REVISED SOUTH BELLEVUE CRITICAL AREAS REPORT

Puget Sound Energy – Energize Eastside Project

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December 2018

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111103.8

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Cite this document as:
The Watershed Company. December 2018. Revised City of Bellevue Critical Areas Report: Puget Sound Energy – Energize Eastside Project South Bellevue Segment. Prepared for PSE.

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PUGET SOUND ENERGY – ENERGIZE EASTSIDE

1 EXECUTIVE SUMMARY

PSE's Energize Eastside Project (the Project) proposes to build a new electric substation (Richards Creek Substation) and upgrade existing transmission lines to increase transmission system capacity to 230kV power to meet the growing need for power during peak demand onthe Eastside's electric grid.

Regulated critical areas are present in the South Bellevue Segment of the Project area, including wetlands, streams, geologic hazard areas, flood hazard areas, and associated buffers and may sustain varying degrees of impact as a result of proposed activities.

The Project was designed to avoid and minimize impacts to critical areas. The following efforts describe how critical area impacts were avoided to the extent feasible: new poles were relocated outside of critical areas; the Richards Creek Substation design accounts for nearby critical areas and utilizes the existing pole yard footprint; and construction access, pole construction work areas, and stringing sites have been strategically located outside of critical areas in most instances. Critical area impact minimization techniques include utilizing the existing transmission line corridor, limiting disturbance and implementing best management practices (BMPs) when working in critical areas, and installing transmission lines between poles with minimal site disturbance.

Impacts have been classified as permanent, vegetation conversion, and temporary and are expected to occur in wetlands, wetland/stream buffers, flood hazard areas, geologic hazard areas, and associated geologic hazard area buffers. The majority of critical area impacts occur in wetlands and wetland/stream buffers and will be mitigated accordingly, in-kind. Proposed impacts to geologic and flood hazard areas have been quantitatively assessed; proposed activities have been determined to not significantly affect geologic and flood hazard areas or any associated buffers.

The majority of permanent and vegetation conversion impacts proposed to wetland and wetland/stream buffer critical areas occur at the proposed Richards

Creek and Lakeside Substation parcels and are associated with the Richards Creek Substation development. Impacts generated in the transmission line corridor are significantly smaller by comparison. Mitigation is proposed at the Richards Creek Substation site and at the Somerset Substation site in the form of wetland and buffer enhancement. These sites provide mitigation opportunities suitable for mitigating by sub-basin level impacts which is consistent with the City's code.

This report is intended to satisfy the requirements of the Bellevue Land Use Code and support PSE's Conditional Use Permit application for the South Bellevue Segment of the Project in the City of Bellevue. A first draft of this report was released in August of 2017. At that time mitigation plans were still in development. This December 2018 revised report updates report content to reflect the final mitigation plans which have now been developed (Appendix A), as well as preliminary feedback from the City. No changes have been made to the Critical Areas Impact Analysis, nor the data used to generate the 2017 impact results.

Note that in May 2018 Bellevue adopted an update (Ordinance 6417) to their critical area regulations, Land Use Code (LUC) Chapter 20.25H. This revised report continues to reference the previous Chapter 20.25H which was in effect at the time of the August 2017 submittal.

2 INTRODUCTION AND PROJECT DESCRIPTION

Puget Sound Energy, Inc. (PSE) proposes the construction of a new 230 kV to 115 kV substation (Richards Creek Substation) and to upgrade approximately 16 miles of existing 115 kV transmission lines located within a 100-foot wide regional utility corridor to accommodate 230 kV power (collectively "the Project"). The Richards Creek Substation will be built to accommodate the 230kV to 115kV transformer needed to accommodate the transmission line upgrade, which is necessary to address a deficiency in electrical transmission capacity during peak periods. Combined with aggressive conservation, the Project will improve reliability for Eastside communities, including the City of Bellevue, and supply the needed electrical capacity for anticipated growth and development on the Eastside.

Within the City of Bellevue, the transmission line upgrade extends north-south for approximately 8.3 miles. This Critical Areas Report addresses the South Bellevue Segment of this line, which runs the approximate 3.4 miles between SE

26th Street and Newcastle Way (Figure 1). The South Bellevue Segment requires the removal of 44 H-frame, 6 triple-pole, and 9 monopole structures (consisting of 115 poles). PSE then plans to install 14 steel monopoles for single line circuit and 57 steel monopoles for the double circuit line. The North Bellevue Segment will be permitted at a later date.

The existing transmission lines are located in PSE's Sammamish-Lakeside-Talbot transmission line corridor, which was established in the late 1920s and early 1930s. Within the existing utility corridor, the proposed upgraded lines will place poles in generally the same locations as existing poles. In some instances, poles will be moved to accommodate landowner preferences and easement considerations, and to minimize impacts to critical areas. During construction, selective tree removal will occur within the corridor to meet federal vegetation management requirements and PSE standards.

The proposal also includes culvert and stream improvements on the new Richards Creek Substation site. The 8.46-acre site is located in south Bellevue north of I-90 and south of PSE's existing Lakeside 115 kV switching station.

The purpose of this Critical Areas Report is to document critical area impacts that are expected to occur as a result of the South Bellevue Segment.

Figure 1. Map of the Energize Eastside South Bellevue Segment.

3 METHODS

A Critical Areas Impact Assessment (CAIA) was conducted for the South Bellevue Segment of the Energize Eastside Project. The analysis combined GIS-based assessment with field-verified conditions and evaluated proposed Project elements in relation to existing land cover types and regulated critical areas. The location and type of each proposed activity was used to determine impacts and mitigation needs and is based upon preliminary site plans provided by PSE (6/30/17). A detailed description of the CAIA process and methods is provided in Appendix D.

3.1 Study Area

For the purposes of this report, the study area is limited to the South Bellevue Segment, a segment of the proposed Energize Eastside corridor that spans approximately 3.4 miles from just south of SE 26th Street to Newcastle Way. The study area includes most of the existing Lakeside Substation parcel and the proposed Richards Creek Substation parcel. South of those substations the study area consists of an existing, approximately 100-foot wide regional utility corridor that extends south to the city limits with Newcastle (Figure 1). The study area is depicted in the attached maps (Appendix B).

3.2 Data Compilation

Critical areas evaluated as a part of the analysis include wetlands, streams, habitats for species of local importance, geological hazard areas, areas of special flood hazard, shorelines, and any associated critical area buffers. To facilitate the critical area impact analysis, the following data were compiled and reviewed: vegetation inventory, wetland and stream surveys, and publically available data.

Vegetation Inventory

Existing vegetation with the potential to reach a height greater than 15 feet located in the Project area corridor was inventoried between March and November 2015. Vegetation inventory methodology and results are available in the *City of Bellevue Tree Inventory Report: Puget Sound Energy – Energize Eastside Project* (The Watershed Company 2016b). Tree data used in this critical areas impact analysis were obtained and compiled from survey, GPS, and digitization using high-resolution imagery.

Wetland and Stream Surveys

Most wetlands and streams were delineated and classified between March and October 2015. The majority are documented in the *City of Bellevue Critical Areas Delineation Report: Puget Sound Energy – Energize Eastside Project* (The Watershed Company 2016). Wetland and stream data were obtained and compiled from

GPS or survey data and are limited to the study area at the time of the original inventory which generally consisted a 100-foot wide corridor defined by an established PSE easement. Delineation study methodology is detailed in the previously-reference delineation report (The Watershed Company 2016).

In April 2017, a wetland and stream delineation study was conducted at the Richards Creek Substation site to update and supplement the findings of previous studies (The Watershed Company 2017). A subsequent delineation study was also conducted at the Somerset Substation site in January and February 2017 (The Watershed Company 2017b). The findings of these supplemental delineation studies have been incorporated into the critical areas impact analysis. For purposes of this critical areas analysis, data from the Somerset Substation delineation was only used in reference to work occurring in the existing transmission corridor; no work will occur at the Somerset Substation as part of this proposed Project.

Wetland and stream critical areas that were previously delineated on the Lakeside Substation parcel have also been incorporated into this analysis where appropriate. Wetland and stream locations documented in the referenced surveys were used in this analysis.

Publicly Available Data

Publicly available City of Bellevue GIS Map Data were utilized for mapping the following critical areas: coal zones, floodplains, and steep slopes. Data for landslide hazard areas was retrieved from King County's GIS Center.

As no coal mine hazard areas are located within the study area, this CAIA only assesses steep slopes and landslide hazard areas. The dataset for drainage basins was also utilized for characterizing wetland and wetland/stream buffer impacts and determining compensatory mitigation needs for these critical area types. Data used to map impervious surfaces and development include the King County Impervious and Impacted Surface data (King County 2009), supplemented with land survey data and high-resolution aerial photography provided by PSE.

3.3 Project Element Construction – Potential Impacts

Project elements that have the *potential* to impact critical areas are defined in this section and include the following:

- Permanent development of Richards Creek Substation
    - including Richards Creek culvert replacement and revised access driveway;
- Clearing limits for Richards Creek Substation;
- Pole replacement:

    - removal of old poles
    - installation of new poles
        - pole buffer (6-foot radius outside of pole footprint),
        - pole construction work area (varies by pole type, see description below);
- Access routes (approximately 20 feet wide);
- Stringing sites; and
- Vegetation management requirements.

3.3.1 Richards Creek Substation

Directly south of the Lakeside Substation and within the existing transmission corridor, PSE owns a pole yard. The pole yard consists of an access driveway leading to a partially paved and hard packed gravel surface used to store equipment and park vehicles. The existing 115 kV corridor bisects the site, as well as an existing petroleum pipeline easement. As part of the proposed Project, this pole yard will be re-developed with the Richards Creek Substation. Construction of the substation will result in two types of impacts: permanent and temporary.

- Permanent impacts will be associated with the vegetation clearing and fill associated with the installation of the substation yard base, fence, walls and equipment that is located outside of the existing developed area. For report purposes, this permanent impact will be referenced as the substation footprint.

- Impacts associated with the relocation of the existing driveway and construction limits of the substation will be predominately temporary; these disturbed areas can be re-vegetated with appropriate vegetation and left to return to their natural state.

The impacts are further analyzed and quantified in Section 7 of this report.

Richards Creek Culvert Replacement

PSE is planning to replace and upgrade a culvert carrying Stream C, a small perennial stream, beneath a driveway that provides access to its existing pole yard site and proposed Richards Creek Substation. A pair of aging and undersized culverts (two side-by-side, 18-inch diameter corrugated metal pipe culverts) have proven inadequate to carry the combined flow and sediment loading along the stream.

Construction of the new culvert will also result in two types of impacts: permanent and temporary. Construction associated with proposed culvert replacement and stream realignment will result in temporary disturbance to the

stream, wetlands, and associated buffers, but will also result in net habitat benefits following Project implementation.

- Permanent impacts will be associated with the installation of a new culvert; wetland fill along the edge of Wetlands A (downstream) and D (upstream) is limited to area immediately adjacent to the existing access driveway where the new culvert length will be greater than existing. However, the proposed culvert replacement and stream realignment will result in permanent improvements to Stream C, which will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding that now occurs on the adjoining property to the west, improve fish passage (including passage for cutthroat trout), and improve in-stream, riparian, and wetland habitat conditions.

- Temporary impacts will be associated with the construction limits of the culvert; these disturbed areas will be re-vegetated with appropriate vegetation as part of the overall restoration plan.

The impacts are further analyzed and quantified in Section 7 of this report.

3.3.2 Pole Replacement

Existing H-frames (consisting of 2 or 3 poles) will be replaced with new monopoles (*i.e.*, a single pole); in general relocation activities will occur in close proximity to the existing H-frames, but some of the replacement poles will be moved to accommodate landowner preferences and easement considerations, and to minimize impacts to critical areas. To conduct this work, PSE created construction scenarios specific to the type of structure being installed. Table 1 below describes the scenarios applicable to the Project. These scenarios provide assumptions used to assess impacts.

Table 1. PSE construction scenarios.

Description	Scenario	
No Critical or Recreation Area Present		
Direct embed-single pole • Temporary work area is generally 2,500 square feet • Create hole (hole will be larger than diameter of the new pole) • New pole and backfill delivered to site • Place pole in hole and backfill annulus • Stabilize site	A	A1
Foundation-single pole • Temporary work area is generally 5,000 square feet • Create hole (hole will be slightly larger than direct embed pole	C	C1

Description	Scenario	
to accommodate foundation installation) • New pole and foundation materials delivered to site • Build foundation and install pole • Stabilize site		
Critical or Recreation Area Present		
Direct embed-single pole • Temporary work area is generally 2,500 square feet • Create hole (hole will be larger than diameter of the new pole) • New pole and backfill delivered to site • Place pole in hole and backfill annulus • Stabilize site • Establish construction buffer from critical area using appropriate BMPs	A	A2
Foundation-single pole • Temporary work area is generally 5,000 square feet • Create hole (hole will be slightly larger than direct embed pole to accommodate foundation installation) • New pole and foundation materials delivered to site • Build foundation and install pole • Stabilize site • Establish construction buffer from critical area using appropriate BMPs	C	C2

While the work area for each pole type is defined as a consistent size to be conservative, the shape of the disturbed area will vary depending on the presence of critical areas or other sensitive features in the Project corridor. During construction, these areas will be excluded from the disturbance area. Pole replacement will potentially result in three types of impacts: permanent, conversion, and temporary.

- Permanent impacts will be associated with the installation of new poles; which will have a base diameter ranging from 4 feet to 6 feet depending on the pole type (direct imbed or new foundation). However, some existing poles (which also contribute to permanent fill) will be removed from the critical areas. The following permanent impact scenarios were considered with regards to poles in critical areas:
    - New poles at the Richards Creek and Lakeside Substations.
    - Replacement of existing H-frame, consisting of 2 or 3 poles approximately 3-feet in diameter, with one monopole (4- to 6- feet in diameter).

- Conversion impacts will be associated with the removal of incompatible transmission line vegetation in the pole construction work area and pole buffer. After construction, the pole construction work areas will be re-vegetated and left to return to their natural state or enhanced (using transmission line appropriate vegetation). The transmission line corridor, and associated area surrounding the poles, will experience routine vegetation management. All vegetation in the transmission line corridor, when mature, will be fifteen feet or less. During typical inspections and maintenance of the poles vegetation is routinely disturbed; as such, no trees of any size will grow within close proximity (about 6 feet) of the new poles.

- Where pole construction work areas and pole buffer areas do not require the removal of trees, the resulting impacts will be temporary. The majority of pole construction work area and pole buffer impacts are expected to be temporary due to the existing use and management of the corridor (*i.e.,* lack of trees) and consideration that existing groundcover will be restored or regenerate on its own within one growing season. Outside of the Richards Creek Substation area, many of the critical areas are located in portions of the managed right-of-way ("ROW") that are developed with a regional trail, landscaped yards, or other improvements. After construction, the temporarily disturbed areas will be re-vegetated and left to return their natural state or enhanced, including the regional trail.

BMPs will be used to minimize impacts resulting from pole replacement activities. In critical areas or buffers, mats will be placed over existing vegetation where possible. Typically, crushed vegetation rebounds within one growing season resulting in only temporary impacts to vegetation. Post construction, all disturbed areas will be re-vegetated, if necessary, and left to return to their natural state.

The impacts are further analyzed and quantified in Section 7 of this report.

3.3.3 Access routes

Access to poles in critical areas located in the transmission corridor will generally occur using existing, partially vegetated access (established during original construction and re-used over time to maintain the corridor). BMPs will be used to minimize ground disturbance in these areas, and in new areas of access. In critical areas or buffers, mats will be placed over existing vegetation where possible. Typically, crushed vegetation rebounds within one growing season resulting in only temporary impacts to vegetation. Where access route alignment

requires tree removal, impacts will be characterized as conversion. Post construction, all disturbed areas will be re-vegetated, if necessary, and left to return to their natural state in compliance with vegetation management requirements. Based on the existing conditions, proposed construction BMPs, and post-construction methods, disturbance associated with access in the transmission corridor will predominantly be temporary.

3.3.4 Stringing Sites

In order to replace the transmission conductor, stringing and tensioning equipment will be staged near new steel poles at specific locations along the corridor in preparation for the stringing of new wire. The disturbance area associated with the equipment and materials to restring the conductor wire will be isolated from wetlands and streams to the extent feasible. In critical areas and buffers, mats will be placed over existing vegetation where possible to allow access to poles for stringing activities. Typically crushed vegetation rebounds within one growing season resulting in only temporary impacts to vegetation. Tree removal activities necessary for the stringing of new wire (in the wire zone) will be performed in a manner to minimize impacts to underlying shrubs, groundcover and other trees, without disturbance to soil. The various techniques utilized to string the wire will not result in surface disturbance (*i.e.*, shooting the wire past obstacles, pulling it along established guide wire, etc.).

For this analysis, stringing sites have been identified as point locations and not polygons (Appendix B). However, each stringing site will be approximately 7,500 square feet of disturbance. Similar to pole construction work areas, the shape of the stringing site will depend upon the presence of adjacent critical areas, existing land conditions, and area needed for equipment staging based on the necessary angle needed to string the conductor. In many areas, this disturbance will overlap with various impacts quantified for proposed access, pole installation, and vegetation management. Therefore, while impacts have not been quantified for stringing sites, as they are expected to largely overlap other work areas they are not expected to require additional tree removal. Any additional impacts resulting from stringing sites, not already quantified in Section 7 through other Project elements, will be temporary in nature; temporary impact areas will be re-vegetated and left to return their natural state or enhanced following construction.

3.3.5 Vegetation Management

Vegetation in the existing corridor is routinely managed. The corridor was initially disturbed during the original transmission line construction (including soil compaction associated with construction activities for the line itself and pole yards, roads, parking lots, subdivisions, trails, and commercial development). Disturbance is regular and ongoing due to maintenance and pole replacement

activities. With the exception of the Coal Creek Natural Area, the majority of trees in the existing corridor are ornamental and associated with existing property uses (such as residential yards and commercial landscaping).

Vegetation in a transmission line corridor that has an operational voltage of more than 200 kV must be managed in compliance with federal requirements. Vegetation management standards vary depending upon the location of vegetation management in relation to transmission wires. These specific locations are defined as follows:

- Wire Zone – Section of a utility transmission ROW extending to 10 feet from the outside transmission wire(s). Vegetation with a mature height of 15 feet or less is allowed in this zone.

- Managed ROW – The section of a transmission line ROW that extends 6 feet outside of the wire zone. Vegetation with a mature height of 15 feet or less is allowed in this zone.

- Legal ROW – The full width of the easement. While vegetation maintenance is permitted within the full extent of the legal ROW, based on communication with PSE, only a portion of the legal ROW is intended to be maintained; this area is described as the maintained legal ROW and generally extends 10 feet from the edge of the managed ROW. Maximum height of mature vegetation between the managed ROW and legal ROW is dependent upon tree species, tree health, and distance from the wires.

Consistent with federal standards, vegetation in the wire zone must have a mature height of no greater than 15 feet, unless the topographic change is sufficient to allow a 20-foot vertical clearance between the power lines and the mature height of trees under the power lines. The same vegetation requirement was applied to the managed ROW zone. The legal ROW is composed of existing and proposed easements; its width varies along the Project corridor. The area outside of the managed ROW, but still within the legal ROW, is also subject to select clearing of trees that pose a risk of damaging the lines. To facilitate the CAIA, in the maintained legal ROW, a maximum mature tree height of 70 feet was presumed. However, existing trees greater than 70 feet, or with a mature height of greater than 70 feet will not necessarily be removed. Impacts resulting from required vegetation management are characterized as conversion in Section 7 of this report.

For critical areas located within the transmission corridor, these vegetation management requirements will affect residential vegetation (predominately back yard ornamentals). PSE will be working with individual property owners to replace their vegetation with transmission line compatible ornamental species or

tree replacement outside the corridor. In these areas, the function of the critical area will not change (maintained, back yard vegetation).

3.4 Critical Areas Impact Analysis

The CAIA was conducted by placing tree points/polygons and critical area polygons on a georeferenced base map and overlaying preliminary site plans to determine impacts. Impervious surfaces and other similar areas characterized as developed were removed from wetland and stream buffer areas for this CAIA. The resulting functioning wetland and stream buffers are shown in Appendix B.

Where Project elements (as discussed in Section 3.3) are located in critical areas or their functioning buffers, impacts are quantified based on area (square footage of impact). Impact results were generated based upon the expected long-term condition of the area compared to the existing condition and include permanent impacts, impacts that result in a vegetation conversion, temporary impacts, and activities that result in no change or no impact (see Section 7). For more detailed methodology on the CAIA, refer to Appendix C.

3.5 Limitations

The Watershed Company's technical expertise is specific to wetlands, streams, habitats for species of local importance, and shorelines. The geotechnical assessments and interpretation of impacts within geological hazard areas, including landslide hazards and steep slopes have been addressed by others and referenced into the report and incorporated as an appendix (Appendix B).

Limited availability of detailed site-specific topographic information makes it infeasible to determine top-of-bank adjacent to delineated streams. Stream buffers depicted on the accompanying delineation maps are measured from the ordinary high water mark (OHWM). The buffer limits may be revised if additional topographic data becomes available.

Off-site wetland and stream features were identified and sketched where possible; access and permission to enter properties (or lack thereof) along the corridor were secured by PSE (through an easement) with prior notification to property owners. Where critical areas extended outside of the designated study area limits, boundaries were approximated (as shown in Appendix B) using aerial imagery, topography, field notes, and best professional judgement for the purposes of mapping and wetland rating. Boundaries outside of study area limits have not been delineated or field-verified. However, Project area impacts outside of the study area limits have been quantified based on approximated boundaries. Trees located outside of study area limits have not been inventoried, assessed, or documented. An access route proposed to poles 7/1, north of Forest Drive SE, is located outside of the study area limits and in the vicinity of an area

noted as possible wetland during field investigations. Due to property access limitations, this area has not been evaluated for presence or absence of wetland and stream critical areas. The construction access would primarily utilize the existing disturbed areas of the Forest Hill Neighborhood Trail and would be located to avoid critical areas to the extent feasible. In the event that critical areas are located in the proposed construction access route, mats would be used to minimize disturbance; any additional impacts are expected to be temporary.

This document represents a point-in-time analysis of the proposed Project, potential impacts, and approach to critical area mitigation. Refinements made as a result of ongoing design and analysis are expected to decrease Project impacts moving forward. If design changes result in increased permanent or conversion impacts that cannot be addressed in the proposed mitigation plans, a Critical Areas Report Addendum will be prepared to address those impacts.

4 EXISTING CONDITIONS

4.1 Site Location

The Project corridor through the South Bellevue Segment study area bisects the Eastgate, Factoria, Somerset, and Newport neighborhoods in the City of Bellevue. The majority of the study area is zoned single-family residential at various densities; exceptions include the I-90 vicinity, generally zoned commercial and light industrial/office and limited business. The corridor is located in the following public land survey sections: Sections 15, 22, 27, and 34 of Township 25N, Range 05E; and Sections 3, 9, 10, 15, 16, 21, 22, and 28 of Township 24N, Range 05E.

The South Bellevue Segment study area is located in the Cedar-Sammamish Watershed (WRIA 8), and spans four drainage basins, which include the Bellevue-defined Richards Creek, Sunset Creek, Coal Creek, and Newport drainage basins.

4.2 Site Description

When the corridor was constructed in the late 1920s and early 1930s, the entire corridor was cleared; construction activities resulted in a compacted subsurface in those areas where the poles were installed. Since that time, the corridor has been continually maintained by PSE through easement rights; using existing access routes/paths, poles have been replaced and vegetation has been managed. To do so, vehicles and equipment (such as cranes) have been used in the corridor. Over time, development has occurred adjacent to and within the

corridor, including residential development, roads, parking lots, commercial development, and the establishment of trails (using overgrown access routes).

Olympic Pipeline Company also utilizes the South Bellevue Segment corridor for operation and maintenance of a below-ground petroleum pipeline. In general, vegetation management requirements of pipelines are more restrictive than the previously-described vegetation management requirements for the transmission line. For example, trees and shrubs are expected to be mowed or removed on a more regular basis than for the transmission lines to prevent damage to the pipeline by large roots. In addition, a corridor of herbaceous vegetation may be maintained both to keep the area free of large tree and shrub roots and to be able to easily, visually inspect the pipeline corridor from the ground and/or air. The pipeline easement spans the length of the South Bellevue Segment transmission line easement and acts as a regular, contributing source of ongoing disturbance to the shared corridor.

On developed parcels, vegetation in the corridor is generally limited to landscaped beds and maintained yards. On parcels that have not been further developed to a commercial or residential property and remain the managed utility corridor, vegetation is often weedy and dominated by Himalayan blackberry and various grasses; young trees and shrubs are present in some locations where they have presumably grown from seed. These areas are often regularly mowed/cleared for utility access and maintenance purposes. Exceptions are the undeveloped City of Bellevue Parks parcels along Coal Creek Parkway; these parcels contain a densely wooded ravine.

4.3 Critical Areas

This section defines City of Bellevue-regulated critical areas per Part 20.25H Critical Areas Overlay District of Bellevue's Land Use Code (LUC) and describes the general location(s) of each critical area type in the proposed Energize Eastside corridor.

4.3.1 Wetlands

The City of Bellevue defines wetlands as follows (LUC 20.25H.095):

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial*

> *wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands.*

A total of 21 wetlands are located along the South Bellevue Segment corridor. Wetlands are generally concentrated on or near the Richards Creek Substation parcel, and Coal Creek Natural Area. Wetland classifications and buffer widths are summarized in Section 5.1 (Table 2).

A detailed discussion of proposed Project impacts to wetlands is provided in Section 7 of this report.

4.3.2 Streams

The City of Bellevue defines streams as follows (LUC 20.25H.075):

> *An aquatic area where surface water produces a channel, not including a wholly artificial channel, unless the artificial channel is:*
>
> *1. Used by salmonids; or*
>
> *2. Used to convey a stream that occurred naturally before construction of the artificial channel.*

A total of 11 streams are located along the South Bellevue Segment corridor. Streams are generally concentrated near the Richards Creek Substation parcel and Coal Creek Natural Area. Stream classifications and buffer widths are summarized in Section 5.1 (Table 3).

4.3.3 Habitat Associated with Species of Local Importance

The City of Bellevue designates habitat associated with species of local importance and naturally occurring ponds of under 20 acres as critical areas. Habitat, according to LUC 20.50.024,

> *Refers to an individual, species-specific use of a wildlife-habitat type. "Habitat" is the place, including physical and biotic conditions, where a plant or animal usually occurs and is fundamentally linked to the distribution and abundance of species. Species may depend on a Habitat or structural characteristics for part or all of its life history or may exhibit a high degree of adaptability using more than one Habitat. The relationship of species to Habitat is scale-dependent and varies from geographic range, home range, to local or site-specific Habitat components. "Habitat" includes areas of high relative density or species richness, breeding Habitat, winter range, and movement corridors. These areas may also include Habitats that are of limited availability or high vulnerability to alteration. Other examples include: remnant patches of mature mixed Puget Sound lowland forest, caves and cliffs, snag-rich areas and downed logs, riparian areas, lakes and ponds, wetlands and their buffers, and heron rookeries.*

Bellevue considers the following species as species of local importance (LUC 20.25H.150):

Birds – bald eagle, peregrine falcon, common loon, pileated woodpecker, Vaux's swift, merlin, purple martin, western grebe, great blue heron, osprey, green heron, and red-tailed hawk

Mammals – western (Townsend's) big-eared bat, Keen's myotis, long-legged myotis, and long-eared myotis

Amphibians and Reptiles – Oregon spotted frog, western toad, and western pond turtle

Fish – Chinook salmon, bull trout, coho salmon, and river lamprey

Each of these species are reviewed below with the exception of Oregon spotted frog, Chinook salmon, and bull trout which are addressed in detail in the Endangered Species Act (ESA) documentation for the south segment of the Project which includes the South Bellevue Segment, Newcastle, and Renton. As summarized in that document, on the project is not likely to adversely affect ESA-listed species based upon lack of documented use, lack of suitable habitat, and/or avoidance of in-water work and vegetation removal where listed species are known to occur (*i.e.,* the Cedar River in Renton). In the South Bellevue Segment Project area, no federally-listed species are known to occur or have designated critical habitat.

No naturally occurring ponds of under 20 acres are present in the Project area. The Project area, generally, is urban and mostly developed. The power line corridor is mostly vegetated. Vegetation in the Project area often consists of low-growing grasses, landscape plants and invasive plant species (Himalayan blackberry and reed canarygrass) typical of disturbed areas and generally offers little in terms of habitat value when compared to other urban parks and greenspaces. Exceptions, where more valuable habitat is present in the Project area, include forested areas on the Richards Creek Substation parcel and in the Coal Creek ravine. Even at these locations, existing maintenance activities associated with the power lines, established PSE programs and procedures, and the urban landscape setting reduces the likelihood that species of local importance (which require specific habitat features) will utilize power line corridor areas for breeding.

PSE implements an Avian Protection Plan to protect avian wildlife from harmful interactions with their utility equipment. The Plan includes preventing the creation of potentially harmful nests and monitoring known nest sites when construction activities occur in close proximity during the nesting season (Puget Sound Energy n.d.). Potential Project impacts to birds are mitigated through the PSE's bird protection programs and procedures.

Of Bellevue's 23 species of local importance, coho salmon is the only species known to occur in the Project area, in Coal Creek. River lamprey have also been

presumed to occur in Coal Creek, although this has not been confirmed. Species that could breed in the Project area, but are considered unlikely to do so based on site disturbance are pileated woodpecker, green heron, red-tailed hawk, and western toad. Bald eagle, pileated woodpecker, Vaux's swift, purple martin, merlin, green heron, red-tailed hawk, and Townsend's big-eared bat also have the potential to forage in the Project area. Justification for these assessments are provided in the species review summaries below.

Species of Local Importance Review

Professional knowledge and the following sources were utilized to describe preferred habitat for species of local importance in this section when not otherwise cited: All About Birds (Powell et al. 2010), BirdWeb (Seattle Audubon Society 2005), and *The Sibley Field Guide to Birds of Western North America* (Sibley 2003). The likelihood of species presence in the Project area was determined by comparing species' preferred habitat types to available habitat.

There are several known **bald eagle** nest sites in Bellevue (WDFW n.d.). Eagles are common near Lake Washington and Lake Sammamish, located within approximately 2 and 3 miles of the corridor, respectively. They often nest in tall, mature trees located near large bodies of water. A review of Washington's Priority Habitats and Species (PHS) data indicates the nearest mapped nest is located over one mile west of the corridor near Lake Washington (WDFW n.d.). The nesting eagles depicted in the PHS data are more likely to forage over the nearby lakes than on the corridor. Although it is possible for bald eagles to utilize poles and corridor areas to forage for small mammals. The Project area does not provide suitable nesting habitat. On occasion, eagle flyovers were observed during field work activities; however, breeding or foraging behavior was not observed.

Peregrine falcons are fast-flying birds of prey that are known to nest in urban areas of central Puget Sound. Typical nesting habitat is on cliffs located near large bodies of water. In urban settings, peregrine falcons may nest on buildings and bridges located near large bodies of water such as the State Route 520 and Interstate 90 floating bridges on Lake Washington where breeding areas have been documented (WDFW n.d.). Man-made structures like electrical transmission towers in the Project area could act as a source for potential nesting sites, but are generally not used by peregrine falcons for nesting. Peregrine falcons were not observed during field work activities.

Common loons and **western grebes** are waterbirds. They generally spend their winters in open lakes, bays, and ocean areas. Common loons prefer to nest on wooded lakes, while western grebes prefer to nest on lakes with marshy vegetation. Suitable habitat does not exist in the Project area. These species are not expected to nest in the vicinity of the Project.

Pileated woodpeckers most often nest in old-growth forest and mature forest stands. However, they are increasingly found in urban areas as long as there are large trees that can provide roosting and nesting habitat. In general, the Project area does not contain the appropriate vegetation to support this species due to the vegetation management requirements associated with the power lines, however, pileated woodpeckers have been known to use utility poles for nesting. Pileated woodpeckers were observed near the Project area in Bellevue during field work activities. Suitable habitat exists near the corridor in green spaces east of the proposed Richards Creek Substation and near Eastgate Park as well as in Coal Creek Park.

If pileated woodpeckers are observed excavating poles within the Project area, PSE avian biologists will be consulted to determine whether the pole is being used for nesting or foraging. If a pole is determined to be in use for foraging by pileated woodpeckers, the Project will have minimal effects by potentially causing temporary disturbance to foraging behavior. If pileated woodpecker nests are found, depending on nest occupancy, a PSE avian biologist will develop and implement a strategy to prevent impacts to the pileated woodpeckers during the nesting season in coordination with WDFW.

Vaux's swifts and **purple martins** are both small aerial songbirds that forage in open skies, most often over forest or aquatic habitats. Vaux's swifts are closely associated with old-growth forests requiring cavities in large snags or live trees for nesting and roosting, although they are also known to nest and roost in artificial structures like chimneys (Lewis, Whalen, and Milner 2002). Purple martins also historically nested in tree cavities, but more often nest in man-made structures over water near urban areas in the lowlands of western Washington (Hays and Milner 2003). The Project corridor generally lacks suitable nesting structures (man-made or natural) for these species; however, it is possible that they may use the corridor for foraging. Any disturbance from Project-related activities would be temporary and would not impede the foraging of nearby habitats.

PHS data were reviewed for documented breeding areas associated with these species in the vicinity of the Project area. The nearest mapped purple martin breeding area is located over two miles east of the corridor (WDFW n.d.). No Vaux's swift or purple martin were observed during field work activities.

Merlins rarely breed in the lowlands of western Washington (Seattle Audubon Society 2005), but are increasingly nesting in urban areas. King County is generally considered part of the species non-breeding range; nearby merlin year-round range, where they would be more likely to breed, includes Whatcom, Skagit, and Snohomish Counties (Seattle Audubon Society 2005). Typical breeding habitat is forests with nearby openings, however, during migration and

in winter merlins may be found in a variety of habitats. The Project corridor does not provide suitable nesting habitat, however it is possible that merlins could use the Project area for foraging particularly during migration and winter. Any disturbance from Project-related activities would be temporary and would not impede the foraging of nearby habitats.

Great blue herons are large wading birds most often found near water. Great blue herons forage in a variety of habitats near streams, lakes, ponds, wetlands, saltwater shorelines, and upland fields. They nest in colonies, typically in trees near foraging habitat. There are no known great blue heron nest sites in close proximity to the Project area. The nearest documented breeding site is located over one mile from the Project corridor (WDFW n.d.). If an active heron rookery is identified along the power line corridor, a PSE avian biologist will develop and implement a strategy to prevent impacts to the heron rookery during the nesting season in coordination with WDFW.

Green herons are small wading birds that prefer secluded foraging and nesting habitat that consist of good forest or shrub cover in or near wet environments. Green herons are solitary nesters. Wetlands in the Project area are generally small and disturbed and lack qualities like large areas of seasonal/permanent ponding and connectivity to fish-bearing streams that would provide ideal habitat. Streams like Coal Creek and Richards Creek may provide nesting habitat in or adjacent to the corridor where vegetation structure is suitable. No green heron were observed during field work activities. If green heron are found nesting within the power line corridor, a PSE avian biologist will develop and implement a strategy to prevent impacts during the nesting season in coordination with WDFW.

Ospreys nest in dead trees or man-made structures located near large bodies of water where they forage for fish. Ospreys are fairly common in the greater Seattle area near lakes, rivers, and other large waterbodies. According to PHS on the Web (WDFW n.d.), the nearest breeding area is located next to Lake Washington over one mile from the Project corridor. The Project area in Bellevue provides suitable nest structures (utility poles) and while osprey typically prefer nest sites in close proximity to large water bodies, they can nest a mile or two from water. As such, the study area may provide suitable osprey habitat.

No ospreys were observed during field work activities in the corridor in Bellevue. If an osprey nest is observed within the Project area, depending on nest occupancy, the PSE avian biologists will develop and implement a strategy to prevent impacts to the osprey during the nesting season in coordination with WDFW.

Red-tailed hawks are quite common in western Washington and may be the most common hawk in North America. In western Washington nests are often built in large black cottonwood and red alder trees (Seattle Audubon Society 2005), but the species may also utilize artificial structures for nesting. Red-tailed hawks are often visible soaring over open areas or perching near roadsides. The Richards Creek Substation property may provide suitable habitat for nesting. Red-tailed hawks are generally considered unlikely to nest in the corridor due to limited availability of nest trees, but they may nest in trees near or adjacent to the Project area. It is more likely that the species utilizes the Project corridor for perching or foraging. Any disturbance from Project-related activities would be temporary and would not impede the foraging of nearby habitats.

Bats in Washington, including those listed as species of local importance, utilize a variety of habitats including caves and mines; cliffs, talus, and boulders; buildings and bridges; and trees (Hayes and Wiles 2013). Of the bat species considered here, only the Townsend's big-eared bat could potentially utilize habitat in the Project corridor. According to a Gap Analysis conducted for Washington State mammals, King County is not considered to provide core nor marginal habitat for Keen's myotis; this species is associated with old conifer forests. Furthermore, while long-legged and long-eared myotis species tolerate low-density development, mid- and high-intensity development are generally not considered good habitat (NatureMapping Foundation n.d.). All of Bellevue is mapped as Townsend's big-eared bat core habitat. Their presence in the study area is expected to be limited by available roosts most likely to be vacant buildings or trees based on the landscape setting. The Project area does not provide suitable roost sites; few vacant buildings are expected to occur in the Project area and managed vegetation in the power line corridor is generally not considered to allow for the development of tree roost sites.

Western toad range spans much of Washington state including western Washington and the greater Seattle area. The species reportedly remains common throughout much of its range but has experienced population declines. Western toad can be found in many habitats including desert springs and streams, meadows, woodland, mountain wetlands, and agricultural land (IUCN SSC Amphibian Specialist Group 2015). Western toad habitat in the study area is generally limited to aquatic and terrestrial habitats associated with Coal Creek and Richards Creek that could be used for breeding (*i.e.,* shallow slow-moving water). More suitable breeding habitat is expected to exist/extend outside the Project corridor and the likelihood of western toad in the disturbed and maintained utility corridor is expected to be low by comparison. PHS on the Web (WDFW n.d.) documents western toad occurrences in King County, but none are documented in the vicinity of the Project area. The Project avoids stream impacts, other than the culvert replacement and stream restoration activities, and minimizes wetland impacts to the extent feasible. Vegetation impacts to riparian

areas will be limited to selective tree removal and will not result in destruction of western toad habitat.

The culvert replacement and stream restoration work occurring at Richards Creek will temporarily disturb the area, but is not expected to impact western toads. Stream restoration work will occur in a work-window defined by the Project permit, likely between July and September, to limit impacts to instream fishes. According to WDFW, western toads begin egg laying in approximately mid-April at low elevation sites in western Washington; eggs hatch within two weeks and tadpoles develop into toadlets over about two months. Using this timeline as a guide, toadlets would be expected to disperse from breeding sites in July. Instream restoration work may temporarily displace western toad, if present at this location. Young toads are likely to be terrestrially mobile and therefore would be expected to avoid proposed disturbance activities. If tadpoles are present in the stream, they would be removed with fish removal efforts associated with construction including capture by dipnets or small seines followed by electrofishing. Once work is complete, potential western toad habitat in the Richards Creek riparian area will be improved from existing conditions. Per the Richards Creek culvert replacement plan (Appendix A), the net result of the proposal to potential western toad habitat is an overall enhancement of the structural attributes and ecological functions of this habitat area, consistent with WDFW's general management recommendation goals for priority species.

Western pond turtle populations are known to occur in Klickitat and Skamania Counties; and recent individual sightings have been confirmed in Pierce and King Counties. One limiting factor in western pond turtle distribution is the availability of shallow water bodies that provide basking surfaces and vegetative cover (Nordstrom and Milner 1997). This habitat type is not present in the Project corridor. Therefore use of the corridor by this species is not anticipated.

Coho salmon and **river lamprey** are species of anadromous fish that could utilize streams and rivers in Bellevue as habitat. Historically, river lamprey likely occurred in most Washington rivers. Current species distribution is not well-known but is presumed to include Puget Sound rivers (WDFW 2015) and the Lake Washington basin (USFWS n.d.). River lamprey spawn in gravel substrates in riffle and side channel habitats of clear, cool streams. Larvae use fine silt and mud substrates and require good water quality year-round. Although not identified to species, lamprey have been observed in Coal Creek in Bellevue (City of Bellevue 2009). For the purpose of this study, river lamprey are presumed to occur in Coal Creek. Coho salmon are also known to occur in Coal Creek in the corridor (City of Bellevue 2009). No in-water work will occur as part of this Project and best management practices will be implemented to minimize the potential for sediment laden runoff; therefore impacts to these species is not anticipated.

Summary

To summarize, Coal Creek is considered a Habitat Associated with Species of Local Importance. The associated stream buffer and critical area regulations for streams are expected to adequately protect this habitat area for the duration of the Project. No other Habitats Associated with Species of Local Importance have been identified at this time. While there is some potential for certain species to breed in the Project area, it is considered to be unlikely. The foraging habitat present in the Project area is not expected to change as a result of the Project and is not recommended for regulation as Habitat Associated with Species of Local Importance.

4.3.4 Geologic hazard areas

Geologic hazard areas includes landslide hazards, steep slopes, and coal mine hazard areas; City of Bellevue defines them as follows (LUC 20.25H.120):

> *1. Landslide Hazards. Areas of slopes of 15 percent or more with more than 10 feet of rise, which also display any of the following characteristics:*
>
> > *a. Areas of historic failures, including those areas designated as quaternary slumps, earthflows, mudflows, or landslides.*
> >
> > *b. Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits.*
> >
> > *c. Slopes that are parallel or subparallel to planes of weakness in subsurface materials.*
> >
> > *d. Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes.*
> >
> > *e. Areas with seeps indicating a shallow ground water table on or adjacent to the slope face.*
> >
> > *f. Areas of potential instability because of rapid stream incision, stream bank erosion, and undercutting by wave action.*
>
> *2. Steep Slopes. Slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area.*
>
> *3. Coal Mine Hazards. Areas designated on the Coal Mine Area Maps or in the City's coal mine area regulations, LUC 20.25H.130, as potentially affected by abandoned coal mines; provided, that compliance with the coal mine area regulations shall constitute compliance with the requirements of this chapter in regard to coal mines.*

Landslide and steep slope hazards areas are present in the South Bellevue Segment corridor. They have been assessed and evaluated separately in the *Revised Targeted Critical Areas Geologic Hazard Evaluation*, dated July 11, 2017, by GeoEngineers (hereafter GeoEngineers Report). This document was supplemented with information contained in a draft *Critical Area Supplement for*

Energize Eastside Bellevue memorandum dated August 21, 2017. Both documents are included as Appendix C.

According to GeoEngineers, mapped steep slopes in Bellevue that include slopes 40 percent or greater were observed locally within the Project area, however many of these areas are developed and include rockeries, landscaped residential or commercial development slopes and cut slopes associated with paved roadways. GeoEngineers states that the following areas (described in terms of proposed activity) are unlikely to be adversely impacted by the Project and are excluded from the analysis:

- Two trees removed from just north of 132nd Avenue SE.
- Multiple trees removed and access just east of the intersection of Somerset Drive SE and 134th Place SE, north to Somerset Place SE.
- Multiple trees removed just east of the intersection of Somerset Drive SE and Somerset Boulevard SE.
- Multiple trees removed just east of 136th Place SE between SE 43rd Place and SE 43rd Street; and two trees between this area and the intersection of Somerset Drive SE and Somerset Boulevard SE.
- Two trees removed and access north of the intersection of SE 43rd St. and the PSE corridor.
- Multiple trees removed south of SE 42nd Street.
- Multiple trees removed between SE 37th Street and SE 36th Street.
- Access east of SE 32nd Street.
- Multiple trees removed in the Richards Creek Substation and Lakeside Substation area.
- Multiple trees removed and access south of SE 26th Street.

A localized natural area of steep slopes and mapped landslide hazards is present in the Project area that includes the Coal Creek drainage east and west along Coal Creek Parkway, and required review by the Project geotechnical consultant. The priority geologic hazard areas of the Coal Creek drainage are shown in the attached critical area maps (Appendix B). A detailed discussion of proposed Project impacts to geologic hazard areas is provided in Section 7 of this report.

As stated previously, no coal mine hazard areas are located along the Project corridor in the South Bellevue Segment.

4.3.5 Areas of Special Flood Hazard

The City of Bellevue defines areas of special flood hazard as follows (LUC 20.25H.175):

1. Land Subject to One-Hundred-Year Flood. The land in the floodplain subject to the flood having a one percent chance or greater of being equaled or exceeded in any given year as determined by customary methods of statistical analysis defined in the City of Bellevue Storm and Surface Water Engineering Standards, January 2011, or as hereafter amended. Also referred to as the 100-year flood.

2. Areas Identified on the Flood Insurance Rate Map(s). Those areas identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for King County" dated April 19, 2005, with an accompanying flood insurance map(s) and any revisions thereto. The Flood Insurance Study and accompanying map(s) are hereby adopted by reference, declared part of this part, and are available for public review at the City of Bellevue.

3. Additional Areas. Other areas designated by the Director pursuant to this section shall be considered areas of special flood hazard.

4. Designation of Areas of Special Flood Hazard. Flood Insurance Rate Maps are to be used as a guide for the City of Bellevue, project applicants, and/or property owners to identify areas of special flood hazard. Flood Insurance Rate Maps may be continuously updated as areas are reexamined or new areas are identified. Newer and more restrictive information for flood hazard area identification shall be the basis for regulation.

5. Use of Additional Information. The Director may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study to designate areas of special flood hazard, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show stream habitat areas, or similar information.

6. Flood Elevation Data. When base flood elevation data is not available (A and V zones), the Director shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, in order to administer provisions for the area of special flood hazard. In areas of special flood hazard where the BFE has increased due to remapping efforts, the new BFE will establish the regulatory limit. (Ord. 6013, 8-1-11, § 1; Ord. 5680, 6-26-06, § 3)

Areas of special flood hazard in the South Bellevue Segment Project area include relatively small areas associated with Sunset Creek and Coal Creek, as determined by the Federal Emergency Management Agency (FEMA).

The mapped Sunset Creek floodplain is shown in an area where Sunset Creek is conveyed underground. The mapped floodplain in the corridor is located north and south of SE Allen Rd in areas developed with apartment buildings, parking areas, sidewalks, and includes some landscaped trees and mowed grass; none of which are associated with a riparian environment.

The mapped Coal Creek floodplain in the Project area includes portions of Coal Creek Parkway and natural forested vegetation associated with the riparian zone of Coal Creek.

A detailed discussion of proposed Project impacts to flood hazard areas is provided in Section 7 of this report.

4.3.6 Shorelines

The City of Bellevue designates the following water bodies as shoreline critical areas (LUC 20.25E.017):

> *1. Lake Washington, including Mercer Slough upstream to Interstate 405 – The lake waters, underlying lands, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas;*
>
> *2. Lake Sammamish – The lake waters and underlying lands, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas;*
>
> *3. Lower Kelsey Creek – The creek waters, underlying lands, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas; and*
>
> *4. Phantom Lake – The lake waters, underlying lands, plus associated floodways, floodplains, marshes, bogs, swamps and river deltas.*

The Project area does not include City of Bellevue shoreline critical areas.

5 REGULATIONS

5.1 Local Regulations

As noted above, critical areas are regulated under the Critical Areas Overlay District (Bellevue Land Use Code [LUC] 20.25H).

5.1.1 Wetlands and Streams

A summary of relevant wetland and stream critical area classifications and standard buffer widths provided in referenced delineation reports are presented again in Tables 2 and 3, below.

The original Delineation Report (The Watershed Company 2016) for the Project identifies Stream JB03 as a Type O stream. Since that report was issued, this feature has been determined to be a drainage feature constructed by respective homeowners (email communication between PSE and Don McQuilliams, City of Bellevue Operations Manager, August 2017). As such, JB03 was not included in this impact analysis.

Standard buffer widths for wetlands are based upon the wetland category, whether the site is undeveloped or developed, water quality and habitat scores, and wetland size. In this instance, Bellevue defines an "undeveloped site" as follows:

> *An undeveloped site is any site where the wetland and wetland buffer have not previously been included within a Native Growth Protection Area (NGPA) or Native Growth Protection Easement (NGPE), regardless of whether the site contains a primary structure.*

The Project area generally includes developed areas like the pole yard, roads, and trails. However, these conditions are not consistent with the city's definition of "developed" for determining wetland buffer widths. Furthermore, existing development along the corridor likely preceded the critical areas regulations and associated requirements for NGPEs. For the purposes of this report and in the context of wetland buffer widths, the Project corridor is considered undeveloped.

Standard buffer widths for streams are based upon the stream type and whether or not the Project site contains a primary structure. To determine the latter, delineated streams were reviewed by parcel and buffer widths were determined based upon the presence or absence of a primary structure (Table 3).

Portions of wetland and stream buffers that contained "development" were removed from standard buffers. These areas included pavement, structures, and compact gravel which were determined to be non-functioning. Specific examples occur on the Richards Creek Substation parcel, Somerset Substation, Coal Creek Parkway, and on some residential parcels. Areas characterized as commercial or residential landscaping have not been removed from functioning buffers. Non-functional portions of the standard buffer were excluded from the Critical Areas Impact Analysis since the primary purpose of the analysis was to determine project impacts and the amount of mitigation that would be required based on those impacts. Data used to map impervious surfaces and development include the King County Impervious and Impacted Surface data (King County 2009), supplemented with land survey data and high-resolution aerial photography provided by PSE, as well as review from staff biologists that conducted the wetland delineations. Only functioning buffers are shown in Appendix B.

Some of the non-functioning buffer areas (i.e primary structures) are allowed to be excluded from the standard buffer under Bellevue's code. However, some non-functioning buffers are still viewed as "standard buffer" by the City, including the existing paved driveway and gravel pad located on the Richards Creek substation parcel, ancillary residential structures, and some roadways and parking areas. The majority of excluded non-functioning buffer areas will not experience any type of new impact as a result of the proposed project (largely due to the fact that these areas have already been developed to some degree – *i.e.*,

no trees – and transmission lines will span large areas). The only exception is the existing development at the Richards Creek Substation parcel. Here, the roadway, gravel pad, and detention pond will be redeveloped during construction of the Richards Creek Substation. A discussion of the non-functioning buffer area impacted at the substation parcel (existing developed buffer to be redeveloped) is quantified and discussed in Section 7.

Structure setbacks have not been included in the CAIA.

Table 2. Summary of wetland critical area classifications and buffer widths.

Wetland Name[1]	2004 Ecology Wetland Rating				Category	Standard Buffer Width (feet)
	Water Quality	Hydrologic Function	Habitat	Total		
I (Lakeside)	20	8	5	33	III	60
EE (Lakeside)	6	10	14	30	III	60
D (Lakeside)	16	12	16	44	III	60
A (Richards)	6	10	21	37	III	110
B (Richards)	6	12	16	34	III	60
C (Richards)	6	12	20	38	III	110
D (Richards)	20	22	21	63	II	110
H (Richards)	6	16	21	43	III	110
JB02	0	0	7	7	IV	N/A[2]
JB03	0	0	7	7	IV	N/A[2]
JB04	2	6	9	17	IV	40
A (Somerset)	4	12	13	29	IV	40
C (Somerset)	12	4	9	25	IV	N/A[2]
D (Somerset)	12	4	11	27	IV	40
E (Somerset)	4	12	12	28	IV	40
JB05	2	6	13	21	IV	N/A[2]
JB08	8	12	21	41	III	110
MB04	4	0	17	21	IV	40
MB03	0	4	9	13	IV	N/A[2]
MB02	2	4	9	15	IV	N/A[2]
MB01	16	20	12	48	III	60

[1] Lakeside = delineated for Lakeside Substation rebuild in 2014.
Richards = delineated in anticipation of Energize Eastside Project in 2016 and 2017.
Somerset = delineation study conducted in January and February 2017.

[2] Category IV wetlands that are less than 2,500 SF are not regulated by City of Bellevue.

Table 3. Summary of stream critical area classifications and buffer widths.

Stream Name	Type	Primary Structure?	Buffer (feet)
D (Lakeside)	Type F	Yes – parcel 5453300146 No – parcel 1024059083	50 100
B (Lakeside)	Type F	No – parcels 1024059083, 1024059130	100
F (Lakeside)	Type F	No – parcels 1024059083, 1024059130	100
A (Richards)	Type N	No – parcel 1020459083, 1024059130	50
C (Richards) – Richards Creek	Type F	No – parcels 1024059130, 8135300110	100
JB02	Type F	No – parcel 8135300110	100
JB04	Type F	No	100
JB05 – Coal Creek	Type F	No	100
MB03	Type N	No	50
MB02	Type F	No	100
MB01	Type N	Yes – parcel 1951830050 No – parcels 2824059050, 1951830100	25 50

5.1.2 Priority Geologic Hazard Areas

Geologic hazard areas also require buffers per LUC 20.25H.035. According to this provision, landslide hazard areas and steep slopes require a 50-foot buffer from the top of the slope. In order to map top-of-slope buffers, steep slopes and landslide hazard areas were visually evaluated relative to 10-foot contour data provided by the City of Bellevue, and buffers were clipped to top-of-slope. (Appendix B).

Structure setbacks have not been included in the CAIA.

5.1.3 Flood Hazard Areas

Vegetation removal in the floodplain requires documentation that describes proposed impacts on the floodplain and instream habitat functions and processes and how the Project will ensure there will be no adverse effect on listed salmonids in accordance with FEMA requirements. In compliance with federal Endangered Species Act (ESA) requirements, a Biological Evaluation (BE) has been completed for the Project which includes a discussion of floodplain impacts.

5.2 Alteration of Critical Areas and Buffers

In general, the City of Bellevue will not allow critical areas to be filled, graded, or altered. The LUC requires that an applicant adjust proposed site plans to avoid and/or minimize impacts to critical areas and their respective buffers. New or expanded utility facilities and utility systems are allowed within a critical area or critical area buffer if no technically feasible alternative with less impact on the critical area or critical area buffer exists and if certain other criteria are met (see Section 8 for a review of how the Project meets these criteria).

Proposed alterations to habitat in flood hazard areas are described in detail in the ESA documentation for the Project. Requirements associated with proposed alterations to wetland, streams, landslide hazard areas, steep slopes, and associated buffers are described below.

5.2.1 Wetlands

Mitigation is required for impacts to wetlands and their buffers in order to ensure equivalent or greater protection of critical area functions and values from existing conditions. Bellevue outlines mitigation actions in order of preference, subject to location requirements, as follows (LUC 20.25H.105.A.1):

a. *Restoring wetlands on upland sites that were formerly wetlands.*

b. *Creating wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of nonnative introduced species. This should only be attempted when there is a consistent source of hydrology and it can be shown that the surface and subsurface hydrologic regime is conducive for the wetland community that is being designed.*

c. *Enhancing significantly degraded wetlands.*

   Applicants proposing enhancement must justify use of this mitigation measure according to LUC 20.25H.105.D.

Per LUC 20.25H.105.B, compensatory mitigation shall be in-kind and onsite or, if onsite is not feasible, in-kind and within the same drainage sub-basin. Location of mitigation actions may be conducted off-site and outside of the drainage sub-basin if certain criteria can be met.

Mitigation ratios for permanent wetland impacts required by the LUC are provided in Table 4 by type of wetland impact. Temporary wetland impacts are typically restored in-place at a 1:1 ratio.

Table 4. Wetland mitigation ratios for permanent wetland impacts.

Type of Wetland Impact	Restoration or Creation[1]	Enhancement[2]
Category II	3:1	6:1
Category III	2:1	4:1
Category IV	1.5:1	3:1

[1] Per Bellevue LUC, these ratios apply to mitigation that is in-kind, is onsite, is the same category of wetland, is timed prior to or concurrent with alteration and has a high probability of success.

[2] While Bellevue allows for enhancement as a mitigation option, mitigation ratios are not provided in the LUC. Recommended mitigation ratios presented in this table are derived from the Ecology publication, *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance* (Ecology et. Al 2006), and are presumed to suffice.

Guidance for Project Scenarios not captured in the Bellevue LUC

Project impacts are expected to include wetland conversion through PSE's necessary vegetation management activities. An approach to mitigation for this type of impact is not specifically addressed in the LUC. For these scenarios, Ecology publication, *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance* (Ecology et al. 2006), was referenced to determine appropriate wetland mitigation ratios.

In addition to permanent impacts to wetlands (conversion to a developed condition), the Project will impact some wetland areas through conversion of forested vegetation communities to shrub or emergent wetland communities. Interagency guidance for mitigating this type of impact is as follows (Ecology et al. 2006):

> *Loss of functions due to the permanent conversion of wetlands from one type to another also requires compensation. For example, when a forested wetland is permanently converted to an emergent or shrub wetland (e.g., for a utility right-of-way) some functions are permanently lost or reduced.*
>
> *The ratios for conversion of wetlands from one type to another will vary based on the type and degree of the alteration, but they are generally one-half of the typical ratios for permanent impacts.*

5.2.2 Streams

Streams may be modified when associated with a new or expanded utility facility or system; new or expanded public right-of-way, private roads, access easements or driveways; and habitat improvement projects (LUC 20.25H.080). PSE proposes to replace and upgrade the culvert carrying a small, perennial stream (Stream C, also known as Richards Creek) beneath the relocated access driveway to the Richards Creek Substation site as a part of the Project. This

Project element will include channel realignment and restoration activities that will compensate for critical area impacts incurred by the Project.

5.2.3 Wetland and Stream Buffers

Functioning wetland and stream buffers converted to a developed condition by the Project shall be replaced at a ratio of 1:1. Mitigation for buffer impacts shall occur in the following order of preference and in the following locations (LUC 20.25H.105.A.2 and LUC 20.25H.085.A):

> *a. Onsite, through replacement of lost critical area buffer;*
>
> *b. Onsite, through enhancement of the functions and values of remaining critical area buffer;*
>
> *c. Off-site, through replacement or enhancement, in the same sub-drainage basin;*
>
> *d. Off-site, through replacement or enhancement, out of the sub-drainage basin but in the same drainage basin.*

Where functioning wetland or stream buffers are impacted by a conversion of vegetation (not fill), the proposed mitigation ratio to off-set impacts is 0.5:1, consistent with the guidance for this type of impact to wetland areas.

Temporary wetland and stream buffer impacts are typically restored in-place at a 1:1 ratio.

5.2.4 Landslide Hazard Areas and Steep Slopes

Where construction activities or vegetation removal is proposed in geologic hazard areas, assessment by a qualified professional is required. Proposed alterations to geologic hazard areas are discussed in the GeoEngineers Report (2017) included as Appendix C. In their report, GeoEngineers recommends implementation of specific BMPs and mitigation strategies in order to minimize impacts to geologic hazard areas. BMPs and mitigation strategies are discussed in more detail in Section 8 of this report.

Required performance standards for these areas are outlined in the GeoEngineers Report as well as in Section 9 of this document.

6 MITIGATION SEQUENCING

Pursuant to LUC 20.25H.215, the substation design and pole replacement locations avoid and minimize impacts to critical areas and associated buffers located in the Project corridor to the greatest extent feasible.

Avoidance

Every effort has been made to relocate poles out of critical areas where possible. Completely avoiding impacts to all critical areas and associated buffers as part of the South Bellevue Segment is not achievable. For example, the location of the Richards Creek Substation is dependent upon proximity to existing infrastructure, the existing location of other developed substations such as the Lakeside Substation to the north, and the required connections to other PSE transmission lines. The substation has been located outside of the critical areas to the extent possible, re-using as much of the existing pole yard as feasible. Furthermore, construction access has been modified to avoid impacting critical areas and pole construction areas have been adjusted to exclude critical areas on a pole by pole basis.

Even though poles have been moved outside of critical areas, some pole locations and pole replacement activities associated with the transmission line upgrade must occur in specific locations for proper functioning of the electrical system due to complex engineering considerations. Where avoidance is not possible, PSE worked with engineers to locate poles to minimize impacts.

Minimization

Minimization techniques were utilized during the design process in order to limit impacts to critical areas and their associated buffers. Minimization measures included the following:

1. Utilizing the existing transmission line corridor; which has experienced significant disturbance as a result of adjacent development and ongoing corridor maintenance.

2. When working within a critical area, limiting the construction disturbance to the minimum feasible size around each pole and access point.

3. Installing 230 kV transmission lines between poles with minimal site disturbance. Where feasible given maximum distance allowed between poles, the poles will be located outside of critical areas. Transmission lines will span above critical areas, minimizing ground disturbance, vegetation removal, and loss of critical area function.

Mitigation

To off-set unavoidable critical area impacts associated with the Project, compensatory mitigation will occur. Mitigation will include restoration of temporary impacts (including maintenance of slope stability) wetland enhancement, and critical area buffer enhancement in order to achieve equivalent or greater critical area functions and values compared to existing

conditions. Some of the wetland enhancement will occur within the boundaries of the culvert replacement and stream restoration project also occurring on the Richards Creek Substation parcel. Additional non-compensatory restoration associated with the stream project is also proposed. Mitigation needs have been calculated based upon anticipated impacts in each of the two sub-basins within the south Bellevue project area. A mitigation plan has been prepared for each sub-basin (Appendix A). See Section 8 for further discussion of the plans.

7 Unavoidable Project Impacts and Required Mitigation

Impact types resulting from the Project have been quantified based upon the long-term condition of the proposed work and existing land cover types in the corridor. Quantified impacts have been characterized as one of four types using this analysis and include permanent, conversion, temporary, and no change. A summary of the impact types based on proposed work and existing land cover is provided in Table 7.

Permanent impacts are characterized as a change from a vegetated critical area to a utility pole, culvert footprint, substation footprint, or other associated developed condition. The quantity of permanent impacts occurring in wetlands and wetland/stream buffers is used to determine mitigation needs based upon the mitigation ratios presented in Table 4. No permanent impacts are proposed in geologic hazard areas. Quantified permanent impacts to flood hazard areas (pole footprints) are provided for thoroughness and to aid in the qualitative discussion of impacts; however, there is no direct mitigation requirement associated with flood hazard areas as there is for wetlands or wetland/stream buffers.

Impacts that result in vegetation conversion are caused by vegetation management activities resulting in a shift from forested to shrubby or herbaceous vegetation. These impacts will be limited to disturbance of vegetation; soils will remain intact. These types of impacts also require mitigation for wetlands and wetland/stream buffers, but since the magnitude of impact is less than permanent impacts, a reduced mitigation ratio is proposed using interagency guidance (Ecology et al. 2006). Impacts that result in a vegetation conversion will be mitigated at one-half the typical ratios for permanent impacts (Table 4) when they occur in wetlands and wetland/stream buffers.

Quantified vegetation conversion impacts are also presented for geologic and flood hazard areas. However, this measure of impact was not relied upon by

respective professionals when assessing Project impacts in these critical areas. For example, GeoEngineers based their analysis on a review of geologic maps and geologic hazard maps, digital imagery, site visits, and PSE site plans (which included trees to be removed but not canopy loss). Conversion impacts are presented for consistency in geologic and flood hazard areas and to also provide the reader's with a comprehensive understanding of Project impacts. Conversion impacts in geologic hazard areas and flood hazard areas do not directly correlate to mitigation requirements as they do for wetlands and wetland/stream buffers.

Temporary impacts will occur as part of the following activities: pole installation, maintenance, and removal; construction access route re-establishment/use; and construction limits of the Richards Creek Substation and the culvert replacement. These areas will be restored in-place after construction work is complete.

Where no change is anticipated, due to the existing land cover type in the Project area, no mitigation is required. Impacts results categorized as no change have not been reported.

Project impacts will occur in wetlands, flood hazard areas, landslide hazards, and steep slope critical areas as well as critical area buffers. In addition to quantifying impacts by area, impacts have been qualitatively assessed by a qualified professional for each critical area type to be impacted. The results of the quantitative and qualitative analyses are discussed in the following sub-sections.

Table 5. Matrix used for determining impact types based upon long-term condition of proposed activities and existing land cover types in critical areas and associated buffers.

			Existing Land Cover Types					
			Forested to be Removed		Forested to Remain		Understory only	Other (mostly lawn)
	Impact Description	**Long Term Condition[1]**	with understory	no understory	with understory	no understory		
Proposed Activities	Pole footprint (actual footprint of pole structure based on engineering drawings from PSE)	Developed	P	P	P	P	P	P
	Permanent development of the Richards Creek Substation	Developed	P	P	P	P	P	P
	Clearing limits for Richards Creek Substation	Mixed vegetation[2]	C	C	T	T	T	T
	Pole buffer (6 foot radius outside of pole footprint)	Mixed vegetation[2]	C	C	T	T	T	T
	Access routes (20 foot width based on alignments from PSE)	Mixed vegetation[2]	C	C	T	T	T	T

		Existing Land Cover Types					
		Forested to be Removed		Forested to Remain		Understory only	Other (mostly lawn)
Impact Description	**Long Term Condition[1]**	with understory	no understory	with understory	no understory		
Wire Zone	Mixed vegetation[2]	C	C	NC	NC	NC	NC
Managed ROW	Mixed vegetation[2]	C	C	NC	NC	NC	NC
Pole construction work area	Mixed vegetation[2]	C	C	T	T	T	T
Limits of Vegetation Management for Richards Creek Substation	Mixed vegetation[2]	C	C	NC	NC	NC	NC
Legal ROW	Mixed vegetation[2]	C	C	NC	NC	NC	NC

Type of Impact based on proposed activity, long term condition, and existing land cover type: P = Permanent, C = Conversion, T = Temporary, NC = No Change

[1] Long term condition determined in coordination with PSE.
[2] Subject to varying height restrictions described in Section 3.3.5.

7.1 Critical Area Impacts

7.1.1 Wetlands

Impacts are proposed to a Category II, Category III, and Category IV wetlands; no Category I wetlands are located in the Project limits. No impacts will occur in the Sunset Creek and Newport drainage basins. Wetland impacts are quantified in Tables 6 through 9, below. Impacts characterized as permanent and conversion will be mitigated according to the ratios presented in Section 5.2.

The vast majority of Project impacts occur in the Richards Creek sub-basin and, more specifically, at or immediately adjacent to the proposed Richards Creek Substation parcel (including impacts at Lakeside Substation to the north) (Table 6). Of the total permanent impacts, 98 percent occur on the Richards Creek or Lakeside Substation properties. Similarly, 88 percent of vegetation conversion impacts occur on the Richards Creek or Lakeside Substation properties.

Project impacts generated in the transmission line corridor are relatively minor. This is due to the existing maintenance of the corridor for existing 115kV transmission lines and the petroleum pipeline. Impacts in the transmission line corridor (from new pole footprints) are also offset by the removal of existing poles. Two poles contributing 12 SF of fill will be removed from Wetland A (Richards); one pole contributing 6 SF of fill will be removed from the buffer of Wetland A (Richards) near Lakeside Substation. The area of pole removal in wetland and wetland/stream buffer critical areas has been removed from the total impact area and is reported as area of *net* impact in Tables 6 through 9.

A qualitative description of impacts can be found in Section 7.2 (Functional Lift Analysis) followed by a description of the mitigation activities proposed to compensate for the proposed impact.

Table 6. Project impacts at the Richards Creek Substation (including impacts at Lakeside Substation) versus transmission line corridor by sub-basin.

	Location	Net Permanent Impact	Vegetation Conversion
Richards Creek sub-basin	Richards Creek Substation	2,531 SF (98 %)	10,045 SF (88 %)
	Transmission Line Corridor	44 SF (2 %)	73 SF (1 %)
Coal Creek sub-basin	Transmission Line Corridor	0	1,223 SF (11 %)
	TOTALS:	2,575 SF	11,341 SF

Table 7. Project impacts to Category II wetlands by sub-basin.

	Category II Wetland Impacts	Area of Net Impact (SF)	Source of Impact
Richards Creek Sub-basin	Permanent	41	Development of Richards Creek Substation in Wetland D (Richards)
	Conversion	100	Legal ROW in Wetland D (Richards)
	Temporary	731	Clearing limits of Richards Creek Substation in Wetland D (Richards)

Table 8. Project impacts to Category III wetlands by sub-basin.

	Category III Wetland Impacts	Area of Net Impact (SF)	Source of Impact
Richards Creek Sub-basin	Permanent	2,534	Development of Richards Creek Substation in Wetlands A and B (Richards) and pole footprints in Wetlands A and H (Richards)
	Conversion	10,018	Legal ROW, managed ROW, wire zone, pole work area, access route, and/or pole buffer in the following Wetlands: A (Richards)and H (Richards)
	Temporary	8,252	Clearing limits of Richards Creek Substation, pole work area, pole buffer, and/or access route in Wetland A (Richards) and Wetland H (Richards)

	Category III Wetland Impacts	Area of Net Impact (SF)	Source of Impact
Coal Creek Sub-basin	Permanent	0	None
	Conversion	1,145	Wire zone and managed ROW in Wetland MB01
	Temporary	0	None

Table 9. Project impacts to Category IV wetlands by sub-basin.

	Category IV Wetland Impacts	Area of Net Impact (SF)	Source of Impact
Coal Creek Sub-basin	Permanent	0	None
	Conversion	0	None
	Temporary	1,155	Pole buffer in Wetland A (Somerset); pole work area in Wetland D (Somerset)

7.1.2 Wetland and Stream Buffer Impacts

Impacts are proposed to wetland and stream buffers in the South Bellevue Segment. Buffer impacts are largely generated by proposed activities occurring at the Richards Creek Substation parcel and required vegetation management. Wetland and stream buffer impacts are quantified in Table 10, below. Impacts characterized as permanent and conversion will be mitigated according to the ratios presented in Section 5.2.3.

A qualitative description of buffer impacts can be found in Section 7.2 (Functional Lift Analysis) followed by a description of the mitigation activities proposed to compensate for the proposed impact.

As noted in Section 5.1.1, the functioning buffer was used in the CAIA to generate the impacts shown in the tables below. The majority of excluded non-functioning buffer areas do not experience any type of new impact as a result of the proposed project (largely due to the fact that these areas have already been developed to some degree – i.e., no trees – and transmission lines will span large areas). The only exception is the existing development at the Richards Creek

substation parcel. Here, the roadway, gravel pad, and detention pond will be redeveloped during construction of the Richards Creek Substation.

The total buffer area being permanently impacted in the Richards Creek sub-basin reported in Table 10 below is 23,893 square feet (SF). This number does not include the roadway, gravel pad, and detention pond on the Richards Creek substation parcel (they were considered "non-functioning") that will also be impacted by the project; these buffer areas total 47,512 SF.

Therefore, the total buffer area to be permanently impacted (including non-functional areas) is 71,405 SF. Table 17 indicates that mitigation for only 23,893 SF of permanent buffer impact is required, which excludes the non-functioning areas. The driveway and gravel pad on the Richards Creek substation parcel were determined to provide little water quality/hydrology/habitat function to nearby areas as a result of being paved or consisting of compact, crushed gravel. The detention pond was removed from the buffer based on its association with the impacted/developed condition of the substation parcel and direction from PSE that precedent had been set at other developed substation sites where detention ponds were not considered buffer.

Table 10. Wetland and stream buffer impacts by sub-basin.

	Wetland and Stream Buffer Impacts	Area of Net Impact (SF)	Source of Impact
Richards Creek Sub-basin	Permanent	23,893	Development of Richards Creek Substation and pole footprint
	Conversion	22,885	Richards Creek Substation limit of vegetation management, Richards Creek Substation clearing limits, legal ROW, managed ROW, pole buffer, pole work area, access route, and wire zone
	Temporary	35,362	Richards Creek Substation clearing limits, pole buffer, pole work area, and access route
Coal Creek Sub-basin	Permanent	35	Pole footprint
	Conversion	7,734	Legal ROW, managed ROW, and wire zone.
	Temporary	5,407	Access route, pole buffer, and pole work area

7.1.3 Geologic Hazard Area Impacts and Associated Buffer Impacts

Impacts to geologic hazard areas and associated buffers have been reviewed by GeoEngineers based on PSE's proposed activities. As stated previously, many areas of mapped steep slopes were eliminated from the impact analysis because of their existing land use (engineered road slopes, engineered landscaping, etc.) and the proposed activities at those locations.

Quantified impacts to landslide hazard areas and steep slopes result from vegetation management in the legal ROW, managed ROW, and wire zone in the Coal Creek drainage area and total 5,031 SF and 4,447 SF, respectively. No permanent or temporary impacts are proposed in the priority geologic hazard areas. Buffer impacts to priority geologic hazard areas are also proposed, resulting from access routes, pole buffer, pole work area, and vegetation management. One new pole is proposed in geologic hazard area buffers to replace 5 existing poles to be removed resulting in an overall decrease in fill in this critical area type.

GeoEngineers' review of priority geologic hazard areas included a site visit to the legal ROW in the Coal Creek drainage in which they observed no indication of slope movement. Additionally, the utility corridor was found to be actively maintained as a result of the existing utilities, especially the pipeline (regularly

mowed grass, no trees). GeoEngineers determined that PSE's proposed work would be consistent with management activities of the existing pipeline and was not anticipated to impact the mapped geologic hazard areas of the Coal Creek drainage. This assessment was made in conjunction with recommendations aimed at mitigating potential impacts through implementation of BMPs and TESC measures. Those recommended mitigation strategies are discussed in Section 8 of this report.

Refer to GeoEngineers Report (2017) for additional details (Appendix C).

7.1.4 Flood Hazards Areas

As part of the proposed Project, two existing H-frame structures which include a total of four poles, will be removed from a flood hazard area associated with Sunset Creek and replaced with two new poles. The existing H-frame poles are currently situated in a highly developed area with medium to high density residential development and paved roads and parking areas. Existing pole footprints are approximately 6 SF each, totaling approximately 24 SF of area. The proposed new pole footprints[1] total 56 SF (Table 11). According to LUC 20.25H.180 "post and piling techniques are preferred and are presumed to produce no increase in the Base Flood Elevation (BFE). Demonstration of no net rise in the BFE through calculation is not required." There will be no impact to the flood storage capacity of the flood hazard area.

Vegetation management impacts to 100-year floodplains in the Project area are also anticipated. Vegetation impacts may result from a number of proposed activities that can be characterized as a conversion of vegetation. Vegetation conversion impacts in the Sunset Creek floodplain are resulting from activities associated with installation of new poles and vegetation management in the legal ROW, managed ROW, and wire zone. The trees that will be removed are located in maintained landscaped areas on Bellevue School District property and nearby apartment buildings. They are not considered to be located in a riparian landscape setting (Sunset Creek flows underground at this location) and are not considered to provide significant habitat value to the mapped floodplain.

Similarly, vegetation management activities will require selective removal of trees located in the Coal Creek floodplain. The Coal Creek floodplain differs in character than the Sunset Creek floodplain; vegetation is predominantly native trees associated with an above-ground stream channel. Vegetation removal will be selective and not significantly impact the canopy cover of the stream at this location. Minimization measures to limit impacts to the floodplain will be

[1] New poles will range in size from 4 to 6 feet in diameter. For the purposes of this analysis, the largest diameter was used to calculate Project impacts. If it is determined that the Project intent can be accomplished using smaller-diameter poles at this location, impacts would be reduced accordingly.

utilized for tree removal and include foot-access only and BMPs to limit erosion and sediment-laden runoff. Stumps will be left in the ground and cut vegetation will be chipped, dispersed, or removed as appropriate. As stated previously, in compliance with federal ESA requirements, a BE has also been completed for the Project which includes discussion of floodplain habitat impacts summarized previously.

Table 11. 100-year floodplain and floodplain vegetation impacts.

	Floodplain Impacts	Area of Net Impact (SF)	Source of Impact
Zone AE (Sunset Creek)	Permanent	32	Pole footprints in floodplain associated with Sunset Creek
	Conversion	4,508	Pole buffer, pole work area, access route, legal ROW, managed ROW, and wire zone in Sunset Creek floodplain
	Temporary	1,679	Access route, pole buffer, and pole work area
Zone A (Coal Creek)	Permanent	0	None
	Conversion	2,777	Legal ROW, managed ROW, and wire zone in Coal Creek floodplain.
	Temporary	0	None

7.2 Mitigation Required

As stated in Section 5, Bellevue requires that compensatory wetland mitigation is developed to satisfy the City's preferred mitigation location followed by preferred mitigation action. Bellevue prioritizes onsite mitigation followed by mitigation in the same drainage sub-basin; the City also prefers wetland restoration or creation over enhancement.

In order to determine a mitigation strategy and satisfy City preferences, locations for potential mitigation actions were first determined. Since the Project is long and linear in nature, it passes through, and generates impacts, across many "sites." However, the overwhelming majority of Project impacts occur at the Richards Creek Substation/Lakeside Substation site. As such, the Richards Creek Substation parcel was reviewed for mitigation potential. Wetland restoration and creation were considered for the property, but determined to be infeasible due to existing site conditions (most of the remaining vegetated area onsite is already wetland or stream) and the inability to appropriately buffer any new or restored

wetland area. Existing wetland and wetland/stream buffers are degraded on the Richards Creek Substation site and provide ample opportunity for enhancement.

The Richards Creek Substation site provides enough opportunity and area to mitigate for all wetland and wetland/stream buffer impacts that occur in the Richards Creek sub-basin. It is also the site in the South Bellevue Segment that sustains the majority of Project impacts (by a significant margin). In general, mitigation sites are more successful when combined into fewer larger areas, rather than piecemealed across several smaller sites. Furthermore, the wetlands located at the Richards Creek site are situated in a landscape position (adjacent to streams) that makes mitigation more valuable at this location than at small isolated wetlands in the corridor. Lastly, PSE's ownership of the Richards Creek Substation parcel will allow for mitigation areas to be easily accessed, installed, maintained, and monitored without requiring special property access or homeowner coordination, which could be a complicating factor for other areas along the corridor if a strict mitigation-by-site approach was taken.

Similarly, impacts generated by the Project in the Coal Creek sub-basin will be mitigated for within that sub-basin, but combined into one accessible area that appropriately mitigates for the functions and values affected by the Project in this sub-basin.

The proposed mitigation plans are designed to enhance wetland and stream critical areas in the study area. The plan will account for long-term pole access and maintenance needs, the existing gas pipeline easement, site topography, habitat connectivity, and vegetation height restrictions.

The final permit plan set (Appendix A) includes notes that fulfill the requirements of LUC 20.25H.220.B and provide clear direction for mitigation goals, performance standards, monitoring and maintenance protocols, and contingencies for the duration of the required five-year monitoring period.

As noted above, enhancement is the proposed mitigation strategy. Tables 12 and 13 summarize the wetland mitigation required to compensate for Project impacts by drainage sub-basin. Table 14 summarizes the wetland and stream buffer mitigation required by drainage sub-basin.

Proposed enhancement efforts consist of removing/reducing the presence of non-native plant species and installing a diverse native plant community consistent with the vegetation management requirements of the particular site. See Section 8 for a complete discussion of the mitigation strategy for each sub-basin.

Table 12. Calculation of mitigation needs for wetland impacts in Richards Creek sub-basin.

	Impact	Impact Quantity (SF)	Proposed Wetland Enhancement Mitigation Ratios	Mitigation Required (SF)
Category II	Permanent	41	6:1	246 RH
	Conversion	100	3:1	300 RH
Category III	Permanent	2,534	4:1	10,136 RH
	Conversion	10,018	2:1	20,036 RH
Category IV	Permanent	0	3:1	0
	Conversion	0	1.5:1	0
			Total:	30,718 RH (0.71 acres)

Table 13. Calculation of mitigation needs for wetland impacts in Coal Creek sub-basin.

	Impact	Impact Quantity (SF)	Proposed Wetland Enhancement Mitigation Ratios	Mitigation Required (SF)
Category III	Permanent	0	4:1	0
	Conversion	1,145	2:1	2,290 RH
Category IV	Permanent	0	3:1	0
	Conversion	0	1.5:1	0
			Total:	2,290 RH (0.05 acres)

Table 14. Calculation of mitigation needs for wetland and stream functioning buffer impacts.

	Wetland and Stream Buffer Impacts (overlapping)	Area of Impact (SF)	Proposed Mitigation Ratio	Buffer Mitigation Required (SF)
Richards Creek Sub-basin	Permanent	23,893[1]	1:1	23,893
	Conversion	22,885	0.5:1	11,443
			Total:	35,336 (0.81 acres)
Coal Creek Sub-basin	Permanent	35	1:1	35
	Conversion	7,734	0.5:1	3,867
			Total:	3,902 (0.09 acres)

1. Excludes 47,512 SF of non-functioning buffer being redeveloped on the Richards Creek substation parcel. As buffer is already developed, no functions will be lost and mitigation is not required.

7.3 No Net Loss Evaluation

Wetland and stream critical areas and their associated functional buffers have been qualitatively assessed, in addition to the quantitative analysis presented above. For the purposes of this section, the pre-existing condition of the Project area is compared against the post-Project condition to ensure that no net loss of critical area functions is achieved. With mitigation, a net increase in functions is expected post-Project in accordance with LUC 20.25H.

In general, proposed permanent wetland impact and mitigation areas are disturbed and dominated by invasive plants such as non-native blackberry and reed canarygrass. Wetland impacts classified as vegetation conversion involve removal of native and non-native trees from wetland areas. Table 15 below summarizes impacts, existing conditions, and proposed conditions. An analysis and comparison of the specific functions and values provided by the pre-existing sites and the post-Project sites for each of the two mitigation areas is provided in Chapter 8. The functional lift analysis describes how the mitigation plan will provide equivalent or greater critical area functions when compared to existing conditions.

Proposed mitigation will maintain wetland and buffer functions and values through wetland and buffer enhancement and restoration of temporary impacts. Permanent wetland impacts will be mitigated through enhancement of degraded wetland areas.

A greater area of native habitat will result from the proposal. Enhanced areas will be more suitable overall for urban songbird and small mammal species than they are presently; the understory will contain more woody vegetation and a greater structural complexity, which is more attractive to songbirds and small mammals than is low-growing, homogeneous vegetation. As well, a greater mix of flowering, fruiting and seeding plants will provide forage over a longer yearly timespan than the relatively uniform existing invasive vegetation and sparse understory areas. Wildlife species of the Pacific Northwest are also better adapted to forage provided by native plants than non-native species.

Table 15. Descriptions of general impact area conditions and proposed changes.

Impact Location and Quantity	Existing condition	Proposed action
Wetland A (Richards) Permanent Impacts: 397 SF Vegetation Conversion: 9,945 SF	Wetland A is a large slope wetland that crosses existing PSE transmission line corridor. As a result, areas that have experience past impacts or disturbance from the transmission line are degraded and consist of Himalayan blackberry and reed canarygrass monocultures.	Wetland fill associated with development of Richards Creek Substation, including culvert replacement and pole footprints. Conversion from forested wetland area to shrub wetland area to accommodate new, higher voltage transmission lines and substation. Temporary impacts associated with clearing limits for Richards Creek Substation and pole work areas. Stream & wetland enhancement: wetland enhanced with removal of invasive vegetation, installation of native vegetation, realigned stream channel, installation of LWD. The stream realignment allows for the creation of more complex and higher quality riparian wetlands and buffers of substantial width along both sides of the stream, whereas the existing alignment is straight, borders a paved area, and is largely lined with reed canarygrass and nightshade.
Wetland B (Richards) Permanent Impacts: 2,060 SF	Wetland B is a small slope wetland that is dominated by an understory of dense Himalayan blackberry. Some native plants are present to a lesser extent and include Pacific willow, red alder, salmonberry, giant horsetail, and lady fern.	Wetland fill associated with development of Richards Creek Substation. Mitigation for wetland loss provided through enhancement of Wetlands A and D.

Impact Location and Quantity	Existing condition	Proposed action
Wetland D (Richards) Permanent Impacts: 41 SF Vegetation Conversion: 100 SF	Wetland D is a riverine wetland dominated by an overstory of Pacific willow and red alder, and an understory significantly degraded with reed canarygrass, Himalayan blackberry, and nightshade.	Wetland fill associated with development of Richards Creek Substation culvert replacement. Conversion from forested wetland area to shrub wetland area to accommodate new, higher voltage transmission lines. Temporary impacts associated with clearing limits for Richards Creek Substation. Stream & wetland enhancement: wetland enhanced with removal of invasive vegetation, installation of native vegetation, realigned stream channel. The stream realignment allows for the creation of more complex and higher quality riparian wetlands and buffers of substantial width along both sides of the stream.
Wetland H (Richards) aka Wet JB01 Permanent Impacts: 77 SF Vegetation Conversion: 73 SF	Wetland H is a slope wetland that consists of native and non-native plant species. Prevalent invasive, non-native species are located in the existing transmission line corridor and include reed canarygrass, birdsfoot trefoil, and Himalayan blackberry.	Wetland fill associated with pole footprints. Conversion from forested wetland area to shrub wetland area to accommodate new, higher voltage transmission lines. Temporary impacts associated with clearing limits for Richards Creek Substation, pole work areas, and access routes. Mitigation for wetland loss and conversion provided through enhancement of Wetland D.

Impact Location and Quantity	Existing condition	Proposed action
Wetland MB01 (Coal Creek sub-basin) Vegetation Conversion: 1,146 SF	Wetland MB01 is a depressional wetland located in the existing transmission line corridor and adjacent to a well-used trail. It is dominated by a mix of native and non-native species that includes Pacific willow, red-osier dogwood, bittersweet nightshade, and Himalayan blackberry.	Conversion from forested wetland area to shrub wetland area to accommodate new, higher voltage transmission lines. Wetland enhancement at Somerset Substation: removal of invasive vegetation, installation of native vegetation.
Wetland & stream buffers (Richards sub-basin) Permanent Impacts: 23,893 SF Vegetation Conversion: 22,886 SF	Buffer impacts are generally located on the Lakeside or Richards Creek Substation parcels or in the existing transmission line corridor. Due to previous development/disturbance and existing land uses, buffer areas are mostly degraded, consisting of compact soils and invasive vegetation (predominantly Himalayan blackberry and reed canarygrass).	Buffer loss associated with development of Richards Creek Substation and pole footprints. Conversion from forested buffer area to shrub buffer area to accommodate new, higher voltage transmission lines. Temporary impacts associated with clearing limits for Richards Creek Substation and pole work areas. Stream & wetland buffer enhancement: removal of invasive vegetation, installation of native vegetation. The stream realignment allows for the creation of more complex and higher quality riparian wetlands and buffers of substantial width along both sides of the stream, whereas the existing alignment is straight, borders a paved area, and is largely lined with reed canarygrass and nightshade.

Impact Location and Quantity	Existing condition	Proposed action
Wetland & stream buffers (Coal Creek sub-basin) Permanent Impacts: 35 SF Vegetation Conversion: 7,734 SF	Buffer impacts are generally located in the existing transmission line corridor. Due to previous development/disturbance and existing land uses, buffer areas are mostly degraded, consisting of compact soils and invasive vegetation (predominantly Himalayan blackberry and reed canarygrass).	Buffer loss associated with pole footprints. Conversion from forested buffer area to shrub buffer area to accommodate new, higher voltage transmission lines. Temporary impacts associated with access route and pole work areas. Wetland buffer enhancement at Somerset Substation: removal of invasive vegetation, installation of native vegetation.

7.4 Cumulative Impacts

Impacts from past actions have shaped the project vicinity since the mid-19th century, and continue to shape how Seattle and the Eastside are changing in response to development activities and trends. In general, landscape-scale and basin-level functions and processes are negatively impacted by increased impervious surface, critical area and buffer vegetation removal, and buffer area losses. This is common to urban areas like Bellevue which have experienced a general loss of upland forested, riparian, and wetland habitat areas due to development. Urbanization, which Bellevue has experienced in recent decades, tends to cause flashy stream hydrology, increased pollutant loads, sedimentation, and overall habitat loss, resulting in only a few areas of high-value fish and wildlife habitat remaining. Other large projects such as Sound Transit's East Link Light Rail overlap with the proposed Energize Eastside project and contribute to these ongoing trends and cumulative impacts on high-value uplands and wetlands in the vicinity. These changes, along with additional urban development, continue to incrementally reduce remaining habitat areas and aquatic resources.

Although urbanization has resulted in an overall loss and degradation of available fish and wildlife habitat throughout the study area, current regulations have slowed the trend of habitat loss to a degree, and in the case of fish passage in particular, future permitted projects are likely to incrementally provide net benefit to habitat. Mitigation measures for these projects may include restoration or enhancement of degraded streams and wetlands and their associated buffers, thus providing water quality treatment for impervious surfaces that currently receive no treatment, removal of fish passage barriers, and planting of disturbed areas with native vegetation. These mitigation measures benefit fish and wildlife

habitat when compared to existing conditions and improve conditions for federally listed threatened or endangered species, if present.

The Energize Eastside Project would contribute to the trend of degradation directly by removing trees and altering available habitat conditions, and indirectly by continuing to supply energy to support a growing, developing region. Project mitigation would help to reduce cumulative impacts, but will not immediately replace all habitat lost. Replacing large significant trees with smaller planting-sized trees would not fully replace the habitat functions provided by the existing conditions. Including snags and large woody debris in mitigation plans will help to address the loss of forested habitat values in the short term, and over time the loss of function would be further addressed as mitigation areas mature.

The Project also includes a culvert replacement and stream channel realignment and restoration. These activities are expected to improve both fish habitat and alleviate current sedimentation problems from existing conditions. Permanent wetland and buffer impacts will be appropriately mitigated in order to minimize the Project's cumulative impacts to each sub-basin (Richards Creek and Coal Creek). No long-term impacts to water resources are expected as a result of the Project. A mitigation plan to compensate for impacts identified in this report is in progress. While the vegetation structure within the Project area will be altered, a net increase in native habitat area is expected in the long-term with mitigation.

8 MITIGATION STRATEGY

8.1 Richards Creek Drainage Sub-basin

8.1.1 Wetland Mitigation

As stated previously, wetland impacts occurring in the Richards Creek sub-basin will be mitigated for at the Richards Creek Substation site based upon the location of the majority of wetland impacts, site access considerations, and in an effort to limit the number of small disconnected mitigation sites in the corridor. The wetland mitigation required in the Richards Creek sub-basin based on calculated impacts consists of 30,718 SF (0.71 acres) of enhancement. The Richards Creek Substation Mitigation Plan (Appendix A) proposes 30,718 SF of wetland enhancement to meet this mitigation need. Enhancement is proposed within degraded portions of Wetland A and Wetland D.

The Richards Creek culvert and stream restoration project also proposed on the Substation property was conceived separately from the mitigation for Energize Eastside. However, as they would occur on the same parcel, ideally at the same time, it is beneficial for all involved, and would have greater ecosystem benefits, if the projects were designed and executed together. Therefore, a portion of the wetland enhancement mitigation (13,396 SF) is proposed to occur to wetland areas within the boundaries of the stream restoration project. However, no out-of-kind mitigation is being proposed. The stream restoration itself, including the both the habitat improvements and flooding alleviation it is expected to bring, is not proposed as mitigation for the wetland impacts generated by Energize Eastside. These are considered extra restoration efforts occurring on the parcel which are beyond what is required by code to mitigate the Energize Eastside project. The stream realignment and restoration proposal will not result in permanent impacts to wetland function. Rather, it will enhance the functions of the interrelated and interdependent stream and wetland system and will help provide a greater functional lift to the restored wetlands within the stream project area.

Stream C Improvements in Wetlands A and D at Richards Creek Substation Site

PSE is planning to replace and upgrade the culvert carrying a small, perennial stream beneath the access driveway to the existing pole yard located beyond the east end of SE 30th Street in the City of Bellevue, just north of I-90 and 0.75 miles east of I-405. A pair of aging and undersized culverts (two side-by-side, 18-inch diameter corrugated metal pipe culverts) have proven inadequate to carry the combined flow and sediment loading along the stream. The scope of the proposed work includes a new culvert crossing and restoring or enhancing

affected adjoining habitat areas. These include affected wetlands and the realigned and enhanced stream sections extending upstream and downstream of the crossing.

Construction associated with proposed culvert replacement and stream realignment will result in temporary disturbance to streams, wetlands, and their associated buffers, but is self-mitigating in that it will also result in net functional improvements to the stream, wetlands, buffers and associated habitat benefits following Project implementation. During construction, any fish isolated in the localized instream work area will be removed by the stream restoration specialist in the work area. Given the size and characteristics of the existing stream, it is expected that stranded fish can be located and captured using dipnets or small seines followed by electrofishing. Efforts to capture and relocate fish by netting methods will precede electrofishing. Captured fish will be released in unaffected reaches downstream of the Project area.

The proposed culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding that now occurs on the adjoining property to the west, improve fish passage, and improve in-stream and riparian habitat conditions.

The restored stream will have a defined channel and floodplain benches, as well as the capacity to convey the predicted 1-year peak flow rate. The stream channel has been designed to flood at a 2-year peak flow rate and contribute to the surrounding wetland hydrology. A meandering channel design combined with woody debris placement, native revegetation, and wetland enhancements will create a complex and diverse aquatic habitat beneficial for fish and macroinvertebrates as well as other wildlife. This approach also produces varied flow velocities allowing for natural sediment movement and deposition patterns to occur. The channel alignment has been laid out to minimize impacts to wetlands, preserve as many trees onsite as feasible, and provide a more functional buffer. The original stream bed along the west property line of the subject site will not be filled in after stream flow is diverted into the new channel. The remnant channel is anticipated to continue to capture seepage and shallow groundwater and will continue to provide ecological diversity and function as wetland given the nature of the site hydrology. Tree trunks and roots wads will be strategically located along the restored reach to create and maintain scour pools and areas of refuge for fish as well as provide channel diversity and stability.

In summary, the proposed culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding

that now occurs on the adjoining property to the west, improve fish passage, and improve in-stream conditions. However, as noted above, these *functional improvements directly related to the stream project itself are not intended to mitigate for the Energize Eastside wetland impacts. Only the direct enhancement of the wetlands within the stream project area is counted as mitigation.* These existing, degraded, wetland areas could be enhanced without realigning the stream channel, but the potential function lift would be less than if the whole system were cohesively improved as is proposed through the associated stream realignment.

8.1.2 Wetland and Stream Buffer Mitigation

Required buffer mitigation in the Richards Creek sub-basin is 35,336 SF or approximately 0.81 acres. The Richards Creek Substation Mitigation Plan (Appendix A) proposes 35,336 SF of buffer enhancement to meet this mitigation need. Enhancement is proposed within degraded portions of the combined buffers of Wetland A, Wetland D and Stream C (Appendix A, Richards Creek Sub-basin Mitigation Plan, Sheet W4).

8.1.3 Functional Lift

The below text describes the existing and proposed conditions at the Richards Creek Substation parcel and how the proposed improvements will enhance the functions of the interrelated and interdependent stream and wetland system.

Existing Site Conditions

Site visits were made on November 20, 26, and December 4, 2018 to document current site conditions. Native vegetation throughout the project area was noted as being simple and non-diverse (Photos 1, 10, 12). Interspersed non-native vegetation is abundant, consisting primarily of Himalayan blackberry, reed canarygrass, and nightshade (Photo 3). Once these are removed, the remaining, native, vegetation will consist primarily of willows (spp.), red alder, salmonberry, and red-osier dogwood. There are essentially no conifers present. Removal of the non-native vegetation would leave a non-diverse, species-poor native vegetation remnant behind. Opportunities would then be present to in-plant with additional native plant species, including conifer trees, to increase diversity and improve wildlife habitat.

While Wetland D rates as a Category II wetland, it is overwhelmed by the invasive species described above. A higher category rating does not necessarily mean the wetland is less disturbed that a lower category wetland. The Category II score is driven by features present in the wetland, including the stream itself, which contribute points to certain functions, but do not reflect some of the actual degradation which is present. A canopy of willows and alder is present but the understory is heavily dominated by reed canarygrass, as well as blackberry and nightshade. Therefore, there is high opportunity to increase diversity and

improve wildlife habitat. There is also opportunity to improve the quality of some functions provided. For example, dense reed canarygrass contributes to water quality function, but replacing reed canrygrass with native species will improve the efficiency of stormwater filtration as well as improving habitat function.

As a slope wetland, Wetland A has an inherently lower score than most riverine wetlands as slope wetlands have a lower opportunity for providing some functions. Wetland A has also been impacted from past disturbance within the transmission line corridor and is heavily dominated by Himalayan blackberry and reed canarygrass monocultures. A limited area of overstory and less degraded understory is present near the middle of Wetland A, outside of the stream restoration area.

A primary observation made during the November site visits is that out-of-channel flows upstream of the access road are now prevalent even under low-flow conditions, further degrading the existing stream function as described below. Flows as observed on November 20, 2018 were at base (low) flow levels. Primary, clear flows from the main channel were clearly traced as heading directly downslope as channel definition faded, thereby missing the entrances to the paired culverts under the access road entirely and ending up in the SE 30th Street storm drainage system instead of continuing along the stream. Flows entering the existing culvert pair on that date consisted primarily of cloudy groundwater seepage collected in a separate, upslope channel. The groundwater source was indicated by the orange, iron bacteria precipitate along that channel (see Photos 4 and 6).

Water levels in the "channel" immediately downstream of the access road culvert pair were noted as being quite high on November 20, even though stream flows were low, and much or most of the flow missed the culvert entrances entirely and ended up in the SE 30th Street storm drainage system instead. Water levels at the culvert outlet were not more than a foot below the road surface, and remnant sand bags along the left bank extending downstream rose only a few inches above the water level. This is an indication that channel capacity continues to diminish due to combined sediment deposition and the growth of fine-stemmed vegetation, particularly reed canarygrass and nightshade. In fact, Photos 13 and 14, below, taken 5 days later on November 26, show stream flow overtopping the sand bag streambank at that location and spilling out to flow westward along the north side of SE 30th Street.

System Degradation

Existing degradation includes a very low-habitat-quality stream channel which is straight, narrow, lacks wood, and is choked in places with non–native vegetation, primarily Himalayan blackberry, reed canarygrass, and nightshade

(Photos 10, 12). Wetland areas adjacent to the stream (Wetland A and Wetland D) are similarly degraded with invasive species as described above. Additionally, the epicenter of coarse deposition that has filled the stream channel and caused it to lose definition and spill flows overland is in Wetland D, essentially providing a source of fill to the wetland. The approximate extent of this area is depicted on the existing conditions sheet W1 in Appendix A.

The stream's substrate is too high in fines to provide spawning habitat for cutthroat trout and other fish that might live there. This existing channel allows much room for improvement as both fish and other wildlife habitat. A combination of high flows, clogging vegetation, and deposition inhibits the channel's ability to carry flow. Since overbank areas to the west, both upstream and downstream of the access road, are lower than the channel, once flows leave the channel they don't return except through storm drains and not until far downstream. Flows leaving the channel upstream of the access road end up in the SE 30th Street storm drainage system and those leaving downstream end up in the paved HD Fowler storage yard (Photos 11, 14, and 17).

Ongoing efforts to sandbag the channel to reduce overbank flood flows (Photos 5-9, 13), as well as sediment removal at the existing culverts entrances to keep them open, have actually masked the existing degradation to some degree. Even with (but especially without) ongoing sandbagging and sediment removal, sedimentation, loss of channel definition, and loss of channel flow-carrying capacity will continue to worsen. This sedimentation should not be viewed as a natural process in this instance, in view of past channel relocation and basin urbanization which has likely increased sediment transport and deposition rates manifold.

A strong case can be made that this ongoing, accelerated deposition rate throughout the overbank wetland areas is a detriment to wetland hydrology. It is most assuredly anthropogenic wetland fill, even though it isn't being done using trucks, excavators, and dozers. As with any wetland fill, as ground levels rise, depth to saturated soils may increase such that wetland characteristics diminish and wetland is converted to non-wetland.

Note that the proposed new, wide box culvert crossing will include a vault beneath it for sediment entrapment, storage, and removal. Both the wetlands and the stream will benefit from sediment removal at the box culvert crossing.

If the proposed stream and culvert replacement work is not done, including sediment removal maintenance at the crossing, then deposition will continue to occur in and along the existing stream channel. Its flow capacity will continue to decrease and flooding will worsen. As mentioned, this is especially true if stopgap channel sandbagging and culvert inlet sediment removal measures are

discontinued. Though increased overbank flow may occur during high-flow (storm) events due to channel constriction, this may not improve wetland hydrology overall since these events are infrequent and relatively brief. Rising ground levels due to deposition, which is wetland fill resulting from urbanization, will likely reduce wetland hydrology and wetland area overall and over time if left unaddressed.

Photo 1 – Typical vegetation within the project area – most native and non-native species mentioned in the text are included. The HD Fowler storage yard can be seen in the background; the existing, reed canarygrass-choked channel lies along the border between the yard and vegetated areas. 11/20/18

Photo 2 – Access road stream crossing location is near the concrete blocks on the left. 11/20/18

Photo 3 – Non-natives nightshade (red berries), Himalayan blackberry, and reed canarygrass growing interspersed on-site. 11/20/18

Photo 4 – Note iron bacteria orange precipitate indicating nearby groundwater source of flow. 11/20/18

Photo 5 – Sandbagging has been used below the culvert outlet as a stopgap measure to keep (most) flows within the steam channel at normal flows. 10/19/16

Photo 6 – Remnants of the sand bag streambank placed in the fall of 2016 are on the right side. This 11/20/18 photo shows that the water level at culvert outlet is high. Orangish iron bacteria indicating groundwater flow source can be seen (faintly) in the water, access road in the background.

Photo 7 – Sandbagging extending farther downstream from the culvert outlet in an effort to keep flows from spilling into the Fowler storage yard. 10/19/16

Photo 8 – Downstream from the access road showing the proximity to SE 30th Street on the left side of the photo. Flows which jump the ill-defined channel upstream (behind the photographer) do not re-enter the stream but rather end up in the SE 30th storm drainage system, or on the street surface if the drains are overwhelmed. 10/19/16

Photo 9 – Sandbags placed two years ago in 2016 are overgrown and deteriorating such that the sand is spilling out and the top of the barrier is lower, offering diminished protection. 11/20/18

Photo 10 – Representative tangle of willow and reed canarygrass along the site boundary. 11/20/18

Photo 11 – Western project area boundary along the Fowler storage yard. Note the perpetually wet pavement due to seepage from the stream, which is perched higher than the yard along this section. 11/20/18

Photo 12 – The channel is present but unidentifiable in this project area photo, hidden in reed canarygrass, Himalayan blackberry, nightshade, and willow. 11/20/18

Photo 13 – Following moderately rainy weather, water is spilling out of the channel just downstream of the culvert crossing. 11/26/18

Photo 14 – Water spilling out of the channel just downstream of the access road flows across an access drive to the Fowler yard off of SE 30th, shown here, then continues westward along the north side of the road. 11/26/18

Photo 15 – Upstream of the access road, gravelly and cobbly deposition along with non-native vegetation growth has caused the channel to lose definition. Flows disperse at and downstream of the location pictured. Some flows rejoin via surface and subsurface pathways to flow under the access road. The rest collects to enter the SE 30th Street storm drainage system. 11/26/18

Photo 16 – Pictured is a hole in the ecology block wall separating the stream channel from the Fowler yard – with water flowing through. 11/26/18

Photo 17 – Water from the hole in the wall in the previous photo sheet-flowing across the Fowler yard. 11/26/18

Proposed Site Conditions

The enhanced stream and wetland system will provide equivalent or greater critical area functions when compared to the existing conditions described above. Table 16 summarizes the expected functional improvement.

Proposed culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding that now occurs on the adjoining property to the west, improve fish passage, and improve in-stream conditions. However, as explained above, the functional improvements of the stream project are not provided as mitigation for the Energize Eastside wetland impacts. Only the direct enhancement of the wetlands within the stream project area is counted as mitigation in this report. These existing, degraded, wetland areas could be enhanced without realigning the stream channel, but the potential function lift would be less than if the whole system were cohesively improved as is proposed through the associated stream realignment.

Table 16. Functional Lift Analysis- Richards Creek Sub-basin.

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
Water Quality	Most of existing wetland and buffer impact area is dominated by invasive vegetation including blackberry, reed canarygrass, and nightshade. Soils are compacted. While they provide some water quality function, these invasive weedy plant species prevent the growth of native plants, which are generally more efficient at filtering stormwater. Much of the upstream drainage basin at the Richards Creek Substation site is built-out and urbanized. Stream flow includes storm runoff from significant areas of paved, pollution-	Native trees, shrubs, and groundcover will be added to the existing and expanded wetland, stream and buffer areas. The most degraded portions of Wetlands A and D will be enhanced through invasive species removal and native plantings. The stream channel will be relocated such that functional riparian buffers, including wetland, can be provided along both sides of the stream instead of only one. Functional buffers will also be wider, and the prevalence of invasive plant cover will be reduced.	Weedy vegetation will be replaced with native vegetation providing improved quality and efficiency of water quality function in the wetland areas. Wider and more fully vegetated buffers along both sides of the stream will increase their capacity to provide biofiltration function. This will help to improve water quality from stormwater originating off-site upstream as well as helping to filter storm water originating onsite prior to it reaching the stream onsite. See also sediment transport, below. Preventing flows from spilling out during high-

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
	generating surfaces, and so can be assumed to carry a variety of pollutants typical of urban runoff. Existing stream channel and limited (one side of channel only) riparian areas are not optimized to provide effective biofiltration to remove these pollutants and so improve water quality.		flow events onto 30th Street, into its storm drainages, and onto a lower, paved industrial area adjoining to the west will reduce the entrainment of pollutants from this pollution-generating surface.
Hydrologic	Areas of dense invasive species along the existing stream channel, typically reed canarygrass, water-cress, and Himalayan blackberry, are impeding proper drainage and habitat functions.	Invasive, channel-clogging vegetation will be removed and replaced with bare root or container native trees and shrubs, as well as live stakes. Restore degraded wetland, and wetland/ stream buffer areas with native shrubs and groundcover.	New native plantings will provide increased soil stability and native vegetation that will reduce velocity of peak flows; improving wetland and stream buffer functions, along with increased channel dimensions and flow-carrying capacity.
Habitat	Blackberry and some existing native vegetation provides limited food and cover for birds and small mammals. The lack of plant species and structural diversity limits food sources and cover opportunities for most wildlife species. The stream channel segment is used by some cutthroat trout, but it is straight and choked with grass and vines in places. It lacks deep pool habitat with intervening riffles, and there is very little	Native shrubs and groundcover will be added to wetland and buffer enhancement areas. A meandering channel design combined with woody debris placement, native revegetation, and wetland enhancements will create a complex and diverse aquatic habitat beneficial for fish and macroinvertebrates as well as other wildlife. This approach also produces varied flow velocities allowing for natural sediment movement and deposition patterns to occur. The channel alignment has been laid out to minimize	Stream, wetland, and buffer areas will be enhanced with new native plantings, which will provide a net increase in species and structural diversity. The function of the 30 trees proposed from removal in the stream restoration project area will be replaced by planting approximately 260 trees. Culvert replacement and stream restoration will result in net habitat benefits following Project implementation. It will

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
	wood for protective cover or to provide scour to form and maintain pools. It has a western exposure due to an adjoining paved industrial supply storage area. As a result, it is exposed to direct afternoon sunlight from the west which has a tendency to harmfully increase water temperatures.	impacts to wetlands and to preserve as many trees onsite as feasible. The original stream bed along the west property line of the subject site will not be filled in after stream flow is diverted into the new channel. The remnant channel is anticipated to continue to capture seepage and shallow groundwater and will continue to provide ecological diversity and function as a wetland given the nature of the site hydrology. Tree trunks and roots wads will be strategically located along the restored reach to create and maintain scour pools and areas of refuge for fish as well as provide channel diversity and stability.	improve fish passage, and improve in-stream and riparian habitat conditions. Additionally, temporary impact areas will be restored. New plantings will provide organic matter and foraging and nesting opportunities for terrestrial wildlife, including several songbird species.
Sediment Transport and Management	The stream channel gradient is much steeper upstream of the existing pair of culverts and becomes flatter below, causing sediments to accumulate at the culvert inlet, blocking flow. Frequent maintenance is needed to unclog the culverts to maintain flow. The channel downstream of the culverts also fills with sediment, causing flows to spill out onto an adjacent, lower paved industrial area.	The proposed replacement culvert for the access route crossing will meet current design standards for fish passage (WDFW, 2013), provide flow conveyance for up to the 1-year peak flow rate, and facilitate sediment management. The stream channel has been designed to flood at a 2-year peak flow rate and contribute to the surrounding wetland hydrology. The replacement culvert will contain a sediment trap beneath the access route with a road-accessible cleanout. Culvert replacement and stream realignment will help remove flood-flow-deposited gravel from Wetland D and prevent future deposition of streambed gravel into the	The proposed culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding that now occurs on the adjoining property to the west. The completed Project will contain all flows from large storms within a stable channel and floodplain and trap sediments in a planned location for relatively easy, low-impact removal.

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
		downstream wetlands, thereby removing a source of wetland "fill".	
Net Condition	Degraded stream, wetland, and buffer areas on PSE properties and existing transmission line corridor.	Enhanced and restored ecological condition of stream, wetland, and buffer areas as described above.	Stream, wetland, and buffer areas restored with an increase in native vegetation; filtering of stormwater by native plantings; increased habitat structural and compositional complexity, LWD, and an increase in organic material to the food chain. Proposed mitigation will maintain and improve wetland and buffer functions and values. Permanent wetland and buffer impacts will be mitigated through enhancement of degraded wetland and buffer areas.

In response to preliminary City comments, hydrology monitoring will be conducted in the area of Wetland A between the old and new stream channel to ensure sufficient wetland hydrology is maintained. This area will also be enhanced by invasive species removal and native underplantings. This enhancement is in addition to the enhancement proposed as compensatory mitigation in Wetland A. Similarly, additional enhancement is proposed in Wetland D outside of the stream project area, beyond what is required as compensatory mitigation (see Table 17).

8.1.4 Summary

Table 17 below summarizes the impacts, compensatory mitigation, and additional restoration proposed within wetland and stream critical areas in the Richards Creek Drainage Sub-basin.

Table 17. Activities affecting wetland and stream critical areas in South Bellevue - Richards Creek Drainage Sub-basin[1].

IMPACTS and COMPENSATORY MITIGATION						
Critical Area Name	**Category**	**Type of Impact**	**Quantity (SF)**	**Mitigation Ratio**	**Mitigation Required (SF)**	**Amount (SF) and Location of Mitigation Proposed[2]**
Wetlands						
Wetland A	III	Conversion	9,945	2:1	19,890	19,890 Wetland A
Wetland A	III	Permanent	397	4:1	1,588	1,588 Wetland A
Wetland B	III	Permanent	2,060	4:1	8,240	3,587 Wetland A 4,653 Wetland D
Wetland D	II	Conversion	100	3:1	300	300 Wetland D
Wetland D	II	Permanent	41	6:1	246	246 Wetland D
Wetland H	III	Conversion	73	2:1	146	146 Wetland D
Wetland H	III	Permanent	77	4:1	308	308 Wetland D
				TOTAL	**30,718**	**30,718**
Buffers						
Combined Buffers	N/A	Permanent	23,893	1:1	23,893	23,893 Combined Wetland A/Wetland D/Stream C buffer
Combined Buffers	N/A	Conversion	22,886	0.5:1	11,443	11,443 Combined Wetland A/Wetland D/Stream C buffer
Combined Buffers	N/A	Redevelopment [3]	47,512[3]	N/A[3]	0[3]	NA
				TOTAL	**35,336**	**35,336**
ADDITIONAL RESTORATION (not required to mitigate impacts)						
Critical Area Name	**Category**	**Type of Activity**	**Quantity (SF)**			**Description**
Stream C	N/A	Restoration (Realignment)[4]	3,557			New stream channel
Wetland A	III	Enhancement	6,215			Area between new and old stream channel, outside of stream project grading boundaries
Wetland D	II	Enhancement	12,050			Area of Wetland D outside of stream project grading boundaries

1. Only activities resulting in a long-term change are included. Temporary impacts will be restored in place and are not shown in this table.
2. All wetland mitigation proposed is wetland enhancement.
3. This buffer area is already developed and is considered non-functioning; therefore, no mitigation is required.
4. Existing stream channel will be abandoned (not filled) with stream restoration/realignment activities.

8.2 Coal Creek Drainage Sub-basin

8.2.1 Wetland Mitigation

Required wetland mitigation in the Coal Creek sub-basin is 2,290 SF (0.05 acres) of enhancement. Opportunity to accomplish the wetland mitigation required exists on the Somerset Substation parcel located east of Coal Creek Parkway.

8.2.2 Wetland and Stream Buffer Mitigation

Required buffer mitigation in the Coal Creek sub-basin is 3,902 SF (0.09 acres) of enhancement. Opportunity to fulfill this buffer mitigation need exists on the Somerset Substation parcel located east of Coal Creek Parkway.

8.2.3 Functional Lift

Existing Site Conditions

Wetland enhancement is proposed within Wetland A on the Somerset Substation parcel. Buffer enhancement is proposed in the overlapping buffer of Wetlands A, D and C, adjacent to the wetland enhancement area. Wetland A is a Category IV, slope wetland with limited woody vegetation, a low interpersion of habitat types and poor species diversity. It is adjacent to the gravel substation pad. Non-native, invasive Himalayan blackberry dominates the understory with salmonberry and giant horsetail beneath a red alder canopy.

Proposed Site Conditions

Invasive species will be removed from Wetland A and its buffer and will be replaced with native tree, shrub and groundcover species. Large woody debris will be placed at the edge of the enhanced wetland.

The enhanced wetland and wetland buffer will provide greater critical area functions when compared to the existing conditions described above. Table 18 summarizes the expected functional improvement.

Table 18. Functional Lift Analysis- Coal Creek Sub-basin

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
Water Quality	Herbaceous vegetation that can trap sediments and pollutants is limited.	Increased dense woody and herbaceous native species in wetland and buffer.	Addition of persistent and woody native plantings and herbaceous species will help to filter stormwater prior to it reaching Wetland A and downstream areas.

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
Hydrologic	Presence of weedy species limits the ability to slow surface runoff and provides only moderate transpiration rates.	Invasive species removal and increased persistent and woody native species.	New native plantings will provide increased roughness and transpiration will slow surface water flows to wetland.
Habitat	Invasive species and a low interspersion of habitat types limits cover, nesting and foraging opportunities.	Increase tree and shrub density and diversity, add a native herbaceous vegetation class and large woody debris.	Cover, nesting and foraging for wildlife species will be improved.
Net Condition	Degraded wetland and buffer	Increased native tree and shrub cover, removal of invasive species, addition of large woody debris.	Wetland and buffer enhanced with an increase in native vegetation; filtering of stormwater by native plantings; increased habitat structural and compositional complexity, and an increase in organic material to the food chain.

8.2.4 Summary

Table 19 below summarizes the impacts and mitigation proposed within wetland and stream critical areas in the Coal Creek Drainage Sub-basin.

Table 19. Activities affecting wetland critical areas in South Bellevue - Coal Creek Drainage Sub-basin[1].

IMPACTS					
Critical Area Name	**Category**	**Type of Activity**	**Quantity (SF)**	**Mitigation Ratio**	**Mitigation Required (SF)**
Wetland MB01	III	Conversion	1,146	2:1	2,292
Combined Buffers	na	Permanent	35	1:1	35
Combined Buffers	na	Conversion	7,734	0.5:1	3,867

RESTORATION			
Critical Area Name[2]	**Category**	**Type of Activity**	**Quantity (SF)**
Somerset Wetland A	IV	Enhancement	2,300
Combined Somerset Buffers	NA	Enhancement	3,950

IMPACT & RESTORATION SUMMARY					
				Mitigation Proposed	
Critical Area Type	**Type of Activity**	**Quantity (SF)**	**Total Mitigation Required (SF)**	**Type**	**Qty (SF)**
Wetland	Conversion	1,146	2,292	Enhancement	2,300
	Permanent	0			
Buffer	Conversion	7,734	3,902	Enhancement	3,950
	Permanent	35			

1. Only activities resulting in a long-term change are included. Temporary impacts will be restored in place and are not shown in this table.
2. Critical Areas as identified in the Somerset Substation wetland delineation (The Watershed Company, February 2017) and delineation report, documented separately from the Energize Eastside delineation study.

8.3 Geologic Hazard Area Mitigation

GeoEngineers has proposed mitigation strategies to minimize impacts to geologic hazard areas in the corridor in their analysis report (Appendix C). As stated previously, and in their report, with implementation of these strategies, proposed activities are not expected to impact the geologic hazard areas in the Coal Creek drainage; proposed activities are consistent with the management activities of the existing corridor.

Where vegetation clearing is required to reestablish access on existing trails or old access routes, BMPs will be implemented; these BMPs may include, but are not limited to, outsloping road surfaces, crowning road surfaces (where appropriate, such as at ridge tops and where roads climb gently inclined surfaces) and installing water bars or rolling dips at regularly spaced intervals to avoid concentrating surface water flow along the road surface. After construction, disturbed areas should be graded to a stable free-draining

configuration, treated with appropriate erosion control measures, and seeded. Grading associated with reestablishment and post construction stabilizing will be conducted on an as needed basis and limited in vertical and horizontal extent. Most, if not all, access routes can be abandoned following construction using erosion control measures and seeding.

BMPs for pole installation will be implemented during construction and the disturbed area will be restored after pole installation by seeding or revegetating, essentially covering the disturbed areas. In the event that work areas are wet or have standing water, driving mats should be used under all equipment. Additionally, for poles located in geological hazard areas, the old poles should be cut off approximately 1-2 feet below the ground surface and the remaining portion of each pole left in place.

Options for mitigation of vegetation management and tree removal in geologic hazard areas include limiting disturbance to these areas by large equipment (only by foot and hand-cutting with chainsaws), leaving cut stumps in place, and chipping or scattering tree debris where feasible. In areas where tree removal is clustered, erosion control BMPs, such as grass seeding, leaving stumps, scattering straw and/or replacement planting of native shrubs or small trees, should be implemented to reduce concentrated flows and minimize disturbance. On private property, coordination with the property owner will direct mitigation strategies to be implemented.

9 CODE COMPLIANCE

When a project proposes impacts to critical areas, compliance with applicable city code provisions (LUC 20.25H – Critical Areas) must be demonstrated. New or expanded utility facilities and utility systems, including all structures and improvements, are allowed within critical areas and their associated buffers pursuant to LUC 20.25H.055, provided applicable performance standards for new and expanded uses or development (LUC 20.25H.055.C.2) and for each critical area type to be impacted, are met. Specific code provisions applicable to this project are presented below (italicized), followed by a Project-specific description that documents compliance.

Any proposal to modify a stream channel must be approved through a Critical Areas Report process. Therefore, as the Project proposes to modify the stream on the Richards Creek Substation parcel as part of the mitigation for Project impacts, compliance with the Critical Areas Report submittal requirements and decision criteria are also described below.

Specific mitigation and restoration requirements (LUC 20.25H.210 through 20.25H.225) and associated performance standards (LUC 20.25H.085, 20.25H.105, 20.25H.135) have been considered in the preparation of the conceptual mitigation plan and specific requirements will be incorporated into the Final Mitigation Plan (in progress). These code sections will be addressed in the Mitigation Plan design and notes and are not specifically addressed here.

9.1 LUC 20.25H.055 Uses and development allowed within critical areas – Performance standards

Compliance with applicable performance standards for allowed new uses and development is described below.

C. Performance Standards.

The following performance standards apply as noted in the table in subsection B of this section. The critical areas report may not be used to modify the performance standards set forth in this subsection C:

2. *New and Expanded Uses or Development. As used in this section, "facilities and systems" is a general term that encompasses all structures and improvements associated with the allowed uses and development described in the table in subsection B of this section:*

    a. *New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:*

        i. *The location of existing infrastructure;*

Response: The proposed route is within an existing corridor with 115 kV transmission lines. These lines are supported by H-frame poles, which are grouped in sets of two or three and generally run two to three feet in diameter. The location of the existing poles in the South Bellevue Segment can be seen on the Critical Areas Assessment Maps in Appendix B.

        ii. *The function or objective of the proposed new or expanded facility or system;*

Response: The objective of the Energize Eastside Project, including the Richards Creek Substation and South Bellevue Segment, is to increase the capacity of the Eastside electric grid to keep pace with projected increases in electricity demands during peak periods. This need was independently verified by the City of Bellevue (Utility System Efficiencies, Inc. 2015 and Exponent 2012).

iii. Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside of the critical area;

Response: Given the location of existing facilities, legal ROW, and surrounding critical area encumbrances, impacts have been avoided and minimized to the extent feasible. Alternative routes were evaluated prior to selection of the proposed route. The alternative routes would also require critical area impacts. No feasible alternate routes were identified that could completely avoid critical area impacts. The chosen route utilizes the existing utility corridor which helps to minimize new impacts to critical areas. Additionally, the Project design has been modified to remove impacts from critical areas and buffers to the greatest extent possible. Complete avoidance of wetlands is not possible in this area due to the fixed location of the substation parcel. The substation will be located at the proposed Richards Creek parcel due to the proximity of existing infrastructure, the existing location of other developed substations such as the Lakeside Substation to the north, and the required connections to other PSE transmission lines. Access has been sited to use existing routes to the extent feasible. Furthermore, use of the existing corridor and locating the new poles generally close to the existing poles allows use of existing access points in many instances.

iv. Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and

Response: To avoid the proposed critical area impacts and achieve the utility service improvement objectives, relocation of existing infrastructure and creation of new infrastructure would be required. This would be more expensive than the proposed Project; and critical area impacts would likely be incurred nonetheless. As a linear project spanning 3.4 miles, with specific siting requirements, total avoidance of all critical areas is not achievable. Use of the existing, maintained corridor, which is generally within urban/developed areas, helps to reduce both the cost of the Project and the environmental impacts. No feasible alternate routes were identified that could completely avoid critical area impacts.

v. The ability of both permanent and temporary disturbance to be mitigated.

Response: Temporary critical area disturbance will be restored in place and permanent disturbance, including conversion from one vegetation community to another, will be mitigated in accordance with the City of Bellevue's code and methods supported by the best available science as described in Section 8 of this report.

b. If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:

i. Location and design shall result in the least impacts on the critical area or critical area buffer;

Response: Impacts to critical areas and critical area buffers will be avoided and minimized through design practices and engineering controls. For example, the PSE design has located poles out of wetlands wherever technically feasible in order to avoid most direct wetland impact and pole construction work areas will be adjusted to avoid critical areas on a pole by pole basis. Construction access has been planned to exclude critical areas and/or provide only temporary impact wherever feasible.

ii. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized;

Response: Critical area and critical area buffer disturbances will be minimized through design practices and engineering controls. BMPs will be used to minimize ground disturbance during construction, including during the use of existing, vegetated access routes. Access to poles which must be located in critical areas will generally occur using existing, partially vegetated access (established during original construction and re-used over time to maintain the corridor). Post construction, disturbed areas will be re-vegetated and left to return to their natural state.

In critical areas, mats will be placed over existing vegetation where possible to allow access for installation of new poles. Typically crushed vegetation rebounds within one growing season resulting in only temporary impacts to vegetation. Tree removal activities are performed in a manner to minimize impacts to underlying shrubs, groundcover and other trees, without disturbance to soil.

Any equipment or vehicles will be staged and refueled outside of critical areas and critical area buffers. If this is not possible, a "safe area" within the buffer will be identified and used for staging and refueling. Containment measures will be included in the Project specific Spill Prevention, Control and Countermeasure (SPCC) plan.

Areas disturbed for temporary access and staging will be restored in place following completion of construction activities. Only native seed mixes and/or native plantings will be installed in critical areas or critical area buffers.

iii. Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;

Response: Construction associated with the proposed culvert replacement and stream realignment will result in temporary disturbance to the stream. However, no permanent adverse impacts are expected. Rather, long-term improvements to salmonid habitat will occur as a result of the stream re-alignment and enhancement. During construction, any fish isolated in the localized instream work area will be removed by the Project specific fish biologist in the work area. Given the size and characteristics of the existing stream, it is expected that stranded fish can be located and captured using dipnets or small seines followed by electrofishing. Efforts to capture and relocate fish by netting methods will precede electrofishing. Captured fish will be released in unaffected reaches downstream of the project area.

The Project will not result in impacts to habitats associated with species of local importance (see Section 4.3.3). Proposed mitigation will result in net habitat benefits following Project implementation. In addition to reducing flooding, increasing streamflow conveyance capacity and improving sediment transport and removal, the proposed culvert replacement and stream realignment will improve fish passage and in-stream and riparian habitat conditions.

iv. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer;

Response: No new permanent wetland or stream crossings are proposed. The Project includes replacing and upgrading the culvert carrying a small, perennial stream beneath the access driveway to the Richards Creek Substation site. In addition to the new culvert crossing, the Project will restore and/or enhance adjoining habitat areas. This includes realigning and enhancing the stream sections extending upstream and downstream of the crossing and enhancing the new stream buffer including associated wetland areas.

As part of the Project, access to poles in critical areas of the transmission corridor will generally occur using existing, partially vegetated access (established during original construction and re-used over time to maintain the corridor). BMPs will be used to minimize ground disturbance in these areas, and in areas of new

access. In critical areas or buffers, mats will be placed over existing vegetation where possible. When installing the new conductor, techniques will be used to avoid impacts to critical areas (*i.e.,* shooting the wire from pole to pole or using guide wires). Stringing sites will be located outside of critical areas where possible. Any additional critical area impacts resulting from stringing sites, not already quantified in other Project elements described herein, will be temporary in nature; temporary impact areas will be re-vegetated and left to return their natural state or enhanced following construction.

Typically crushed vegetation rebounds within one growing season resulting in only temporary impacts to vegetation. Post-construction, all disturbed areas will be re-vegetated, if necessary, and left to return to their natural state. Based on the existing conditions, proposed construction BMPs, and post construction methods; disturbance associated with access in the transmission corridor will be temporary.

v. All work shall be consistent with applicable City of Bellevue codes and standards;

Response: This Project will comply with applicable City of Bellevue codes and standards.

vi. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;

Response: Project element impacts and associated mitigation measures will be designed to maintain or improve critical area hydrology and water quality to the extent possible. The proposed stream restoration project will result in an improvement in hydrologic function. It is designed to increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, and reduce flooding that now occurs on the adjoining property to the west.

vii. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and

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Response: Project elements which must be located within critical areas or buffers are limited to pole footprints, portions of the Richards Creek Substation including the culvert replacement at the entry road, and access driveway. The Project has gone through multiple design revisions, and no other feasible alternative exists for the location of these features. Other proposed critical area impacts are due to required vegetation maintenance activities in the vicinity of

the power lines which, in some areas, will result in long term changes to vegetation composition.

viii. 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.

Response: The Mitigation Plans fulfill the requirements of LUC 20.25H.210, including mitigation goals, performance standards, monitoring and maintenance protocols, and contingencies for the duration of the monitoring period. See Section 8 for a discussion of the proposed mitigation strategies. Mitigation plans for the Richards Creek Substation parcel and Somerset Substation parcel are included in Appendix A.

9.2 LUC 20.25H.080 Performance Standards for Streams

Compliance with applicable performance standards for projects on sites with streams is described below.

LUC 20.25H.080.A- General

Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. Lights shall be directed away from the stream.

Response: New lighting is only proposed at the substation site. It will be contained within the fenced, developed area, and will be directed away from the stream restoration area.

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

Response: Noise generated from the Project after completion is expected to be minimal and limited mainly to the substation. Noise generated from the substation will be within the noise thresholds for the zoning district. The proposed substation is consistent with other uses in the area and all equipment will be located within an enclosed area mainly upslope and away from onsite critical areas. Transmission lines within the corridor will generate noise similar to the existing condition of the corridor.

3. Toxic runoff from new impervious area shall be routed away from the stream.

Response: New impervious area is limited to the Richards Creek Substation. New transformers will be constructed on top of - and within an engineered pad lined with a berm to contain potential releases, referred to as a SPCC curb. The engineered pad beneath the transformers will be lined with a bentonite layer at an appropriate depth that (with the aid of the berm/SPCC curb that surrounds

the transformer pad) will collect and hold unanticipated releases; preventing off-site migration to sensitive areas.

As such, containment measures at the substation will prevent toxic runoff from entering the stream. Additionally, there will be a stormwater vault located beneath the substation which will discharge into flow dispersion riprap before entering into the stream. Additional water quality treatment is not proposed as the site should be classified as an "infrequently used maintenance access route" (for both access driveway and internal substation driveway) per the City's definition of PGIS and "vehicular use".

4. *Treated water may be allowed to enter the stream critical area buffer.*

Response: There will be a stormwater vault located beneath the substation which will discharge into flow dispersion riprap before entering into the stream.

5. *The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use. Preference shall be given to native species.*

Response: The final mitigation plan includes dense, native critical area buffer plantings. Realigning Stream C and enhancing the new buffer area will create a dense, functional buffer more protective of the stream than the existing condition.

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

Response: Generally, weed control efforts in stream buffer will employ manual removal. The Mitigation plan calls for aquatic certified glyphosate to be used in reed canarygrass infested areas. If any persistent weed or pest problems require pesticide control beyond what is specified in the plans, the City would be contacted to verify compliance with City of Bellevue BMPs and, if allowed, a licensed pesticide applicator would be hired.

LUC 20.25H.080.B- Modification of Stream Channel

1. *When Allowed. A stream channel shall not be modified by relocating the open channel, or by closing the channel through pipes or culverts unless in connection with the following uses allowed under LUC 20.25H.055:*

   a. A new or expanded utility facility or system;

   b. A new or expanded essential public facility;

   c. Public flood control measures;

   d. In-stream structures;

   e. New or expanded public right-of-way, private roads, access easements or driveways;

   f. Habitat improvement project; or

   g. Reasonable use exception; provided, that a modification may be allowed under this section for a reasonable use exception only where the applicant demonstrates that no other alternative exists to achieve the allowed development.

A critical areas report may not be used to modify the uses set forth in this subsection B.1.

Response: Stream channel modification is proposed on the Richards Creek substation parcel in conjunction with the culvert replacement work and to enhance fish and wildlife habitat on site, increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, and reduce flooding that now occurs on the adjoining property to the west. This work is proposed as part of the overall restoration strategy at the Richards Creek Substation parcel. As a habitat improvement Project related to development of a utility facility, it meets the definition of an allowed use under LUC 20.25H.055.

2. *Critical Areas Report Required. Any proposal to modify a stream channel under this section may be approved only through a critical areas report.*

Response: This narrative is intended to satisfy the critical areas report requirement and details how the stream channel modifications will improve stream, stream buffer, and associated wetland functions and values. See subsections 9.6 through 9.7 below addressing compliance with specific critical areas report submittal requirements and decision criteria.

9.3 LUC 20.25H.100 Performance Standards for Wetlands

Compliance with performance standards for projects on sites with wetlands is described below.

LUC 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:

A. Lights shall be directed away from the stream (or wetland).

Response: New lighting is only proposed at the substation site. It will be contained within the fenced, developed area, and will be directed away from the stream restoration area.

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.

Response: Noise generated from the Project after completion is expected to be minimal and limited mainly to the substation. The proposed stream restoration and buffer/wetland enhancement plantings at the substation site will help to screen the critical areas from the developed area and reduce any noise within critical areas. Noise generated from the substation will be within the noise thresholds for the zoning district. The proposed substation is consistent with other uses in the area and all equipment will be located within an enclosed area mainly upslope and away from onsite critical areas. Transmission lines within the corridor will generate noise similar to the existing condition of the corridor.

C. Toxic runoff from new impervious area shall be routed away from the wetland.

Response: New impervious area is limited to the Richards Creek substation. New transformers will be constructed on top of - and within an engineered pad lined with a berm to contain potential releases, referred to as a SPCC curb. The engineered pad beneath the transformers will be lined with a bentonite layer at an appropriate depth that (with the aid of the berm/SPCC curb that surrounds the transformer pad) will collect and hold unanticipated releases; preventing off-site migration to sensitive areas. As such, containment measures at the substation will prevent toxic runoff from entering the stream.

Additionally, there will be a stormwater vault located beneath the substation which will discharge into flow dispersion riprap before entering into Stream C. Additional water quality treatment is not proposed as the site should be classified as an "infrequently used maintenance access road" (for both access driveway and internal substation driveway) per the City's definition of PGIS and "vehicular use".

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

Response: There will be a stormwater vault located beneath the substation which will discharge into flow dispersion riprap before entering into the stream.

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

Response: The final mitigation plan includes dense, native critical area buffer plantings. Realigning Stream C and enhancing the new buffer area will create a dense, functional buffer more protective of the stream than the existing condition. Additionally, the Richards Creek Substation property is owned and operated by PSE; as such, human use outside of the developed substation is discouraged. Wetlands and buffers elsewhere in the corridor are generally degraded as a result of human development and extensive use of the corridor. Buffer mitigation planting is directed to sites in the Richards Creek and Coal Creek basins that allow for the greatest functional improvement to the overall critical areas functions in the Project area, and allow for limiting human and pet intrusion into the mitigation areas.

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

Response: Generally, weed control efforts in wetland buffer will employ manual removal. The mitigation plan calls for aquatic certified glyphosate to be used in reed canarygrass infested areas. If any persistent weed or pest problems require pesticide control beyond what is specified in the plans, the City would be contacted to verify compliance with City of Bellevue BMPs and, if allowed, a licensed pesticide applicator would be hired. However, PSE cannot control how private property owners in the corridor manage the vegetation within their properties.

9.4 LUC 20.25H.105.D Wetlands Enhancement as Mitigation

Impacts to wetland critical area functions may be mitigated by enhancement of existing significantly degraded wetlands. Applicants proposing to enhance wetlands must produce a critical areas report meeting the requirements of LUC 20.25H.110 and 20.25H.230 that identifies how enhancement will increase the functions of the degraded wetland and how this increase will adequately mitigate for the loss of wetland area and function at the impact site. An enhancement proposal must also show whether existing wetland functions will be reduced by the enhancement actions.

Response: Wetland enhancement is proposed at both the Richards Creek Substation site and the Somserset Substation site to mitigate for impacts generated in the Richards Creek and Coal Creek drainage sub-basins, respectively. Wetlands proposed for enhancement are significantly degraded by non-native, invasive species. Proposed enhancement will improve the species and structural diversity in these degraded wetlands and replace invasive species with native species which will improve functions. See Sections 7.3, 8.1.3 and 8.2.3 for a discussion of the functional lift expected.

9.5 LUC 20.25H.180.C General performance standards for development in the area of special flood hazard

Compliance with applicable performance standards for general development in the area of special flood hazard described below.

LUC 20.25H.180.C

Where use or development is allowed pursuant to LUC 20.25H.055, the following general performance standards apply:

1. Intrusion Over the Area of Special Flood Hazard Allowed. Any structure may intrude over the area of special flood hazard if:

a. The intrusion is located above existing grade, and does not alter the configuration of the area of special flood hazard;

b. The intrusion is at an elevation and orientation which maintains the existing vegetation of the area of special flood hazard in a healthy condition. Solar access to vegetation must be maintained at least 50 percent of daylight hours during the normal growing season; and

c. The intrusion does not encroach into the regulated floodway except in compliance with subsection C.5 of this section.

Response: The proposal does not include any structures. Impacts within the Area of Special Flood Hazard are limited to vegetation removal and the installation of one new pole which will be replacing four existing poles that are currently situated in a highly developed area with medium to high density residential development and paved roads and parking areas. Areas of special flood hazard include relatively small areas associated with Sunset Creek and Coal Creek, as determined by the Federal Emergency Management Agency (FEMA).

The mapped Sunset Creek floodplain is shown in an area where Sunset Creek is conveyed underground. The mapped floodplain in the corridor is located north and south of SE Allen Rd in areas developed with apartment buildings, parking areas, sidewalks, and includes some landscaped trees and mowed grass; none of which are associated with a riparian environment.

The mapped Coal Creek floodplain in the Project area includes portions of Coal Creek Parkway and natural forested vegetation associated with the riparian zone of Coal Creek. Floodplain habitat is discussed in detail in the ESA documentation for the Project.

Development not meeting the requirements of this subsection C.1 may be allowed pursuant to LUC 20.25H.055 and only in accordance with the requirements set forth in the remainder of this section C.

3. Construction Materials and Methods.

a. Site Design. All structures, utilities, and other improvements shall be located on the buildable portion of the site out of the area of special flood hazard unless there is no buildable site out of the area of special flood hazard. For sites with no buildable area out of the area of special flood hazard, structures, utilities, and other improvements shall be placed on the highest land on the site, oriented parallel to flow rather than perpendicular, and sited as far from the stream and other critical areas as possible. Located in flood-fringe where flood flow velocities are less than three feet per second and flood depths are less than three feet. If the Director detects any evidence of active hyporheic exchange on a site, the development shall be located to minimize disruption of such exchange.

b. Methods That Minimize Flood Damage. All new construction and substantial improvements shall be constructed using flood-resistant materials and using methods and practices that minimize flood damage.

c. Utility Protection. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

d. Anchoring. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

Response: Alterations within the floodplain are limited to vegetation removal and installation of one new utility pole. The pole is sited as far from critical areas as possible. The pole is not expected to impact flood flows and is constructed such that it will not be susceptible to flood damage.

4. No Rise in the Base Flood Elevation (BFE). Any allowed use or development shall not result in a rise in the BFE.

a. Post and Pile. Post and piling techniques are preferred and are presumed to produce no increase in the BFE. Demonstration of no net rise in the BFE through calculation is not required.

b. Compensatory Storage. Proposals using compensatory storage techniques to assure no rise in the BFE shall demonstrate no net rise in the BFE through the calculation by methods established in the Utilities Storm and Surface Water Engineering Standards, January 2011, Section D4-04.5, Floodplain/Floodway Analysis, now or as hereafter amended.

Response: Impacts in the Area of Special Flood Hazard are limited to vegetation removal and pole installation (replacement of two existing H-frame structures which include a total of four poles, with two new poles). As noted in a) above, post and piling techniques are preferred and are presumed to produce no increase in the Base Flood Elevation. Pole installation is considered to be a post

and piling technique. Demonstration of no net rise in the BFE through calculation is not required. As such, there will be no impact to the flood storage capacity of the flood hazard area. Vegetation removal would not result in a rise in the BFE.

5. Development in the Regulatory Floodway.

> *a. Encroachment into Regulatory Floodway Prohibited. Encroachments, including, but not limited to, fill, new construction, substantial improvements, and other development, are prohibited, unless a registered professional engineer certifies that the proposed encroachment into the regulatory floodway shall not result in any rise in the BFE using hydrological and hydraulic analysis performed in accordance with City of Bellevue Storm and Surface Water Engineering Standards, January 2011, or as hereafter amended. All new construction and substantial improvements shall comply with this section.*

Response: No development is proposed in the regulatory floodway. Pole installation is a post and piling technique which is presumed to produce no increase in the Base Flood Elevation. And based on #4 above, the Project does not require a demonstration of no net rise in the BFE.

6. Modification of Stream Channel. Alteration of open stream channels shall be avoided, if feasible. If unavoidable, the following provisions shall apply to the alteration:

> *a. Modifications shall only be allowed in accordance with the habitat improvement projects.*
>
> *b. Modification projects shall not result in blockage of side channels.*
>
> *c. The City of Bellevue shall notify adjacent communities, the state departments of Ecology and Fish and Wildlife, and the Federal Insurance Administration about the proposed modification at least 30 days prior to permit issuance.*
>
> *d. The applicant shall maintain the altered or relocated portion of the stream channel to ensure that the flood-carrying capacity is not diminished. Maintenance shall be bonded for a period of five years, and be in accordance with an approved maintenance program.*

Response: The Project proposes to modify the open stream channel adjacent to the culvert replacement on the Richards Creek substation parcel. As part of the mitigation for Project impacts, the stream will be realigned and enhanced upstream and downstream of the crossing. Adjacent habitat areas, including wetlands will also be enhanced.

The modification and enhancement will result in net habitat benefits following Project implementation. The proposed culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, replace undersized culverts, reduce flooding that now occurs on the adjoining property to the west, improve fish passage, and improve in-stream and riparian habitat conditions.

The completed Project will contain all flows from large storms within a stable channel and floodplain and trap sediments in a planned location for relatively easy, low-impact removal. The design includes channel grading and realignment, culvert replacement, and sediment removal/management features and protocol.

The restored stream will have a defined channel and floodplain benches, as well as the capacity to convey the predicted 1-year peak flow rate. The stream channel has been designed to flood at a 2-year peak flow rate and contribute to the surrounding wetland hydrology. A meandering channel design combined with woody debris placement, native revegetation, and wetland enhancements will create a complex and diverse aquatic habitat beneficial for fish and macroinvertebrates as well as other wildlife. This approach also produces varied flow velocities allowing for natural sediment movement and deposition patterns to occur. The channel alignment has been laid out to minimize impacts to wetlands, preserve as many trees onsite as feasible, and provide a more functional buffer. The original stream bed along the west property line of the subject site will not be filled in after stream flow is diverted into the new channel. The remnant channel is anticipated to continue to capture seepage and shallow groundwater and will continue to provide ecological diversity and function as wetland given the nature of the site hydrology. Tree trunks and roots wads will be strategically located along the restored reach to create and maintain scour pools and areas of refuge for fish as well as provide channel diversity and stability.

PSE has had coordination with WDFW and affected Tribes and is seeking all appropriate state and federal permits for this work. A five-year maintenance and monitoring plan will be included with the final Mitigation Plan.

7. Compensatory Storage. Development proposals must not reduce the effective base flood storage volume of the area of special flood hazard. Grading or other activity that would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. The compensatory storage must:

a. Provide equivalent elevations to that being displaced;

b. Be hydraulically connected to the source of flooding;

c. Be provided in the same construction season and before the flood season begins on September 30th;

d. Occur on site or off site if legal arrangements can be made to assure that the effective compensatory storage volume will be preserved over time;

e. Be supported by a detailed hydraulic analysis that:

i. Is prepared by a licensed engineer;

ii. Demonstrates that the proposed compensatory storage does not adversely affect the BFE; and

f. Meet all other critical areas rules subject to this part. If modification to a critical area or critical area buffer is required to complete the compensatory storage requirement, such modification shall be mitigated pursuant to an approved mitigation and restoration plan, LUC 20.25H.210.

Response: Project actions within the floodplain are not expected to reduce flood storage capacity.

9.6 LUC 20.25H.125- Performance Standards for landslide hazards and steep slopes

Compliance with applicable performance standards for geologic hazard areas has been described by the Project's geotechnical experts. Note that the responses below have been revised slightly by PSE to correct and clarify language based on changes in Project description. The complete geologic hazard evaluation is included in Appendix B.

In addition to generally applicable performance standards set forth in 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.

A. 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;

Response: No structures will be constructed as part of the proposed Project. Site improvements (pole removal, pole replacement, access routes, and vegetation management) are not anticipated to adversely impact the natural contour of the slope. The proposed site activities that include vegetation management, tree

removal, and temporary access routes (associated with the proposed pole replacement activities) will maintain overall existing site topography. The grade changes associated with the substation development are discussed below in the responses for code requirements LUC 20.25H. 125 D through J.

B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;

Response: No structures will be constructed as part of the proposed Project. Site improvements include localized vegetation management, including tree removal, and use of existing access routes (associated with the proposed pole replacement activities). The proposed tree removal and surface disturbance will be limited to reduce potential impacts to natural landforms and vegetation. The grade changes associated with the substation development are discussed below in the responses for code requirements LUC 20.25H. 125 D through J.

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

Response: The proposed development includes vegetation management, including tree removal and use of existing access routes (associated with the proposed pole replacement activities) that will be followed by mitigation measures to reduce potential impacts to geologic hazards that include landslide and steep slope hazards. Mitigation measures include a variety of BMPs to reduce potential impacts to geologic hazards in the vicinity of neighboring properties. BMPs include plant replacement, scattering trimmed or removed tree debris, and chipping wood to reduce potential impacts to work areas as appropriate. Removal of vegetation by hand and/or using limited access machinery will reduce potential impacts to landslide and steep slope hazard areas. It is our opinion that the proposed Project will not require additional buffers. The grade changes associated with the substation development are discussed below in the responses for code requirements LUC 20.25H. 125 D through J.

D. 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;

Response: In the transmission corridor, no retaining walls or grading activities are proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities). The development of soldier pile walls and retaining walls for the Richards Creek Substation is discussed in detail in the substation-specific geotechnical engineering report dated September 23, 2016, and in an addendum report dated April 4, 2017. The use of retaining walls for the new substation will reduce

disturbance and grading of the existing natural slopes, which would be otherwise necessary without construction of the walls.

E. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

Response: No new impervious surfaces are proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities) within mapped critical area and mapped critical area buffers of the transmission corridor. Five narrow, and relatively small (low square footage), steep slopes are located on the future Richards Creek Substation property (comprising 8.46 acres), which is partially developed with an existing pole yard (existing hard surface/impervious surface of 1.58 acres). As discussed previously, many areas of mapped steep slopes were eliminated from the impact analysis because of their existing land use (engineered road slopes, engineered landscaping, etc.) and the proposed activities at those locations. None of the steep slopes on the Richards Creek Substation property have been identified as priority steep slopes. Therefore, no increase in impervious surface will occur to mapped priority steep slope areas.

F. 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;

Response: No change in grade is proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities) within the transmission corridor. Within the new substation, grade transitions along the east side (up to 24 feet in height) will be supported with a soldier pile wall (cantilever and with tiebacks). Grade transitions along the west side (up to 6 feet in height) will be supported by fill slopes and a cast-in-place retaining wall.

G. 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;

Response: No retaining walls are proposed relative to the proposed vegetation management and tree removal activities associated with the proposed pole replacement activities within the transmission corridor. However, for stability purposes, drilled pier foundations will be utilized on select poles in the corridor where appropriate. The new substation is not a building and, thus, does not have typical foundation walls; as such, soldier pile and retaining walls will be necessary to retain the required grade changes. PSE does not propose the use of rockeries.

H. 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;

Response: No pole-type structures are proposed relative to the proposed vegetation management and tree removal activities. The new poles will meet the preferred construction type (which is pole-type construction). The new substation cannot be tiered and was situated east of the existing Olympic pipeline. This requires construction of a soldier pile wall east of the existing steep slope area. While this results in grading in the steep slope area, the area of disturbance is minimized by construction of a vertical wall.

I. 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

Response: No structures requiring pile deck support are proposed relative to the proposed vegetation management and tree removal activities. The new poles will meet the preferred construction type (which is pole-type construction). No parking or garage structures are planned for the new substation. Pile-supported deck structures are not feasible for a substation. The substation grades will require cutting into the steep slope on the east side, which will then be retained with a soldier pile wall.

J. 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.

Response: Temporary disturbance for the proposed vegetation management and tree removal activities and access routes (associated with the proposed pole replacement activities) within the existing transmission corridor will be mitigated by scattering and/or chipping trimmed limbs and logs, replanting vegetation, and using limited access equipment or accessing only by foot as appropriate. For steep slope areas in the vicinity of the new substation that will be disturbed during construction, the disturbed areas should be restored by seeding/revegetating and covering the planted area with mulch or other appropriate BMPs.

9.7 LUC 20.25H.250 Critical areas report – Submittal requirements

The proposal includes modification of a stream channel at the Richards Creek Substation site. The realignment and enhancement of Stream C and adjoining buffer areas, including wetland, is proposed as part of the overall restoration strategy at the Richards Creek Substation parcel. As noted above, LUC 20.25H.080.B allows for modification of a stream channel when certain performances standards are met. Any proposal to modify a stream channel under

this section may be approved only through a Critical Areas Report. Therefore, compliance with the applicable Critical Areas Report submittal requirements and decision criteria is described below. (Note that only the Richards Creek sub-basin portion of the project is addressed in this section as the activities within the Coal Creek basin do not include stream modification nor any other activity triggering a Critical Areas Report process.)

A. Specific Proposal Required.

A critical areas report must be submitted as part of an application for a specific development proposal. In addition to the requirements of this section, additional information may be required for the permit applicable to the development proposal.

Response: This report is being submitted as part of a Critical Areas Land Use Application package for the PSE Energize Eastside Project – South Bellevue segment.

B. Minimum Report Requirements.

The critical areas report shall be prepared by a qualified professional and shall at minimum include the content identified in this section. The Director may waive any of the report requirements where, in the Director's discretion, the information is not necessary to assess the impacts of the proposal and the level of protection of critical area function and value accomplished. At a minimum, the report shall contain the following:

1. *Identification and classification of all critical areas and critical area buffers on the site;*

Response: See Section 4.3 and 5.1.

2. *Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site;*

Response: See Section 4.3 and 5.1.

3. *Identification of each regulation or standard of this code proposed to be modified;*

Response: CAR Section 9 contains a detailed Project-based review of all applicable city code provisions.

3. *A habitat assessment consistent with the requirements of LUC 20.25H.165;*

Response: Discussion of habitat, in accordance with the requirements of LUC 20.25H.165 (below), is discussed throughout this CAR and summarized below. The Project will not impact known habitats associated with species of local importance. Therefore, no modifications to the performance standards for habitat associated with species of local importance are proposed.

Detailed description of vegetation and habitat on and adjacent to the site;

Response: See Sections 4.2 and 4.3.

Identification of any species of local importance that have a primary association with habitat on or adjacent to the site and assessment of potential project impacts to the use of the site by the species;

Response: See Section 4.3.3.

A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the site;

Response: See Section 4.3.3.

A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;

Response: Sections 7 and 8 provide a description of impacts in relation to critical area functions. The functional lift analysis (Section 8.1.3) describes the expected net change in critical area functions overall once mitigation is considered.

A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed use or activity and to be conducted in accordance with the mitigation sequence set forth in LUC 20.25H.215*; and*

Response: See Section 6 for a discussion of mitigation sequencing.

A discussion of ongoing management practices that will protect habitat after the site has been developed, including proposed monitoring and maintenance programs.

Response: See Section 4.3.3 for a discussion of standard PSE habitat protection practices. See also Section 8. The attached Richards Creek Sub-Basin Mitigation Plan includes monitoring and maintenance provisions in accordance with LUC 20.25H.220.B. In response to City comments, monitoring includes hydrology monitoring for the additional (non-compensatory) enhancement area of Wetland A outside of the stream project area.

4. *An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development;*

Response: See Section 7.4.

5. *An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal. The analysis shall include:*

    a. *A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;*

Response: See Section 8.1.

    b. *A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development; and*

Response: As described above, the regulations and standards of LUC 20.25H allow the proposed Project to occur within critical areas and their associated buffers, provided certain criteria are met. Additionally, the stream modification, is also allowed as it is a habitat improvement project, but must be approved through a Critical Areas Report process. Through the avoidance and minimization measures and the proposed compensatory mitigation discussed in this CAR, critical area functions overall will be preserved or improved in the Project area. Furthermore, without the proposed critical area alterations, and resulting proposed restoration, existing degraded critical areas and associated buffers would remain in their present condition with no enhancement.

    c. *discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development;*

Response: See Section 8.1. Stream, wetland, and buffer areas are proposed to be enhanced which will result in an increase in native vegetation; filtering of stormwater by native plantings; increased habitat structural and compositional complexity, LWD, and an increase in organic material to the food chain.

Proposed enhancement will maintain and improve wetland and buffer functions and values. Permanent wetland and buffer impacts will be mitigated through enhancement of degraded wetland and buffer areas. Additional wetland enhancement, beyond what is required to mitigate for Energize Eastside Project impacts, is also proposed. A discussion of the performance standards applicable to the critical area and proposed activity pursuant to LUC 20.25H.160, and recommendation for additional or modified performance standards, if any;

Response: Not applicable; the Project will not cause impacts to habitat associated with species of local importance.

6. A discussion of the mitigation requirements applicable to the proposal pursuant to LUC 20.25H.210, and a recommendation for additional or modified mitigation, if any; and

Response: See Sections 7.2 and 8.1. Consistent with the description above, mitigation for the Project is being designed to be in compliance with LUC 20.25H.210 through 25.25H.225. The wetland mitigation required in the Richards Creek sub-basin based on calculated impacts consists of 30,718 SF of enhancement. The Richards Creek Substation Mitigation Plan (Appendix A) proposes 30,718 SF of wetland enhancement to meet this mitigation need. Enhancement is proposed within degraded portions of Wetland A and Wetland D.

A portion of the wetland enhancement mitigation (13,396 SF) is proposed to occur to wetland areas within the boundaries of the stream restoration project. However, no out-of-kind mitigation is being proposed. The stream restoration itself, including the both the habitat improvements and flooding alleviation it is expected to bring, is not proposed as mitigation for the wetland impacts generated by Energize Eastside. The stream realignment and restoration proposal will not result in permanent impacts to wetland function. Rather, it will enhance the functions of the interrelated and interdependent stream and wetland system and will help provide a greater functional lift to the restored wetlands within the stream project area. Additional enhancement is also proposed in Wetlands A and D, outside of the stream project area and above what is required to mitigate for project impacts (See Table 17).

7. Any additional information required for the specific critical area as specified in the sections of this part addressing that critical area.

Response: A delineation report has been prepared which documents wetlands and streams in the proposed Project area (The Watershed Company 2016). Additional delineation reports were prepared for the Richards Creek Substation sites (The Watershed Company 2017 and 2017b, respectively).

C. Additional Report Submittal Requirements.

1. Unless otherwise provided, a critical areas report may be supplemented by or composed, in whole or in part, of any reports or studies required by other laws and regulations or previously prepared for and applicable to the development proposal site, as approved by the Director.

Response: The stream re-alignment and enhancement project design is included in the Richards Creek Sub-basin Mitigation Plan that is attached to this report. Further, this CAR relies on two relevant environmental reports (City of Bellevue Critical Areas Delineation Report: Puget Sound Energy – Energize Eastside Project (The Watershed Company 2016) and City of Bellevue Tree Inventory Report: Puget Sound Energy – Energize Eastside Project (The Watershed

Company 2016b)) and is supplemented by the Biological Evaluation completed as part of the Project's ESA review.

2. *Where a project requires a critical areas report and a mitigation or restoration plan, the mitigation or restoration plan may be included with the critical areas report, and may be considered in determining compliance with the applicable decision criteria, except as set forth in subsection C.4 of this section.*

Response: Mitigation Plans are included in Appendix A.

3. *The applicant may consult with the Director prior to or during preparation of the critical areas report to obtain approval of modifications to the required contents of the report where, in the judgment of a qualified professional, more or less information is required to adequately address the potential critical area impacts and required mitigation.*

Response: PSE standards and federal regulations require vegetation management compatible with overhead 230 kV transmission lines. Where mitigation is proposed under transmission lines, the proposed mitigation plan will provide for species that will enhance existing buffers and wetlands, while meeting vegetation management standards.

D. Incorporation of Previous Study.

Where a valid critical areas report or report for another agency with jurisdiction over the proposal has been prepared within the last five years for a specific site, and where the proposed land use activity and surrounding site conditions are unchanged, said report may be incorporated into the required critical areas report. The applicant shall submit an assessment detailing any changed environmental conditions associated with the site. (Ord. 5680, 6-26-06, § 3)

Response: The City of Bellevue Critical Areas Delineation Report: Puget Sound Energy –Energize Eastside Project (The Watershed Company 2016) and City of Bellevue Tree Inventory Report: Puget Sound Energy – Energize Eastside Project (The Watershed Company 2016b) have been prepared for the proposed Project. In addition, updated delineation reports for the Richards Creek Substation site and Somerset Substation site were recently prepared (The Watershed Company 2017 and 2017b, respectively). No environmental conditions are known to have changed from the conditions documented in those reports. Additionally, the Revised Targeted Critical Areas Geologic Hazard Evaluation (GeoEngineers 2017) was prepared to evaluate the Project's potential impact to geologic hazard areas.

9.8 LUC 20.25H.255 Critical areas report – Decision criteria

Compliance with applicable critical areas report decision criteria is described below.

A. General.

Except for the proposals described in subsection B of this section, the Director may approve, or approve with modifications, the proposed modification 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 application of the regulations and standards of this code;*

Response: As explained above, as required by the City's code, Project mitigation requires the enhancement of 0.76 acres of wetland split between Richards Creek and Coal Creek drainage sub-basins (the majority of wetland enhancement to occur in the Richards Creek sub-basin). The proposed functional lift described in Sections 8.1.3 and 8.2.3 details the anticipated net gain in critical areas functions expected to result from the proposed enhancement work on the Richards Creek Substation and Somerset Substation parcels. Construction associated with the proposed culvert replacement and stream realignment will result in temporary disturbance to streams, wetlands, and their associated buffers, but will also result in net habitat benefits following Project implementation. Instream enhancements, creation of a more functional buffer/riparian area than currently exists, and enhancement of adjacent wetland areas is proposed and will improve the functions of the interrelated and interdependent stream and wetland system.

The restored stream will have a defined channel and floodplain benches, as well as the capacity to convey the predicted 1-year peak flow rate. The stream channel has been designed to flood at a 2-year peak flow rate and contribute to the surrounding wetland hydrology. A meandering channel design combined with woody debris placement, native revegetation, and wetland enhancements will create a complex and diverse aquatic habitat beneficial for fish and macroinvertebrates as well as other wildlife. This approach also produces varied flow velocities allowing for natural sediment movement and deposition patterns to occur. The channel alignment has been laid out to minimize impacts to wetlands, preserve as many trees onsite as feasible, and provide a more functional buffer. The original stream bed along the west property line of the subject site will not be filled in after stream flow is diverted into the new channel. The remnant channel is anticipated to continue to capture seepage and shallow groundwater and will continue to provide ecological diversity and function as wetland given the nature of the site hydrology. Tree trunks and roots wads will be strategically located along the restored reach to create and maintain scour pools and areas of refuge for fish as well as provide channel diversity and stability. In sum, the Project will provide a net increase in critical area functions and values in the Project area.

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

Response: PSE has adequate resources to ensure completion of any required mitigation and monitoring efforts.

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*

Response: No part of the proposal will be detrimental to off-site areas. Enhancement of the stream, wetland and buffer areas will increase the overall habitat function of the area, thereby potentially improving habitat functions on adjacent properties. The culvert replacement and stream realignment will increase streamflow conveyance capacity, improve sediment transport, facilitate sediment removal from the system, and reduce the flooding that now occurs on the adjoining property to the west. Fish passage will also be improved.

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

Response: This issues was analyzed in detail in Chapter 3.1 of the Energize Eastside Project Phase 2 Draft Environmental Impact Statement. The proposed Project will be compatible with adjacent properties and surrounding development. The substation site is located within the Light Industrial (LI) zoning district and the site is surrounded by compatible uses including an existing substation, the King County Transfer Station and a water and wastewater supply company. The transmission corridor is predominantly surrounded by residential uses with some commercial and park/public open space uses. The corridor currently contains transmission lines. The purpose of the Project is to serve homes and businesses with higher capacity transmission lines. As the proposed transmission line facilities upgrades are in areas that already house such facilities, the likelihood of a materially detrimental impact is significantly reduced. Furthermore, as the transmission line facilities support adjacent uses (residences and businesses), they are not materially detrimental.

9.9 LUC 20.30P.140 Critical Areas Land Use Permit decision criteria

Compliance with the critical areas land use permit decision criteria is described below.

LUC 20.30P.140

The Director may approve or approve with modifications an application for a Critical Areas Land Use Permit if:

Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

A. The proposal obtains all other permits required by the Land Use Code; and

Response: In addition to the Critical Areas Land Use Permit (LO) which is being applied for to modify critical area/buffers and to provide mitigation for impacts, the Project will apply for a Conditional Use Permit. No other City of Bellevue land use permits will be required of the Project at this time.

B. 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; and

Response: The Project has been through multiple design revisions and has considered alternate routes in order to ensure the least impact to critical areas that is reasonably feasible. Unavoidable impacts will be minimized through design practices and engineering controls. PSE is not aware of any less impactful construction, design and development techniques and regularly reviews its practices consistent with this goal.

C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and

Response: See above Sections 9.2 through 9.6 for compliance with applicable performance standards for each critical area type to be impacted by the Project.

D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities; and

Response: The objective of the Energize Eastside Project is to increase the capacity of the Eastside electric grid, to ensure reliable utility service is available. The Project will be served by adequate public facilities. Temporary and some potentially permanent access routes will be needed to service the Project but no new streets are necessary. Fire and police protection are currently available in the Project vicinity. This issues was analyzed in detail in Chapter 3 of the Energize Eastside Project Phase 2 Draft Environmental Impact Statement.

E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan; and

Response: The final mitigation plan has been prepared in accordance with the requirements of LUC 20.25H.210.

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

Response: The proposed Project complies with all other applicable City of Bellevue Land Use Codes.

10 DISCLAIMER

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state and federal regulatory authorities. No other warranty, expressed or implied, is made.

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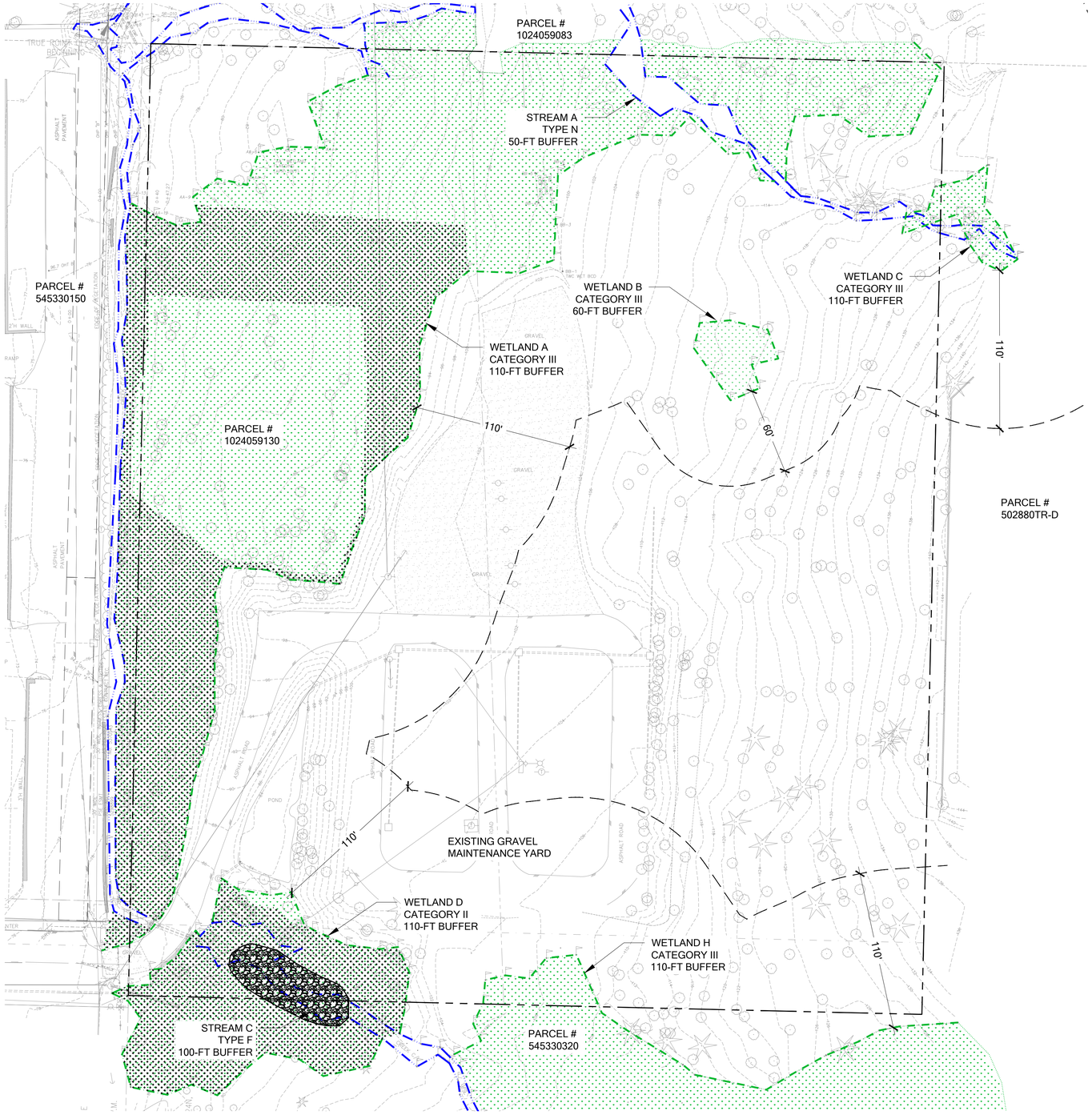
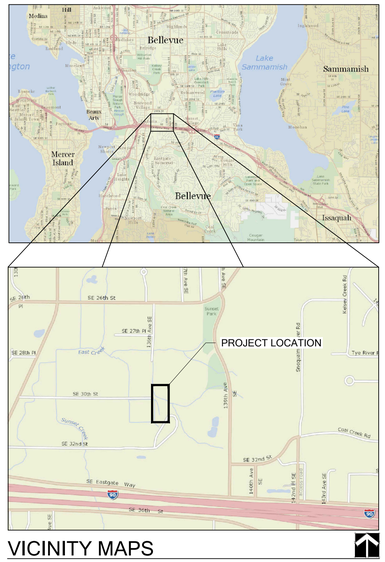
APPENDIX A

Mitigation Plans





VICINITY MAPS

LEGEND

- WETLAND BOUNDARY
- WETLAND BOUNDARY (APPROXIMATE)
- STREAM BOUNDARY (OHWM)
- CRITICAL AREA BUFFER
- PROPERTY BOUNDARY
- DEGRADED WETLAND WITHIN PROJECT AREA
- COARSE DEPOSITION

NOTES

1. CRITICAL AREAS DELINEATED BY THE WATERSHED COMPANY IN OCTOBER 2016, FEBRUARY 2017 AND APRIL 2017.
2. SURVEY RECEIVED FROM APS SURVEY & MAPPING. 13221 S.E. 26TH STREET, SUITE A, BELLEVUE, WA 98005. PHONE: (425) 746-3200.

SHEET INDEX

EXISTING CONDITIONS

SCALE: 1" = 40'

0 20' 40' 80' 160'

Know what's below. Call before you dig.

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750 Sixth Street South
Kirkland WA 98033
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Science & Design

PSE RICHARDS CREEK SUBSTATION
RICHARDS CREEK SUB-BASIN MITIGATION PLAN
PREPARED FOR: PUGET SOUND ENERGY
ENERGIZE EASTSIDE, SOUTH BELLEVUE SEGMENT
PARCELS #: 1024059130, 1024059083, 5453300150
BELLEVUE, WA

SUBMITTALS & REVISIONS

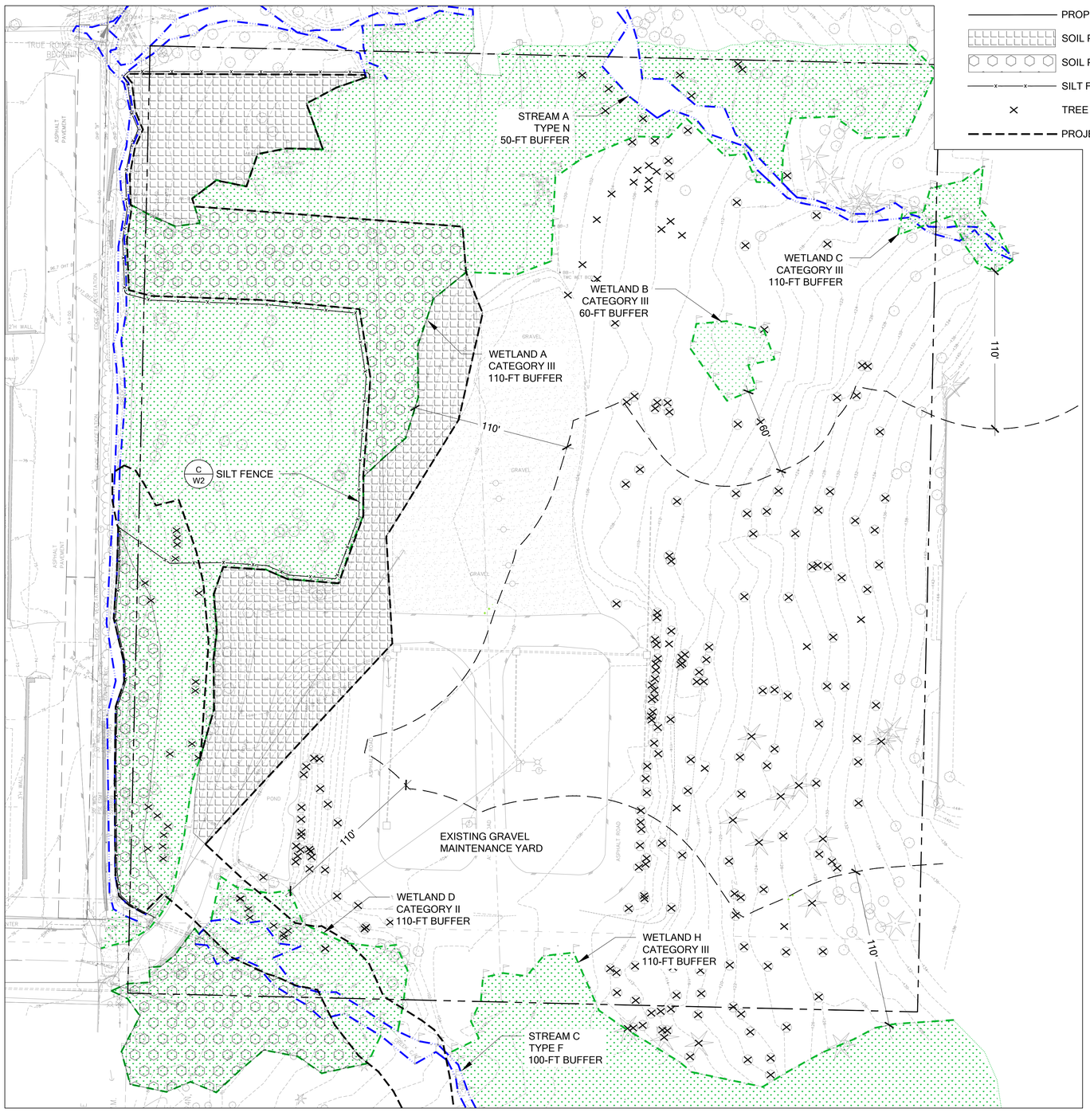
NO.	DATE	DESCRIPTION	BY
1	04-18-2018	MITIGATION PLAN	LM
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

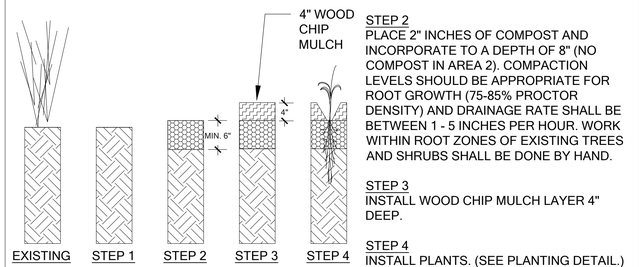
PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM
JOB NUMBER:
111103.11
SHEET NUMBER:
W1 OF 7

FILENAME: MITIGATION_PLAN.DWG
PRINTED BY: LOGAN MCCLISH
DATE: 12/5/2018



LEGEND

- WETLAND BOUNDARY
- WETLAND BOUNDARY (APPROXIMATE)
- STREAM BOUNDARY (OHWM)
- CRITICAL AREA BUFFER
- PROPERTY BOUNDARY
- SOIL PREP AREA 1 (A / W2)
- SOIL PREP AREA 2 (B / W2)
- SILT FENCE (C / W2)
- TREE TO BE REMOVED
- PROJECT BOUNDARY



PLANTING AREA PREPARATION

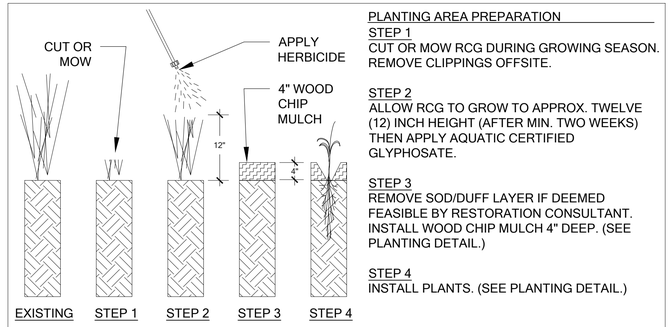
STEP 1
REMOVE INVASIVE SPECIES.

STEP 2
PLACE 2" INCHES OF COMPOST AND INCORPORATE TO A DEPTH OF 8" (NO COMPOST IN AREA 2). COMPACTION LEVELS SHOULD BE APPROPRIATE FOR ROOT GROWTH (75-85% PROCTOR DENSITY) AND DRAINAGE RATE SHALL BE BETWEEN 1 - 5 INCHES PER HOUR. WORK WITHIN ROOT ZONES OF EXISTING TREES AND SHRUBS SHALL BE DONE BY HAND.

STEP 3
INSTALL WOOD CHIP MULCH LAYER 4" DEEP.

STEP 4
INSTALL PLANTS. (SEE PLANTING DETAIL.)

A SOIL PREPARATION AREA 1
SEQUENCE OF WORK - NOT TO SCALE



PLANTING AREA PREPARATION

STEP 1
CUT OR MOW RCG DURING GROWING SEASON. REMOVE CLIPPINGS OFFSITE.

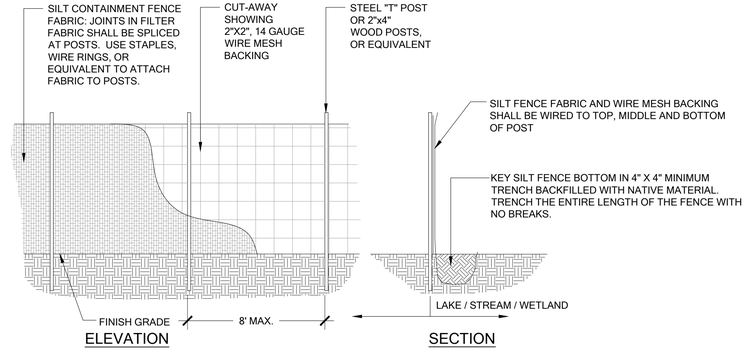
STEP 2
ALLOW RCG TO GROW TO APPROX. TWELVE (12) INCH HEIGHT (AFTER MIN. TWO WEEKS) THEN APPLY AQUATIC CERTIFIED GLYPHOSATE.

STEP 3
REMOVE SOD/DUFF LAYER IF DEEMED FEASIBLE BY RESTORATION CONSULTANT. INSTALL WOOD CHIP MULCH 4" DEEP. (SEE PLANTING DETAIL.)

STEP 4
INSTALL PLANTS. (SEE PLANTING DETAIL.)

B SOIL PREPARATION AREA 2
SEQUENCE OF WORK - NOT TO SCALE

SILT FENCE MAINTENANCE STANDARDS:
1. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS 6" IN DEPTH.



C SILT FENCE

Scale: NTS

NOTE

1. SEE STREAM RESTORATION AND CULVERT REPLACEMENT PLAN FOR STREAM WORK TESC.

SITE PREPARATION & TESC PLAN

SCALE: 1" = 40'

0 20' 40' 80' 160'

Know what's below. Call before you dig.

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750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
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Science & Design

PSE RICHARDS CREEK SUBSTATION
RICHARDS CREEK SUB-BASIN MITIGATION PLAN
PREPARED FOR: PUGET SOUND ENERGY
ENERGIZE EASTSIDE, SOUTH BELLEVUE SEGMENT
PARCELS #: 1024059130, 1024059083, 5453300150
BELLEVUE, WA

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	04-18-2018	MITIGATION PLAN	LM
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

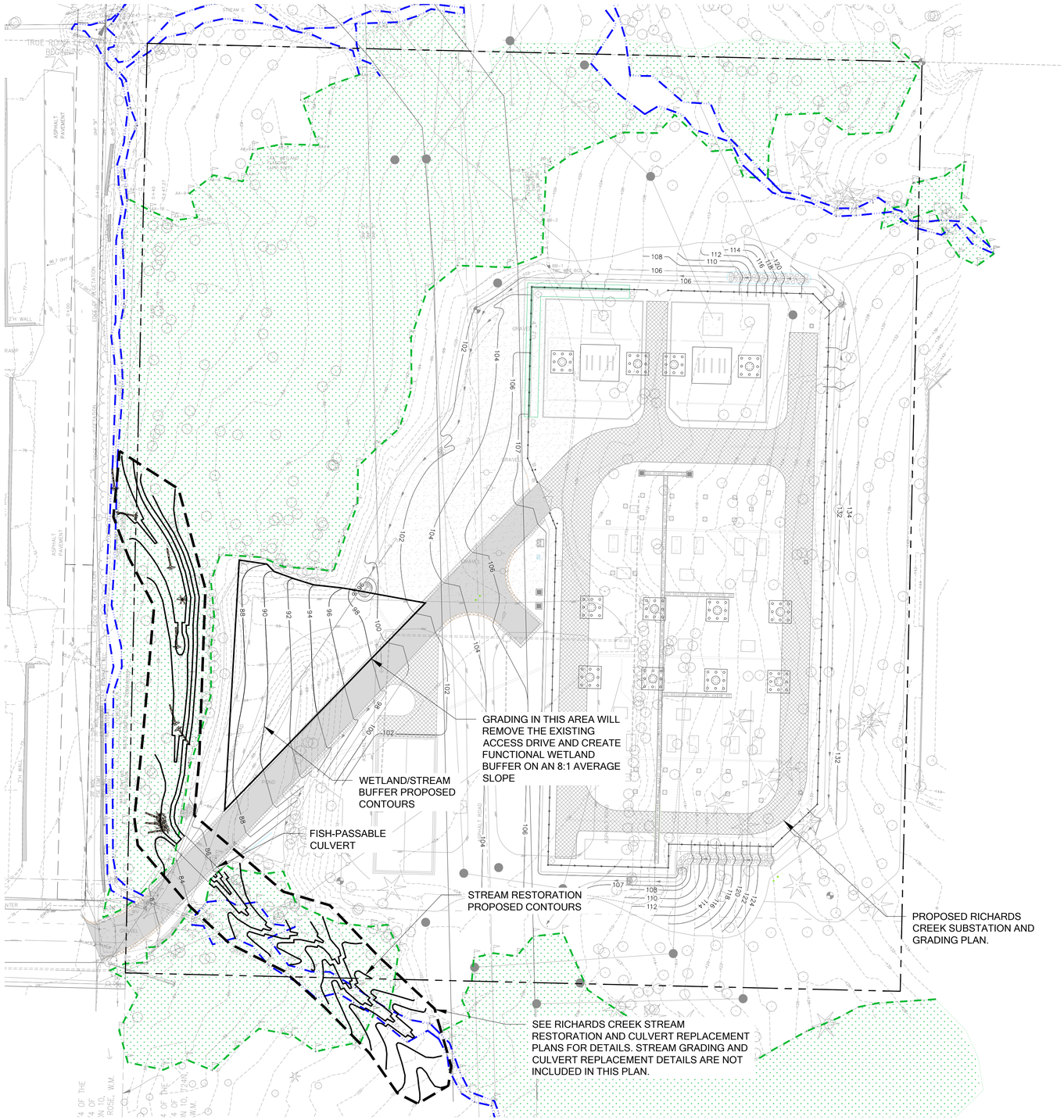
SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM

JOB NUMBER:
111103.11

SHEET NUMBER:
W2 OF 7

DATE 12/5/2018 | PRINTED BY LOGAN MCCLISH | FILENAME MITIGATION_PLAN.DWG



GRADING AND LARGE WOODY DEBRIS PLAN

SCALE: 1" = 40'

NOTES

1. REMOVAL OF THE EXISTING ACCESS DRIVE AND REGRADING WILL CHANGE THE EXISTING 3:1 SLOPE TO AN AVERAGE 8:1 SLOPE.

LEGEND

- WETLAND BOUNDARY
- WETLAND BOUNDARY (APPROXIMATE)
- STREAM BOUNDARY (OHWM)
- CRITICAL AREA BUFFER
- PROPERTY BOUNDARY
- PROPOSED STREAM/BUFFER CONTOURS
- PROPOSED SUBSTATION CONTOURS
- STREAM PROJECT AREA
- LARGE WOODY DEBRIS

0 20' 40' 80' 160'

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BELLEVUE, WA

SUBMITTALS & REVISIONS

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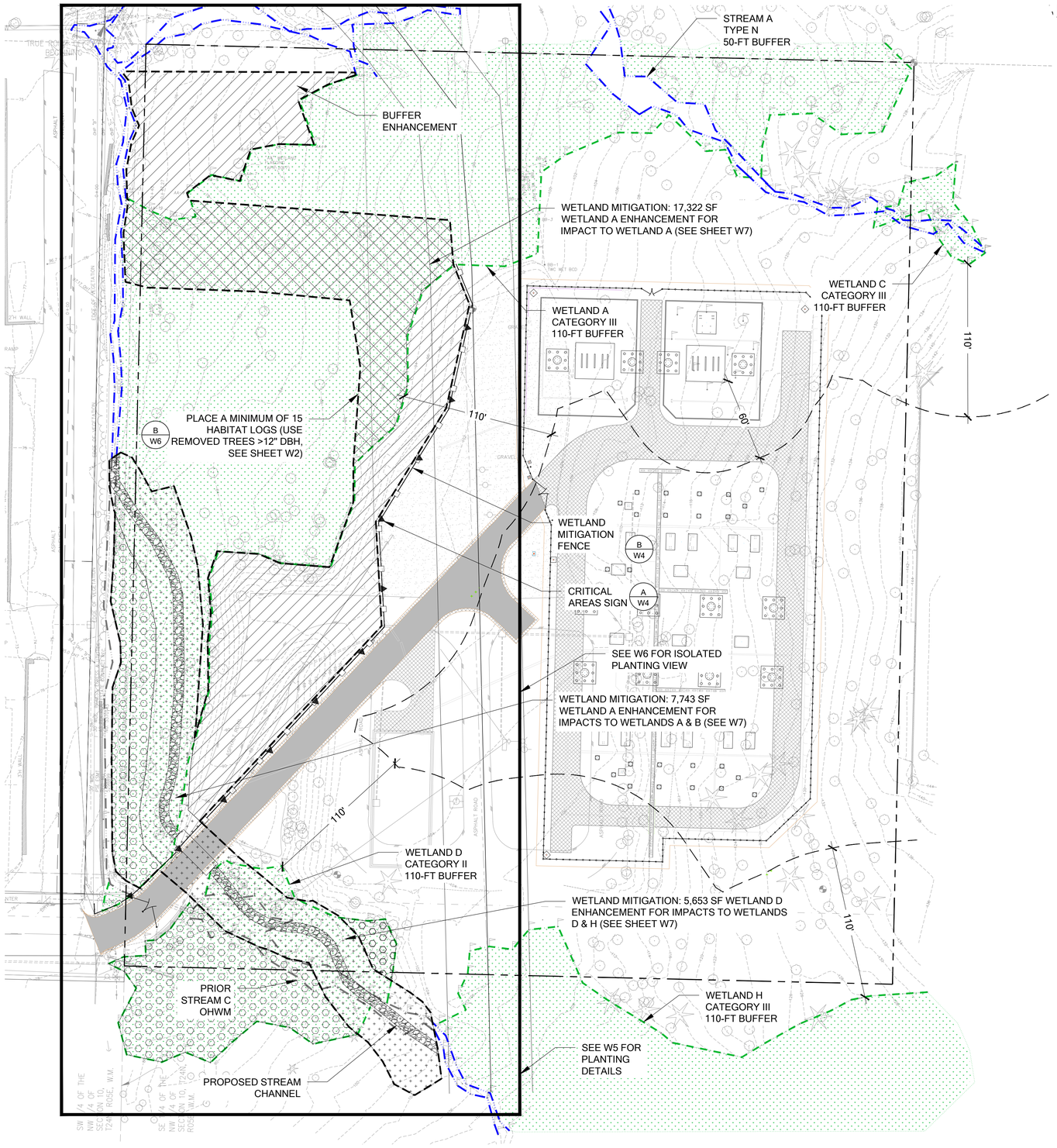
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM
JOB NUMBER:
111103.11
SHEET NUMBER:
W3 OF 7

FILENAME: MITIGATION_PLAN.DWG
PRINTED BY: LOGAN MCCLISH
DATE: 12/5/2018



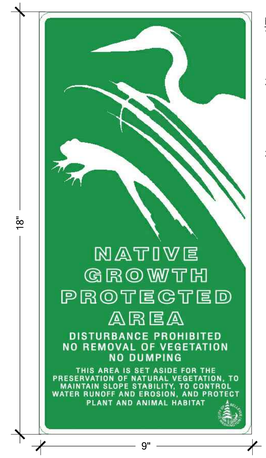
ENHANCEMENT PLAN

SCALE: 1" = 40'

0 20' 40' 80' 160'

NOTES

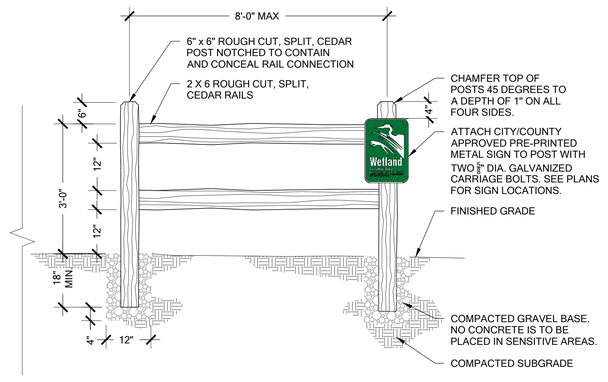
1. THE EXISTING CHANNEL WILL NOT BE FILLED IN AFTER STREAM FLOW IS DIVERTED INTO THE NEW CHANNEL. THE REMNANT CHANNEL IS ANTICIPATED TO CONTINUE TO CAPTURE SEEPAGE AND SHALLOW GROUNDWATER AND WILL CONTINUE TO PROVIDE ECOLOGICAL DIVERSITY AND IS EXPECTED TO FUNCTION AS WETLAND.



NOTES:
1. SIGNAGE TO APPEAR LIKE IMAGE WITH A GREEN BACKGROUND AND SIZED AS NOTED.
2. SIGN TO BE FABRICATED IN ALUMINUM, BY A CITY APPROVED VENDOR, OR EQUIVALENT MANUFACTURER.
3. SIGNAGE TO BE PLACED ON CHAIN LINK FENCE OR POST EVERY 50-FT.

A NGPA SIGN

Scale: NTS



B SPLIT RAIL FENCE WITH CRITICAL AREA SIGN (SEE W3)

Scale: NTS

LEGEND

- WETLAND BOUNDARY
- WETLAND BOUNDARY (APPROXIMATE)
- STREAM BOUNDARY (OHWM)
- CRITICAL AREA BUFFER
- PROPERTY BOUNDARY
- WETLAND A MITIGATION ENHANCEMENT (17,322 SF)
- WETLAND / STREAM BUFFER MITIGATION ENHANCEMENT (32,013 SF)
- PROJECT BOUNDARY
- CRITICAL AREAS FENCE AND SIGNS
- STREAM RESTORATION PROJECT: INCLUDES 13,396 SF WETLAND MITIGATION ENHANCEMENT (7,743 SF IN WETLAND A AND 5,653 IN WETLAND D) AND 3,323 SF WETLAND/STREAM BUFFER MITIGATION ENHANCEMENT
- ADDITIONAL, NON-COMPENSATORY ENHANCEMENT (6,215 SF IN WETLAND A AND 12,050 SF IN WETLAND D)

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SUBMITTALS & REVISIONS

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2	12-06-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

SHEET SIZE:
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SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM
JOB NUMBER:
111103.11
SHEET NUMBER:
W4 OF 7

FILENAME: MITIGATION_PLAN.DWG
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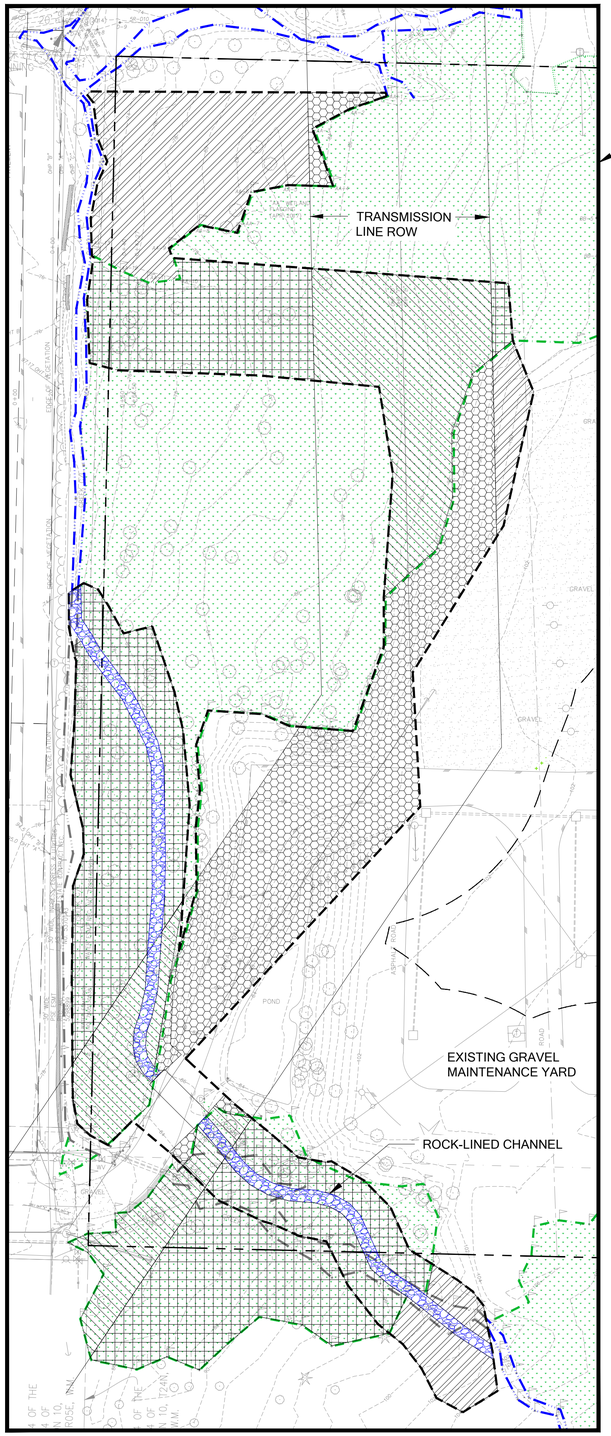


LEGEND

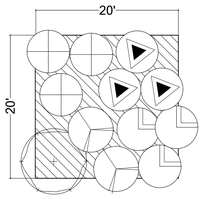
- WETLAND BOUNDARY
- WETLAND BOUNDARY (APPROXIMATE)
- STREAM BOUNDARY (OHWM)
- CRITICAL AREA BUFFER
- PROPERTY BOUNDARY
- PROJECT BOUNDARY

NOTES

1.* FOCUS SITKA SPRUCE IN AREAS HEAVILY DOMINATED BY REEDCANARY GRASS
2. PIT PLANTING ONLY IN AREAS OF EXISTING NATIVE VEGETATION. NATIVE VEGETATION MUST BE FLAGGED BY A RESTORATION SPECIALIST PRIOR TO PLANT INSTALLATION.

WETLAND ENHANCEMENT PLANTING TYPICAL (ROW)

TOTAL AREA = 16,175

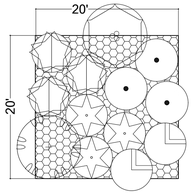


	SIZE	SPACING	SIZE
TREES			
SALIX LUCIDA / PACIFIC WILLOW	80	9 O.C.	2 GAL.
SALIX SITCHENSIS / SITKA WILLOW	80		2 GAL.
			2 GAL.
SHRUBS			
CORNUS SERICEA / RED-OSIER DOGWOOD	116	6' O.C.	1 GAL.
ROSA NUTKANA / NOOTKA ROSE	116		1 GAL.
RUBUS SPECTABILIS / SALMONBERRY	116		1 GAL.
PHYSOCARPUS CAPITATUS/ PACIFIC NINEBARK	116		1 GAL.
GROUNDCOVER			
*ALL SPECIES TO BE SPACED TRIANGULARLY			
ATHYRIUM FILIX-FEMINA/ LADY FERN (NO INUNDATION)	1280	24" O.C.	1 GAL
TOLMIEA MENZIESII /PIGGYBACK PLANT (NO INUNDATION)	1280		1 GAL
SCIRPUS MICROCARPUS / SMALL FRUITED BULRUSH	1280		1 GAL.

(PLANT BY SPECIES IN ODD GROUPS OF 9-15)

BUFFER ENHANCEMENT PLANTING TYPICAL (ROW)

TOTAL AREA = 19,010

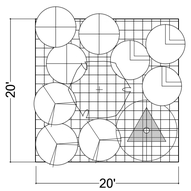


	QTY	SPACING	SIZE
TREES			
SALIX SCOULERIANA / SCOULER'S WILLOW	114	9 O.C.	2 GAL
AMELANCHIER ALNIFOLIA / PACIFIC SERVICEBERRY	114		2 GAL
SHRUBS			
RUBUS SPECTABILIS / SALMONBERRY	120	6' O.C.	1 GAL
SYMPHORICARPUS ALBUS / SNOWBERRY	120		1 GAL
OEMLERIA CERASIFORMIS / OSOBERRY	120		1 GAL
MAHONIA AQUIFOLIUM / TALL OREGON GRAPE	120		1 GAL
ACER CIRCINATUM / VINE MAPLE	120		1 GAL
GROUNDCOVER			
*ALL SPECIES TO BE SPACED TRIANGULARLY			
POLYSTICHUM MUNITUM / SWORD FERN	2320	24" O.C.	1 GAL
BLECHNUM SPICANT / DEER FERN	2320		1 GAL

(PLANT BY SPECIES IN ODD GROUPS OF 9-15)

WETLAND ENHANCEMENT PLANTING TYPICAL

TOTAL AREA = 31,650

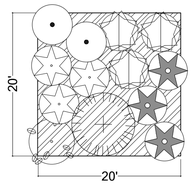


	QTY	SPACING	SIZE
TREES (66)			
ALNUS RUBRA / RED ALDER	38	9' O.C.	2 GAL.
FRAXINUS LATIFOLIA / OREGON ASH	38		2 GAL.
SALIX LUCIDA / PACIFIC WILLOW	38		2 GAL.
PICEA SITCHENSIS / SITKA SPRUCE*	76		2 GAL.
SALIX SITCHENSIS / SITKA WILLOW	38		2 GAL.
SHRUBS (600)			
CORNUS SERICEA / RED-OSIER DOGWOOD	150	6' O.C.	1 GAL.
ROSA NUTKANA / NOOTKA ROSE	150		1 GAL.
RUBUS SPECTABILIS / SALMONBERRY	150		1 GAL.
PHYSOCARPUS CAPITATUS/ PACIFIC NINEBARK	150		1 GAL.
GROUNDCOVER (3600)			
*ALL SPECIES TO BE SPACED TRIANGULARLY			
ATHYRIUM FILIX-FEMINA/ LADY FERN (NO INUNDATION)	1160	24" O.C.	1 GAL
TOLMIEA MENZIESII /PIGGYBACK PLANT (NO INUNDATION)	1160		1 GAL
SCIRPUS MICROCARPUS / SMALL FRUITED BULRUSH	1160		1 GAL.
CAREX OBNUPTA/ SLOUGH SEDGE (BACKWATER AREAS)	1160		1 GAL.

(PLANT BY SPECIES IN ODD GROUPS OF 9-15)

BUFFER ENHANCEMENT PLANTING TYPICAL

TOTAL AREA = 13,435



	QTY	SPACING	SIZE
TREES (48)			
PSEUDOTSUGA MENZIESII / DOUGLAS-FIR	26	9' O.C.	2 GAL
THUJA PLUCATA / WESTERN RED CEDAR	26		2 GAL
ARBUTUS MENZIESII / PACIFIC MADRONE (PLANT NEXT TO DOUGLAS-FIR)	26		2 GAL
PRUNUS EMARGINATA / BITTER CHEERY	26		
SALIX SCOULERIANA / SCOULER'S WILLOW	26		2 GAL
ACER MACROPHYLLUM / BIG LEAF MAPLE (AWAY FROM ACCESS DRIVE)	26		2 GAL
SHRUBS (240)			
RUBUS SPECTABILIS / SALMONBERRY	70	6' O.C.	1 GAL
SYMPHORICARPUS ALBUS / SNOWBERRY	70		1 GAL
OEMLERIA CERASIFORMIS / OSOBERRY	70		1 GAL
MAHONIA NERVOSA / LOW OREGON GRAPE	70		1 GAL
MAHONIA AQUIFOLIUM / TALL OREGON GRAPE	70		1 GAL
ACER CIRCINATUM / VINE MAPLE	70		1 GAL
GROUNDCOVER (3290)			
*ALL SPECIES TO BE SPACED TRIANGULARLY			
POLYSTICHUM MUNITUM / SWORD FERN	1640	24" O.C.	1 GAL
BLECHNUM SPICANT / DEER FERN	1640		1 GAL

(PLANT BY SPECIES IN ODD GROUPS OF 9-15)

PLANTING PLAN & SCHEDULE

SCALE: 1" = 40'

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PREPARED FOR: PUGET SOUND ENERGY
ENERGIZE EASTSIDE, SOUTH BELLEVUE SEGMENT
PARCELS #: 1024059130, 1024059083, 5453300150
BELLEVUE, WA

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	04-18-2018	MITIGATION PLAN	LM
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM
JOB NUMBER:
111103.11
SHEET NUMBER:
W5 OF 7

DATE: 12/5/2018 | PRINTED BY: LOGAN MCCLISH | FILENAME: MITIGATION_PLAN.DWG

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PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE
1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
4. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 1973 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997.

DEFINITIONS
1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC..; SPRIGS, PLUGS, AND LINERS.
2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION
1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
3. THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS
1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.).

SUBMITTALS

PROPOSED PLANT SOURCES
1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES
1. PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
2. HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION
CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS
1. TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
2. SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
3. HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
4. LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY
PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT
1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

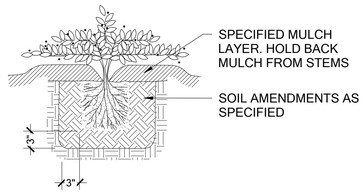
GENERAL
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES
SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

ROOT TREATMENT
1. CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.

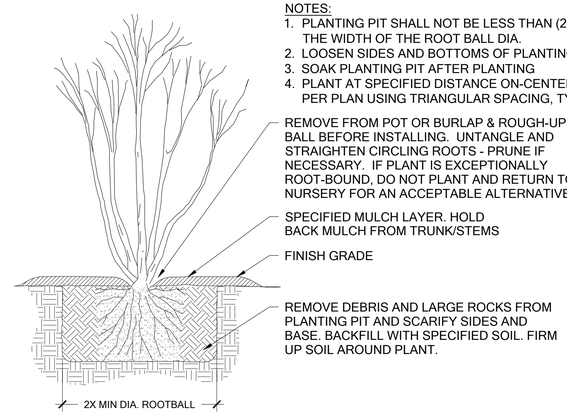
PLANTING NOTES & DETAILS

NOTES:
1. PLANT GROUNDCOVER AT SPECIFIED DISTANCE ON-CENTER (O.C.) USING TRIANGULAR SPACING, TYP.
2. LOOSEN SIDES AND BOTTOM OF PLANTING PIT AND REMOVE DEBRIS
3. LOOSEN ROOTBOUND PLANTS BEFORE INSTALLING
4. SOAK PIT BEFORE AND AFTER INSTALLING PLANT

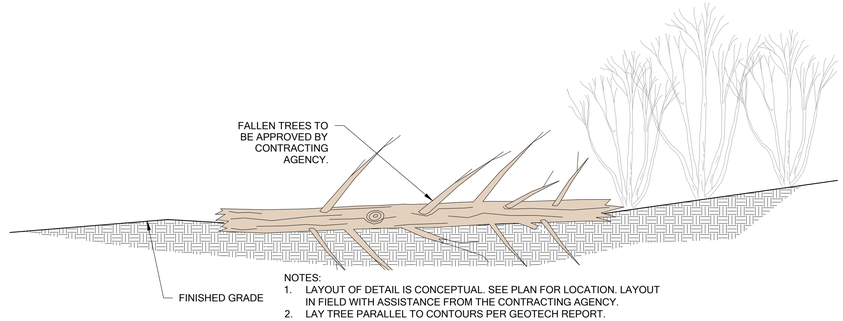


A TREE AND SHRUB PLANTING
Scale: NTS

NOTES:
1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
2. LOOSEN SIDES AND BOTTOMS OF PLANTING PIT
3. SOAK PLANTING PIT AFTER PLANTING
4. PLANT AT SPECIFIED DISTANCE ON-CENTER (O.C.) PER PLAN USING TRIANGULAR SPACING, TYP.



C GROUNDCOVER PLANTING
Scale: NTS



NOTES:
1. LAYOUT OF DETAIL IS CONCEPTUAL. SEE PLAN FOR LOCATION. LAYOUT IN FIELD WITH ASSISTANCE FROM THE CONTRACTING AGENCY.
2. LAY TREE PARALLEL TO CONTOURS PER GEOTECH REPORT.
3. TREES SHALL BE FROM THOSE REMOVED ONSITE. DO NOT IMPORT.

B HABITAT LOG
Scale: NTS

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

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
www.watershedco.com
Science & Design

PSE RICHARDS CREEK SUBSTATION
RICHARDS CREEK SUB-BASIN MITIGATION PLAN
PREPARED FOR: PUGET SOUND ENERGY
ENERGIZE EASTSIDE, SOUTH BELLEVUE SEGMENT
PARCELS #: 1024059130, 1024059083, 5453300150
BELLEVUE, WA

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	04-18-2018	MITIGATION PLAN	LM
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

GENERAL NOTES:

SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM

JOB NUMBER:
111103.11

SHEET NUMBER:
W6 OF 7

DATE 12/5/2018 | PRINTED BY LOGAN MCCLISH | FILENAME MITIGATION_PLAN.DWG

MITIGATION PLAN NOTES

MITIGATION AND MONITORING NOTES

EXECUTIVE SUMMARY

PSE'S ENERGIZE EASTSIDE PROJECT (THE PROJECT) PROPOSES TO UPGRADE EXISTING TRANSMISSION LINES IN SOUTH BELLEVUE IN ORDER TO INCREASE TRANSMISSION SYSTEM CAPACITY TO 230KV POWER. PROJECT ELEMENTS, EXISTING CONDITIONS, MITIGATION SEQUENCING, AND PROJECT IMPACTS TO CRITICAL AREAS ARE DISCUSSED IN THE REVISED *CITY OF BELLEVUE CRITICAL AREAS REPORT: PUGET SOUND ENERGY-ENERGIZE EASTSIDE PROJECT SOUTH BELLEVUE SEGMENT* (SOUTH BELLEVUE CAR) PREPARED BY THE WATERSHED COMPANY, DECEMBER 2018. THIS MITIGATION PLAN IS INTENDED TO REPRESENT THE FINAL RICHARDS CREEK SUBBASIN MITIGATION PLAN REFERENCED IN THE SOUTH BELLEVUE CAR. IT HAS BEEN DESIGNED TO APPROPRIATELY MITIGATE FOR PROJECT IMPACTS OCCURRING IN WETLANDS AND WETLAND AND STREAM BUFFERS IN THE RICHARDS CREEK SUBBASIN, AS DESCRIBED IN THE SOUTH BELLEVUE CAR AND REQUIRED BY THE BELLEVUE MUNICIPAL CODE (BMC). A SEPARATE MITIGATION PLAN IS PROPOSED FOR PROJECT IMPACTS OCCURRING IN THE COAL CREEK BASIN.

PROPOSED PROJECT ACTIVITIES IMPACT WETLANDS AND BUFFERS IN ONE OF FOUR WAYS: PERMANENT FILL RESULTING FROM DEVELOPMENT OF THE RICHARDS CREEK SUBSTATION AND TRANSMISSION POLE INSTALLATION/REPLACEMENT (PERMANENT), PERMANENT VEGETATION CONVERSION FROM A FORESTED VEGETATION TYPE DUE TO VEGETATION MANAGEMENT REQUIREMENTS (CONVERSION), DEVELOPMENT OF AN ALREADY IMPACTED, NON-FUNCTIONAL BUFFER AREA (REDEVELOPMENT), AND TEMPORARY IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES (TEMPORARY). PERMANENT AND CONVERSION BUFFER IMPACTS REQUIRE MITIGATION AS SUMMARIZED IN THE TABLE BELOW.

IMPACTS and COMPENSATORY MITIGATION						
Critical Area Name	**Category**	**Type of Impact**	**Quantity (SF)**	**Mitigation Ratio**	**Mitigation Required (SF)**	**Amount (SF) and Location of Mitigation Proposed[2]**
Wetlands						
Wetland A	III	Conversion	9,945	2:1	19,890	19,890 Wetland A
Wetland A	III	Permanent	397	4:1	1,588	1,588 Wetland A
Wetland B	III	Permanent	2,060	4:1	8,240	3,587 Wetland A 4,653 Wetland D
Wetland D	II	Conversion	100	3:1	300	300 Wetland D
Wetland D	II	Permanent	41	6:1	246	246 Wetland D
Wetland H	III	Conversion	73	2:1	146	146 Wetland D
Wetland H	III	Permanent	77	4:1	308	308 Wetland D
				TOTAL	**30,718**	**30,718**
Buffers						
Combined Buffers	N/A	Permanent	23,893	1:1	23,893	23,893 Combined Wetland A/Wetland D/Stream C buffer
Combined Buffers	N/A	Conversion	22,886	0.5:1	11,443	11,443 Combined Wetland A/Wetland D/Stream C buffer
Combined Buffers	N/A	Redevelopment[3]	47,512[3]	N/A[3]	0[3]	NA
				TOTAL	**35,336**	**35,336**
ADDITIONAL RESTORATION (not required to mitigate impacts)						
Critical Area Name	**Category**	**Type of Activity**	**Quantity (SF)**			**Description**
Stream C	N/A	Restoration (Realignment)[4]	3,557			New stream channel
Wetland A	III	Enhancement	6,215			Area between new and old stream channel, outside of grading boundaries
Wetland D	II	Enhancement	11,160			Area of Wetland D outside of stream project grading boundaries

1. Only activities resulting in a long-term change are included. Temporary impacts will be restored in place and are not shown in this table.
2. All wetland mitigation proposed is wetland enhancement.
3. This buffer area is already developed and is considered non-functioning; therefore, no mitigation is required.
4. Existing stream channel will be abandoned (not filled) with stream restoration/realignment activities.

MITIGATION FOR IMPACTS, PRESENTED IN THE TABLE ABOVE, IS PLANNED ON THE RICHARDS CREEK SUBSTATION SITE. AS DISCUSSED IN THE SOUTH BELLEVUE CAR, THIS LOCATION WAS SELECTED FOR MITIGATION ACTIVITIES BASED UPON THE LOCATION OF PROJECT IMPACTS, OPPORTUNITY PRESENT, PROPERTY OWNERSHIP, AND PROXIMITY TO OTHER REGULATED CRITICAL AREAS.

THIS FINAL MITIGATION PLAN PROPOSES TO COMPENSATE FOR PROJECT IMPACTS THROUGH WETLAND AND WETLAND BUFFER ENHANCEMENT IN AND ADJACENT TO WETLANDS A AND D AND A PROPOSED REALIGNED TRIBUTARY TO RICHARDS CREEK. THESE MITIGATION ACTIVITIES ARE INTENDED TO INCREASE NATIVE PLANT COVER, DECREASE INVASIVE SPECIES PREVALENCE, IMPROVE NATIVE SPECIES DIVERSITY, AND PROVIDE FOOD AND OTHER HABITAT RESOURCES FOR WILDLIFE. ADDITIONAL, NON-COMPENSATORY ENHANCEMENT IS ALSO PROPOSED IN WETLANDS A AND D, ABOVE WHAT IS REQUIRED TO MITIGATE PROJECT IMPACTS.

THE PLAN INCLUDES A COMPREHENSIVE FIVE-YEAR MAINTENANCE AND MONITORING PLAN, DETAILED BELOW. THESE SPECIFICATIONS AND STANDARDS WILL ENSURE THAT ENHANCEMENT PLANTINGS WILL BE MAINTAINED, MONITORED, AND SUCCESSFULLY ESTABLISHED WITHIN THE FIRST FIVE YEARS FOLLOWING IMPLEMENTATION.

GOALS

1. ENHANCE THE UNNAMED TRIBUTARY OF RICHARDS CREEK (STREAM C) BY ESTABLISHING A NEW CHANNEL WITH IMPROVED HABITAT FEATURES AND FUNCTIONAL RIPARIAN BUFFER.
2. ENHANCE APPROXIMATELY 30,718 SF OF WETLAND AREA ALONG THE NEW STREAM CHANNEL AND ELSEWHERE IN WETLANDS A AND D TO MITIGATE FOR PROJECT IMPACTS.
3. ENHANCE APPROXIMATELY 35,336 SF OF COMBINED WETLAND/STREAM BUFFER AREA TO MITIGATE FOR PROJECT IMPACTS.
4. ENHANCE AN ADDITIONAL 6,215 SQUARE FEET OF WETLAND A, OUTSIDE OF THE STREAM PROJECT AREA AND MAINTAIN WETLAND HYDROLOGIC FUNCTION IN THIS AREA.
5. ENHANCE AN ADDITIONAL 11,160 SQUARE FEET OF WETLAND D, OUTSIDE OF THE STREAM PROJECT AREA.
4. CREATE A DENSE, NATIVE, TREE AND SHRUB COMMUNITY THROUGHOUT RESTORED AREAS OF THE SITE WHICH ARE COMPATIBLE WITH THE POWERLINE INFRASTRUCTURE WHERE APPROPRIATE.

PERFORMANCE STANDARDS

THE FOLLOWING PERFORMANCE STANDARDS WILL BE USED TO GAUGE THE SUCCESS OF THE PROJECT OVER TIME. IF ALL PERFORMANCE STANDARDS HAVE BEEN SATISFIED BY THE END OF YEAR FIVE, THE PROJECT SHALL BE CONSIDERED COMPLETE.

1) SURVIVAL STANDARDS:
   A. 100% SURVIVAL OF INSTALLED PLANTINGS IN ALL AREAS AT THE END OF YEAR 1. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
   B. 80% SURVIVAL OF INSTALLED PLANTINGS IN ALL AREAS AT THE END OF YEAR 2. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
   C. SURVIVAL BEYOND YEAR 2 IS DIFFICULT TO TRACK. THEREFORE, A DIVERSITY STANDARD SHALL BE IMPLEMENTED.
      C.1. ESTABLISHMENT OF AT LEAST TWO NATIVE TREE SPECIES, FOUR NATIVE SHRUB SPECIES AND TWO NATIVE EMERGENT SPECIES IN PLANTING AREAS.
      C.2. ESTABLISHMENT OF A HYDRIC PLANT COMMUNITY IN ALL PLANTED WETLAND AREAS. THE COMBINATION OF INSTALLED AND VOLUNTEER PLANTS SHALL HAVE A WETLAND INDICATOR STATUS OF FAC OR WETTER.
2) NATIVE VEGETATION COVER STANDARDS:
   A. ACHIEVE 60% AERIAL COVER OF NATIVE WOODY VEGETATION BY THE END OF YEAR 3. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
   B. ACHIEVE 80% AERIAL COVER OF NATIVE WOODY VEGETATION BY THE END OF YEAR 5. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
3) INVASIVE SPECIES COVER STANDARD:
   A. NO MORE THAN 10% AERIAL COVER OF NON-NATIVE, INVASIVE SPECIES IN ANY PLANTING AREA IN ANY MONITORING YEAR.
4) WETLAND HYDROLOGY STANDARD (NON COMPENSATORY WETLAND A ENHANCEMENT AREA ONLY):
   A. EVIDENCE OF WETLAND HYDROLOGY IN WETLAND AREAS DURING THE GROWING SEASON OF EACH MONITORING YEAR. HYDROLOGY TO BE MEASURED BY SHALLOW GROUNDWATER WELLS AS DESCRIBED IN THE MONITORING METHODS SECTION OF THIS PLAN SET.
5) STREAM CHANNEL STANDARDS:
   A. STREAM BANK STABILITY: ANY BANK EROSION OR INSTABILITY FROM THE PREVIOUS WET SEASON IS TO BE SHALLOW AND LIMITED TO LESS THAN 5% OF RESTORED STREAM BANK LENGTH PER REACH AS DETERMINED BY FISHERIES BIOLOGIST VISUAL INSPECTION. THIS STANDARD MAY INCLUDE AN ADDITIONAL 5% IN STAGES OF RECOVERY AND PARTIALLY REVEGETATED FROM PREVIOUS YEARS.
   B. IN-STREAM LOG STRUCTURE STABILITY AND FUNCTION: IN-STREAM WOODY DEBRIS TO REMAIN ANCHORED DURING THE MONITORING PERIOD. AT LEAST ½ OF LOG STRUCTURES TO SHOW POSITIVE HYDRAULIC FUNCTION (MAINTENANCE OF POOLS, BANK TOE PROTECTION AND HABITAT COVER, TAIL OUT GRAVEL, ETC.) AS DETERMINED BY FISHERIES BIOLOGIST VISUAL INSPECTION.
   C. STREAM CHANNEL CAPACITY: CHANNEL CROSS SECTIONS TO REMAIN FREE OF SIGNIFICANT FLOOD OBSTRUCTIONS AS SCREENED BY FISHERIES BIOLOGIST VISUAL INSPECTION. QUESTIONABLE OBSTRUCTIONS MAY NEED ADDITIONAL CONSULTATION WITH A PROFESSIONAL ENGINEER AS NEEDED FOR ASSESSMENT.

MAINTENANCE

THE SITE SHALL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR FIVE YEARS FOLLOWING SUCCESSFUL COMPLETION OF THE CONSTRUCTION.

1. REPLACE EACH PLANT FOUND DEAD IN YEAR ONE.
2. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT'S REPORT.
3. GENERAL WEEDING FOR ALL PLANTED AREAS:
   A. AT LEAST TWICE ANNUALLY, REMOVE COMPETING GRASSES AND WEEDS FROM AROUND THE BASE OF EACH INSTALLED PLANT TO A RADIUS OF 12 INCHES. WEEDING SHOULD OCCUR AT LEAST ONCE IN THE SPRING AND ONCE IN THE SUMMER. THOROUGH WEEDING WILL RESULT IN LOWER PLANT MORTALITY AND ASSOCIATED PLANT REPLACEMENT COSTS.
   B. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
   C. NOXIOUS WEEDS MUST BE REMOVED FROM THE ENTIRE MITIGATION AREA, AT LEAST TWICE ANNUALLY.
   D. DO NOT USE STRING TRIMMERS IN THE VICINITY OF INSTALLED PLANTS, AS THEY MAY DAMAGE OR KILL THE PLANTS.
4. MAINTAIN A FOUR-INCH-THICK LAYER OF WOODCHIP MULCH ACROSS THE ENTIRE PLANTING AREA OUTSIDE THE OHWM. MULCH SHOULD BE PULLED BACK TWO INCHES FROM THE PLANT STEMS.
5. INSPECT AND REPAIR THE IRRIGATION SYSTEM AS NECESSARY EACH SPRING. DURING AT LEAST THE FIRST TWO GROWING SEASONS, MAKE SURE THAT THE ENTIRE PLANTING AREA RECEIVES A MINIMUM OF ONE INCH OF WATER PER WEEK FROM JUNE 1ST THROUGH SEPTEMBER 30TH.
6. REMOVE TRASH AND DEBRIS FROM THE PLANTING AREAS.

MONITORING METHODS

THE MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION PLAN OVER TIME BY MEASURING THE DEGREE TO WHICH THE PLAN IS MEETING THE PERFORMANCE STANDARDS LISTED ABOVE. PRIOR TO THE COMMENCEMENT OF THE MONITORING PHASE, AN AS-BUILT PLAN DOCUMENTING THE SUCCESSFUL INSTALLATION OF THE PROJECT WILL BE SUBMITTED TO THE CITY OF BELLEVUE AND OTHER PERMITTING AGENCIES AS REQUESTED. IF NECESSARY, THE AS-BUILT REPORT MAY INCLUDE A MARK-UP OF THE ORIGINAL PLAN THAT NOTES ANY SIGNIFICANT CHANGES OR SUBSTITUTIONS THAT OCCURRED. DURING THE AS-BUILT INSPECTION, THE **RESTORATION SPECIALIST** WILL ESTABLISH AT LEAST FOUR PERMANENT PHOTO-POINTS, BASELINE PLANT INSTALLATION QUANTITIES, AND TRANSECTS AS DETAILED BELOW.

TRANSECTS:

DURING THE AS-BUILT INSPECTION, THE **RESTORATION SPECIALIST** SHALL INSTALL A SUFFICIENT NUMBER OF REPRESENTATIVELY LOCATED 100-FOOT TRANSECTS IN THE RESTORATION PLANTING AREAS TO ADEQUATELY MEASURE THE VEGETATION PERFORMANCE STANDARDS BELOW. PERCENT COVER DATA SHALL BE RECORDED ALONG ESTABLISHED TRANSECTS USING THE LINE INTERCEPT METHOD.

HYDROLOGY:

HYDROLOGY MONITORING WILL OCCUR IN THE SPRING OF EACH YEAR. HYDROLOGY SHALL BE MONITORED USING AT LEAST THREE SHALLOW GROUNDWATER WELLS IN THE NON COMPENSATORY WETLAND A ENHANCEMENT AREA. WELLS SHALL BE CONSTRUCTED OF 24-INCH LENGTHS OF 2-INCH DIAMETER PVC PIPE. THE LOWER 18 INCHES SHALL BE PERFORATED WITH A SERIES OF 1/4-INCH HOLES. WELLS WILL BE INSTALLED TO A DEPTH OF 18 INCHES. EACH WELL SHALL BE FITTED WITH A PIPE END FITTING CAP. HYDROLOGY WELLS SHALL BE MONITORED WEEKLY IN MARCH FOR THE FIRST TWO YEAR FOLLOWING AS-BUILT ACCEPTANCE.

YEARLY MONITORING:

THE SITE WILL BE MONITORED TWICE ANNUALLY FOR FIVE YEARS BEGINNING WITH APPROVAL OF THE AS-BUILT REPORT. DURING EACH YEAR THERE SHALL BE A SPRING VISIT AND A SUMMER OR EARLY FALL VISIT. THE SPRING MONITORING VISIT WILL ADDRESS MAINTENANCE NEEDS SUCH AS PLANT REPLACEMENT AND WEEDING. THE RESTORED STREAM CHANNEL AND IN-STREAM HABITAT FEATURES INCLUDING LOG STRUCTURES WILL ALSO BE INSPECTED IN THE SPRING VISIT TO IDENTIFY ANY MAINTENANCE OR REPAIRS THAT WOULD NEED TO BE DONE DURING THE UPCOMING LOW-FLOW SEASON, WHEN ANY NEEDED IN-STREAM WORK COULD BE AUTHORIZED. STREAM CHANNEL, STREAM BANK, AND LOG STRUCTURE FUNCTIONING WOULD BE ASSESSED. EXAMPLES OF NEEDED STREAM CHANNEL MAINTENANCE OR REPAIR MIGHT INCLUDING STABILIZING ANY ERODING STREAM BANKS OR SECURING ANY LOGS WHOSE ANCHORING MAY HAVE BECOME COMPROMISED.

FOLLOWING THE SPRING VISIT, THE **RESTORATION SPECIALIST** WILL NOTIFY THE RESPONSIBLE PARTY AND/OR MAINTENANCE CREWS OF NECESSARY MAINTENANCE. THE SECOND ANNUAL VISIT WILL OCCUR JULY 1ST TO SEPTEMBER 15TH AND WILL RECORD QUANTITATIVE ASSESSMENT OF THE SITE'S PROGRESS. A REPORT DETAILING THE FINDINGS OF SUMMER MONITORING WILL BE SUBMITTED ANNUAL TO THE CITY, US ARMY CORPS (NWS.COMPLIANCE@USACE.ARMY.MIL), AND WASHINGTON DEPARTMENT OF ECOLOGY AND WILL CONTAIN THE FOLLOWING:

1. GENERAL SUMMARY OF SITE CONDITIONS.
2. COUNTS OF LIVE PLANTINGS BY SPECIES (YEARS ONE AND TWO ONLY)
3. PERCENT COVER OF NATIVE WOODY SPECIES, DETERMINED USING THE LINE INTERCEPT METHOD ALONG ESTABLISHED TRANSECTS.
4. PERCENT COVER OF INVASIVE SPECIES USING THE LINE INTERCEPT METHOD ALONG ESTABLISHED TRANSECTS.
5. NOTES ON INVASIVE WEEDS OUTSIDE OF ESTABLISHED TRANSECTS.
6. PHOTOGRAPHS FROM FIXED PHOTO-POINTS ESTABLISHED DURING THE AS-BUILT INSPECTION.
7. ANY EVIDENCE OF WILDLIFE USAGE IN THE MITIGATION AREA.
8. REPORT ON CONDITION OF PLACED LARGE WOODY DEBRIS.
9. INTRUSIONS INTO THE PLANTING AREAS, VANDALISM OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREAS.
10. RECOMMENDATIONS FOR MAINTENANCE OR REPAIRS.

CONTINGENCIES

UNFORESEEN PROJECT CONDITIONS MAY REQUIRE CHANGES IN VEGETATION LAYOUT, DENSITY/SPACING, AND SPECIES SUBSTITUTIONS. WEED CONDITIONS MAY REQUIRE ALTERATION OF INSTALLED VEGETATION TYPES, MULCH PLACEMENT, WEED REMOVAL AND USE OF HERBICIDES. MINOR HAND WORK TO IMPROVE OR RETARD DRAINAGE MAY BE NEEDED TO SUPPORT WETLAND HYDROLOGY. SUCH WORK WILL BE COORDINATED DIRECTLY WITH THE CITY OF BELLEVUE.

UNPREDICTABLE EVENTS SUCH AS OBSTRUCTIONS OR HIGH-FLOWS FROM LARGE STORMS MAY NECESSITATE EROSION AND HABITAT FEATURE REPAIRS. SMALL REPAIRS BY HAND WILL BE COORDINATED WITH THE CITY OF BELLEVUE. LARGER REPAIRS THAT REQUIRE EXTENSIVE MANIPULATION OR THE USE OF HEAVY MACHINERY WILL BE COORDINATED IN CONSULTATION WITH JURISDICTIONAL AGENCIES.

SHOULD THE ADDITIONAL, NON-COMPENSATORY ENHANCEMENT AREA IN WETLAND A NOT MEET WETLAND HYDROLOGY CRITERIA DURING THE FIRST TWO YEARS OF MONITORING, A PLAN TO CREATE ADDITIONAL WETLAND ONSITE WILL BE DEVELOPED TO OFFSET THE LOSS OF WETLAND FUNCTION.

SITE PROTECTION

THE MITIGATION AREA WILL BE PROTECTED BY RECORDING A NOTICE ON TITLE WITH KING COUNTY. FENCING AND SIGNS WILL BE INSTALLED ALONG THE EDGE OF THE MITIGATION AREA.

MATERIALS

1. **WOODCHIP MULCH**: "ARBORIST CHIPS" (CHIPPED WOODY MATERIAL) APPROXIMATELY ONE TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST). THIS MATERIAL IS COMMONLY AVAILABLE IN LARGE QUANTITIES FROM ARBORISTS OR TREE-PRUNING COMPANIES. THIS MATERIAL IS SOLD AS "ANIMAL- FRIENDLY HOG FUEL" AT PACIFIC TOPSOILS [(800) 884-7645]. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. APPROX. QUANTITY REQUIRED: 60 CUBIC YARDS.
2. **COMPOST**: CEDAR GROVE COMPOST OR EQUIVALENT "COMPOSTED MATERIAL" PER WASHINGTON ADMIN. CODE 173-350-220. QUANTITY REQUIRED: 35 CUBIC YARDS
3. **FERTILIZER**: SLOW-RELEASE, PHOSPHOROUS-FREE GRANULAR FERTILIZER. MOST COMMERCIAL NURSERIES CARRY THIS PRODUCT. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEARS TWO AND THREE, NOT IN YEAR ONE.
4. **RESTORATION SPECIALIST**: QUALIFIED PROFESSIONAL ABLE TO EVALUATE AND MONITOR THE CONSTRUCTION OF ENVIRONMENTAL RESTORATION PROJECTS.
5. **FERTILIZER (FOR NEAR AQUATIC ENVIRONMENTS):** SLOW-RELEASE, PHOSPHOROUS-FREE GRANULAR FERTILIZER. LABEL MUST INDICATE THAT PRODUCT IS SAFE FOR AQUATIC ENVIRONMENTS. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEARS TWO AND THREE, NOT IN YEAR ONE.

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

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PARCELS #: 1024059130, 1024059083, 5453300150
BELLEVUE, WA

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	04-18-2018	MITIGATION PLAN	LM
2	12-03-2018	RESPONSE TO CITY COMMENTS	LM

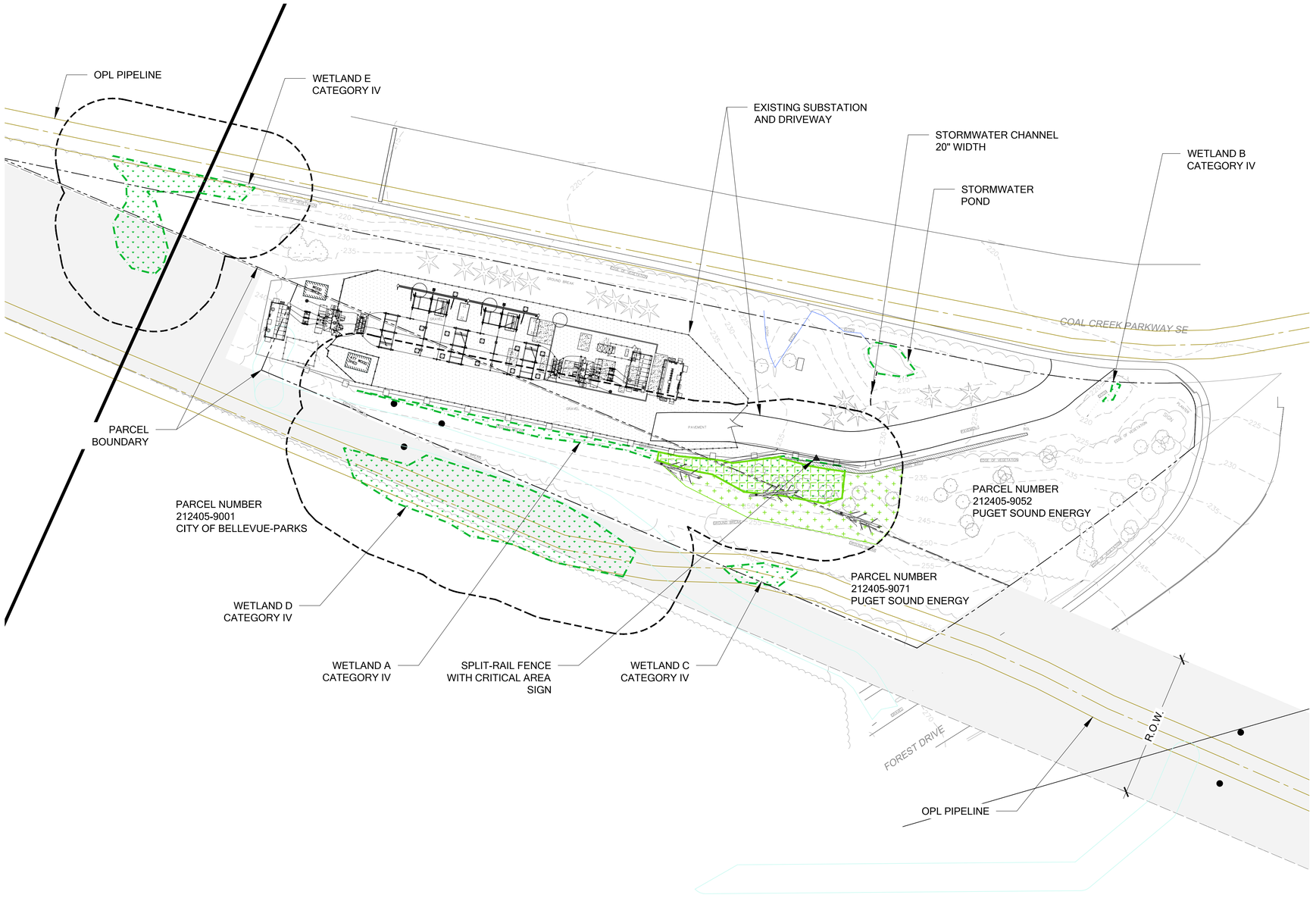
GENERAL NOTES:

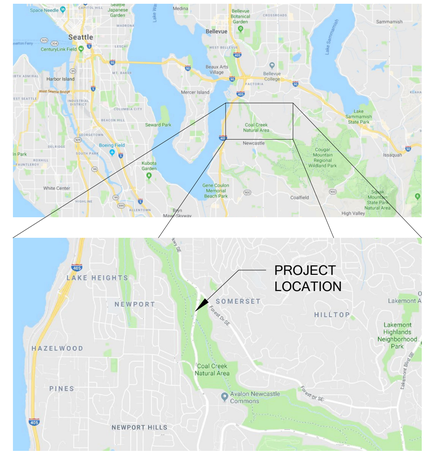
SHEET SIZE:
ORIGINAL PLAN IS 24" X 36".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: LM
DRAFTED: LM
CHECKED: JC / AM
JOB NUMBER:
111103.11
SHEET NUMBER:
W7 OF 7

FILENAME: MITIGATION_PLAN.DWG
PRINTED BY: LOGAN MCCLISH
DATE: 12/5/2018

MITIGATION NOTES





VICINITY MAPS

LEGEND

- WETLAND BOUNDARY
- WETLAND BUFFER
- PROPERTY BOUNDARY
- WETLAND MITIGATION (2,300 SF)
- WETLAND BUFFER MITIGATION (3,950 SF)
- PLACED WOODY DEBRIS (QTY: 3)
- CRITICAL AREA SPLIT-RAIL FENCE WITH SIGN (440 LF, QTY: 1)

SHEET INDEX

NOTES

1. PLEASE BE AWARE THAT CONSTRUCTION ACCESS, POLE TYPES, POLE HEIGHTS, AND POLE LOCATIONS ARE SUBJECT TO CHANGE PENDING FURTHER DESIGN, ENVIRONMENTAL REVIEW, PERMITTING AND IN-FIELD CONSTRUCTION NEEDS.
2. WETLANDS WERE DELINEATED BY THE WATERSHED COMPANY ON JANUARY 31, 2017 AND FEBRUARY 7, 2017.
3. SURVEY RECEIVED FROM APS SURVEY AND MAPPING, PERFORMED ON JANUARY 19, 2017 AND WETLAND LOCATES PERFORMED ON FEBRUARY 16, 2017.
4. THIS MITIGATION PLAN HAS BEEN DESIGNED TO APPROPRIATELY MITIGATE FOR PROJECT IMPACTS OCCURRING IN WETLANDS AND WETLAND AND STREAM BUFFERS IN THE COAL CREEK SUB-BASIN AND IS INTENDED TO REPRESENT THE FINAL MITIGATION PLAN REFERENCED IN THE SOUTH BELLEVUE CAR. SEE MITIGATION NOTES SHEET W5.

SOMERSET SUBSTATION

MITIGATION PLAN

0 20' 40' 80' 160'

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

SOMERSET SUBSTATION
ENERGIZE EASTSIDE MITIGATION PLAN
PREPARED FOR: PUGET SOUND ENERGY
PARCEL #2124059071, #2124059052
5200 SE COAL CREEK PKWY
BELLEVUE, WA 98006

SUBMITTALS & REVISIONS

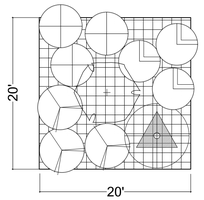
NO.	DATE	DESCRIPTION	BY
1	05/03/2018	MITIGATION PLAN	AJ

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: JC
DESIGNED: --
DRAFTED: AJ/LM
CHECKED: CM
JOB NUMBER:
111103.11
SHEET NUMBER:
W1 OF 5

FILENAME
PRINTED BY
DATE

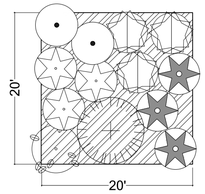
WETLAND ENHANCEMENT PLANTING TYPICAL
(WITH TREES)



TREES (18)	QTY	SPACING	SIZE
FRAXINUS LATIFOLIA / OREGON ASH	6	9' O.C.	2 GAL.
THUJA PLICATA / WESTERN REDCEDAR	6		2 GAL.
PICEA SITCHENSIS / SITKA SPRUCE	6		2 GAL.
SHRUBS (48)			
CORNUS SERICEA / RED-OSIER DOGWOOD	12	6' O.C.	1 GAL.
ROSA NUTKANA / NOOTKA ROSE	12		1 GAL.
RUBUS SPECTABILIS / SALMONBERRY	12		1 GAL.
PHYSOCARPUS CAPITATUS / PACIFIC NINEBARK	12		1 GAL.
GROUNDCOVER (367) **ALL SPECIES TO BE SPACED TRIANGULARLY*		24" O.C.	
ATHYRIUM FILIX-FEMINA/ LADY FERN	92		1 GAL
TOLMIEA MENZIESII /PIGGYBACK PLANT	92		1 GAL
SCIRPUS MICROCARPUS / SMALL FRUITED BULRUSH	92		1 GAL.
CAREX OBNUPTA/ SLOUGH SEDGE	92		1 GAL.

(PLANT BY SPECIES IN ODD NUMBER GROUPS OF 9-15)

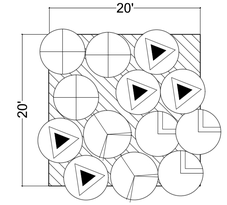
BUFFER ENHANCEMENT PLANTING TYPICAL
(WITH TREES)



TREES (19)	QTY	SPACING	SIZE
THUJA PLUCATA / WESTERN REDCEDAR	6	9' O.C.	2 GAL
ARBUTUS MENZIESII / PACIFIC MADRONE (PLANT NEXT TO EXISTING DOUGLAS-FIR)	6		2 GAL
PRUNUS EMARGINATA / BITTER CHERRY	7		2 GAL
SHRUBS (51)			
SYMPHORICARPUS ALBUS / SNOWBERRY	10	6' O.C.	1 GAL
OEMLERIA CERASIFORMIS / OSOBERRY	10		1 GAL
MAHONIA NERVOSA / LOW OREGON GRAPE	10		1 GAL
MAHONIA AQUIFOLIUM / TALL OREGON GRAPE	10		1 GAL
ACER CIRCINATUM / VINE MAPLE	11		1 GAL
GROUNDCOVER (392) **ALL SPECIES TO BE SPACED TRIANGULARLY*			
POLYSTICHUM MUNITUM / SWORD FERN	196	24" O.C.	1 GAL
BLECHNUM SPICANT / DEER FERN	196		1 GAL

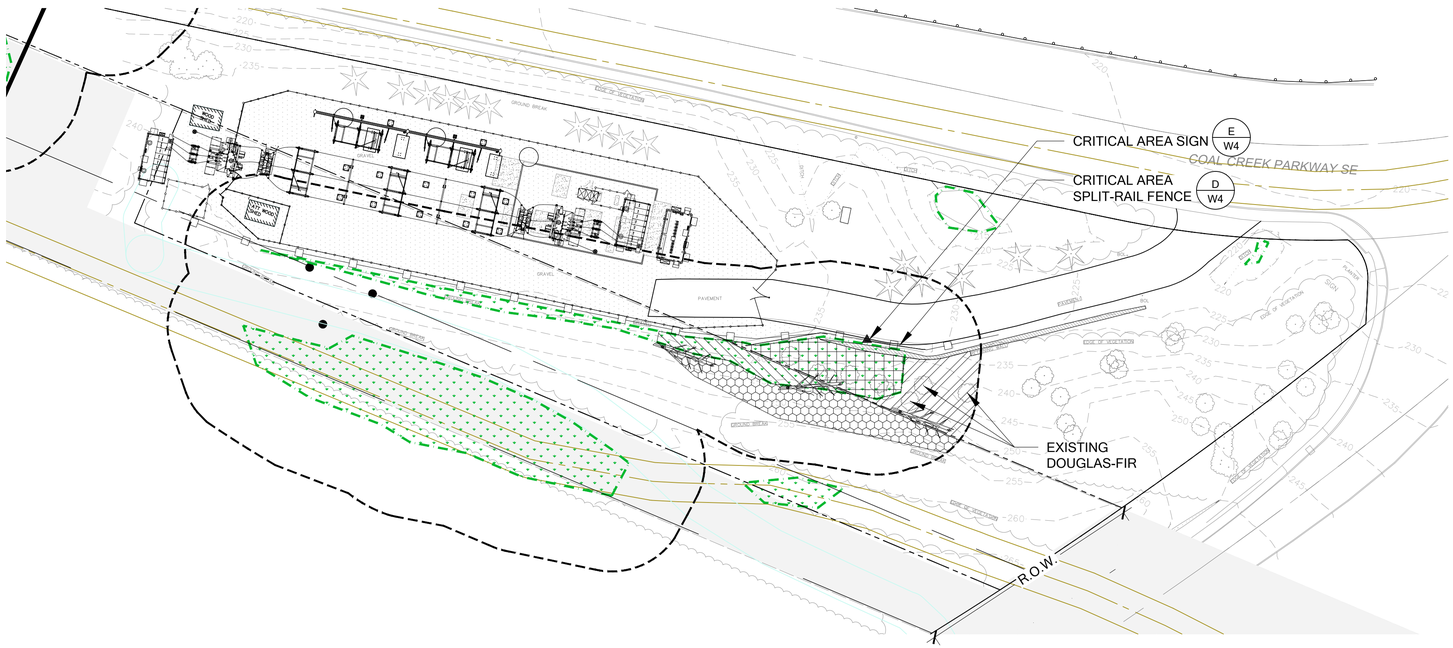
(PLANT BY SPECIES IN ODD NUMBER GROUPS OF 9-15)

WETLAND ROW ENHANCEMENT PLANTING TYPICAL
(NO TREES)

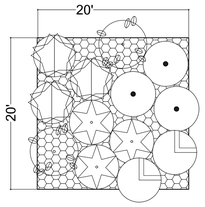


SHRUBS (12)	SIZE	SPACING	SIZE
CORNUS SERICEA / RED-OSIER DOGWOOD	3	6' O.C.	1 GAL.
ROSA NUTKANA / NOOTKA ROSE	3		1 GAL.
RUBUS SPECTABILIS / SALMONBERRY	3		1 GAL.
PHYSOCARPUS CAPITATUS/ PACIFIC NINEBARK	3		1 GAL.
GROUNDCOVER (102) **ALL SPECIES TO BE SPACED TRIANGULARLY*		24" O.C.	
ATHYRIUM FILIX-FEMINA/ LADY FERN (NO INUNDATION)	34		1 GAL
TOLMIEA MENZIESII /PIGGYBACK PLANT (NO INUNDATION)	34		1 GAL
SCIRPUS MICROCARPUS / SMALL FRUITED BULRUSH	34		1 GAL.

(PLANT BY SPECIES IN ODD NUMBER GROUPS OF 9-15)



BUFFER ROW ENHANCEMENT PLANTING TYPICAL
(NO TREES)



SHRUBS (75)	QTY	SPACING	SIZE
RUBUS SPECTABILIS / SALMONBERRY	15	6' O.C.	1 GAL
SYMPHORICARPUS ALBUS / SNOWBERRY	15		1 GAL
OEMLERIA CERASIFORMIS / OSOBERRY	15		1 GAL
MAHONIA AQUIFOLIUM / TALL OREGON GRAPE	15		1 GAL
ACER CIRCINATUM / VINE MAPLE	15		1 GAL
GROUNDCOVER (600) **ALL SPECIES TO BE SPACED TRIANGULARLY*		24" O.C.	
POLYSTICHUM MUNITUM / SWORD FERN	300		1 GAL
BLECHNUM SPICANT / DEER FERN	300		1 GAL

(PLANT BY SPECIES IN ODD NUMBER GROUPS OF 9-15)

SOMERSET SUBSTATION
PLANTING PLAN

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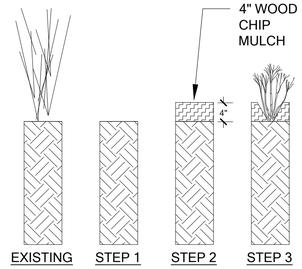


PLANTING AREA PREPARATION

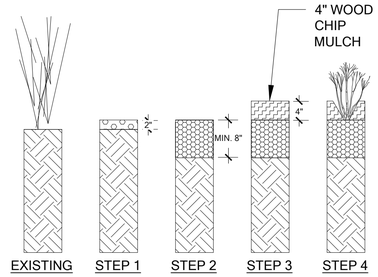
STEP 1
REMOVE INVASIVE SPECIES. WORK WITHIN ROOT ZONES OF EXISTING TREES AND SHRUBS SHALL BE DONE BY HAND.

STEP 2
INSTALL WOOD CHIP MULCH LAYER 4" DEEP.

STEP 3
INSTALL PLANTS. (SEE PLANTING DETAIL.)

A SOIL PREPARATION AREA 1

SEQUENCE OF WORK - NOT TO SCALE



PLANTING AREA PREPARATION

STEP 1
REMOVE INVASIVE SPECIES. WORK WITHIN ROOT ZONES OF EXISTING TREES AND SHRUBS SHALL BE DONE BY HAND. PLACE 2" INCHES OF COMPOST.

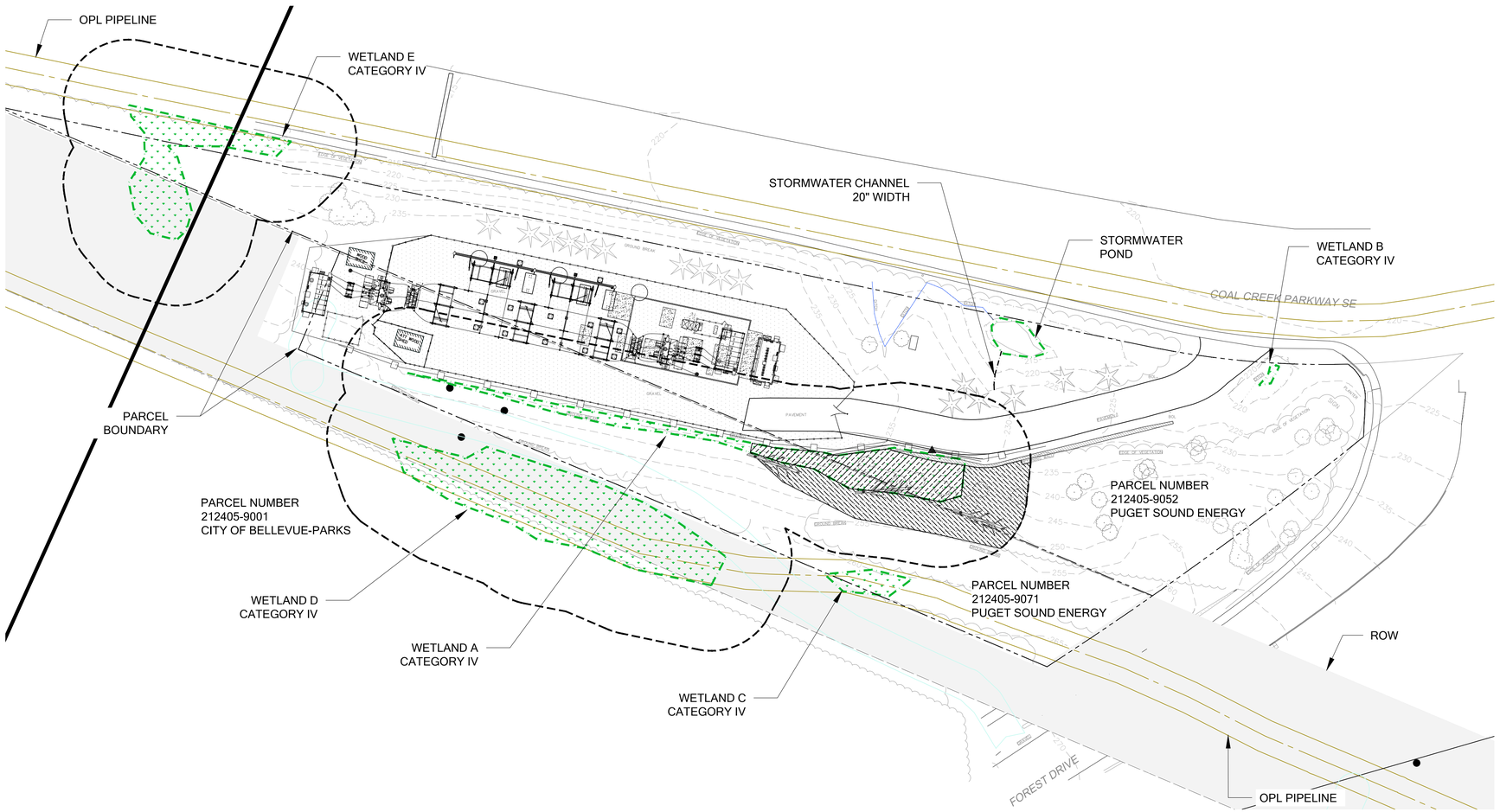
STEP 2
INCORPORATE COMPOST TO A DEPTH OF 8".

STEP 3
INSTALL WOOD CHIP MULCH LAYER 4" DEEP.

STEP 4
INSTALL PLANTS. (SEE PLANTING DETAIL.)

B SOIL PREPARATION AREA 2

SEQUENCE OF WORK - NOT TO SCALE



LEGEND

- WETLAND BOUNDARY
- WETLAND BUFFER
- PROPERTY BOUNDARY
- SOIL PREP 1 (2,300 SF)
- SOIL PREP 2 (3,950 SF)
- PLACED WOODY DEBRIS

SOMERSET SUBSTATION

SITE PREPARATION PLAN

0 20' 40' 80' 160'

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PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE
1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
4. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS, 1973 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997.

DEFINITIONS
1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC..; SPRIGS, PLUGS, AND LINERS.
2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION
1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
3. THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS
1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.).

SUBMITTALS

PROPOSED PLANT SOURCES
1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES
1. PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION.
2. HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION
CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS
1. TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
2. SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
3. HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
4. LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY
PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

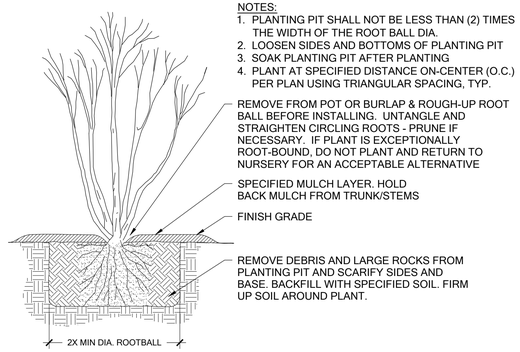
REPLACEMENT
1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

GENERAL
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

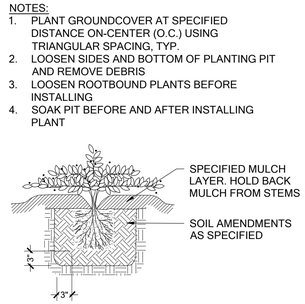
QUANTITIES
SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

ROOT TREATMENT
1. CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.



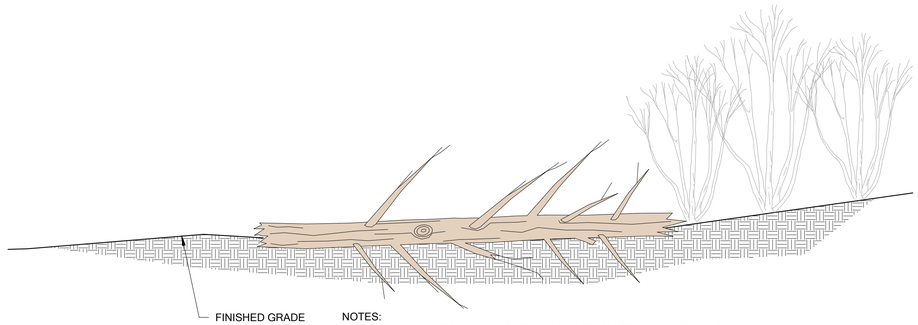
A TREE AND SHRUB PLANTING

Scale: NTS



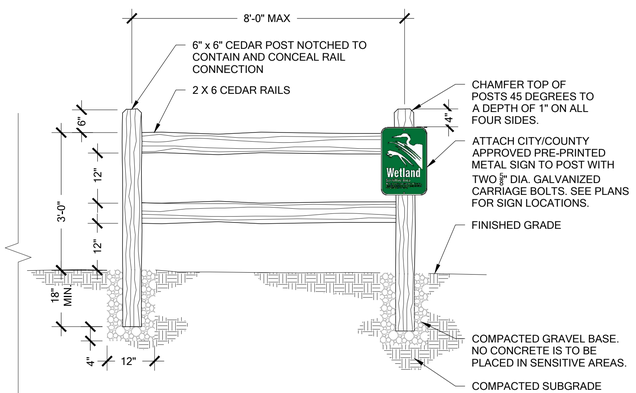
B GROUNDCOVER PLANTING

Scale: NTS



C HABITAT LOG

Scale: NTS



D SPLIT RAIL FENCING AND NGPA SIGN

Scale: NTS

E NGPA SIGN

Scale: NTS

SOMERSET SUBSTATION

LANDSCAPE CONSTRUCTION DETAILS AND NOTES

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MITIGATION NOTES

MITIGATION AND MONITORING NOTES

EXECUTIVE SUMMARY

PSE'S ENERGIZE EASTSIDE PROJECT (THE PROJECT) PROPOSES TO UPGRADE EXISTING TRANSMISSION LINES IN SOUTH BELLEVUE IN ORDER TO INCREASE TRANSMISSION SYSTEM CAPACITY TO 230KV POWER. PROJECT ELEMENTS, EXISTING CONDITIONS, MITIGATION SEQUENCING, AND PROJECT IMPACTS TO CRITICAL AREAS ARE DISCUSSED IN THE *CITY OF BELLEVUE CRITICAL AREAS REPORT: PUGET SOUND ENERGY-ENERGIZE EASTSIDE PROJECT SOUTH BELLEVUE SEGMENT* (SOUTH BELLEVUE CAR) PREPARED BY THE WATERSHED COMPANY, AUGUST 2017. THIS MITIGATION PLAN HAS BEEN DESIGNED TO APPROPRIATELY MITIGATE FOR PROJECT IMPACTS OCCURRING IN WETLANDS AND WETLAND AND STREAM BUFFERS IN THE COAL CREEK SUB-BASIN AND IS INTENDED TO REPRESENT THE FINAL MITIGATION PLAN REFERENCED IN THE SOUTH BELLEVUE CAR. A SEPARATE MITIGATION PLAN IS PROPOSED FOR PROJECT IMPACTS OCCURRING IN THE RICHARDS CREEK BASIN.

PROPOSED PROJECT ACTIVITIES IN THE COAL CREEK SUB-BASIN IMPACT WETLANDS AND BUFFERS IN ONE OF THREE WAYS: PERMANENT FILL RESULTING FROM TRANSMISSION POLE INSTALLATION/REPLACEMENT (PERMANENT), PERMANENT VEGETATION CONVERSION FROM A FORESTED VEGETATION TYPE DUE TO VEGETATION MANAGEMENT REQUIREMENTS (CONVERSION), AND TEMPORARY IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES (TEMPORARY). PERMANENT AND CONVERSION BUFFER IMPACTS REQUIRE MITIGATION AS SUMMARIZED IN THE TABLE BELOW.

TABLE 2. COMPREHENSIVE TABLE OF ACTIVITIES AFFECTING CRITICAL AREAS IN SOUTH BELLEVUE- COAL CREEK BASIN[1].

IMPACTS					
Critical Area Name	**Category**	**Type of Activity**	**Quantity (SF)**	**Mitigation Ratio**	**Mitigation Required (SF)**
Wetland MB01	III	Conversion	1,146	2:1	2,292
Combined Buffers	na	Permanent	35	1:1	35
Combined Buffers	na	Conversion	7,734	0.5:1	3,867

RESTORATION			
Critical Area Name[2]	**Category**	**Type of Activity**	**Quantity (SF)**
Somerset Wetland A	IV	Enhancement	2,300
Somerset Buffers	NA	Enhancement	3,950

IMPACT & RESTORATION SUMMARY					
Critical Area Type	**Type of Activity**	**Quantity (SF)**	**Total Mitigation Required (SF)**	**Mitigation Proposed**	
				Type	**Qty (SF)**
Wetland	Conversion	1,146	2,292	Enhancement	2,300
	Permanent	0			
Buffer	Conversion	7,734	3,902	Enhancement	3,950
	Permanent	35			

1. Only activities resulting in a long-term change are included. Temporary impacts will be restored in place and are not shown in this table.

2. Critical Areas as identified in the Somerset Substation wetland delineation (The Watershed Company, February 2017) and delineation report, documented separately from the Energize Eastside delineation study.

MITIGATION FOR IMPACTS, PRESENTED IN THE TABLE ABOVE, IS PLANNED ON THE SOMERSET SUBSTATION PARCEL. AS DISCUSSED IN THE SOUTH BELLEVUE CAR, THIS LOCATION WAS SELECTED FOR MITIGATION ACTIVITIES BASED UPON THE LOCATION OF PROJECT IMPACTS, OPPORTUNITY PRESENT, PROPERTY OWNERSHIP, AND PROXIMITY TO OTHER REGULATED CRITICAL AREAS.

THIS FINAL MITIGATION PLAN PROPOSES TO COMPENSATE FOR PROJECT IMPACTS THROUGH WETLAND ENHANCEMENT AND BUFFER ENHANCEMENT AND IS INTENDED TO INCREASE NATIVE PLANT COVER, DECREASE INVASIVE SPECIES PREVALENCE, IMPROVE NATIVE SPECIES DIVERSITY, AND PROVIDE FOOD AND OTHER HABITAT RESOURCES FOR WILDLIFE IN THE COAL CREEK BASIN.THE MINIMUM MITIGATION AREA REQUIRED, AS PRESENTED IN THE SOUTH BELLEVUE CAR, IS 2,292 SF OF WETLAND ENHANCEMENT AND 3,902 SF OF BUFFER ENHANCEMENT. THE PROPOSED MITIGATION AREA DEPICTED HEREIN HAS BEEN DESIGNED TO ENSURE WETLAND AND BUFFER FUNCTIONS ARE MAINTAINED OR IMPROVED OVERALL.

THE PLAN INCLUDES A COMPREHENSIVE FIVE-YEAR MAINTENANCE AND MONITORING PLAN, DETAILED BELOW. THESE SPECIFICATIONS AND STANDARDS WILL ENSURE THAT ENHANCEMENT PLANTINGS WILL BE MAINTAINED, MONITORED, AND SUCCESSFULLY ESTABLISHED WITHIN THE FIRST FIVE YEARS FOLLOWING IMPLEMENTATION.

GOALS

1. REHABILITATE APPROXIMATELY 2,292 SF OF WETLAND AREA ON THE SOMERSET SUBSTATION PARCEL.
3. ENHANCE APPROXIMATELY 3,902 SF OF BUFFER AREA ON THE SOMERSET SUBSTATION PARCEL.
3. CREATE A DENSE, NATIVE, TREE AND SHRUB COMMUNITY THROUGHOUT RESTORED AREAS OF THE SITE WHICH ARE COMPATIBLE WITH THE EXISTING POWERLINE INFRASTRUCTURE AND PLANNED FUTURE DEVELOPMENT OF THE SITE.

PERFORMANCE STANDARDS

THE FOLLOWING PERFORMANCE STANDARDS WILL BE USED TO GAUGE THE SUCCESS OF THE PROJECT OVER TIME. IF ALL PERFORMANCE STANDARDS HAVE BEEN SATISFIED BY THE END OF YEAR FIVE, THE PROJECT SHALL BE CONSIDERED COMPLETE.

1. SURVIVAL STANDARDS:
   - 1.1. 100% SURVIVAL OF INSTALLED PLANTINGS IN ALL AREAS AT THE END OF YEAR 1. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
   - 1.2. 80% SURVIVAL OF INSTALLED PLANTINGS IN ALL AREAS AT THE END OF YEAR 2. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
   - 1.3. SURVIVAL BEYOND YEAR 2 IS DIFFICULT TO TRACK. THEREFORE, A DIVERSITY STANDARD SHALL BE IMPLEMENTED.
   - 1.4. ESTABLISHMENT OF AT LEAST TWO NATIVE TREE SPECIES, FOUR NATIVE SHRUB SPECIES AND TWO NATIVE EMERGENT SPECIES IN PLANTING AREAS.
2. NATIVE VEGETATION COVER STANDARDS:
   - 2.1. ACHIEVE 60% AERIAL COVER OF NATIVE WOODY VEGETATION BY THE END OF YEAR 3. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
   - 2.2. ACHIEVE 80% AERIAL COVER OF NATIVE WOODY VEGETATION BY THE END OF YEAR 5. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
3. INVASIVE SPECIES COVER STANDARD:
   - 3.1. NO MORE THAN 10% AERIAL COVER OF NON-NATIVE, INVASIVE SPECIES IN ANY PLANTING AREA IN ANY MONITORING YEAR.

MAINTENANCE

THE SITE SHALL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING INSTRUCTIONS FOR FIVE YEARS FOLLOWING SUCCESSFUL COMPLETION OF THE CONSTRUCTION.

1. REPLACE EACH PLANT FOUND DEAD IN YEAR ONE.
2. FOLLOW THE RECOMMENDATIONS NOTED IN THE PREVIOUS MONITORING SITE VISIT'S REPORT.
3. GENERAL WEEDING FOR ALL PLANTED AREAS:
   - 3.1. AT LEAST TWICE ANNUALLY, REMOVE COMPETING GRASSES AND WEEDS FROM AROUND THE BASE OF EACH INSTALLED PLANT TO A RADIUS OF 12 INCHES. WEEDING SHOULD OCCUR AT LEAST ONCE IN THE SPRING AND ONCE IN THE SUMMER. THOROUGH WEEDING WILL RESULT IN LOWER PLANT MORTALITY AND ASSOCIATED PLANT REPLACEMENT COSTS.
   - 3.2. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLANT INSTALLATION.
   - 3.3. NOXIOUS WEEDS MUST BE REMOVED FROM THE ENTIRE MITIGATION AREA, AT LEAST TWICE ANNUALLY.
   - 3.4. DO NOT USE STRING TRIMMERS IN THE VICINITY OF INSTALLED PLANTS, AS THEY MAY DAMAGE OR KILL THE PLANTS.
4. MAINTAIN A FOUR-INCH-THICK LAYER OF WOOD CHIP MULCH ACROSS ALL PLANTING AREAS. MULCH SHOULD BE PULLED BACK TWO INCHES FROM THE PLANT STEMS.
5. DURING AT LEAST THE FIRST TWO GROWING SEASONS, MAKE SURE THAT THE ENTIRE PLANTING AREA RECEIVES A MINIMUM OF ONE INCH OF WATER PER WEEK FROM JUNE 1ST THROUGH SEPTEMBER 30TH.
6. REMOVE TRASH AND DEBRIS FROM THE PLANTING AREAS.

MONITORING METHODS

THE MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION PLAN OVER TIME BY MEASURING THE DEGREE TO WHICH THE PLAN IS MEETING THE PERFORMANCE STANDARDS LISTED ABOVE. PRIOR TO THE COMMENCEMENT OF THE MONITORING PHASE, AN AS-BUILT PLAN DOCUMENTING THE SUCCESSFUL INSTALLATION OF THE PROJECT WILL BE SUBMITTED TO THE CITY OF BELLEVUE AND OTHER PERMITTING AGENCIES AS REQUESTED. IF NECESSARY, THE AS-BUILT REPORT MAY INCLUDE A MARK-UP OF THE ORIGINAL PLAN THAT NOTES ANY SIGNIFICANT CHANGES OR SUBSTITUTIONS THAT OCCURRED. DURING THE AS-BUILT INSPECTION, THE RESTORATION SPECIALIST WILL ESTABLISH AT LEAST FOUR PERMANENT PHOTO-POINTS, BASELINE PLANT INSTALLATION QUANTITIES, AND TRANSECTS AS DETAILED BELOW.

TRANSECTS:

DURING THE AS-BUILT INSPECTION, THE RESTORATION SPECIALIST SHALL INSTALL A SUFFICIENT NUMBER OF REPRESENTATIVELY LOCATED 100-FOOT TRANSECTS IN THE RESTORATION PLANTING AREAS TO ADEQUATELY MEASURE THE VEGETATION PERFORMANCE STANDARDS BELOW. PERCENT COVER DATA SHALL BE RECORDED ALONG ESTABLISHED TRANSECTS USING THE LINE INTERCEPT METHOD.

YEARLY MONITORING:

THE SITE WILL BE MONITORED TWICE ANNUALLY FOR FIVE YEARS BEGINNING WITH APPROVAL OF THE AS-BUILT REPORT. DURING EACH YEAR THERE SHALL BE A SPRING VISIT AND A SUMMER OR EARLY FALL VISIT. THE SPRING MONITORING VISIT WILL ADDRESS MAINTENANCE NEEDS SUCH AS PLANT REPLACEMENT AND WEEDING.

FOLLOWING THE SPRING VISIT, THE RESTORATION SPECIALIST WILL NOTIFY THE RESPONSIBLE PARTY AND/OR MAINTENANCE CREWS OF NECESSARY MAINTENANCE. THE SECOND ANNUAL VISIT WILL OCCUR JULY 1ST TO SEPTEMBER 15TH AND WILL RECORD QUANTITATIVE ASSESSMENT OF THE SITE'S PROGRESS. A REPORT DETAILING THE FINDINGS OF SUMMER MONITORING WILL BE SUBMITTED ANNUALLY TO THE CITY, AND WILL CONTAIN THE FOLLOWING:

1. GENERAL SUMMARY OF SITE CONDITIONS.
2. COUNTS OF LIVE PLANTINGS BY SPECIES (YEARS ONE AND TWO ONLY)
3. PERCENT COVER OF NATIVE WOODY SPECIES, DETERMINED USING THE LINE INTERCEPT METHOD ALONG ESTABLISHED TRANSECTS.
4. PERCENT COVER OF INVASIVE SPECIES USING THE LINE INTERCEPT METHOD ALONG ESTABLISHED TRANSECTS.
5. NOTES ON INVASIVE WEEDS OUTSIDE OF ESTABLISHED TRANSECTS.
6. PHOTOGRAPHS FROM FIXED PHOTO-POINTS ESTABLISHED DURING THE AS-BUILT INSPECTION.
8. ANY EVIDENCE OF WILDLIFE USAGE IN THE MITIGATION AREA.
9. REPORT ON CONDITION OF PLACED LARGE WOODY DEBRIS.
10. INTRUSIONS INTO THE PLANTING AREAS, VANDALISM OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE MITIGATION AREAS.
11. RECOMMENDATIONS FOR MAINTENANCE OR REPAIRS.

CONTINGENCIES

UNFORESEEN PROJECT CONDITIONS MAY REQUIRE CHANGES IN VEGETATION LAYOUT, DENSITY/SPACING, AND SPECIES SUBSTITUTIONS. WEED CONDITIONS MAY REQUIRE ALTERATION OF INSTALLED VEGETATION TYPES, MULCH PLACEMENT, WEED REMOVAL AND USE OF HERBICIDES. MINOR HAND WORK TO IMPROVE OR RETARD DRAINAGE MAY BE NEEDED TO SUPPORT WETLAND HYDROLOGY. SUCH WORK WILL BE COORDINATED DIRECTLY WITH THE CITY OF BELLEVUE.

UNPREDICTABLE EVENTS SUCH AS OBSTRUCTIONS OR HIGH-FLOWS FROM LARGE STORMS MAY NECESSITATE EROSION AND HABITAT FEATURE REPAIRS. SMALL REPAIRS BY HAND WILL BE COORDINATED WITH THE CITY OF BELLEVUE. LARGER REPAIRS THAT REQUIRE EXTENSIVE MANIPULATION OR THE USE OF HEAVY MACHINERY WILL BE COORDINATED IN CONSULTATION WITH JURISDICTIONAL AGENCIES.

SITE PROTECTION

THE MITIGATION AREA WILL BE PROTECTED BY RECORDING A NOTICE ON TITLE WITH KING COUNTY. FENCING AND SIGNS WILL BE INSTALLED ALONG THE EDGE OF THE MITIGATION AREA.

MATERIALS

1. WOOD CHIP MULCH: "ARBORIST CHIPS" (CHIPPED WOODY MATERIAL) BARK OR WOOD CHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. IT SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO PLANT LIFE. SAWDUST SHALL NOT BE USED AS MULCH.

   BARK OR WOOD CHIPS WHEN TESTED SHALL BE ACCORDING TO WSDOT TEST METHOD T 123 PRIOR TO PLACEMENT AND SHALL MEET THE FOLLOWING LOOSE VOLUME GRADATION:

SIEVE SIZE	PERCENT PASSING MINIMUM	MAXIMUM
2"	95	100
NO. 4	0	30

   APPROX. QUANTITY REQUIRED: 60 CUBIC YARDS.
2. COMPOST: CEDAR GROVE COMPOST OR EQUIVALENT "COMPOSTED MATERIAL" PER WASHINGTON ADMIN. CODE 173-350-220. QUANTITY REQUIRED: 35 CUBIC YARDS
3. FERTILIZER: SLOW-RELEASE, PHOSPHOROUS-FREE GRANULAR FERTILIZER. MOST COMMERCIAL NURSERIES CARRY THIS PRODUCT. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEARS TWO AND THREE, NOT IN YEAR ONE.
4. FERTILIZER (FOR NEAR AQUATIC ENVIRONMENTS): SLOW-RELEASE, PHOSPHOROUS-FREE GRANULAR FERTILIZER. LABEL MUST INDICATE THAT PRODUCT IS SAFE FOR AQUATIC ENVIRONMENTS. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR USE. KEEP FERTILIZER IN WEATHER-TIGHT CONTAINER WHILE ON-SITE. FERTILIZER IS ONLY TO BE APPLIED IN YEARS TWO AND THREE, NOT IN YEAR ONE.
5. RESTORATION SPECIALIST: QUALIFIED PROFESSIONAL ABLE TO EVALUATE AND MONITOR THE CONSTRUCTION OF ENVIRONMENTAL RESTORATION PROJECTS.

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

SOMERSET SUBSTATION
ENERGIZE EASTSIDE MITIGATION PLAN
PREPARED FOR: PUGET SOUND ENERGY
PARCEL #2124059071, #2124059052
5200 SE COAL CREEK PKWY
BELLEVUE, WA 98006

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	05/03/2018	MITIGATION PLAN	AJ

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

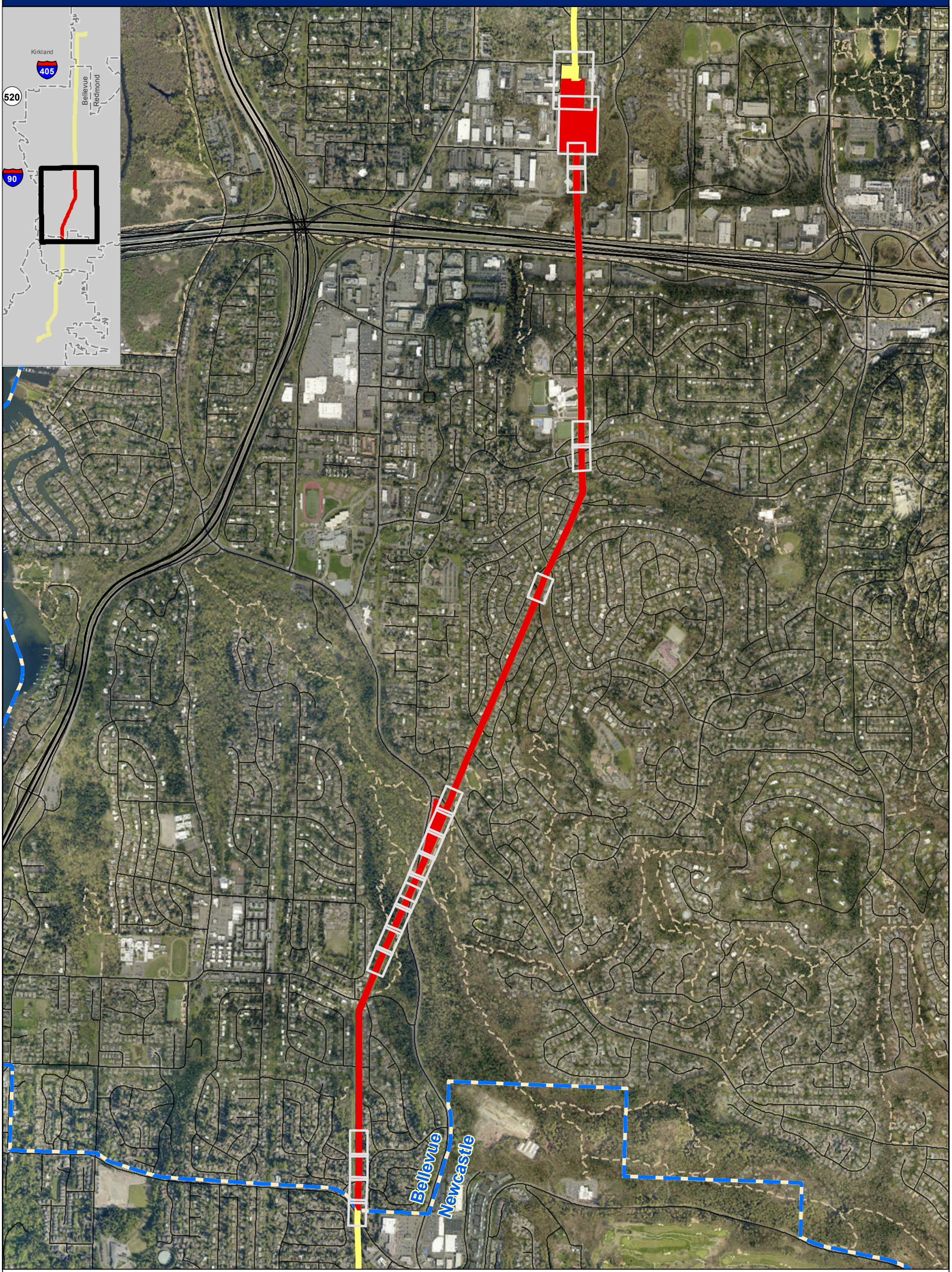
PROJECT MANAGER: JC
DESIGNED: --
DRAFTED: AJ/LM
CHECKED: CM
JOB NUMBER: 111103.11
SHEET NUMBER: W5 OF 5

FILENAME
PRINTED BY
DATE

APPENDIX B

Critical Area Assessment Maps

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP - COVER PAGE



South Bellevue Segment of PSE Route and Critical Area Study Limits[1 PSE, TWC]

PSE Route and Critical Area Study Limits outside of South Bellevue Segment[PSE]

Report Map Page Extents[2 TWC]

Road Centerlines[COB]

Trails[COB]

City Limit[KC]

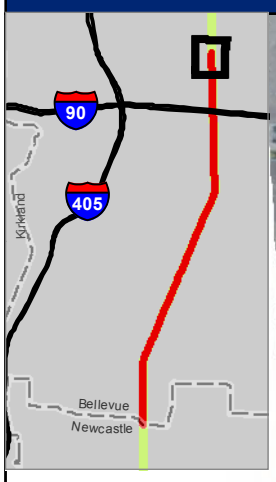
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Map pages highlighted are where critical areas, as designated in Bellevue Municipal Code, are mapped within the South Bellevue portion of the corridor. All other map pages were omitted.
3. Only those steep slopes designated as priority through geotechnical field investigation are mapped within the corridor. Please refer to discussion in Critical Areas Report.

N

0 720 1,440

Feet

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



SE 26TH ST

137TH AVE SE

WETLAND I
(Lakeside)
(Category III)

Northern extent of South Bellevue project area

136TH AVE SE

WETLAND EE
(Lakeside)
(Category III)

7/5

7/5

LAKESIDE
SUBSTATION

SE 27TH PL

115-X

7/6

7/6

115-5

STREAM D
(Lakeside)
(Type F)

WETLAND A
(Richards)
(Category III)

STREAM B
(Lakeside)
(Type F)

WETLAND D (Lakeside)
(Category III)

115-2

STREAM C (Richards) -
Richards Creek
(Type F)

115-X

STREAM F
(Lakeside)
(Type F)

STREAM A
(Richards)
(Type N)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

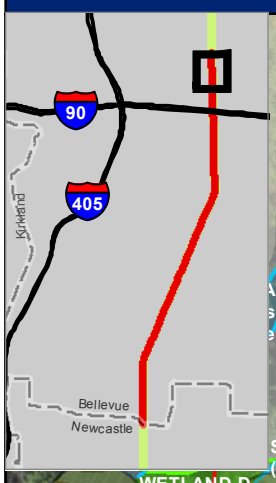
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

1

0 25 50
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



115-X
115-5
7/6
7/6
115-2
115-X
115-X
7/7
115-1
115-X
7/7
115-X
7/8
115-X
7/9
115-X
9/1
9/2
115-X
9/1
9/2
STREAM B (Lakeside) (Type F)
WETLAND D (Lakeside) (Category III)
STREAM F (Lakeside) (Type F)
STREAM A (Richards) (Type N)
WETLAND C (Richards) (Category III)
WETLAND A (Richards) (Category III)
WETLAND B (Richards) (Category III)
STREAM C (Richards) - Richards Creek (Type F)
RICHARDS CREEK SUBSTATION
SE 30TH ST
WETLAND D (Richards) (Category II)
WETLAND H (Richards) (Category III)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

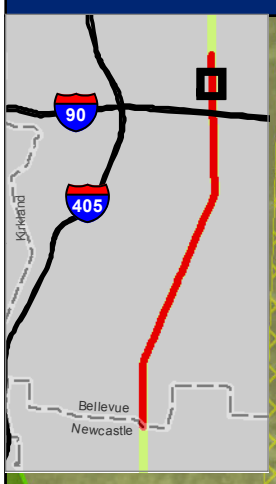
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

2

0 25 50
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



7/8
115-X
7/9
115-X
9/2
9/1
115-X
9/1
WETLAND D
(Richards)
(Category II)
STREAM C (Richards)
- Richards Creek
(Type F)
STREAM JB02
(Type F)
WETLAND H
(Richards)
(Category III)
King County
Mitigation Area

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

Notes:
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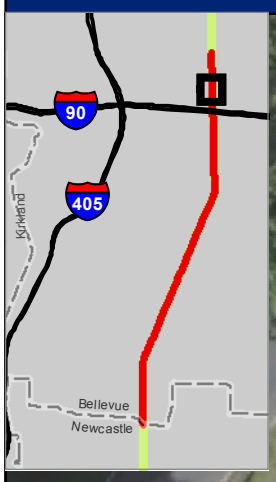
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

3

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



King County Mitigation Area

STREAM C (Richards) - Richards Creek (Type F)

WETLAND H (Richards) (Category III)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

4

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP

SUNSET CREEK FLOODPLAIN

SE ALLEN RD

8/3

8/3

Critical Area Study Limits[1] TWC
City Limit
Maintained Legal ROW[PSE] - *pale yellow shading*
Managed Right-of-Way
Wires
Wire Zone

Proposed Stringing Sites HDR
Existing Pole to Remain PSE
Existing Pole to be Removed[PSE]
Proposed Pole Footprints PSE
Proposed Access Routes[3] PSE

Richards Creek Work Limits[PSE]
Substation Improvement Area[PSE]
Trees to Remove[6]
Canopy to be Removed[6] TWC
Canopy to Remain[6]

Delineated Stream Boundary[TWC]
Delineated Wetland Boundary[TWC]
Limit of Combined Functioning Wetland/Stream Buffer[2] TWC

Stream
Wetland
Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*

Priority Steep Slopes[4 COB]
Limit of Priority Steep Slope Buffer[5 TWC]
Landslide Hazard Areas
Landslide Hazard Area Buffer[TWC]
Flood Hazard (100-yr Floodplain)[COB]

Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
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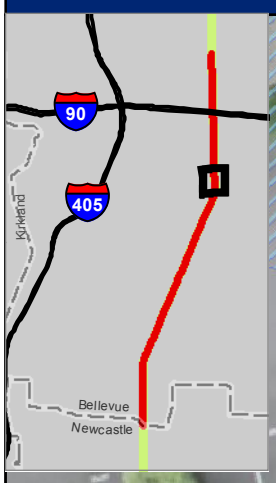
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

5

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



SUNSET CREEK FLOODPLAIN

SE NEWPORT WAY

SE 42ND ST

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

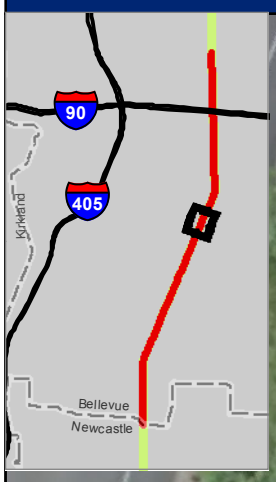
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

6

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



SOMERSET BLVD SE

7/7

7/7

WETLAND JB03
(Category IV)

SOMERSET PL SE

WETLAND JB02
(Category IV)

- Critical Area Study Limits[1] (TWC)
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites (HDR)
- Existing Pole to Remain (PSE)
- Existing Pole to be Removed (PSE)
- Proposed Pole Footprints (PSE)
- Proposed Access Routes[3] (PSE)
- Richards Creek Work Limits (PSE)
- Substation Improvement Area (PSE)
- Trees to Remove[6]
- Canopy to be Removed[6] (TWC)
- Canopy to Remain[6]
- Delineated Stream Boundary (TWC)
- Delineated Wetland Boundary (TWC)
- Limit of Combined Functioning Wetland/Stream Buffer[2] (TWC)
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2] (TWC) - *white shading*
- Priority Steep Slopes[4] (COB)
- Limit of Priority Steep Slope Buffer[5] (TWC)
- Landslide Hazard Areas
- Landslide Hazard Area Buffer (TWC)
- Flood Hazard (100-yr Floodplain) (COB)

Notes:
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4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
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6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

7

0 10 20
Feet

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PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP

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7/1

Foresthill Neighborhood Trail

WETLAND JB04
(Category IV)

FOREST DR SE

Critical Area Study Limits[1] TWC
City Limit
Maintained Legal ROW[PSE] - *pale yellow shading*
Managed Right-of-Way
Wires
Wire Zone

Proposed Stringing Sites HDR
Existing Pole to Remain PSE
Existing Pole to be Removed[PSE]
Proposed Pole Footprints PSE
Proposed Access Routes[3] PSE

Richards Creek Work Limits[PSE]
Substation Improvement Area[PSE]
Trees to Remove[6]
Canopy to be Removed[6] TWC
Canopy to Remain[6]

Delineated Stream Boundary[TWC]
Delineated Wetland Boundary[TWC]
Limit of Combined Functioning Wetland/Stream Buffer[2] TWC

Stream
Wetland
Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*

Priority Steep Slopes[4 COB]
Limit of Priority Steep Slope Buffer[5 TWC]
Landslide Hazard Areas
Landslide Hazard Area Buffer[TWC]
Flood Hazard (100-yr Floodplain)[COB]

Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
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8

0 10 20
Feet

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PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP

FOREST DR SE

WETLAND C
(Somerset)
(Category IV)

WETLAND A
(Somerset)
(Category IV)

WETLAND D
(Somerset)
(Category IV)

Foresthill Neighborhood Trail

6/7

6/7

SOMERSET SUBSTATION

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

Notes:
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9

0 10 20
Feet

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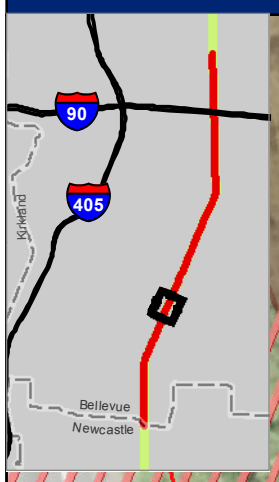
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



SOMERSET SUBSTATION

WETLAND A (Somerset) (Category IV)

WETLAND D (Somerset) (Category IV)

6/7

6/7

6/7

Foresthill Neighborhood Trail

COAL CREEK PKWY SE

WETLAND E (Somerset) (Category IV)

WETLAND JB05 (Category IV)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

Notes:
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10

0 10 20

Feet

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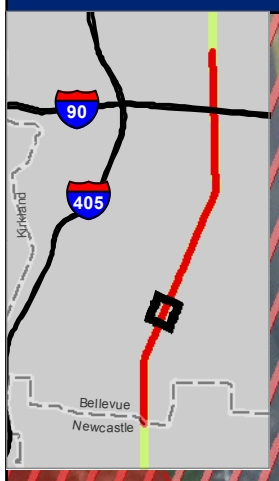
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



WETLAND JB05
(Category IV)

Foresthill
Neighborhood
Trail

COAL CREEK PKWY SE

WETLAND JB08
(Category III)

STREAM JB04
(Type N)

STREAM JB05
(Coal Creek)
(Type F)

COAL CREEK
FLOODPLAIN

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

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11

0 10 20
Feet

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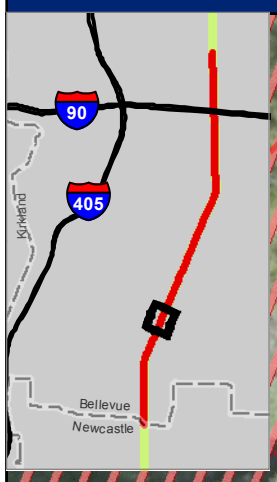
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



COAL CREEK FLOODPLAIN

COAL CREEK PKWY SE

STREAM MB02
(Type F)

WETLAND MB04
(Category IV)

STREAM MB01
(Type N)

STREAM JB05
(Coal Creek)
(Type F)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

Notes:
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12

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP

STREAM MB02
(Type F)

COAL CREEK
FLOODPLAIN

STREAM
MB01
(Type N)

WETLAND MB04
(Category IV)

COAL CREEK PKWY SE

STREAM JB05
(Coal Creek)
(Type F)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

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13

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP

COAL CREEK PKWY SE

6/6

Lower Coal Creek Trail

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

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14

0 10 20
Feet

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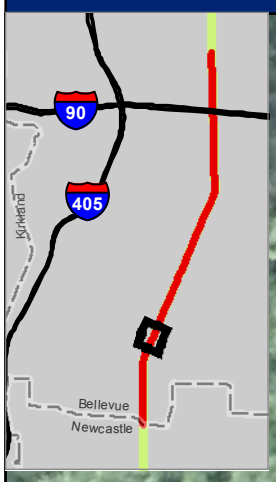
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



Lower Coal Creek Trail

WETLAND MB03
(Category IV)

6/5

Critical Area Study Limits[1] TWC
City Limit
Maintained Legal ROW[PSE] - *pale yellow shading*
Managed Right-of-Way
Wires
Wire Zone

Proposed Stringing Sites HDR
Existing Pole to Remain PSE
Existing Pole to be Removed[PSE]
Proposed Pole Footprints PSE
Proposed Access Routes[3] PSE

Richards Creek Work Limits[PSE]
Substation Improvement Area[PSE]
Trees to Remove[6]
Canopy to be Removed[6] TWC
Canopy to Remain[6]

Delineated Stream Boundary[TWC]
Delineated Wetland Boundary[TWC]
Limit of Combined Functioning Wetland/Stream Buffer[2] TWC

Stream
Wetland
Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*

Priority Steep Slopes[4 COB]
Limit of Priority Steep Slope Buffer[5 TWC]
Landslide Hazard Areas
Landslide Hazard Area Buffer[TWC]
Flood Hazard (100-yr Floodplain)[COB]

Notes:
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15

0 10 20
Feet

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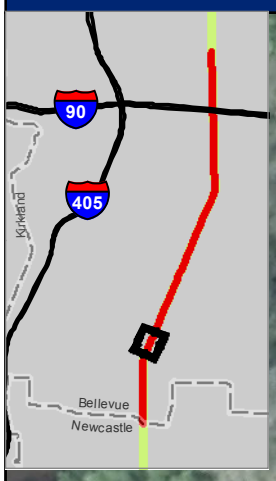
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



Critical Area Study Limits[1] TWC
City Limit
Maintained Legal ROW[PSE] - *pale yellow shading*
Managed Right-of-Way
Wires
Wire Zone

Proposed Stringing Sites HDR
Existing Pole to Remain PSE
Existing Pole to be Removed[PSE]
Proposed Pole Footprints PSE
Proposed Access Routes[3] PSE

Richards Creek Work Limits[PSE]
Substation Improvement Area[PSE]
Trees to Remove[6]
Canopy to be Removed[6] TWC
Canopy to Remain[6]

Delineated Stream Boundary[TWC]
Delineated Wetland Boundary[TWC]
Limit of Combined Functioning Wetland/Stream Buffer[2] TWC

Stream
Wetland
Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*

Priority Steep Slopes[4 COB]
Limit of Priority Steep Slope Buffer[5 TWC]
Landslide Hazard Areas
Landslide Hazard Area Buffer[TWC]
Flood Hazard (100-yr Floodplain)[COB]

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16

0 10 20
Feet

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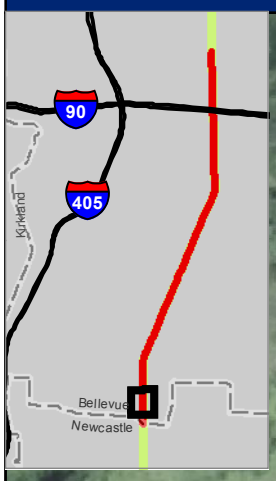
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



Regional Trail

5/9

5/9

WETLAND MB01 (Category III)

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

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17

0 10 20
Feet

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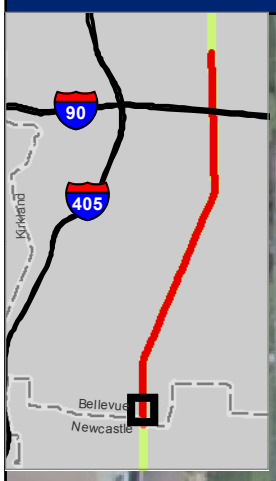
PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



WETLAND
MB01
(Category III)

Regional Trail

5/8

5/8

128TH AVE SE

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed[PSE]
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits[PSE]
- Substation Improvement Area[PSE]
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary[TWC]
- Delineated Wetland Boundary[TWC]
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer[TWC]
- Flood Hazard (100-yr Floodplain)[COB]

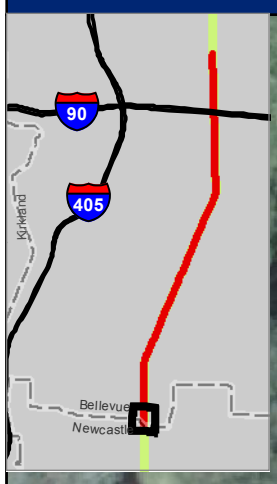
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

18

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



5/8

5/8

128TH AVE SE

128TH PL SE

Regional Trail

STREAM MB01
(Type N)

NEWCASTLE WAY

- Critical Area Study Limits[1] TWC
- City Limit
- Maintained Legal ROW[PSE] - *pale yellow shading*
- Managed Right-of-Way
- Wires
- Wire Zone
- Proposed Stringing Sites HDR
- Existing Pole to Remain PSE
- Existing Pole to be Removed PSE
- Proposed Pole Footprints PSE
- Proposed Access Routes[3] PSE
- Richards Creek Work Limits PSE
- Substation Improvement Area PSE
- Trees to Remove[6]
- Canopy to be Removed[6] TWC
- Canopy to Remain[6]
- Delineated Stream Boundary TWC
- Delineated Wetland Boundary TWC
- Limit of Combined Functioning Wetland/Stream Buffer[2] TWC
- Stream
- Wetland
- Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*
- Priority Steep Slopes[4 COB]
- Limit of Priority Steep Slope Buffer[5 TWC]
- Landslide Hazard Areas
- Landslide Hazard Area Buffer TWC
- Flood Hazard (100-yr Floodplain) COB

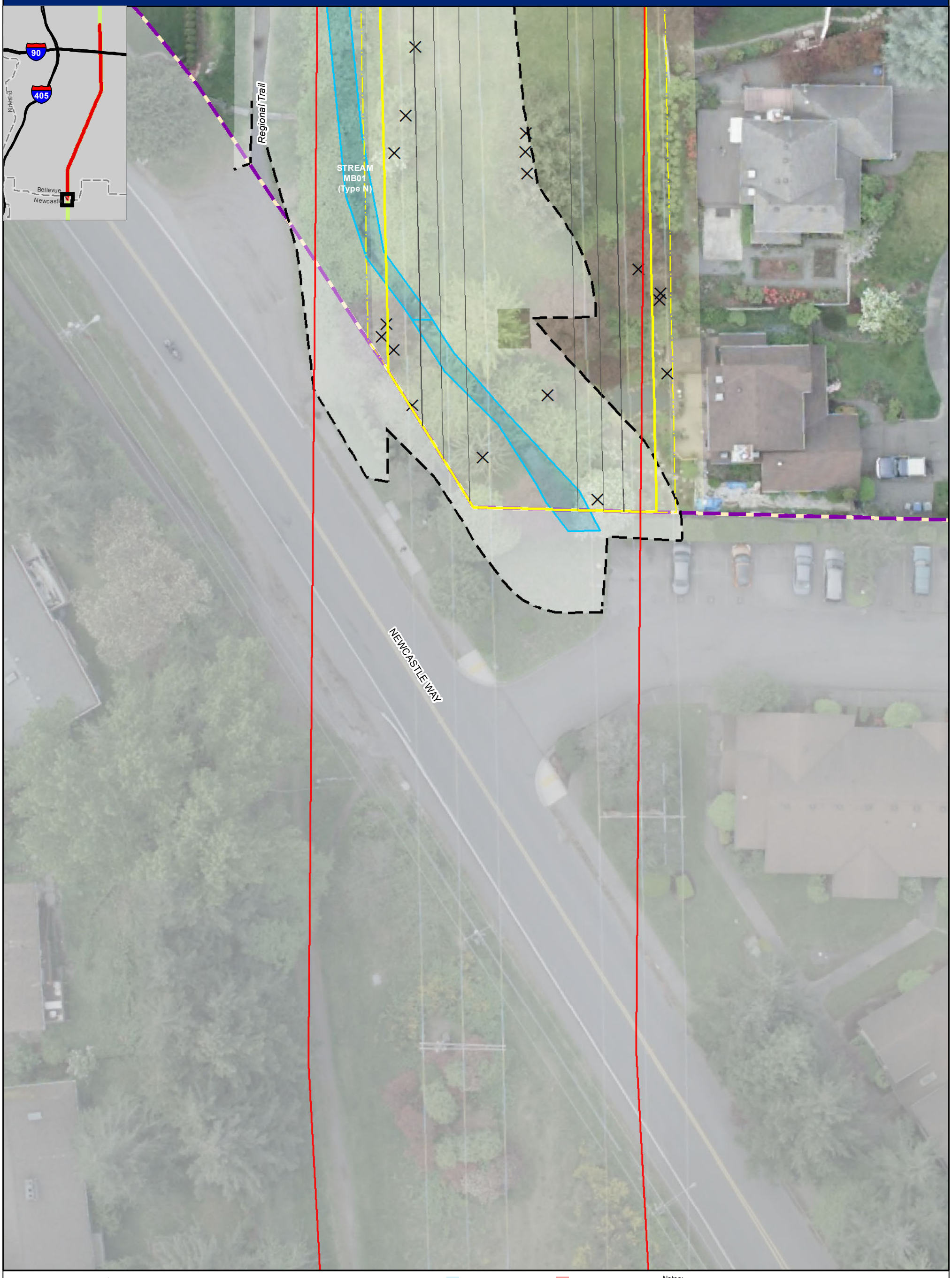
Notes:
1. Critical areas were defined within a 100' corridor along the existing powerline corridor and the entirety of the Lakeside and Richards Creek substation parcels.
2. Shapes representing functioning buffers are truncated 25 feet outside of the study limits.
3. Access roads shown at typical width of 20 feet.
4. Determined in the field by geotechnical consultant. See discussion in Critical Areas Report.
5. Required from top of slope only, per BMC 20.25H.035(A).
6. Canopy shown only in Richards Creek and Lakeside substation parcels. Canopy not shown for dead/dying trees.

19

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

PSE EE230 - SOUTH BELLEVUE CRITICAL AREA ASSESSMENT MAP



Critical Area Study Limits[1] TWC
City Limit
Maintained Legal ROW[PSE] - *pale yellow shading*
Managed Right-of-Way
Wires
Wire Zone

Proposed Stringing Sites HDR
Existing Pole to Remain PSE
Existing Pole to be Removed[PSE]
Proposed Pole Footprints PSE
Proposed Access Routes[3] PSE

Richards Creek Work Limits[PSE]
Substation Improvement Area[PSE]
Trees to Remove[6]
Canopy to be Removed[6] TWC
Canopy to Remain[6]

Delineated Stream Boundary[TWC]
Delineated Wetland Boundary[TWC]
Limit of Combined Functioning Wetland/Stream Buffer[2] TWC

Stream
Wetland
Combined Functioning Wetland/Stream Buffer Area[2 TWC] - *white shading*

Priority Steep Slopes[4 COB]
Limit of Priority Steep Slope Buffer[5 TWC]
Landslide Hazard Areas
Landslide Hazard Area Buffer[TWC]
Flood Hazard (100-yr Floodplain)[COB]

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20

0 10 20
Feet

Data sources: Puget Sound Energy (PSE), The Watershed Company (TWC), City of Bellevue (COB), King County (KC), and HDR. Aerial imagery from PSE, 2011.

APPENDIX C

Geotechnical Report and Memo

Revised Targeted Critical Areas Geologic Hazard Evaluation

Energize Eastside Project
Bellevue, Washington

for
Puget Sound Energy

July 11, 2017

GeoEngineers
Earth Science + Technology

Revised Targeted Critical Areas Geologic Hazard Evaluation

Energize Eastside Project
Bellevue, Washington

for
Puget Sound Energy

July 11, 2017

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Revised Targeted Critical Areas Geologic Hazard Evaluation

Energize Eastside Project
Bellevue, Washington

File No. 0186-871-06

July 11, 2017

Prepared for:

Puget Sound Energy
P.O. Box 97034, EST-04W
Bellevue, Washington 98009-9734

Attention: Kelly Purnell

Prepared by:

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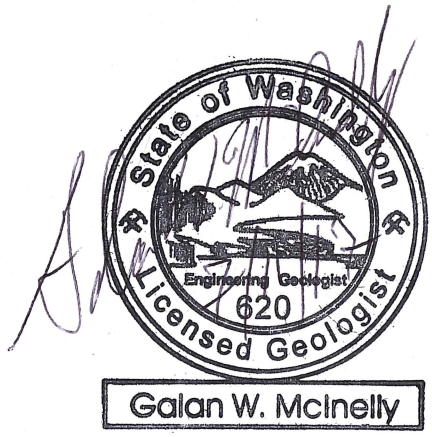

RMH:ETB:GWM:cam

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INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) is pleased to present the revised results for targeted critical areas evaluation of specific geologic hazards identified by Puget Sound Energy (PSE) for the Energize Eastside Project. Our services have been provided in general accordance with the proposal between GeoEngineers and PSE dated June 21, 2017. These services were authorized by Kelly Purnell with PSE on June 15, 2017, and formal authorization was received on June 26, 2017.

The project area is located along existing PSE rights-of-way and includes areas within the city of Bellevue. We previously provided a geologic hazard evaluation for various routes under consideration, including the route evaluated within this document, in a separate report submitted to PSE on December 19, 2014. The geologic hazards evaluation included in this report focuses on a desktop review for steep slope and landslide hazard areas (geologic hazard areas), as assigned by PSE, relative to proposed vegetation management activities, including tree-removal required for construction access and pole replacement. PSE has provided specific locations for evaluation and also provided a map developed by others which shows proposed pole replacement activities including proposed tree removal, vegetation management zones and access roads.

LOCAL REGULATIONS

GeoEngineers assessed local regulations in the Bellevue Land Use Code, Critical Areas Overlay District for Geologic Hazard Areas (20.25H.120) for the project areas identified by PSE that coincide with regulated geologic hazard areas.

General Geologic Hazard Area Buffers

The City of Bellevue Land Use Code, 20.25H.120, criteria for defining geologic hazards and geologic hazard buffers is described below.

- *Landslide Hazards: Areas of slopes of 15 percent of more with more than 10 feet of rise, which also displace areas of historic failures, including those areas designated as quaternary slumps, earthflows, mudflows, or landslides, areas that have shown movement during the past 13,500 years or that are underlain by landslide deposits, slopes that are parallel or subparallel to planes of weakness in subsurface materials, slopes exhibiting geomorphological features indicative of past failures such as hummocky ground and back-rotated benches on slopes, areas with seeps indicating a shallow ground water table on or adjacent to the slope face, or areas of potentially instability because of rapid stream incision, stream bank erosion, and undercutting by wave action.*

  According to the Bellevue Land Use Code, the established critical area buffer in geologic hazard critical areas for landslide hazards is 50 feet from the top of the slope.

- *Steep Slopes: Slope of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area.*

  According to the Bellevue Land Use Code, the established critical area buffer in general geologic hazard critical areas for steep slopes is 50 feet from the top of the slope.

EXISTING CONDITIONS

GeoEngineers reviewed a previous report, titled Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Services report, submitted to PSE on December 2014, to assess existing conditions in the project area within City of Bellevue (GeoEngineers 2014). Existing geology in the identified areas mainly consists of glacial drift, recessional outwash, glacially consolidated till and advance outwash deposits, with the exception of a small areas of peat, fill, alluvium and Eocene age sedimentary rocks. Soil types anticipated in the project area include mainly silty gravel, silty sand and silt.

Steep slopes with slopes 40 percent or greater are observed locally within the project area, however the steep slope areas where selected tree removal is proposed are generally developed and include rockeries, landscaped residential slopes and managed right-of-way areas that are unlikely to be adversely impacted. Some undeveloped/natural areas of steep slopes along the project area include the Coal Creek drainage east and west locally along Coal Creek Parkway. These Coal Creek drainage areas also include localized mapped landslide hazards. We observed no active areas of slope movement or instability for project areas that include mapped steep slope areas or steep slope and landslide areas within the Coal Creek drainage area.

IMPACT ASSESSMENT

Tree Removal

There are two primary ways in which tree removal activities may impact slope stability on steep slopes or landslide hazard areas. After tree removal, root decay causes both the numbers of roots and the tensile strength of the remaining individual roots to decrease with time (Burroughs and Thomas 1977). Studies show that the period of minimum root strength is typically from 3 to 5 years after harvest (Ziemer 1981a; 1981b), but can extend up to 10 to 20 years depending on the tree species. For example, minimum root strength in evergreens is typically 10 years after harvest, alders have a minimum root strength of 5 to 10 years after harvest, and maples typically maintain full root strength after harvest (because they regrow from the existing stump). The reductions in root strength result in a net decrease in the cohesive strength of the near-surface soil mass.

Tree removal likely will modify surface and subsurface hydrology. Tree removal may increase soil moisture by reducing canopy interception and evapotranspiration. Ground-based yarding equipment can compact soil, which may alter hydrologic processes in certain soil types.

Elevated groundwater levels decreases the stability of slopes by reducing the shear strength of the soil and by adding additional weight. The probability of landsliding from increased groundwater levels depends on the magnitude of the increase and the existing stability of the slope. The magnitude of potential changes in groundwater levels from tree removal is highly variable and depends on several factors, including the tree size, silviculture, subsurface conditions and topography.

In general, tree removal will increase the impact on slope stability for steep slopes or landslide hazard areas. However, fewer impacts are expected in areas where tree removal is isolated to one or two trees and the steep slope or landslide hazard area is otherwise stable and well vegetated. Additionally, fewer impacts are expected at the toe of the slope, compared to tree removal within the body or at the top of the slope.

Much of the tree removal near/on steep slope areas north of I-90 are situated in the PSE parcel that will be developed for the Richards Creek Substation. GeoEngineers completed a geotechnical engineering report for this substation in a report dated September 23, 2016 and an addendum report dated April 4, 2017. The new substation will require some retaining walls along the south side of the parcel where existing steep slopes are mapped, and a soldier pile wall on the east side of the site. The soldier pile wall (and eastern limits of the new substation) will be located east of the existing eastern steep slope area. Thus, construction of the substation and soldier wall will result in removal of this small steep slope area and the hillside will be stabilized by the wall. As such, the proposed tree removal located within the steep slopes of the substation limits will not affect the stability of the hillside.

Access Construction

Temporary access routes will generally follow previously established access trails and routes, and in some cases, will cross existing developed landscape. Therefore, little cutting or filling will be required. Small amounts of quarry spalls might be necessary to stabilize portions of existing routes. Many of the existing routes are overgrown with vegetation and, thus, will need to be cleared. Standard erosion control best management practices (BMPs) should be followed during clearing and use of the temporary access routes. Following completion of construction activities, restoration BMPs such as mulching and/or placing jute matting, should be implemented.

Pole Installation

Where new poles are located in steep slope or landslide hazard areas, a temporary working bench might be necessary to install the pole. We anticipate that these benches might vary from about 10 feet by 10 feet to 30 feet by 30 feet in dimension. The same considerations discussed above for access routes also apply to benches needed for pole installation. We recommend that clearing activities be restricted to that necessary to auger the hole for the pole.

Recommendations for the design and construction of poles are presented in our Geotechnical Engineering Services report dated June 8, 2016. In general, most of the site soils along the proposed route consist of recessional deposits or glacially consolidated deposits, and in some limited locations, bedrock. These soils should provide adequate support for the new poles, and it is our opinion that once the pole is installed, the pole will not adversely impact slope stability since the pole should actually provide additional resisting force against slope failure, provided the pole is embedded to a sufficient depth.

Conclusions

Mapped steep slopes in Bellevue that include slopes 40 percent or greater are observed locally within the project area, however many of these areas are developed and include rockeries, landscaped residential or commercial development slopes and cut slopes associated with paved roadways and include the following:

- Two trees removed from just north of 132nd Avenue SE.
- Multiple trees removed and access just east of the intersection of Somerset Drive SE and 134th Place SE, north to Somerset Place SE.
- Multiple trees removed just east of the intersection of Somerset Drive SE and Somerset Boulevard SE.

- Multiple trees removed just east of 136th Place SE between SE 43rd Place and SE 43rd Street; and two trees between this area and the intersection of Somerset Drive SE and Somerset Boulevard SE.
- Two trees removed and access north of the intersection of SE 43rd St. and the PSE right-of-way.
- Multiple trees removed south of SE 42nd Street.
- Multiple trees removed between SE 37th Street and SE 36th Street.
- Access east of SE 32nd Street.
- Multiple trees removed in the Richards Creek Substation and Lakeside Substation area.
- Multiple trees removed and access south of SE 26th Street.

A localized natural area of steep slopes in the project area includes the Coal Creek drainage east and west locally along Coal Creek Parkway; this area also has localized mapped landslide hazards. The project area is within an existing right-of-way that is maintained for vegetation by PSE and includes a narrower right-of-way managed by a private petroleum pipeline company. The right-of-way for the buried petroleum pipeline includes areas with no trees and grass that is mowed regularly for vegetation management. We observed no indication of slope movement in the pipeline right-of-way that is included within the PSE right-of-way. The proposed removal of 11 selected trees in this area is consistent with the management activities of the existing pipeline right-of-way and is not anticipated to impact the mapped geologic hazard areas within the Coal Creek drainage, in our opinion, provided that no tracked or rubber-tired equipment is used to remove the trees.

Conceptual Impact Mitigation Strategy

Vegetation Management and Tree Removal

For vegetation management and tree removal in the City of Bellevue within the mapped geohazard areas outlined in the proposed PSE project segment, GeoEngineers suggests the following options for mitigating impacts after tree removal.

In general, to limit impacts on slope stability from vegetation management and tree removal within steep slope and landslide hazard areas, the sites should be accessed by foot to reduce equipment impacts. Hand cutting with chainsaws should be implemented to trim branches and remove trees. Stumps should remain in place, but can be cut to ground level. Branches, limbs, trunks and other tree debris should be chipped and scattered around the removal site within the right-of-way. Where chipping is not feasible, unchipped tree debris can be scattered.

In areas where tree removal is widely spaced within steep slope and landslide buffer areas, the trees should be cut, stumps left in place, and trimmed branches and trunks can be scattered within the right-of-way.

In areas where tree removal is clustered, erosion control BMPs, such as grass seeding, leaving stumps, scattering straw and/or replacement planting of native shrubs or small trees, should be implemented to reduce concentrated flows and minimize disturbance.

In areas where houses are located within 25 to 50 feet of vegetation management and tree removal, all tree debris should be removed from the owner's property and communication with the property owner is

suggested to identify possible reseeding, replacement tree or shrub, or landscaping options. If agreeable to the property owner, it is possible that the tree trunk can be cut and left below ground surface to maintain root strength (up to 5 to 10 years, depending on tree type), and a replacement tree or shrub may be planted near the trimmed trunk.

Reestablish Access Routes

Where vegetation clearing is required to reestablish the access on existing trails and access routes, BMPs should be implemented; these BMPs can include, but are not limited to: outsloping road surfaces, crowning road surfaces (where appropriate, such as at ridge tops and where roads climb gently inclined surfaces) and installing water bars or rolling dips at regularly spaced intervals to avoid concentrating surface water flow along the road surface. The spacing depends on the grade of the route, the soil type present, proximity to streams and the intended use of the road (e.g., temporary or permanent).

Most, if not all, access routes will be temporary and will be abandoned following construction of the transmission line. In the transmission corridor, no temporary access roads will cross any drainages situated in geologic hazard areas (i.e. Coal Creek).

It is the contractor's responsibility to complete construction work safely and in accordance with applicable local, state and federal laws. After access use is complete, where it is deemed necessary, limited regrading of the access route is recommended to avoid concentrating surface runoff along tracks, ruts or other potential flowpaths. Following completion of construction activities, the construction access routes will be graded to a stable free-draining configuration, treated with appropriate erosion control measures, such as mulching and/or placing jute matting and installation of water bars as needed to control runoff, and seeded. If jute mat is determined a necessary BMP, the jute mat should be anchored at the upslope and downslope ends and secured with staples per the manufacturer's recommendations.

Pole Installation

Where a bench is required to install a pole on a steep slope or landslide hazard area, the recommendations presented above for temporary access routes also apply for pole installation. Appropriate erosion control BMPs should be implemented during construction, and the disturbed area should be restored after pole installation by seeding or revegetating and covering the disturbed area with appropriate BMPs. Soil removed from the new pole excavations should be scattered into vegetation away from the any landscaped areas. Any areas of exposed soil must be seeded and mulched (or covered with hog fuel) to prevent transport of sediment down the steep slopes or into the seepage area during rain events. If the work area is wet or has standing water, driving mats should be used under all equipment and all soils should be removed from the site for off-site disposal.

For poles located in geologic hazards areas, the old poles should be cut off approximately 1 to 2 feet below the ground surface and the remaining portion of each pole left in place. If poles are installed on slopes steeper than 2H:1V (horizontal:vertical), they should be embedded at least 3 feet deeper than the typical design embedment.

CODE COMPLIANCE

20.25H.125 Performance standards – Landslide hazards and steep slopes

In addition to generally applicable performance standards set forth in 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.

A. 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.

   Response to Code Requirement: No structures will be constructed as part of the proposed project. Site improvements (pole removal, pole replacement, access roads, and vegetation management) are not anticipated to adversely impact the natural contour of the slope. The proposed site activities that include vegetation management, tree removal, and temporary access roads (associated with the proposed pole replacement activities) will maintain overall existing site topography.

B. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation.

   Response to Code Requirement: No structures will be constructed as part of the proposed project. Site improvements include localized vegetation management, including tree removal, and use of existing access routes (associated with the proposed pole replacement activities). The proposed tree removal and surface disturbance will be limited to reduce potential impacts to natural landforms and vegetation.

C. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties.

   Response to Code Requirement: The proposed development includes vegetation management, including tree removal and use of existing access routes (associated with the proposed pole replacement activities) that will be followed by mitigation measures to reduce potential impacts to geologic hazards that include landslide and steep slope hazards. Mitigation measures include a variety of BMPs to reduce potential impacts to geologic hazards in the vicinity of neighboring properties. BMPs include plant replacement, scattering trimmed or removed tree debris, and chipping wood to reduce potential impacts to work areas as appropriate. Removal of vegetation by hand and/or using limited access machinery will reduce potential impacts to landslide and steep slope hazard areas. It is our opinion that the proposed project will not require additional buffers.

D. 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.

   Response to Code Requirement: In the transmission corridor, no retaining walls or grading activities are proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities). The development of soldier pile walls and retaining walls for the Richards Creek Substation is discussed in detail in the substation-specific geotechnical engineering report dated September 23, 2016, and in an addendum report dated April 4, 2017. The use of retaining walls for the new substation will reduce disturbance

and grading of the existing natural slopes, which would be otherwise necessary without construction of the walls.

E. Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer.

Response to Code Requirement: No new impervious surfaces are proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities) within mapped critical area and mapped critical area buffers of the transmission corridor. Five narrow, and relatively small (low square footage), steep slopes are located on the future Richards Creek Substation property (comprising 8.46 acres), which is partially developed with an existing pole yard (existing hard surface/impervious surface of 1.58 acres). Only two mapped steep slopes are located within the limits of the new substation (one of which is mapped in the graded/compacted gravel pole yard). Based on the design of the future Richards Creek Substation, site development will be limited to that area necessary for the substation, leaving the surrounding vegetation and grade intact. As such, only one of the mapped steep slopes in the future Richards Creek Substation property will experience an increase in impervious surface.

F. 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 these criteria.

Response to Code Requirement: No change in grade is proposed relative to the proposed vegetation management, tree removal and access route activities (associated with the proposed pole replacement activities) within the transmission corridor. Within the new substation, grade transitions along the east side (up to 24 feet in height) will be supported with a soldier pile wall (cantilever and with tiebacks). Grade transitions along the west side (up to 6 feet in height) will be supported by fill slopes and a cast-in-place retaining wall.

G. 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.

Response to Code Requirement: No building foundations are proposed relative to the proposed vegetation management and tree removal activities associated with the proposed pole replacement activities within the transmission corridor. However, for stability purposes, drilled pier foundations will be utilized on select poles in the corridor where appropriate. The new substation is not a building and, thus, does not have typical foundation walls; as such, soldier pile and retaining walls will be necessary to retain the required grade changes.

H. 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.

Response to Code Requirement: No pole-type structures are proposed relative to the proposed vegetation management and tree removal activities. The new poles will meet the preferred construction type (which is pole-type construction). The new substation cannot be tiered and was situated east of the existing Olympic pipeline. This requires construction of a soldier pile wall east of

the existing steep slope area. While this results in grading in the steep slope area, the area of disturbance is minimized by construction of a vertical wall.

I. 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.

Response to Code Requirement: No structures requiring pile deck support are proposed relative to the proposed vegetation management and tree removal activities. The new poles will meet the preferred construction type (which is pole-type construction).

No parking or garage structures are planned for the new substation. Pile-supported deck structures are not feasible for a substation. The substation grades will require cutting into the steep slope on the east side, which will then be retained with a soldier pile wall.

J. 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. (Ord. 5680, 6-26-06, § 3).

Response to Code Requirement: Temporary disturbance for the proposed vegetation management and tree removal activities and access routes (associated with the proposed pole replacement activities) within the existing transmission corridor will be mitigated by scattering and/or chipping trimmed limbs and logs, replanting vegetation, and using limited access equipment or accessing only by foot as appropriate. For steep slope areas in the vicinity of the new substation that will be disturbed during construction, the disturbed areas should be restored by seeding/revegetating and covering the planted area with mulch or other appropriate BMPs.

LIMITATIONS

We have prepared this report for the exclusive use of PSE and their authorized agents for the Energize Eastside project located in Bellevue, Washington.

The purpose of our services was to review slope stability and landslide hazard impacts in relation to vegetation management and tree removal and temporary access routes (associated with the proposed pole replacement activities) in steep slope and landslide critical hazard areas along the transmission line corridor within the City of Bellevue. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

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Memorandum

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To: Kelly Purnell, Puget Sound Energy

From: Elson T. "Chip" Barnett, LG, LEG;
Galan W. McInelly, LG, LHG, LEG

Date: August 21, 2017

File: 0186-871-06

Subject: Critical Area Supplement for Energize Eastside Bellevue
Geologic Hazard Report dated July 11, 2017

GeoEngineers, Inc. (GeoEngineers) is providing this memorandum as a supplement to our City of Bellevue (City) Critical Areas report for the Energize Eastside Project dated July 11, 2017. Puget Sound Energy (PSE) requested this memorandum to address additional permitting related services during a phone conversation with Chip Barnett and Kelly Purnell of PSE on August 10, 2017. PSE has proposed modification of the number of trees for removal associated with the project.

A follow up conversation on August 15, 2017 with Chip Barnett and Galan McInelly of GeoEngineers and Kerry Kriner, Toni Hartje, and Kelly Purnell of PSE included an additional request to provide some details regarding the methodology for evaluating geologic hazards and to further clarify the City code as it related to geologic hazard area buffers, their value and need for mitigation relative to the Eastside Energize project.

We provide discussion below related to our geologic hazard evaluation methodology, the modification of the number of trees for removal and City code relative to geologic hazard buffers.

Methodology

Our methodology to evaluate geologic hazards primarily relied on the following:

- Review of published geologic maps and geologic hazard maps
- Review of digital imagery (King County and Google Earth)
- Previous site visits for the Geotechnical and Geologic Hazard Evaluation (December 19, 2014).
- Evaluate the potential for impacts to the following geologic hazards:
  - Landslide Areas and buffers
  - Steep Slopes (Greater than 40 percent) and buffers
- Develop a response to specific critical area code requirements

Review of published geologic maps and geologic hazard maps

We reviewed geologic and geologic hazard maps from published King County 1:100,000 scale maps as well as digital geologic hazard data from City of Bellevue as provided by Watershed Associates. The goal of this task was to better understand mapped geologic conditions and geologic hazards at the site relative to planned poles

and areas for proposed tree removal. We also reviewed previous geologic and geotechnical reports completed in the vicinity of the project area.

Review of digital area photographs

Aerial photographs were reviewed using both King County iMap (http://kingcounty.gov/services/gis/Maps/imap.aspx) as well as Google Earth images. King County data available for review of surface conditions includes Light Detection and Ranging (LiDAR) bare earth hillshade surface relief and aerial photograph images from 1936, 1998, 2000, 2002, 2005, 2007, 2009, 2012, 2013 and 2015. Google Earth aerial photograph images include 1990, 2002, 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017. Google Earth data includes multiple images for the same year to observe more subtle changes over the course of a shorter period of time. This task was focused on observing changes in development and vegetation and if geologic hazard areas show some activity during the aerial photograph record. Also, LiDAR bare earth hillshade data provides a tool to observe surface relief without a vegetated canopy that is key to evaluating geologic hazards physical characteristics (scarps, flanks, toe of slide, hummocky topography) of the hazard area, if any.

Previous site visits for the Geotechnical and Geologic Hazard Evaluation

We also verified with GeoEngineers staff that had already completed surface reconnaissance for the proposed site relative to our December 19, 2014 report. The goal of this task was to compare our site-specific reconnaissance information relative to mapped geologic hazards in the project vicinity.

Evaluate the potential for impacts to geologic hazards

GeoEngineers compiled the information to evaluate the potential impacts to the geologic hazard areas relative to the proposed construction of poles and removal of trees. Per City code (20.25H.120). We considered whether mapped landslide areas have:

- Areas that have shown movement during the Holocene Epoch (past 13,500 years) or that are underlain by landslide deposits.
- Slopes that are parallel or subparallel to planes of weakness in subsurface materials.
- Slopes exhibiting geomorphological features indicative of past failures, such as hummocky ground and back-rotated benches on slopes.
- Areas with seeps indicating a shallow ground water table on or adjacent to the slope face.
- Areas of potential instability because of rapid stream incision, stream bank erosion, and undercutting by wave action.

We also consider steep slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area.

We reviewed the performance of these steep slopes and mapped landslide areas relative to decades of residential development as well as engineered City streets.

Develop a response to specific critical area code requirements

GeoEngineers lastly addressed each of the following code performance standards (20.25H.125) for landslide hazards and steep slopes relative to the proposed development for the proposed project.

A. *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.*

B. *Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation.*

C. *The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties.*

D. *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.*

E. *Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer.*

F. *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 these criteria.*

G. *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.*

H. *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.*

I. *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.*

J. *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. (Ord. 5680, 6-26-06, § 3).*

Modified Tree Removal

PSE has increased areas of proposed tree removal and in some cases, has reduced the number of trees previously proposed for removal. GeoEngineers reviewed the locations of the trees that PSE has reduced or added to those previously identified. We reviewed the online mapping provided by Watershed Associates on August 14, 2017 for updated proposed retained and removed trees within the project area.

In general, we noted that a proportion of the added trees proposed for removal are located on areas that include cut- and fill slopes that are locally greater than 40 percent. These slopes have been engineered in many cases associated with roadways that include Coal Creek Parkway SE, Somerset Place SE, Somerset Boulevard SE, SE Newport Way, SE 37th Street, and SE 26th Street. Elsewhere proposed tree removal is located within residential

areas of the right-of-way that include landscaped slopes and rockeries. Also, we reviewed the area that include south of the Richards Creek Substation near previous earthwork activities within the PSE right-of-way observed from the May 2005 aerial photographs that did not destabilize the right of way. It is our opinion that the limited additional few dozen trees proposed for removal will not adversely impact existing mapped geologic hazard areas or their buffers.

Geologic Hazard Buffers and Value

PSE requested additional discussion and comment relative to geologic hazard buffers (landslide and steep slopes), their value and protection. Several areas within the project include buffers (50 feet from mapped hazard) that extend across residential areas and existing roadways where cut and fill areas are steeper than 40 percent.

The City code (20.25H.120) sections provides context:

- Existing Development. Where a primary structure legally established on a site prior to August 1, 2006, encroaches into the critical area buffer established in subsection B.1 of this section, the critical area buffer and structure setback shall be modified to exclude the footprint of the existing structure. Expansion of an existing structure into the critical area buffer shall be allowed only pursuant to the provisions of LUC 20.25H.065.
- Buffer Modification. Modifications to the geologic hazard critical area buffer may be considered through a critical areas report, LUC 20.25H.230.

The value these natural buffers provide is likely some measure of reduced concentration of runoff onto steep slopes and landslide hazards. However, it is important to consider that some areas of existing roadways that have a mapped “steep slope” downslope include a fill slope or rockery that is not a natural slope, rather it is a constructed and likely an engineered slope that does not represent a geologic hazard and therefore it should have no buffer. In that regard modification of buffers is entirely appropriate as is the case in most of the project area.

It is our opinion that buffers that need protection or mitigation are those where the geologic hazard downslope shows some indication of activity in the form of slope movement or active erosion. We observed no buffer areas associated with active or historically active landslides or steep slopes as related to the proposed development. The proposed replanting and other BMP measures as previously discussed in our July 11, 2017 report for buffer and mapped geologic hazards are intended to address the potential risk for instability and maintain value of the critical area.

We appreciate the opportunity to provide services to you. Please contact us if you have any questions concerning this memorandum or our services.

ETB:GWM:cam

APPENDIX D

Detailed CAIA Methodology

This detailed Critical Area Impact Analysis (CAIA) is intended to further describe the methods used to generate critical area features and existing land cover classes used in conjunction with PSE site plans in order to quantify impacts resulting from implementation of the Energize Eastside Project. This Appendix is meant to complement and expand upon the methods described in the body of the report.

Methodology Outline:

- Critical Area Delineation and Mapping Methods
  - Wetlands
  - Streams
  - Functioning Wetland and Stream Buffers
  - Geologic Hazard Area Buffers
- Existing Land Cover Mapping
  - Vegetation Assessment Methods
- Impact Characterization
- Critical Areas Impact Assessment
- Quality Assurance Review of Analysis Steps and Results
- Limitations
- Data Sources Table

Critical Area Delineation and Mapping Methods

Wetland and stream critical areas were delineated and classified by The Watershed Company between March and October 2015 coincident with the field work for vegetation inventory analysis. These delineated features were GPS-located.

Supplemental studies were conducted at specific locations along the Project corridor as indicated in the body of the report (Section 3.2). Wetland and stream boundaries delineated during supplemental studies were typically survey-located.

Critical area features not delineated in the field were mapped using publicly-available GIS data. Priority was given to data produced and/or provided by the City of Bellevue. Where such data were not available for a designated critical area, data were obtained from other agency sources. A table provided at the end of this document lists data sources for each mapped critical area.

WETLAND DELINEATION

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). Wetland boundaries were determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination.

Identified wetlands have been classified using the *Washington State Wetland Rating System for Western Washington, Version 2* (Ecology publication #04-06-025), per Bellevue's current Critical Areas Ordinance.

STREAM DELINEATION

The study area was also evaluated for streams based on the presence or absence of an ordinary high water mark (OHWM) as defined by the Revised Code of Washington (RCW) 90.58.030 and the Washington Administrative Code (WAC) 220-660-030. The OHWM edge was located by examining the bed and bank physical characteristics and vegetation.

The centerlines of streams in the study area were recorded in the field, with stream widths either visually approximated in the field or later approximated based on aerial photometry and elevation contours. Streams were classified according to the City of Bellevue Land Use Code.

Stream OHWM edges were delineated on the Richards Creek and Lakeside Substation parcels.

Functioning Wetland and Stream Buffers Mapping

Standard buffers were applied to delineated wetland and stream edges in GIS according to regulatory buffer widths in Bellevue Land Use Code. It was observed that in many cases, developed areas intruded into these mapped standard buffers. To remove these non-functioning buffer areas from the assessment of Project impacts, developed areas (see land cover mapping section) were manually removed from the standard buffer polygons in GIS (based on observed field conditions and recent aerial photography). Where development, such as a roadway, intruded into the buffer, impeding hydrologic connection, the disconnected outer portion of the buffer was removed. The resulting functioning buffers were used to determine buffer impacts and mitigation needs.

Geologic Hazard Areas and Buffers Mapping

According to Bellevue Land Use Code, landslide hazard areas and steep slopes require 50-foot buffers from the top-of-slope. In order to map top-of-slope buffers, steep slopes and landslide hazard areas were visually evaluated relative to 10-foot contour data provided by the City of Bellevue, and buffers were clipped to top-of-slope.

Steep slope and steep slope buffer data were further refined to include only priority features, as described by GeoEngineers in their July 2017 report and subsequent memo. GeoEngineers evaluated proposed tree removal associated with the Energize Eastside Project on Bellevue's mapped steep slopes for impact risks, including review against a current aerial photograph and field conditions following a site visit. According to communication with PSE, based on the observed developed conditions of the majority of the corridor (residential rockeries, landscaped residential or commercial development slopes, and engineered cut slopes associated with paved roadways) and the proposed work at those locations, the GeoEngineers Report considered these mapped areas as having a low impact risk, offering generalized impact minimization measures. As such, steep slope areas depicted on the Critical Areas Assessment Maps (Appendix B) were limited to show priority areas, while features with low impact risk, including residential rockeries and other marginal mapped slopes, were omitted.

Existing Land Cover Mapping

In order to quantify land cover changes from Project-related activities, a layer showing existing land use was created to describe the current land cover conditions. The land cover base map was developed from the following existing data sources:

- 2009 Impervious and Impacted Surface raster data set, King County GIS
- Energize Eastside Corridor digital survey, APS Surveying
- Energize Eastside Corridor Tree Inventory data, The Watershed Company
- Energize Eastside Corridor Vegetation Polygon data, The Watershed Company
- Energize Eastside Corridor Wetland and Stream Inventory, The Watershed Company
- High-resolution aerial photography, PSE, captured in 2011
- 2015-2016 aerial photography, King County GIS

Using the King County impervious surface raster, GIS analysts supplemented the mapped features using digital survey data. These data were further refined by manually reviewing mapped features against high-resolution aerial photography and field-verified conditions. After developed and non-developed areas were mapped, vegetation and tree canopy coverage information were integrated (described in following subsection), as well as mapped open water areas (streams). This effort yielded a base map with six general land cover types:

- Forested with understory vegetation
- Forested without understory vegetation
- Understory vegetation, unforested
- Other (generally lawn)
- Developed
- Water

VEGETATION ASSESSMENT METHODS

A full description of the vegetation analysis methods, the results of which have been incorporated into the CAIA, is presented in the *City of Bellevue Tree Inventory Report: Puget Sound Energy – Energize Eastside Project* (The Watershed Company 2016b). The ways in which the results were used to generate the mapped features presented in the CAIA are summarized below.

The Watershed Company certified arborists conducted a field-based vegetation inventory from March 23, 2015, to November 9, 2015 associated with potential routes for the Energize Eastside Project. The methodology utilized during the inventory was developed to comprehensively identify, describe, and mark all vegetation greater than 15 feet tall, or that had the potential to reach a mature height of 15 feet or taller.

Inventoried vegetation was mapped as points and/or polygons. Any tree with a diameter of six inches at four-and-a-half feet above the ground surface (DBH) was mapped as a point and tagged with a unique number and its attributes were recorded. Landscaped vegetation with the potential to reach 15 feet or greater

was also inventoried in this manner regardless of size. Finally, weedy vegetation (i.e. from seed [not planted] and not maintained) with a DBH of three to six inches was also inventoried in this way. This type of inventoried vegetation was typically survey-located.

Hedges and small weedy vegetation (less than three inches DBH) were mapped as polygons, not points. Polygons were sketched in the field based on observations then digitized in GIS using high-resolution imagery. Vegetation attributes within polygons were averaged. No significant (regulated) trees were inventoried using this method.

Resulting mapped features included in land cover mapping of the CAIA are vegetation points with the recorded canopy (or radius) applied creating circular "tree footprints" and polygons representing varying densities of smaller weedy vegetation with the potential to reach a height of 15 feet or more.

Using inventoried tree point data and incorporation of 3D design data depicting proposed pole heights and vertical wire alignment, tree impacts related to the construction of the Energize Eastside Project were quantified. Canopy cover for the anticipated trees to remain and trees to be removed or maintained was then mapped and overlayed, resulting in a coverage layer depicting the extent of anticipated canopy preservation and canopy loss. This data was incorporated into the land cover data, further refining existing land cover into eight general land cover types:

- Forested to be removed (canopy loss) with understory
- Forested to be removed, no understory
- Forested to remain (canopy preservation) with understory
- Forested to remain, no understory
- Understory vegetation, unforested
- Other (generally lawn)
- Developed
- Water

Impact Characterization

Proposed development areas associated with the Energize Eastside Project were mapped using geometry from design files and data provided by PSE. As described by PSE, work proposed could be classified into ten types and maintained in the long term as described in the following table.

Proposed Work	Long term Condition
Pole footprint	Developed
Permanent development of the Richards Creek Substation, including structures and impervious areas	Developed
Clearing limits for the Richards Creek Substation construction, includes temporary disturbance related to construction activities	Mixed Vegetation (Height may be maintained depending upon location relative to wire alignment)
Pole buffer, describes an approximate 6-foot buffer around the proposed poles that will be disturbed during construction and tree growth will be managed long-term	Mixed Vegetation (Height maintained at 15 feet or where 20 feet of vertical clearance is provided beneath the vertical curvature of the lowest wire)
Access route, describes approximate path used during construction activities	Mixed Vegetation (Height may be maintained depending upon location relative to wire alignment)
Stringing sites*	Mixed Vegetation (Height may be maintained depending upon location relative to wire alignment)
Wire zone (WZ)	Mixed Vegetation (Height maintained at 15 feet or where 20 feet of vertical clearance is provided beneath the vertical curvature of the lowest wire)
Managed right-of-way (MROW)	Mixed Vegetation (Height maintained at 15 feet or where 20 feet of vertical clearance is provided beneath the vertical curvature of the lowest wire)
Pole work area, approximate temporary disturbance related to pole construction	Mixed Vegetation (Height may be maintained depending upon location relative to wire alignment)
Limit of other vegetation management associated with construction and operations at the Richards Creek Substation	Mixed Vegetation (Height may be maintained depending upon location relative to wire alignment)
Maintained legal right-of-way (LROW), encompasses the areas of LROW where PSE intends to exercise long-term vegetation management	**Mixed Vegetation (Height maintained at 70 feet)**
* Note: Impacts from stringing sites are captured within the footprints of other proposed work activities. During construction work associated with stringing sites, adjustments may be made in the field to avoid, minimize, or mitigate impacts should they occur.	

These proposed work areas were then intersected with the land cover data set described above. The result was a set of polygons defining pre-Project conditions (land cover data set values) and post-Project conditions (proposed work and long-term condition values). Differences between post-Project conditions and pre-Project conditions, or impacts, were then characterized as one of four types – permanent, conversion, temporary, or no change – based on the nature of the change on the ground. These characterization types are defined in the matrix below.

			Existing Land Cover Types							
	Impact Description	**Long-term Condition[1]**	Forested to be removed with understory	Forested to be removed, no understory	Forested to remain with understory	Forested to remain, no understory	Understory	Other (mostly lawn)	Developed	Water
Proposed Activities	Pole footprint	Developed	P	P	P	P	P	P	NC	N/A
	Permanent development of Richards Creek Substation	Developed	P	P	P	P	P	P	NC	N/A
	Clearing limits for the Richards Creek Substation construction	Mixed vegetation[2]	C	C	T	T	T	T	NC	N/A
	Pole buffer	Mixed vegetation[2]	C	C	T	T	T	T	NC	N/A
	Access route	Mixed vegetation[2]	C	C	T	T	T	T	NC	N/A
	Wire zone (WZ)	Mixed vegetation[2]	C	C	NC	NC	NC	NC	NC	N/A
	Managed right-of-way (MROW)	Mixed vegetation[2]	C	C	NC	NC	NC	NC	NC	N/A
	Pole work area	Mixed vegetation[2]	C	C	T	T	T	T	NC	N/A
	Limit of other vegetation management at Richards Creek Substation	Mixed vegetation[2]	C	C	NC	NC	NC	NC	NC	N/A

Type of Impact based on proposed activity, long term condition, and existing land cover type:

P = Permanent to developed C = Vegetation conversion (not developed)

T = Temporary impact, can be restored to existing land cover

NC = No Change N/A = Not applicable/does not occur

[1] Long term condition determined in coordination with PSE.

[2] Subject to varying height restrictions described in Section 2.3.5.

Critical Areas Impact Assessment

Application of the matrix, yielded a map showing a full characterization of permanent, conversion, and temporary impacts associated with the Energize Eastside Project. This impact characterization layer was then intersected with each individual mapped critical area in order to locate, characterize, and quantify impacts to that critical area. The results were summarized by critical area and drainage sub-basin.

The ending table summarizes the data sources used for the critical areas analysis.

Quality Assurance Review of Analysis Steps and Results

Internal review of CAIA steps and results has occurred throughout the process described above and will be ongoing as the analysis is refined.

Ecologists, arborists, GIS analysts, and planners worked collaboratively to ensure all appropriate critical areas were incorporated into the maps and where appropriate, classified and buffered according the local jurisdiction regulations.

GIS analysts created the land cover base map, compiled from a variety of sources. Land cover classifications were reviewed for quality assurance first through the GIS department by comparing mapped data to high resolution aerial imagery. Following review by the GIS analysts, the land cover map was reviewed by an ecologist against delineation field notes and recollections from field work activities.

Project elements and site plans have been provided by, and reviewed with, PSE Project staff. The mapped location and long term condition of Project elements is based upon discussions with PSE regarding BMPs and standard PSE programs and policies.

All components of the CAIA have been generated/authored by reputable sources and have been cross-checked internally for consistency. Quantified and depicted impacts resulting from the CAIA have been reviewed by ecologists for quality assurance to the extent feasible. Impact results will continue to be reviewed for accuracy as the Project plans and impact areas are refined and finalized.

Limitations

This analysis relies on a series of data products produced using different scales and methods; therefore, mapped features may not align with the planned real-world layout of proposed corridor facilities. Ground-truthing of these results may reveal inaccuracies. Furthermore, as some features and design geometries were translated from AutoCAD into ArcGIS, some geometric refinements were necessary to address gaps and other issues, which could affect the accuracy of the analysis results.

Data Inventory Elements and Information Sources:

Inventory Element	Information Gathered	Data Source(s)	Assumptions/Limitations
Proposed Development			
Topographic surface data	• Point map of surface elevations	Puget Sound Energy (PSE) tabular data (via email R. Weider); date received 4/19/2017 The Watershed Company (TWC)	• Point elevations generated from lidar flight by consultant to PSE; flight date unknown • Data was post-processed to generate a 3D surface map using ArcGIS software
Proposed Energize Eastside Project Improvements	• Pole structures • Wire alignments • Pole construction work areas • Proposed temporary construction access routes • Stringing sites • Richards Creek substation improvements	PSE (via email R. Weider, K. Purnell), design drawings in AutoCAD; date received: 7/20/2017-8/2/2017 HDR (via email K. Purnell), geospatial data; date received 8/2/2017 TWC	• Reflects pole and wire design configuration from June 30, 2017, with updates through Aug 18, 2017 • Design may be subject to revision or update based on regulatory comments, field conditions, or other factors
Cadastral Datasets & Features			
Land Cover	• Development and impervious areas • Other • Tree canopy • Understory vegetation	King County 2009 impervious dataset and 2015-2016 aerial data PSE high-resolution aerial photography; flight date 2011 APS Surveying, digital survey TWC	• Impervious dataset from King County, last updated 2009 • Vegetation survey by TWC between 2015 and 2017 • "Developed" category includes roads, structures, and heavily disturbed areas, such as compacted unimproved roadways • "Other" category observed to be mostly lawn based on visual observation of aerial photographs, but could include other conditions • Survey data was post-processed to isolate and generate geospatial feature classes using ArcGIS software

Inventory Element	Information Gathered	Data Source(s)	Assumptions/Limitations
Parks	• Park locations	City of Bellevue (downloaded 4/6/2017) King County	• Bellevue last updated on 02-06-2017 • King Co last updated 07-19-2016
City limits	• Incorporated city limit boundary	City of Bellevue (downloaded 4/14/2017)	• Bellevue updated 02-06-2017
Parcels	• Parcel lines	City of Bellevue (downloaded 4/14/2017)	• Bellevue updated 02-06-2017
Regulated Critical Areas			
Streams and Riparian Areas (LUC 20.25H.075)	• Streams with study corridor • Stream buffers	TWC	• Streams delineated by TWC between 2015 and 2017 • Feature buffers assigned according to City of Bellevue 2006 Critical Areas Ordinance (CAO)
	• Floodplains	*See Flood Hazard Areas*	
Wetlands (LUC 20.25H.095)	• Delineated wetlands within study corridor • Wetland buffers • Approximate wetlands	TWC	• Wetlands delineated by TWC between 2015 and 2017 • Wetland feature ratings based on 2004 rating system • Feature buffers assigned according to City of Bellevue 2006 Critical Areas Ordinance (CAO)
Habitats for Species of Local Importance (LUC 20.25H.150)	• Priority habitat and species data (PHS)	WDFW (received 6/27/2017)	• Scale may not be sufficient to capture individual occurrences or observations along the corridor. • Accuracy does not supersede observation by PSE staff.
Geological Hazard Areas (LUC 20.25H.120)	• Landslide hazard areas • Landslide hazard buffers	King County (downloaded 6/15/2017) TWC	• Data describes landslide hazards defined by King County SAO • Feature buffers assigned according to City of Bellevue 2006 Critical Areas Ordinance (CAO); mapped buffers extend around full feature area; however, only top-of-slope buffers are prescribed by code.
	• Priority steep slopes • Priority steep slope buffers	City of Bellevue Mapping Services (downloaded 4/6/2017) TWC GeoEngineers	• Bellevue data last updated 04-06-2016 • Feature buffers assigned according to City of Bellevue 2006 Critical Areas Ordinance (CAO); mapped buffers extend around full feature area;

Inventory Element	Information Gathered	Data Source(s)	Assumptions/Limitations
			however, only top-of-slope buffers are prescribed by code. • Based on site-specific geotechnical analysis by GeoEngineers, datasets were refined to show only priority geohazard features
	• Coal mine hazard areas	City of Bellevue Mapping Services (downloaded 4/6/2017)	• COALZONE – last updated 04-05-2016; no features occur within Project area
Flood Hazard Areas (LUC 20.25H.175)	• Flood hazard areas	City of Bellevue Mapping Services (downloaded 4/6/2017) FEMA	• Bellevue FLOODPLAIN last updated 04-05-2016
Shorelines (LUC 20.25E.017)	• Shoreline jurisdiction areas	City of Bellevue Mapping Services (downloaded 4/6/2017)	• SHORELINES not provided on Bellevue site; no features occur within Project area