		**SILTY SAND (SM)**, grayish tan, moist, very dense, homogeneous -- recovered samples wet at 45.6" and on	▽		18	18-23-30 N=53				18		15
50												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Wet material observed in sampler from 45.6' to 60.7'*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-18-2019 | Boring Completed: 01-18-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-13

BORING LOG NO. B-7

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5973° Longitude: -122.1573°

Approximate Surface Elev.: 265 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
		SILTY SAND (SM), grayish tan, moist, very dense, homogeneous *(continued)*				18	17-22-32 N=54				20		
			55			18	17-25-35 N=60				20		
60.7	204.5+/-		60			8	17-23-50/6"						
61.5	203.5+/-	**SILT WITH SAND (ML)**, orange to orange tan, moist, hard, -- rust stained layers				6					21	30-20-10	
		Boring Terminated at 61.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Wet material observed in sampler from 45.6' to 60.7'

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-18-2019 | Boring Completed: 01-18-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-13

BORING LOG NO. B-8

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5967° Longitude: -122.1577°

Approximate Surface Elev.: 260.5 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
7.0	253.5+/-

FILL - SILTY SAND (SM), with pea size gravel, (gravel: 0.25" to 1"), gray brown to dark gray brown, moist to dry, very dense

SAND WITH SILT AND GRAVEL (SP-SM), (gravel: 0.25" to 1.5"), gray brown to light gray brown, moist, very dense, rock fragments in sampler, blow count likely overstated

-- rough drilling

-- pea size gravel in sampler

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	PERCENT FINES
5		13	4-7-11 N=18	8	25
		18	10-17-25 N=42		
10		18	12-35-41 N=76	7	
		12	25-50/6"		
15		1	50/4"		
20		3	50/3"		
25					

STRENGTH TEST: TEST TYPE | COMPRESSIVE STRENGTH (tsf) | STRAIN (%)

ATTERBERG LIMITS: LL-PL-PI

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-14

BORING LOG NO. B-8

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5967° Longitude: -122.1577°

Approximate Surface Elev.: 260.5 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	25.8	234.5+/-				10	41-50/4"						
	Auger Refusal at 25.8 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-14

BORING LOG NO. B-9

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5962° Longitude: -122.158°

Approximate Surface Elev.: 242 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
0.1	242+/-	**TOPSOIL (SM)**, with pea size gravel and rock fragments, dark gray brown to gray brown, moist, loose, forest floor organics and silty sand
		SILTY SAND (SM), trace pea size gravel, gray brown to light gray brown, moist, very dense
4.5	237.5+/-	**SANDY SILT (ML)**, trace pea size gravel, light gray brown, moist, hard
7.0	235+/-	**SILTY SAND (SM)**, trace gravel, (gravel: 0.25" to 2"), gray brown to light gray brown, moist, very dense, rock fragments in sampler, blow count likely overstated
		-- rough drilling
20.1	222+/-	***Auger Refusal at 20.1 Feet***

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	PERCENT FINES
		15	12-22-32 N=54	7	28
5		13	10-10-18 N=28	11	
		6	50/6"		
10		2	50/2"		
15		5	50/5"	8	31
20		2	50/2"		

STRENGTH TEST: TEST TYPE; COMPRESSIVE STRENGTH (tsf); STRAIN (%)

ATTERBERG LIMITS: LL-PL-PI

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem AUger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-15

BORING LOG NO. B-10

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5953° Longitude: -122.1577°

Approximate Surface Elev.: 254.5 (Ft.) +/-

DEPTH	ELEVATION (Ft.)
0.1	254.5+/-

TOPSOIL (SM), dark brown to grayish brown, moist, loose, forest floor organics and silty sand

SILTY SAND (SP-SM), with gravel, (gravel: 0.25" to 2"), dark gray to light gray some brown, moist to dry and powdery, very dense, rock fragments in sampler, blow count likely overstated

-- rough drilling

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
5		11	41-50/5"				9		
		12	30-50/6"				7		21
		6	50/6"						
10		11	33-50/5"						
15		5	50/5"				6		28
20		2	50/2"						
25									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-16

BORING LOG NO. B-10

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5953° Longitude: -122.1577°

Approximate Surface Elev.: 254.5 (Ft.) +/-

GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	ATTERBERG LIMITS: LL-PL-PI	PERCENT FINES
	25.3	229+/-				4	50/4"						

Auger Refusal at 25.3 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-16

BORING LOG NO. B-11

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5949° Longitude: -122.1565°

Approximate Surface Elev.: 264 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description
		FILL - SILTY SAND (SP-SM), with pea size gravel and organics, dark brown with orange, moist, loose
4.5	259.5+/-	
		SILTY SAND WITH GRAVEL (SM), (gravel: 0.25" to 2"), light gray to brownish gray, moist, very dense, rock fragments in sampler, blow count likely overstated -- rust staining and rootlets -- rough drilling
22.5	241.5+/-	
		SILTY SAND (SM), trace pea size gravel, gray to gray brown, moist, very dense, trace rock fragments

INSTALLATION DETAILS: Lockable Well Cap; Top of Concrete Seal; Top of Bentonite Chips

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
5		10	2-3-3 N=6	13		
		11	33-50/5"			
		18	33-42-50/6"	6		25
10		11	36-50/5"			
15		12	43-50/6"	6		25
20		6	50/6"			
25						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, 41', 10' of screen and 30' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

- *While sampling*
- *1/18/2019*
- *1/22/2019*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-17

BORING LOG NO. B-11

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5949° Longitude: -122.1565°

Approximate Surface Elev.: 264 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	Description	Depth (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Percent Fines
		SILTY SAND (SM), trace pea size gravel, gray to gray brown, moist, very dense, trace rock fragments *(continued)*			3	50/3"	7	
27.5	236.5+/-	**SAND WITH SILT (SP-SM)**, with pea size gravel, gray brown, wet, very dense	30		5	50/5"		
32.5	231.5+/-	**SAND WITH GRAVEL (SP)**, with silt, (gravel: 0.25" to 2"), olivey brown gray to brownish gray, wet, very dense	35		16	43-37-50/4"	14	8
41.0	223+/-		40		12	40-50/6"		
		Auger Refusal at 41 Feet						

Top of Bentonite Chips

Top of 10/20 Colorado Sand

Top of Sch. 40 PVC Slotted Pipe

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, 41', 10' of screen and 30' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

- *While sampling*
- *1/18/2019*
- *1/22/2019*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-17-2019 | Boring Completed: 01-17-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-17

BORING LOG NO. B-12

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5988° Longitude: -122.1572°

Approximate Surface Elev.: 266 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	LITHOLOGY
0	266+/-	**SILTY SAND WITH GRAVEL (SM)**, (gravel:0.25" to 1"), orangey brown to brown gray, wet, loose to medium dense, (Colluvium)
7.0	259+/-	**SAND WITH GRAVEL (SW-SM)**, trace silt, (gravel: 0.25" to 1.5"), dark brown to dark grayish brown, wet, very dense, rock fragments in sampler, blow count likely overstated
12.5	253.5+/-	**SILTY SAND (SM)**, trace pea size gravel, dark gray to grayish brown, wet, dense
17.5	248.5+/-	**SAND WITH GRAVEL (SP)**, trace silt, gray to darker gray, moist, very dense, rock fragements in sampler, blow count likely overstated

INSTALLATION DETAILS: Lockable Well Cap; Top of Concrete Seal; Top of Sch. 40 PVC Slotted Pipe

DEPTH (Ft.)	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
5		12	2-2-4 N=6	15		20
		18	3-3-9 N=12			
		6	50/6"			
10		12	29-24-29 N=53	12		5
15		6	23-14-23/-6"			
		12		20	26-21-5	
20		12	32-50/6"			
25						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, cave-in to 15', 10' of screen and 5' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

- *While sampling*
- *1/18/2019*
- *1/22/2019*
- *after removal of augers, boring caved to 9', bored to 15' again to place peizometer*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019 | Boring Completed: 01-16-2019

Drill Rig: D-50 | Driller: Holocene

Project No.: 81185198 | Exhibit: A-18

BORING LOG NO. B-12

PROJECT: Sunset Hills Memorial Park West Slope Expansion

CLIENT: SCI Funeral
Houston, TX

SITE: 1215 145th Place SE
Bellevue, WA

LOCATION See Exhibit A-2

Latitude: 47.5988° Longitude: -122.1572°

Approximate Surface Elev.: 266 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SAND WITH GRAVEL (SP), trace silt, gray to darker gray, moist, very dense, rock fragements in sampler, blow count likely overstated *(continued)*					12	25-50/6"	2		
			30			6	50/6"			
36.0	230+/-		35			12	33-50/6"			
	Auger Refusal at 36 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
peizometer constructed, cave-in to 15', 10' of screen and 5' of riser

See Exhibit A-3 for description of field procedures.

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

- *While sampling*
- *1/18/2019*
- *1/22/2019*
- *after removal of augers, boring caved to 9', bored to 15' again to place peizometer*

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

Boring Started: 01-16-2019	Boring Completed: 01-16-2019
Drill Rig: D-50	Driller: Holocene
Project No.: 81185198	Exhibit: A-18

APPENDIX B
LABORATORY TESTING

Laboratory Testing

As part of the testing program, all samples were examined in the laboratory by experienced personnel and classified in accordance with the attached General Notes and the Unified Soil Classification System based on the texture and plasticity of the soils. The group symbol for the Unified Soil Classification System is shown in the appropriate column on the boring logs and a brief description of the classification system is included with this report in the Appendix.

At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to estimate the engineering properties of the subsurface materials.

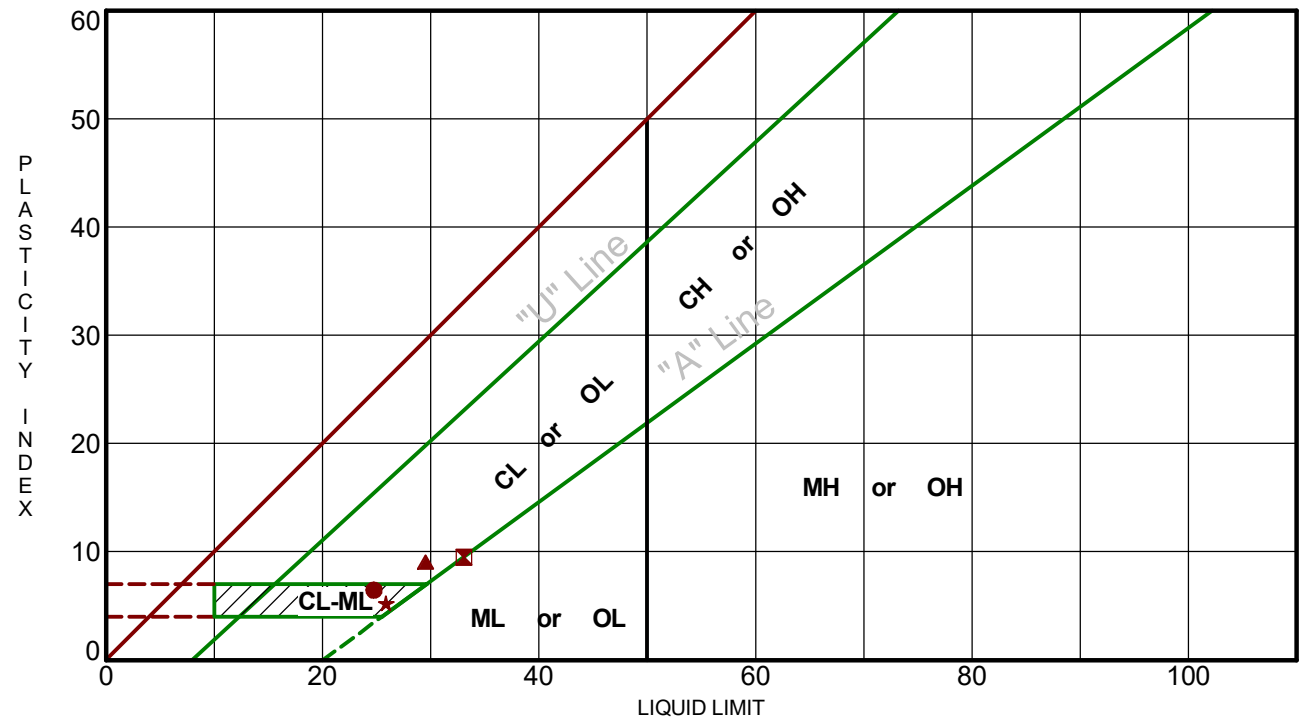
Laboratory tests were conducted on selected soil samples and the test results are presented in this appendix. The laboratory test results were used for the geotechnical engineering analyses, and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local, or other accepted standards.

Selected soil samples obtained from the site were tested according to the following test procedures:

n	In-situ Water Content	ASTM D2216
n	Grain Size Distribution	ASTM D6913
n	Atterberg Limits	ASTM D4318

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
● B-4	20.4	25	18	7		CL-ML	
⊠ B-6	30 - 31.5	33	24	9		ML	
▲ B-7	60.7 - 61.2	30	20	10		CL	
★ B-12	15.5 - 16.5	26	21	5		CL-ML	

PROJECT: Sunset Hills Memorial Park West Slope Expansion

SITE: 1215 145th Place SE
Bellevue, WA

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

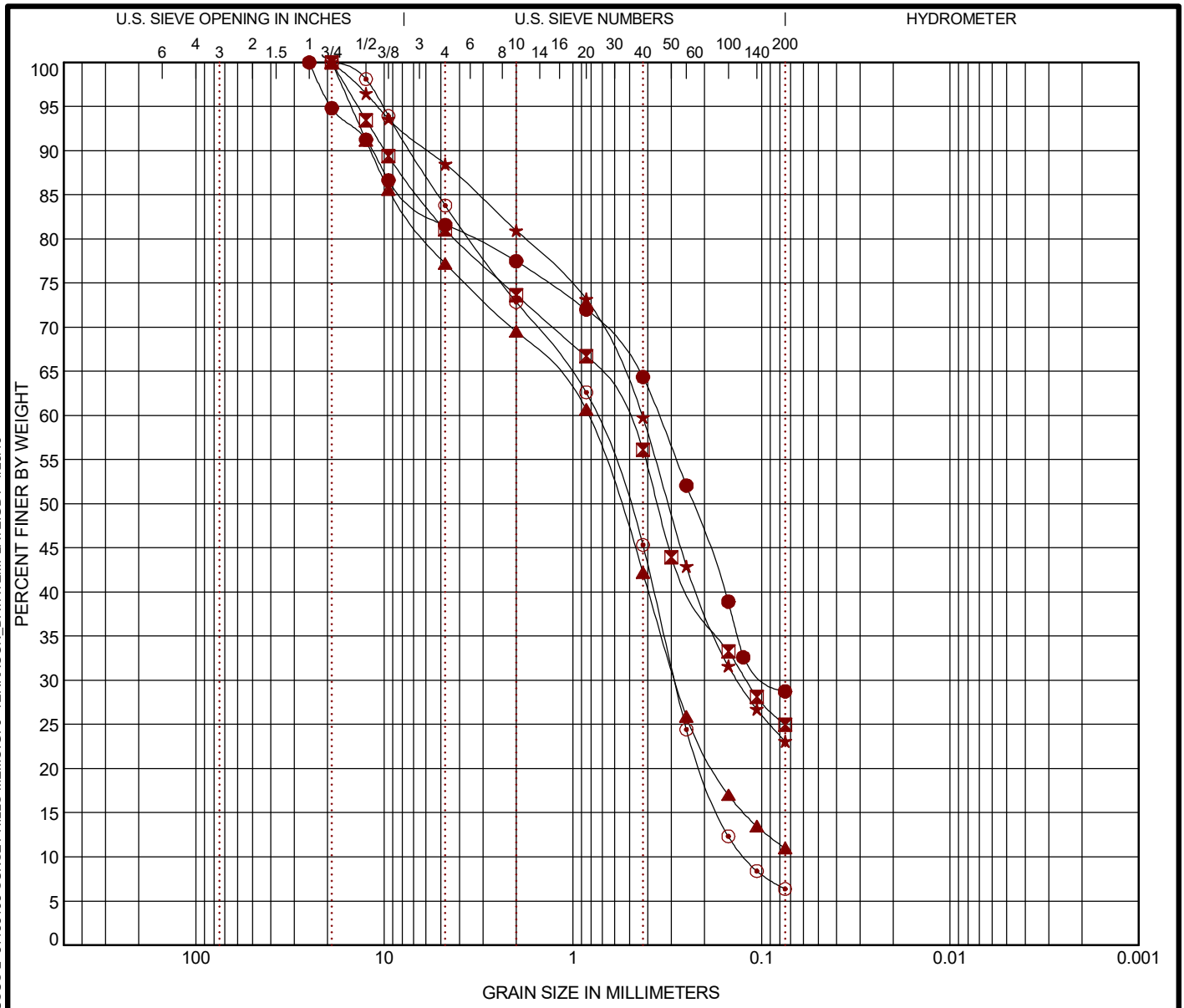
PROJECT NUMBER: 81185198

CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-2

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID		Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-1	2.5 - 4	Silty SAND with gravel (SM)	14					
⊠	B-1	7.5 - 8.5	Silty SAND with gravel (SM)	7					
▲	B-1	20 - 21.5	SAND with silt and gravel (SW-SM)	12					
★	B-2	5 - 6.5	Silty SAND trace gravel (SM)	7					
⊙	B-2	15 - 16.5	SAND with silt and gravel (SW-SM)	5				0.89	6.26

Boring ID		Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-1	2.5 - 4	25	0.352	0.089		0.0	18.4	52.8		28.7	
⊠	B-1	7.5 - 8.5	19	0.547	0.12		0.0	18.9	56.1		25.0	
▲	B-1	20 - 21.5	19	0.828	0.286		0.0	22.8	66.2		11.0	
★	B-2	5 - 6.5	19	0.43	0.134		0.0	11.5	65.4		23.1	
⊙	B-2	15 - 16.5	19	0.765	0.288	0.122	0.0	16.2	77.4		6.4	

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PROJECT NUMBER: 81185198

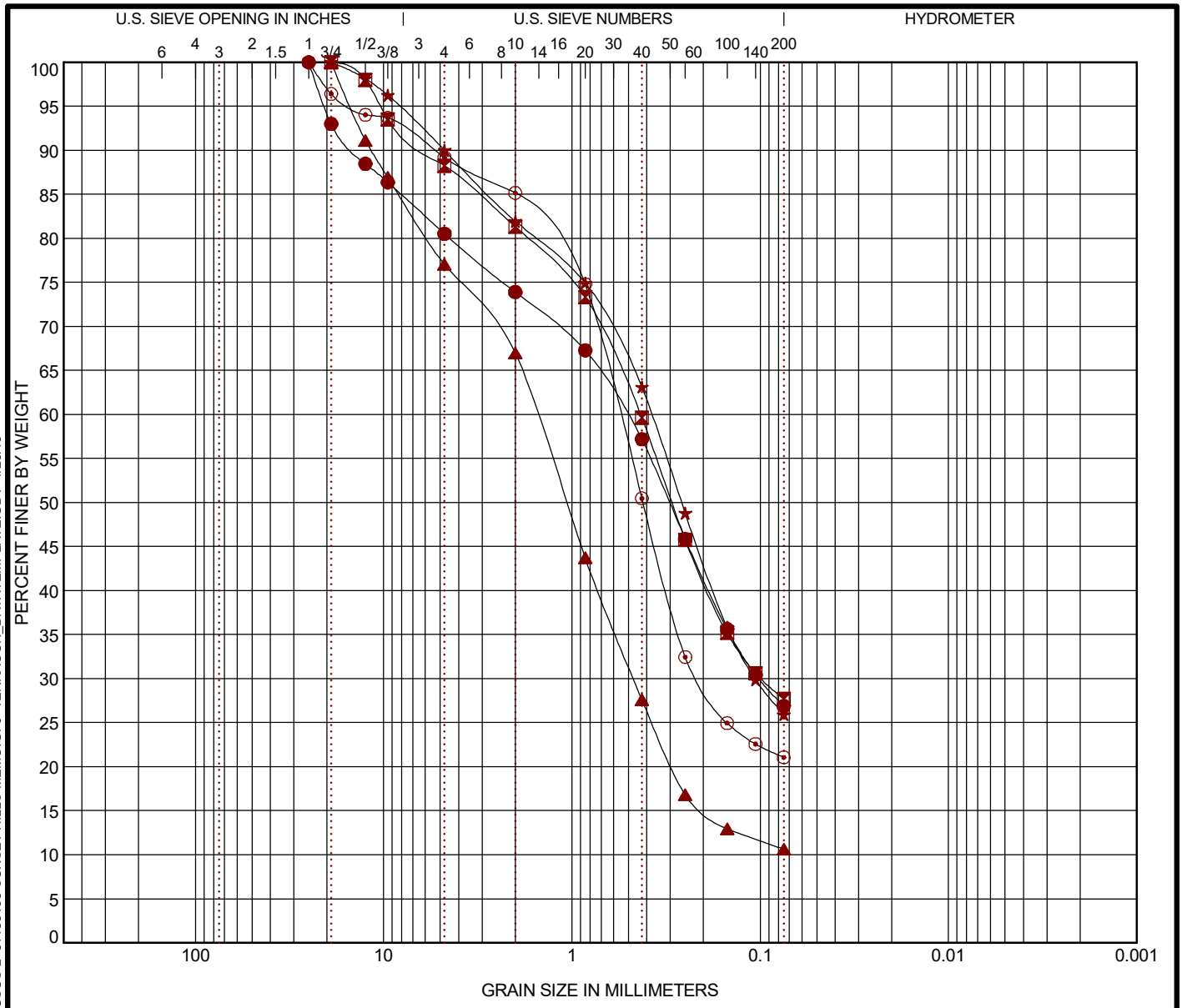
CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 81185198 SUNSET HILLS MEMO.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
B-3	5 - 6.5	Silty SAND with gravel (SM)	9					
B-3	20.7	Silty SAND, trace gravel (SM)	8					
B-4	5 - 6.5	SAND with silt and gravel (SW-SM)	7					
B-5	2.5 - 4	Silty SAND, trace gravel (SM)	15					
B-5	7.5 - 9	Silty SAND, trace gravel (SM)	10					

Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
B-3	5 - 6.5	25	0.515	0.102		0.0	19.5	53.6		26.9	
B-3	20.7	19	0.433	0.099		0.0	11.7	60.6		27.7	
B-4	5 - 6.5	19	1.547	0.471		0.0	22.9	66.4		10.6	
B-5	2.5 - 4	19	0.379	0.107		0.0	10.0	64.1		25.9	
B-5	7.5 - 9	25	0.558	0.212		0.0	10.8	68.1		21.1	

PROJECT: Sunset Hills Memorial Park West Slope Expansion

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Terracon
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PROJECT NUMBER: 81185198

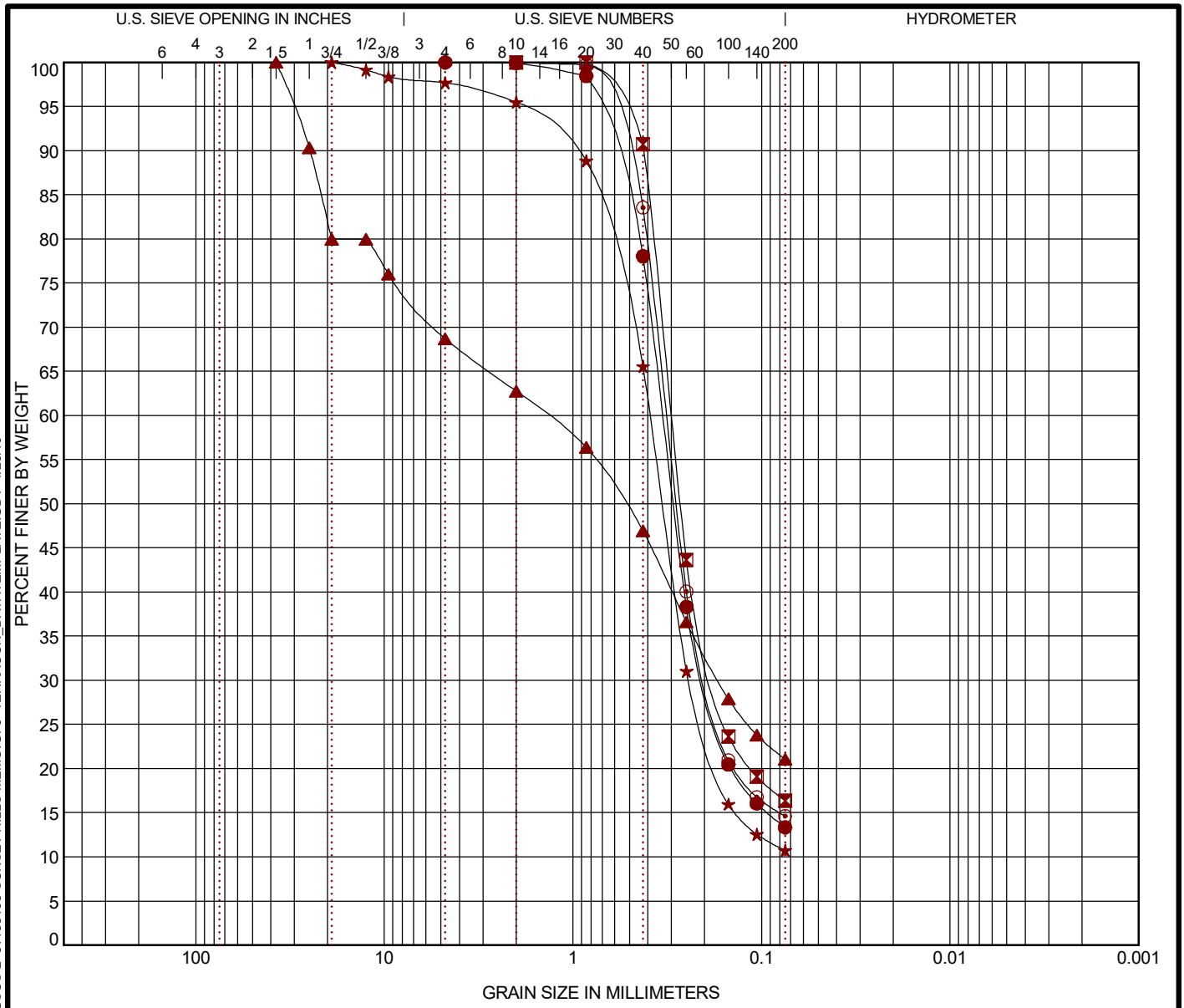
CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-4

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 81185198 SUNSET HILLS MEMO.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID		Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-6	10 - 11.5	Silty SAND (SM)	7					
⊠	B-6	20 - 21.5	Silty SAND (SM)	9					
▲	B-7	2.5 - 4	Silty Gravelly SAND (SM)	11					
★	B-7	10 - 11.5	SAND with silt and trace gravel (SW-SM)	14					
⊙	B-7	45 - 46.5	Silty SAND (SM)	18					

Boring ID		Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-6	10 - 11.5	4.75	0.334	0.197		0.0	0.0	86.7		13.3	
⊠	B-6	20 - 21.5	2	0.301	0.177		0.0	0.0	83.6		16.4	
▲	B-7	2.5 - 4	37.5	1.379	0.169		0.0	31.3	47.6		21.1	
★	B-7	10 - 11.5	19	0.39	0.241		0.0	2.3	87.0		10.7	
⊙	B-7	45 - 46.5	4.75	0.319	0.191		0.0	0.0	85.4		14.6	

PROJECT: Sunset Hills Memorial Park West Slope Expansion

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Mountlake Terrace, WA

PROJECT NUMBER: 81185198

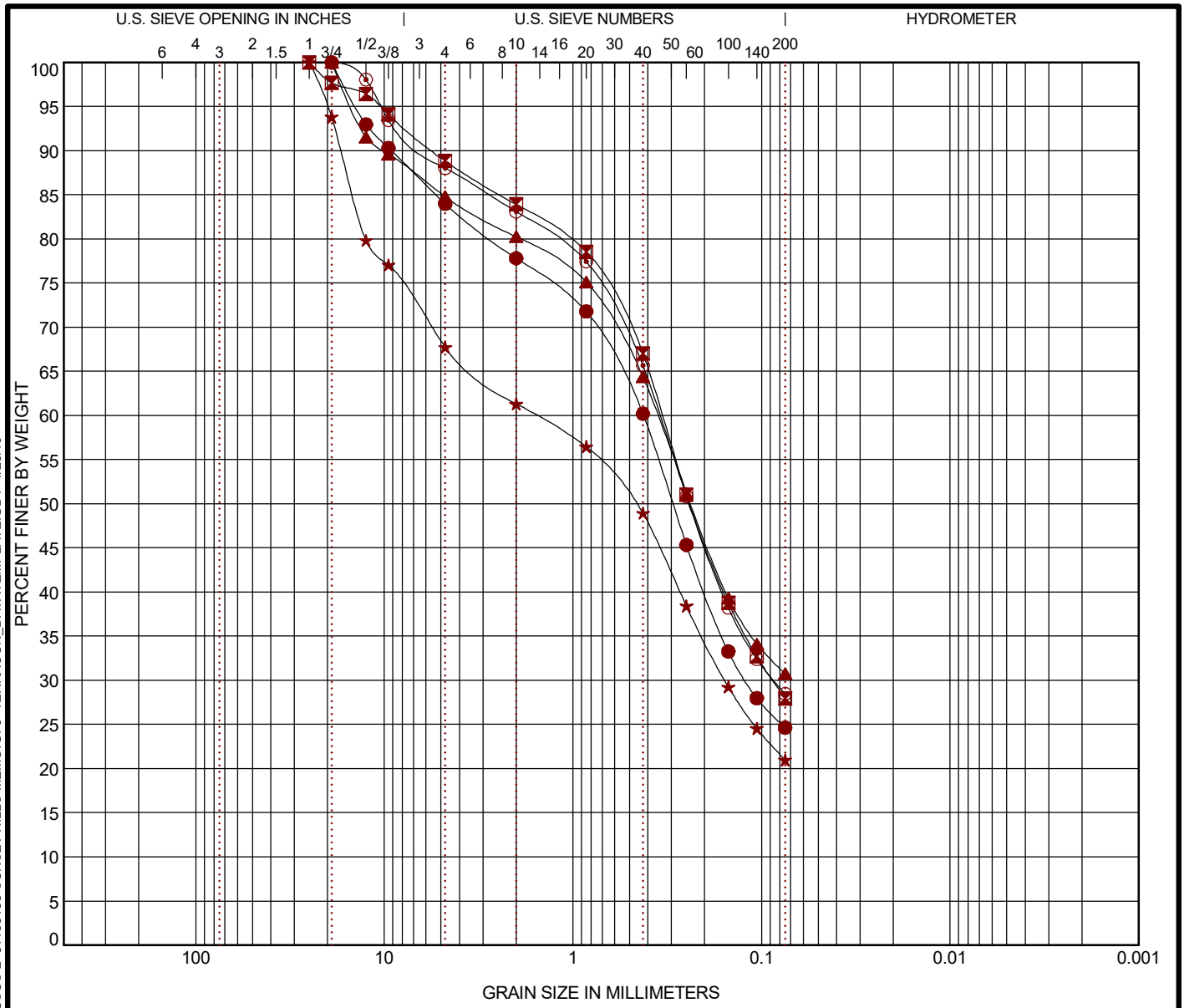
CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-5

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 81185198 SUNSET HILLS MEMO.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID		Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	B-8	2.5 - 4	Silty SAND with gravel (SM)	8					
⊠	B-9	2.5 - 4	Silty SAND, trace gravel (SM)	7					
▲	B-9	15 - 15.4	Silty SAND with gravel (SM)	8					
★	B-10	5 - 6	Silty Gravelly SAND (SM)	7					
⊙	B-10	15 - 15.4	Silty SAND, trace gravel (SM)	6					

Boring ID		Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	B-8	2.5 - 4	19	0.422	0.121		0.0	16.0	59.4		24.6	
⊠	B-9	2.5 - 4	25	0.336	0.087		0.0	11.2	60.9		28.0	
▲	B-9	15 - 15.4	19	0.356			0.0	15.2	54.0		30.7	
★	B-10	5 - 6	25	1.585	0.156		0.0	32.3	46.8		21.0	
⊙	B-10	15 - 15.4	19	0.347	0.086		0.0	12.0	59.5		28.5	

PROJECT: Sunset Hills Memorial Park West Slope Expansion

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PROJECT NUMBER: 81185198

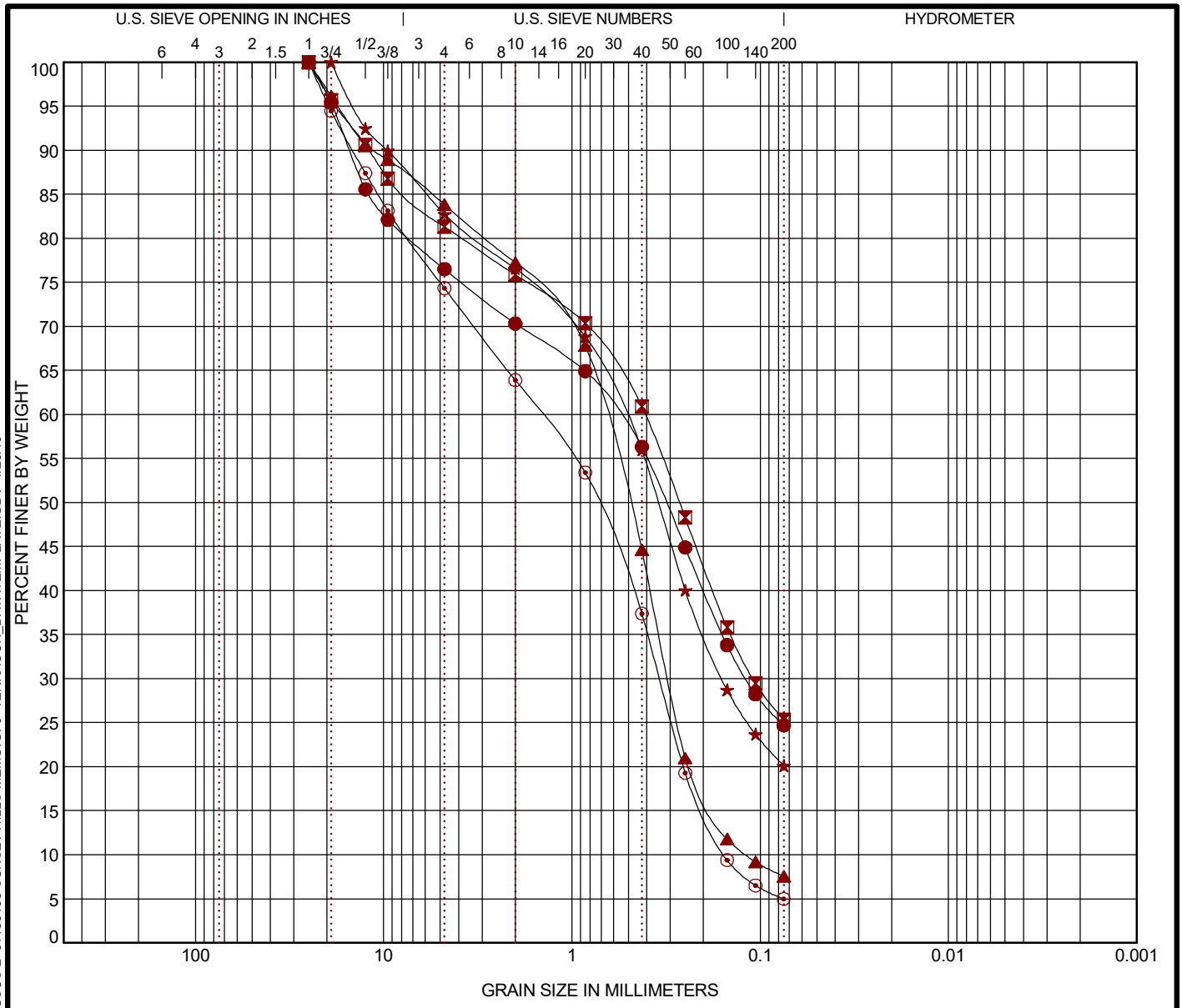
CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-6

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 81185198 SUNSET HILLS MEMO.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B-11	7.5 - 9	Silty SAND, with gravel (SM)	6					
⊠ B-11	15 - 16	Silty SAND, with gravel (SM)	6					
▲ B-11	35 - 36.3	SAND with gravel and silt (SP-SM)	14				1.18	5.69
★ B-12	2.5 - 4	Silty SAND with gravel (SM)	15					
⊙ B-12	10 - 11.5	SAND with gravel and trace silt (SP)	12				0.52	9.40

Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B-11	7.5 - 9	25	0.571	0.118		0.0	23.5	51.8		24.7	
⊠ B-11	15 - 16	25	0.409	0.109		0.0	18.7	56.0		25.4	
▲ B-11	35 - 36.3	25	0.673	0.306	0.118	0.0	16.1	76.3		7.5	
★ B-12	2.5 - 4	19	0.527	0.159		0.0	17.2	62.7		20.1	
⊙ B-12	10 - 11.5	25	1.455	0.342	0.155	0.0	25.7	69.4		5.0	

PROJECT: Sunset Hills Memorial Park West Slope Expansion

SITE: 1215 145th Place SE
Bellevue, WA

Terracon
21905 64th Ave W, Ste 100
Mountlake Terrace, WA

PROJECT NUMBER: 81185198

CLIENT: SCI Funeral
Houston, TX

EXHIBIT: B-7

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 81185198 SUNSET HILLS MEMO.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

APPENDIX C

SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING


Auger


Split Spoon


Shelby Tube


Macro Core


Ring Sampler


Rock Core


Grab Sample


No Recovery

WATER LEVEL


Water Initially Encountered


Water Level After a Specified Period of Time


Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, tsf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

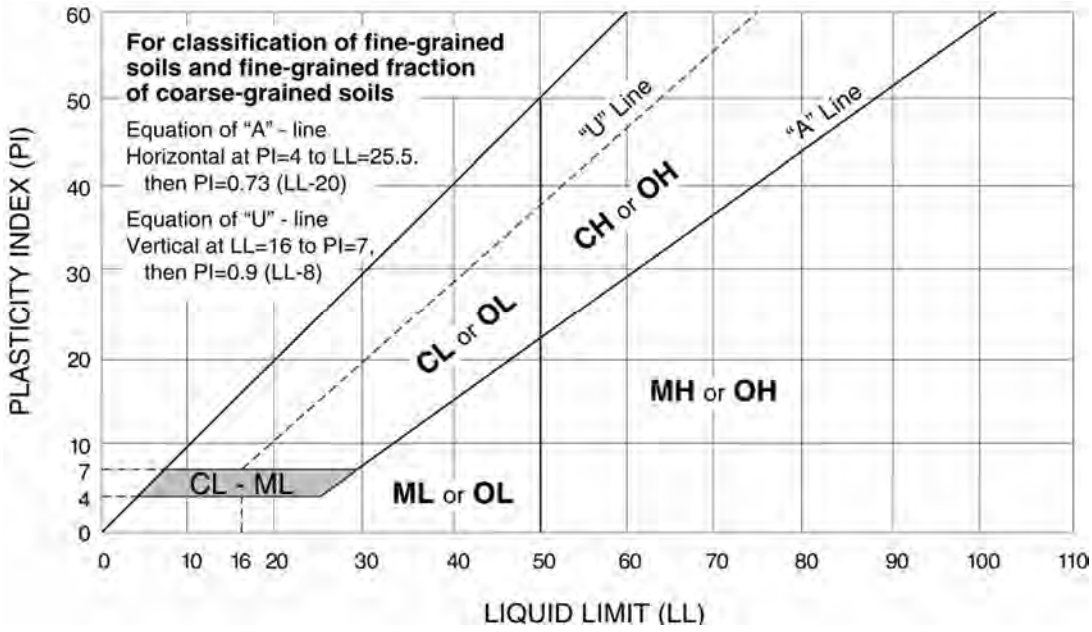
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

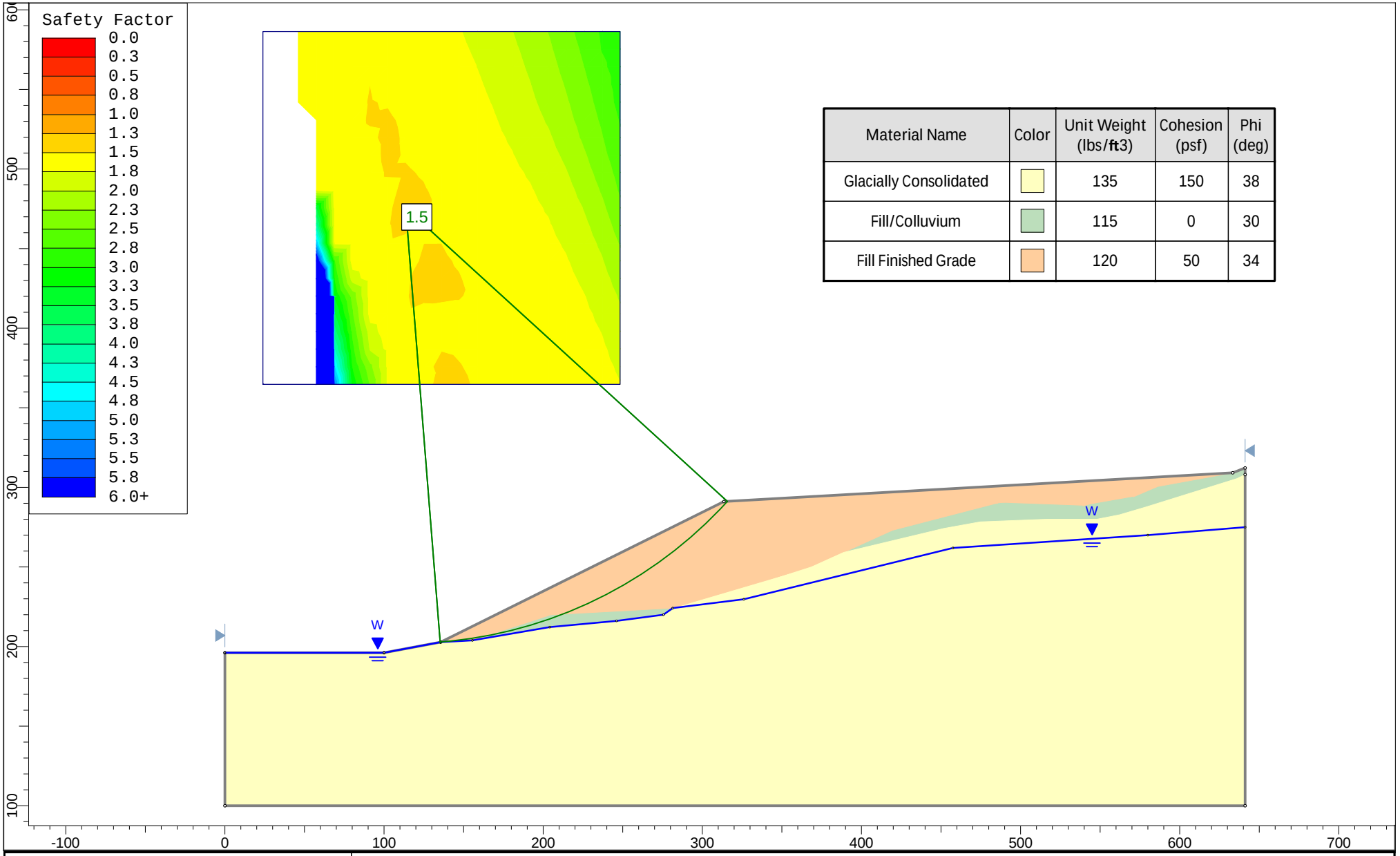
[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



APPENDIX D
SLOPE STABILITY ANALYSES

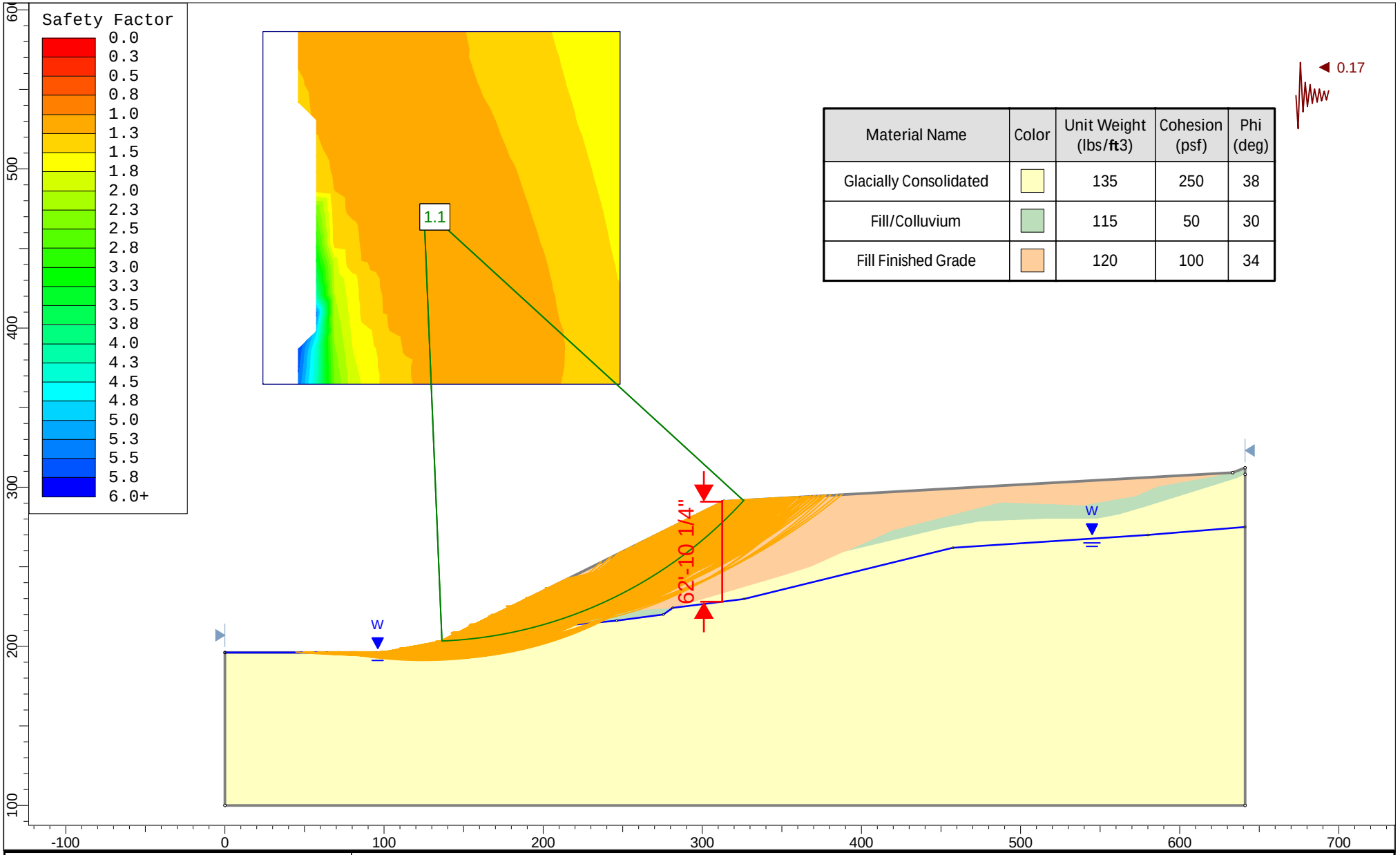


Material Name	Color	Unit Weight (lbs/**ft**3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	150	38
Fill/Colluvium		115	0	30
Fill Finished Grade		120	50	34

Terracon

SLIDEINTERPRET 8.018

Project	SLIDE - An Interactive Slope Stability Program			
Analysis Description	81185198 - Cross Section A-A'			
Drawn By	NC	*Scale*	1:1000	*Company* Terracon
Date	4/22/2019, 2:44:04 PM			*File Name* CS A-A'.slim

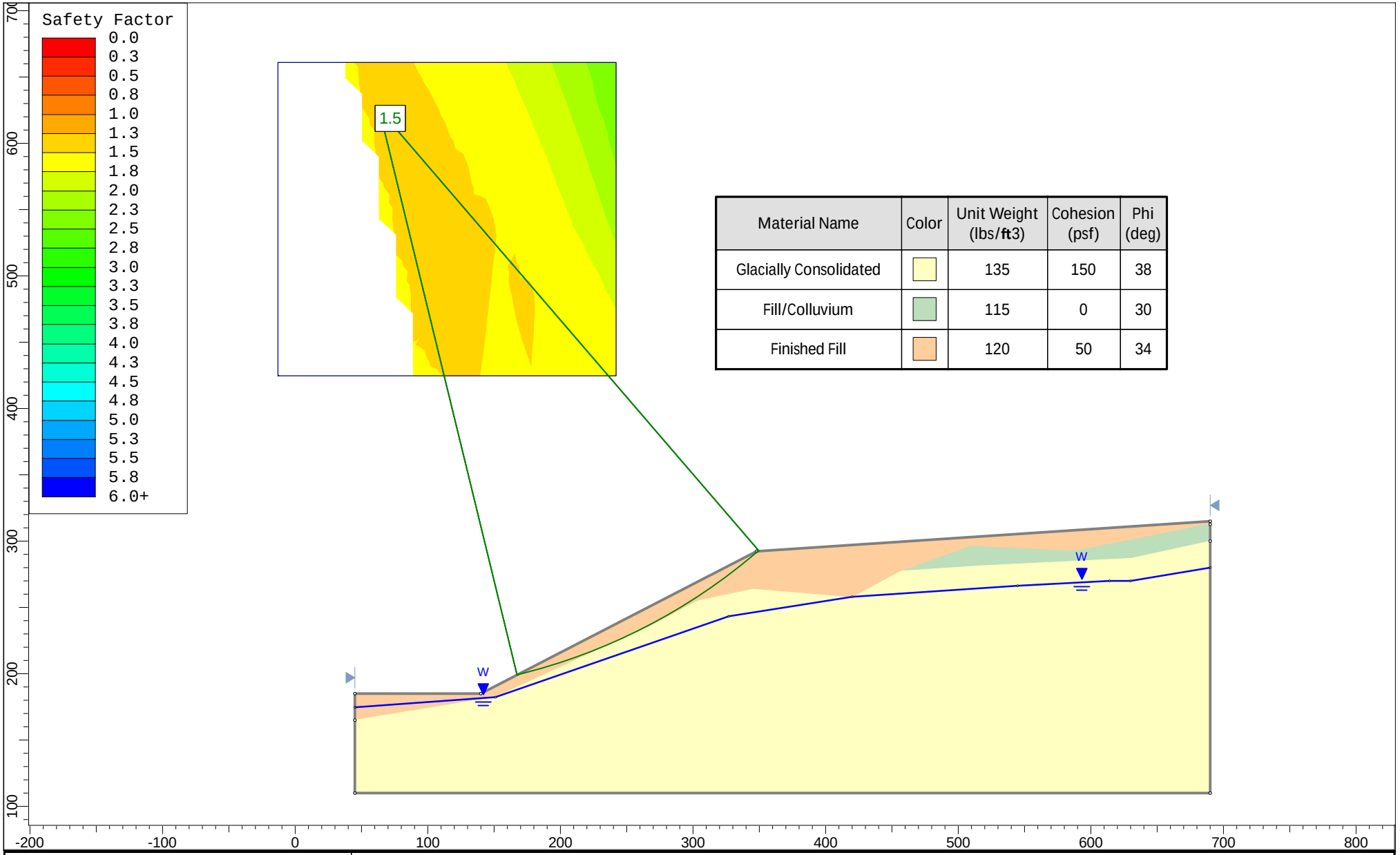


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	250	38
Fill/Colluvium		115	50	30
Fill Finished Grade		120	100	34

Terracon

SLIDEINTERPRET 8.018

Project	SLIDE - An Interactive Slope Stability Program			
Analysis Description	81185198 - Cross Section A-A'			
Drawn By	NC	Scale	1:1000	Company: Terracon
Date	4/22/2019, 2:44:04 PM			File Name: CS A-A' - Seismic.slim

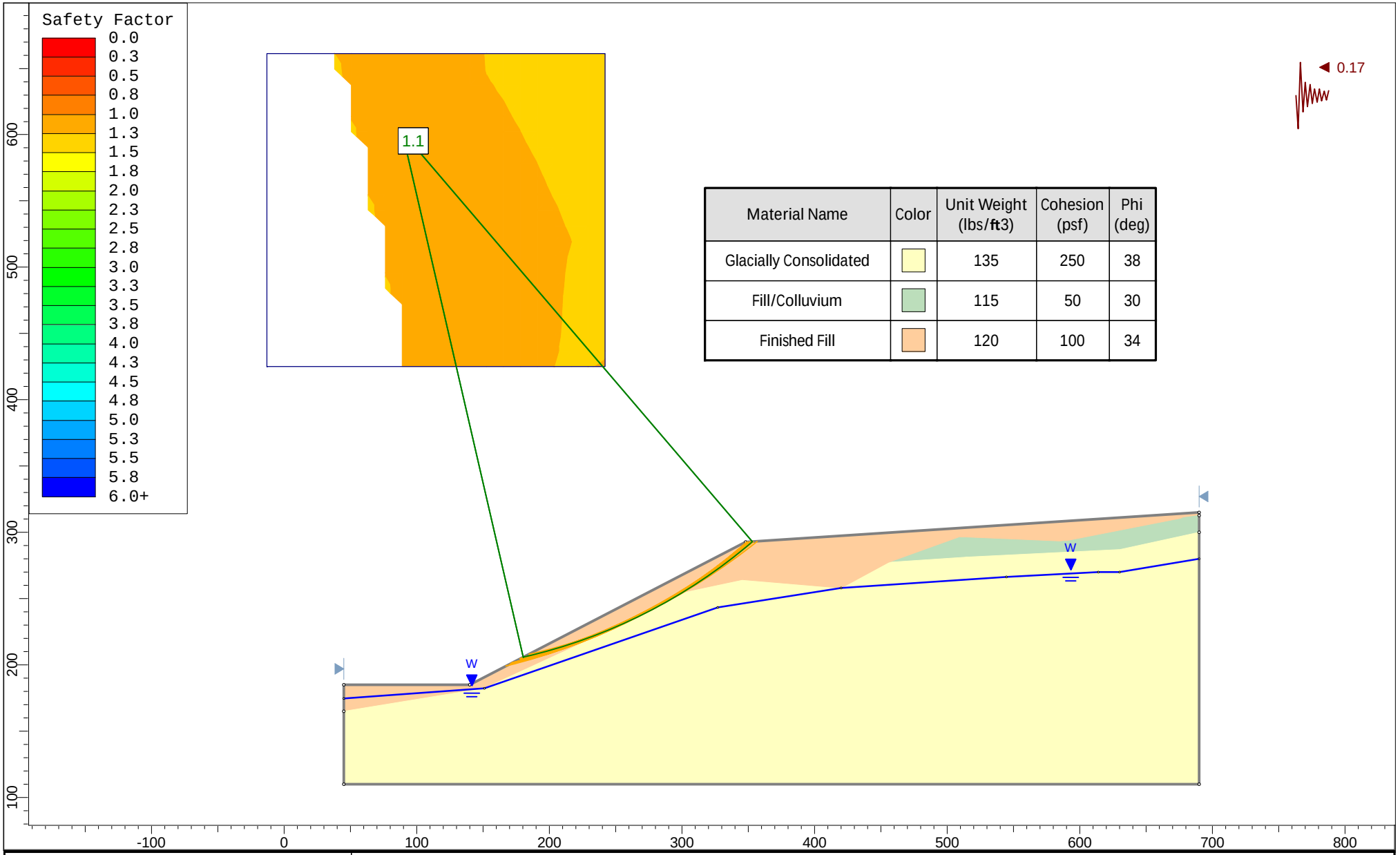


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	150	38
Fill/Colluvium		115	0	30
Finished Fill		120	50	34

Terracon

SLIDEINTERPRET 8.018

Project	81185198 - Cross Section B-B'		
Analysis Description	Slope Stability		
Drawn By	NC	*Scale* 1:1200	*Company* Terracon
Date	4/22/2019, 1:41:45 PM	*File Name*	CS B-B'.slim

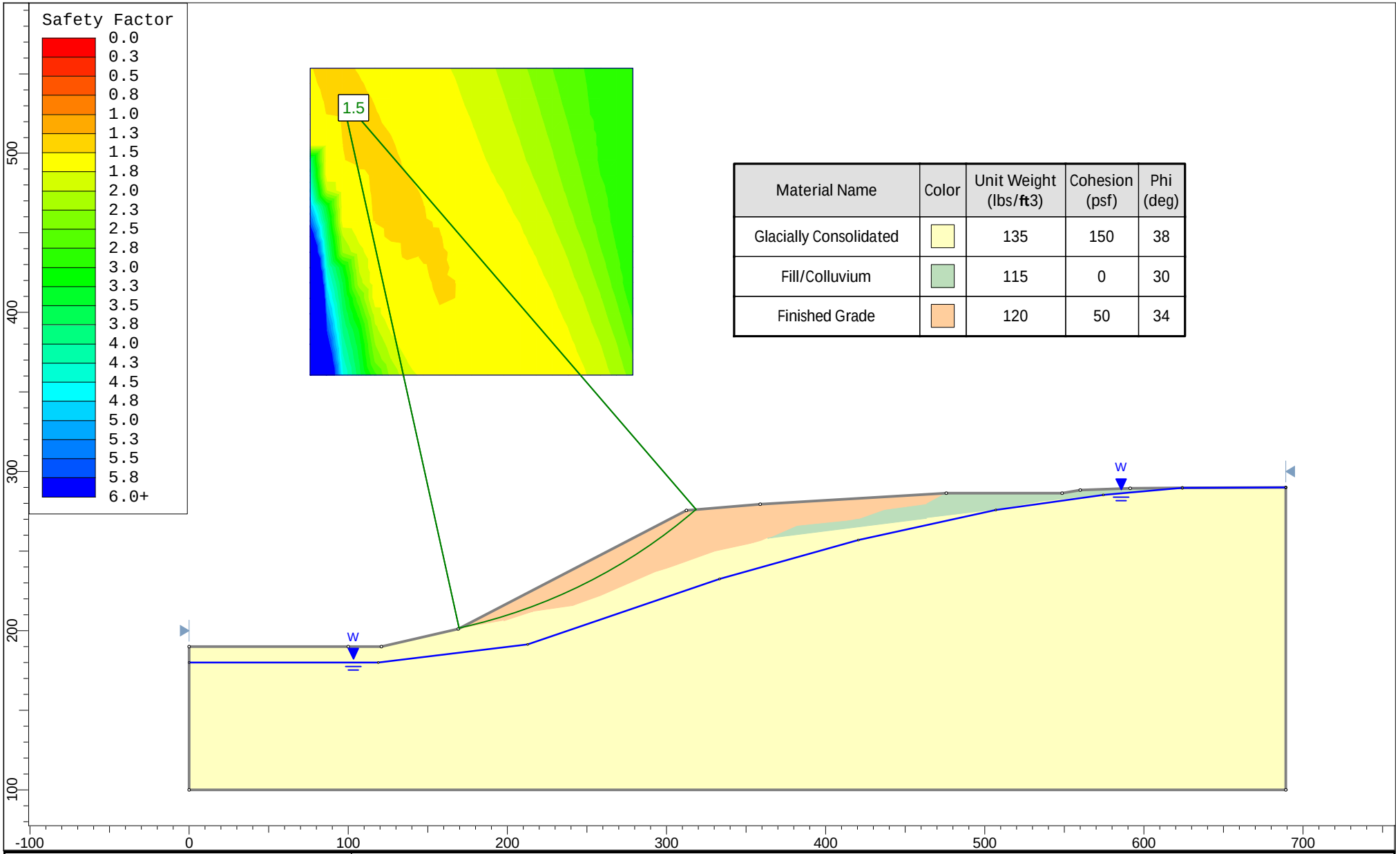


Material Name	Color	Unit Weight (lbs/**ft**3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	250	38
Fill/Colluvium		115	50	30
Finished Fill		120	100	34

Terracon

SLIDEINTERPRET 8.018

Project	81185198 - Cross Section B-B'		
Analysis Description	Slope Stability		
Drawn By	NC	*Scale* 1:1200	*Company* Terracon
Date	4/22/2019, 1:41:45 PM	*File Name*	CS B-B' - Seismic.slim

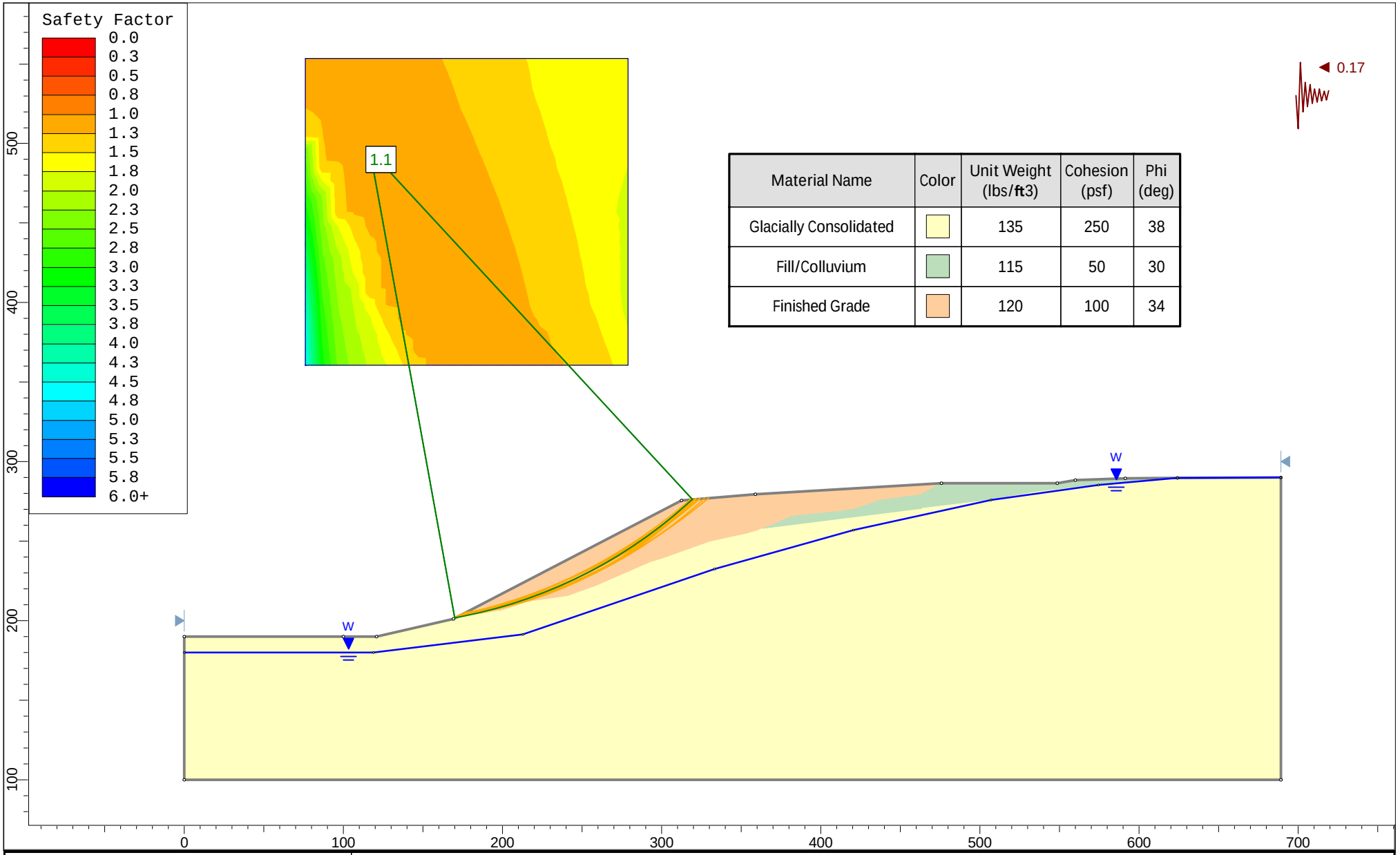


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	150	38
Fill/Colluvium		115	0	30
Finished Grade		120	50	34

Terracon

SLIDEINTERPRET 8.018

Project	SLIDE - An Interactive Slope Stability Program			
Analysis Description	81185198 - Cross Section C-C'			
Drawn By	NC	*Scale*	1:1000	*Company* Terracon
Date	4/22/2019, 3:41:31 PM			*File Name* CS C-C'.slim



Material Name	Color	Unit Weight (lbs/**ft**3)	Cohesion (psf)	Phi (deg)
Glacially Consolidated		135	250	38
Fill/Colluvium		115	50	30
Finished Grade		120	100	34

Terracon

SLIDEINTERPRET 8.018

Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description	81185198 - Cross Section C-C'		
Drawn By	NC	*Scale* 1:1000	*Company* Terracon
Date	4/22/2019, 3:41:31 PM	*File Name*	CS C-C' - Seismic.slim

SEPA Checklist Reviewed By:
David Wong on 6/8/2021

Development Services

SEPA Environmental Checklist

The City of Bellevue uses this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions

The checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully and to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions.

You may respond with “Not Applicable” or "Does Not Apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies and reports. Please make complete and accurate answers to these questions to the best of your ability in order to avoid delays. For assistance, see SEPA Checklist Guidance on the Washington State Department of Ecology website.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The city may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Background

1. Name of proposed project, if applicable Sunset Hills Memorial Park Expansion
2. Name of applicant William Dunning
3. Contact person William Dunning Phone (253)627-9131
4. Contact person address 1102 Broadway, Suite 301 Tacoma Wa, 98402
5. Date this checklist was prepared 4/7/2021
6. Agency requesting the checklist City of Bellevue

DW

7. Proposed timing or schedule (including phasing, if applicable)

Begin Critical Areas Mitigation in Spring of 2022. Grading, stormwater management, and landscaping work are proposed to commence in August 2022.

8. Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? If yes, explain.

No plans beyond the expansion proposed herein. Monitoring, maintenance and enhancement activities for the wetland and stream buffers will continue over a 5 year period.

9. List any environmental information you know about that has been prepared or will be prepared, that is directly related to this proposal.

A Critical Areas Report and Conceptual Wetland Mitigation Plan prepared by Talasaea Consultants, Inc. dated December 11, 2020. A Geotechnical Engineering Report with Slope Stability Analysis has been perpared by Terracon Associates dated April 26, 2019. A project Trip Generation Analysis by TENW, dated January 18, 2021.

10. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No other applications (than those described below in Item #11) are currently pending in relation to this application.

11. List any government approvals or permits that will be needed for your proposal, if known.

City of Bellevue approval of Critical Areas Land Use Permit for modification of steep slopes and stream buffers; City approval of a Conditional Use Permit for expansion of the existing cemetery; a Variance relating to LUC 20.20.425 and LUC 20.20.460 to excavate a depth of more than 10' and fill to a depth exceeding 5'; a Clearing & Grading Permit.

DW

12. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal includes the expansion of the existing Sunset Hills Memorial Park grounds by regrading 3.7 acres of existing cemetery grounds and converting 4.1 acres of undeveloped land to new cemetery use. This will require the temporary disturbance of 2.4 acres of wooded slopes, stormwater management improvements, mitigation for steep slope and stream buffers, and further buffer enhancement per the Critical Areas Report.

13. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and the section, township and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Sunset Hills Memorial Park's address is 1215 145th Place SE, Bellevue, WA 98007. The western portion of their property is comprised of 5 parcels within the City of Bellevue and is part of the larger Sunset Hills Memorial Park. These properties are located in Section 3 Township 24N Range 5E. Please refer to the Boundary and Easement Plan, dated November 13, 2020, for a depiction of the site and its boundaries.

Environmental Elements

Earth

1. General description of the site:
   - ☐ Flat
   - ☑ Rolling
   - ☐ Hilly
   - ☑ Steep Slopes
   - ☐ Mountainous
   - ☑ Other Partially developed w/ structures, roads, cemetery & native vegetation, wetlands and streams.

2. What is the steepest slope on the site (approximate percent slope)? 60%

DW

3. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The site soils are predominantly silty sand with variable silt with some gravel and cobbles, classified as: AgC and AgD by the NRCS Web Soil Survey. The project Geotechnical Engineering Report by Terracon addresses the nature and character of the soils. Due to the vegetation and slopes, it does not appear that any prior agricultural use has taken place on the site. An import of approximately 190,000 CY of soil is anticipated for development.

4. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

The steep slopes on the site are well vegetated and are stable.

5. Describe the purpose, type, total area and approximate quantities and total affected area of any filling, excavation and grading proposed. Indicate the source of the fill.

A Preliminary Grading Plan, dated March, 2021, has been prepared. Over the area where grading activities are to take place, 9 inches of native organic material stripping will be required, generating approximately 15,000 CY of soil which will be used for amending soils on the site. An import of approximately 190,000 CY of soil is anticipated for development, which would likely occur over a one year period. Approximately 6.5 acres of undeveloped land will be graded. Of this, 4 acres will become permanent cemetery and 2.4 acres will be regraded then planted as permanent forest preserve. Approximately 3.7 acres of existing cemetery property will be regraded to match the new land elevation. The required import fill material is anticipated to come from project excavations within the City. All imported fill will come from approved and permitted location(s).

6. Could erosion occur as a result of clearing, construction or use? If so, generally describe.

In order to minimize the potential for erosion to occur through exposed soils during grading activities, a construction Stormwater Pollution Prevention Plan will be provided as part of the required Grading Permit to be reviewed by the City of Bellevue. During field investigations, the geotechnical engineer did not observe evidence of recent or on-going slope instability or erosion. Erosion Control is regulated by BCC 23.76

7. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximately 5 percent.

DW

8. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

City Standard Construction Entrances, Silt fencing, hydroseeding, straw wattles, gradient terraces and temporary sediment ponds will be used to control erosion. During construction, a Certified Erosion Control and Sediment Lead, will be responsible for monitoring stromwater quality and providing additional erosion control measures to protect the environment as construction progresses. After construction is completed the site will be revegetated per the Mitigation Plan and Landscape Plan.

Air

1. What types of emissions to the air would result from the proposal during construction, operation and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

For the project work, dump trucks, bull dozers, a vibratory roller, and contractor vehicles will be active on the site. Typical vehicle and equipment exhaust emissions will occur as part of the work. All vehicles will meet applicable exhaust standards for performing work in the state. Measures to reduce noise and exhaust emission impacts will include utilizing nearby soil export sites, utilizing construction equipment that satisfies applicable exhaust requirments, and shutting off engines when equipment is not in use.

2. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None known.

3. Proposed measures to reduce or control emissions or other impacts to air, if any.

Compliance with applicable ordinances, utilizing nearby soils source sites and shutting off engines when vehicles and equipment are not in use.

DW

Water

1. Surface Water
   a. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Nine wetlands and five streams are present on the 23.1 acres of undeveloped property. The wetlands were delineated, as well as the centerline of all five streams. The wetlands have been mapped and identified as Wetland A through K and the streams identified and labeled as Stream 1 through Stream 5. The Streams discharge to Richards Creek and Kelsey Creek. Refer to the attached Critical Areas Report and Conceptual Mitigation Plan for more information.

   b. Will the project require any work over, in or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The project proposes to protect the existing wetlands and streams, to protect the existing wetland, stream and steep slope buffers, excepting the stream and steep slope areas as identified by the Critical Areas Mitigation Plan, W1.1, dated December 11 2020 by Talasaea Associates.

   c. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of the fill material.

No surface water or wetland filling or dredging is proposed to occur in association with the project.

   d. Will the proposal require surface water withdrawals or diversions? Give a general description, purpose and approximate quantities, if known.

No.

   e. Does the proposal lie within a 100-year floodplain? No.
   If so, note the location on the site plan.

DW

f. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No Discharge of waste materials is anticipated as part of this project.

2. Ground Water

a. Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No.

b. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material is anticipated to be discharged into the ground from septic tanks or other sources.

DW

3. Water Runoff (including stormwater)
   a. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater runoff will be collected through catch basins, yard drains and curtain drains, then conveyed to on-site detention and dispersion facitilies. The two primary goals for management of the stormwater runoff will be a.) to provide stormwater management supplying appropriate hydrology to the wetlands and streams, and b.) convey and manage stormwater in a manner that protects the long term stability of the slopes. As part of the construction permitting phase, the engineered stormwater management design will maintain the existing stormwater runoff drainage basins/stormwater discharge rates in accordance with DOE and City requirements, particularly as applicable to wetland hydrology. A Preliminary Hydrology and Hydraulics Report by Huitt-Zollars, dated April 7, 2021, has been prepared as part of the project application.

   b. Could waste materials enter ground or surface waters? If so, generally describe.

No waste materials are associated with the proposed scope of work.

   c. Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

Stormwater runoff will be managed through detention and flow dispersion systems which will discharge back into the natural drainage basins at flow rates satisfying City of Bellevue and Department of Ecology requirements. This proposal does not propose to alter the drainage patterns of the site or in the vicinity.

Indicate any proposed measures to reduce or control surface, ground and runoff water, and drainage pattern impacts, if any.

Stormwater runoff flow rates will be managed through detention facilities and flow dispersion systems which will reduce runoff rates and release those flows into the natural drainage basins at flow rates satisfying City of Bellevue and Department of Ecology requirements. A Preliminary Hydrology and Hydraulics Report by Huitt-Zollars, dated April 7, 2021, has been prepared as part of the project application.

DW

Plants

1. Check the types of vegetation found on the site:

- [x] deciduous tree: alder, maple, aspen, other scouler's willow
- [x] evergreen tree: fir, cedar, pine, other _____
- [x] shrubs
- [x] grass
- [ ] pasture
- [ ] crop or grain
- [ ] orchards, vineyards or other permanent crops
- [x] wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other giant horsetail, Japanes
- [x] water plants: water lily eelgrass, milfoil, other _____
- [ ] other types of vegetation _____

2. What kind and amount of vegetation will be removed or altered?

Approximately 4.1 acres of the existing native vegetation will be removed and that area will be replanted with lawn as cemetery grounds. Another 2.5 acres of the existing vegetation will be removed to allow regrading of the slopes and will then be replanted to meet or exceed the quality of the existing vegetation once established. Invasive species are proposed to be removed and additional shrubs and trees will be planted in accordance with the Critical Areas Mitigation Plan by Talasaea Associates.

3. List any threatened and endangered species known to be on or near the site.

None observed or known.

4. Proposed landscaping, use of native plants or other measures to preserve or enhance vegetation on the site, if any.

See 4.b above.

DW

5. List all noxious weeds and invasive species known to be on or near the site.

Himilayan blackberry, evergreen blackberry, and Japanese knotwood are the three predominant invasive species.

Animals

1. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

   Birds: ☑hawk, ☐heron, ☐eagle, ☐songbirds, ☐other Not observed but anticipated to be in area

   Mammals: ☑deer, ☐bear, ☐elk, ☐beaver, ☐other Not observed, but known to be in the area.

   Fish: ☐bass, ☐salmon, ☐trout, ☐herring, ☐shellfish, ☐other _____

2. List any threatened and endangered species known to be on or near the site.

None observed or known.

3. Is the site part of a migration route? If so, explain.

Site anticipated to be in migration route, although the overhead PSE electrical transmission lines may reduce the area's suitability for temporary perching. The biologist did not observe nests on or in the vicinity of the site.

4. Proposed measures to preserve or enhance wildlife, if any.

The enhancement of the stream and wetland buffer areas through the addition of understory shrubs, small trees, Douglas Fir, western hemlock and western redcedar, small trees and shrubs (such as serviceberry, red elderberry, Sitka mountain ash, Nootka rose, red-flowering currant, evergreen huckleberry, bald hip rose, Oregon grape, and thimbleberry) will all provide enhanced habitat for wildlife.

DW

5. List any invasive animal species known to be on or near the site.

No invasive animal species were identified.

Energy and Natural Resources

1. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electrical will be used for site lighting and maintenance needs for the cemetery.

2. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

3. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

No lighting is proposed in this proposal. If lighting is required, the proposed system will utilize energy efficient systems, maintenance methods, and materials.

DW

Environmental Health

1. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill or hazardous waste, that could occur as a result of this proposal? If so, describe.

There are no proposed hazardous waste or chemicals proposed with this project.

a. Describe any known or possible contamination at the site from present or past uses.

No contaminations of the site in past or proposed conditions is known or anticipated.

b. Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

There are no known contaminates or hazardous materials onsite.

c. Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

There are no anticipated toxic or hazardous chemicals that will be stored, used or proposed on-site. In accordance with the Bellevue Land Use Code, the use of pesticides, insecticides and fertilizers will comply with Environmental Best Management Practices in proximity to the stream and wetland buffer areas. Construction activities will consist of typical construction equipment and vehicles will be fueled off-site.

DW

d. Describe special emergency services that might be required.

There are no new special emergency services that are anticipated to be needed.

e. Proposed measures to reduce or control environmental health hazards, if any.

A SWPPP will be prepared as part of the Grading Permit submittal to the City of Bellevue. An erosion and sediment control plan (TESC)will also be prepared. The Contractor will be required to obtain a National Pollution Discharge Elimination System Permit from the Department of Ecology for the management of stormwater during construction.

2. Noise

a. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None is anticipated.

b. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

In general, traffic noise is very minor. There will be some noise associated with maintenance for mowing, grave excavation and filling, and general upkeep of the grounds. During construction activities, work will be limited to hours per City of Bellevue codes and the majority of work is not in close proximity to the residences.

c. Proposed measures to reduce or control noise impacts, if any.

Construction, maintenance and cemetery operations will be conducted during allowable applicable hours. Equipment and vehicle engines will be turned off when not in use.

Noise regulated by BCC 9.18

DW

Land and Shoreline Uses

1. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current site is undeveloped/vacant land. It is zoned residential and a CALUP and Conditional Use Permit is being sought. The property west of the site consists of multi-family developments and is separated by a large forested slope. The property to the south is comprised of medium density single-family homes. The property to the north consists of single-family residences (with a major trail known as Lake Hills Connection to the northwest of the proposed project). The east side of the project is completely bounded by the existing Sunset Hills Memorial Park.

2. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to non-farm or non-forest use?

No

   a. Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling and harvesting? If so, how?

No, there are no known working farms in the surrounding areas.

3. Describe any structures on the site.

Structures on the cemetery property consist of masoleums and the existing maintenance facility.

DW

4. Will any structures be demolished? If so, what?

An existing maintenance facility will be demolished/relocated within the proposed site.

5. What is the current zoning classification of the site? Residential – R1

6. What is the current comprehensive plan designation of the site? Low Density Residential

7. If applicable, what is the current shoreline master program designation of the site?

The site is not within a shoreline master plan

8. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Portions of the site have been identified as critical areas by the project biologist, Talasaea Associates. Talasaea Associates have evaluated the site and critical areas (wetlands, streams, steep slopes, and corresponding buffers) and surrounding vegetation. Their findings are included in their attached Critical Areas Report. Terracon Associates has prepared the geotechnical engineering evaluation and analysis.

9. Approximately how many people would reside or work in the completed project? 4 people.

10. Approximately how many people would the completed project displace? None

11. Proposed measures to avoid or reduce displacement impacts, if any.

The are no displacement impacts anticipated.

12. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

The proposed cemetery expansion is a low impact use that is compatible with the adjacent residential areas. This project proposal is seeking a CALUP and a Conditional Use Permit for the proposed improvements. As part of the proposed improvements, landscaping and a solid screen fence will be provided adjacent to existing residences. Please refer to the Landscape Plans and Sight View Studies.

DW

13. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any.

There are no agricultural or forest lands adjacent to the project.

Housing

1. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None

2. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None

3. Proposed measures to reduce or control housing impacts, if any.

None are proposed.

Aesthetics

1. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The existing Maintenance Building would be relocated as shown on the Site Plan. No other structures are proposed as part of this application.

2. What views in the immediate vicinity would be altered or obstructed?

None, the proposed project will remove trees and provide a maintained grass cemetery similar to the existing Sunset Hills Memorial Park to the east of the project. Surrounding views would not be impacted.

DW

3. Proposed measures to reduce or control aesthetic impacts, if any

The property will be regulary maintained and kept in good aesthetic conditions.

Light and Glare

1. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposed project will have some low level lighting for security purposes. The project will not be open at night.

2. Could light or glare from the finished project be a safety hazard or interfere with views?

None anticipated.

3. What existing off-site sources of light or glare may affect your proposal?

None known

4. Proposed measures to reduce or control light and glare impacts, if any.

None proposed at this time.

Recreation

1. What designated and informal recreational opportunities are in the immediate vicinity?

None known.
Informal pedestrian trails

2. Would the proposed project displace any existing recreational uses? If so, describe.

No.

DW

3. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any.

No recreation impacts are anticipated. The property owner has previously provided an easement for PSE and for the City Trail. As part of this project, the trail will be preserved and improved with respect to maintenance of the existing drainage and additional native plantings.

Historic and Cultural Preservation

1. Are there any buildings, structures or sites located on or near the site that are over 45 years old listed in or eligible for listing in national, state or local preservation registers located on or near the site? If so, specifically describe.

No

2. Are there any landmarks, features or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No evidence regarding Indian or historic use or occupation is known. We are not aware of any material evidence of prior activity on the site.

3. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

No evidence regarding Indian or historic use or occupation is known. We are not aware of any material evidence of prior activity on the site.

DW

4. Proposed measures to avoid, minimize or compensate for loss, changes to and disturbance to resources. Please include plans for the above and any permits that may be required.

A Critical Areas Report has been prepared by Talasaea Associates to evaluate the wetlands, streams and steep slopes on the property, as well as the associated wildlife habitat and water quality functions. Potential impacts to the critical areas have been avoided and minimized to the extent possible (refer to the Site Impact Minimization Report) and a Critical Areas Mitigation Plan to provide equal or better function and value, once the plan has been implemented and established.

Transportation

1. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site will be accessed through internal roadways within the existing cemetery to the east of the site. The existing cemetery is accessed from 145th PL SE and 12th Street SE.

2. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No, but the existing cemetery is accessible by the public bus system.

3. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

None

4. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Only existing onsite drives.

DW

5. Will the project or proposal use (or occur in the immediate vicinity of) water, rail or air transportation? If so, generally describe.

No

6. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and non-passenger vehicles). What data or transportation models were used to make these estimates?

4 Peak Hour Trips are expected per the project Level 1 TIA by TENW.

7. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

8. Proposed measures to reduce or control transportation impacts, if any.

Construction related traffic will be in compliance with City standards, truck hauling will also be permitted as part of the construction activities, and the long term traffic associated with the development does not warrant the addition of transportation improvements as mitigation for the project. Please refer to the Traffic Impact Assessment to further address this item.

DW

Public Service

1. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

None anticipated.

2. Proposed measures to reduce or control direct impacts on public services, if any.

The project is not anticipated to impact public services.

Utilities

1. Check the utilities currently available at the site:

- [x] Electricity
- [ ] natural gas
- [x] water
- [ ] refuse service
- [ ] telephone
- [ ] sanitary sewer
- [ ] septic system
- [ ] other

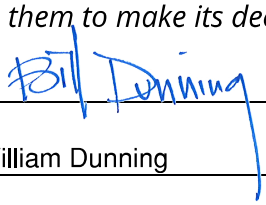
2. Describe the utilities that are proposed for the project, the utility providing the service and the general construction activities on the site or in the immediate vicinity which might be needed.

Electricity and water.

DW

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature 

Name of signee William Dunning

Position and Agency/Organization Project Manager, Huitt-Zollars

Date Submitted 4/8/2021

DW