Wetland and Stream Delineation Report

AVO-13 FDR TW Recond 1600
King County, Washington

for
Puget Sound Energy

May 20, 2025

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GeoEngineers

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King County, Washington

File No. 9186-184-00 Task 2025
May 20, 2025

Puget Sound Energy
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1.0 Introduction

GeoEngineers, Inc. (GeoEngineers) was contracted by Puget Sound Energy (PSE) to perform wetland and stream delineation services for the AVO-13 FDR TW Recond 1600 project (project) that is located on a portion of a PSE owned parcel at 12011 Avondale Road NE in King County, Washington (Figure 1, Vicinity Map). The project is a maintenance project that includes replacing poles, installing vaults and installing conduit along the project alignment. The conduit will be installed using horizontal directional drilling (HDD); a total of four bore holes are needed to facilitate the HDD between Avondale Road and 184th Avenue NE. For additional project information, see Appendix A, PSE Project Drawings. This report has been prepared to provide baseline wetland and stream information on the project site in accordance with King County Code (KCC), Chapter 21A.24 (Critical Areas).

1.1 PROJECT LOCATION AND SITE DESCRIPTION

The project investigation area is located between Avondale Road NE and 184th Avenue NE, north of NE 116th Street on a PSE owned parcel in King County, Washington (Figure 1). The project is located in Section 30 of Township 26 North, Range 06 East of the Willamette Meridian (W.M.).

The PSE owned parcel is approximately 8.7 acres in size and mostly undeveloped with a substation, associated driveway and fencing located on the east side of the parcel. The investigation area is located on a portion of the parcel, approximately 0.17 miles long, that extends from the substation towards 184th Avenue NE along the south property line. The investigation area is situated in an area with single-family residential development, industrial development, agricultural fields and undeveloped areas. The developed area contains buildings, driveways and landscape areas. The undeveloped areas, within the project vicinity, are dominated by black cottonwood (*Populus balsamifera*), Douglas fir (*Pseudotsuga menziesii*) and red alder *(Alnus rubra*). The understory contains a mix of shrubs and herbaceous vegetation that includes, but is not limited to, Creeping buttercup (*Ranunculus repens*), Himalayan blackberry (*Rubus armeniacus*), cut leaf blackberry (*Rubus laciniatus*) and bracken fern (*Pteridium aquilinum*). Appendix B, Background Data and Maps and Figure 2, Wetland Delineation Map contain aerial background imagery that can be reviewed for more information.

2.0 Wetland and Stream Delineation

2.1 DATA REVIEW

Environmental maps of the project site were collected and reviewed as part of a paper inventory.

2.1.1 Mapped Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey indicates two soil types within the project area (USDA-NRCS 2025a). The two soil types are listed on the Hydric Soils List (USDA-NRCS 2025b). Table 1 lists the soil types found in the project area and if it is listed on the USDA hydric soils list. The USDA Soil Map is provided in Appendix B.

TABLE 1. SUMMARY OF SOIL TYPES WITHIN THE ASSESSMENT AREA

SOIL TYPE NAME	LISTED ON HYDRIC SOILS LIST
Kitsap silt loam, 2 to 8 percent slopes	Yes
Alderwood gravelly sandy loam, 8 to 15 percent slopes	Yes

2.1.2 Mapped Wetlands

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) online mapper (USFWS 2025) and King County iMap (King County 2025) were reviewed for the presence of wetlands in the project area. NWI displays one palustrine forested, scrub-shrub and emergent wetland east of 184th Avenue NE near our investigation area. King County iMap displays one wetland near the project investigation area and several others more than 300 feet from the investigation area. The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) online map (WDFW 2025), shows one wetland in the same location as NWI. The NWI, King County iMap and PHS maps are included in Appendix B.

2.1.3 Mapped Streams

Additional information was obtained from the Washington State Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (FPAMT), King County iMap and the Northwest Indian Fisheries Commission (NWIFC) and WDFW Statewide Washington Integrated Fish Distribution (SWIFD) mapping application (DNR 2025, King County 2025, NWIFC-WDFW 2025). These sources do not depict any streams within 200 feet of the project alignment. King County iMap, DNR FPAMT and WDFW SWIFD maps are included in Appendix B.

2.2 FIELD INVESTIGATION

GeoEngineers' biologists conducted a field assessment on June 12, 2024, to characterize and delineate wetland and stream features along the project alignment within the investigation area (Figure 2), and to make observations of off-site adjacent critical area features that may be affected by the project. One wetland (Wetland A) was identified and delineated during the field investigation. No streams were identified within the project alignment. A photographic record was collected during the field visit to document existing site conditions. Representative photos have been included in Appendix C, Site Photographs.

The delineation of the wetland was conducted in accordance with guidelines presented in KCC Chapter 19.200.220, using the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Western Mountains, Valleys, and Coast Region* (USACE 2010). Typically, the ordinary high water mark (OHWM) of streams are evaluated and delineated by examining breaks in the topography, drift lines, shifts in vegetation and signs of watermarks on the banks, according to USACE protocol as referenced from Regulatory Guidance Letter (No. 05-05), Ordinary High-Water Mark Identification, December 7, 2005 (Riley 2005). The Washington Administrative Code (WAC) was also referenced for the definition of OHWM (WAC 173-22-030) (WAC 2007). However, as stated above, no streams were identified within 300 feet of the investigation area.

GeoEngineers hung flags along the wetland boundaries and took points at the flag locations using a submeter accurate geographic positioning system (GPS). To make wetland identifications, three formal

data sample plots were established, and several informal soil pit examinations were conducted. Appendix D, Sample Plot Data Sheets, contain the data forms.

The wetland was rated according to KCC Chapter 21A.24.318 (Wetlands - identification of and delineation of boundaries). The code requires the *2014 Washington State Department of Ecology (Ecology) Washington State Wetland Rating System for Western Washington* (Hruby 2014) to be used to rate wetland. However, Ecology has updated the rating system manual (Hruby and Yahnke 2023) to add clarification but does not change the underlying model of the rating system (Ecology 2023); therefore, the updated system was used to rate the wetland. The wetland rating form is included in Appendix E, Wetland Rating Form. Wetland buffer widths were identified according to KCC 21A.24.325 (Wetlands - buffers).

Table 2 summarizes information regarding the wetland features identified within the area of investigation.

TABLE 2. WETLAND SUMMARY

CRITICAL AREA NAME	OBSERVED CHARACTERISTICS	WETLAND CATEGORY[1]	BUFFER (FEET)[2]	FIGURE NUMBER
Wetland A	Wetland A is a depressional wetland located near the project alignment. The wetland extends north from near the south parcel line of the PSE owned parcel. Wetland hydrology appears to be from the offsite stream, high groundwater table, stormwater runoff and precipitation. It is a forested and emergent system with areas of aquatic bed. For more information see Appendix E.	II	110	2

Notes:

1. Wetland rating in accordance with Washington State Wetlands Rating System for Western Washington (Hruby and Yahnke 2023).
2. Wetland buffer based on KCC 21A.24.325 along with habitat score land intensity use adjustments. Land use is assumed to be moderate intensity. The final buffer width is subject to approval by the jurisdictional authority.

3.0 Project Impacts Analysis

This project is a routine maintenance and repair project that avoids and minimizes impacts where possible. Due to the location of Wetland A relative to existing PSE facilities and structures, all project work cannot be conducted outside of critical areas. The project has minimized impacts where possible and as a result moved bore holes, so they are located within the buffer of Wetland A only. There are no direct wetland impacts associated with the project. The bore holes will be installed in wetland buffer and previously disturbed areas located within and adjacent to mowed agricultural fields. The PSE drawings (Appendix A) were utilized to identify potential project impacts to critical areas and their associated buffers. The portion of the buffer overlaying the substation has been identified to be non-functioning buffer as it is a developed area and not a contiguous integral part of the wetland (KCC 21A.06.122). The poles to be replaced and the new vaults to be installed are located outside the wetland and wetland buffer; therefore, no impacts to wetlands are associated with this work. Also, there will be no impacts associated with installing or connecting the conductor wire because HDD will be used for the installation. There will be no vegetation removal associated with conduit installation.

3.1 BORE HOLES

The project actions include installing four bore holes within the investigation area. Each bore hole will be approximately 3 feet wide by 15 feet long (45 square feet). These impacts are expected to be temporary because the holes are located within grassy and herbaceous areas with some invasive Himalayan blackberry. Areas impacted are expected to be restored to as close as possible pre-project conditions within 1 year of disturbance and no tree or shrub vegetation will be removed as part of the bore hole construction.

The bore holes listed in Table 3 below will be installed within wetland buffer habitat. These impacts are considered self-mitigating because once the project is complete the area will be restored to its original condition within 1 year.

TABLE 3. BORE HOLE IMPACTS IN CRITICAL AREAS

BORE PIT IDENTIFIER	CRITICAL AREA NAME	TEMPORARY IMPACT (SQUARE FEET)	RESTORATION AREA (SQUARE FEET)
BP1	Wetland A buffer	24	24
BP2	Wetland A buffer	45	45
BP3	Wetland A buffer	45	45
BP4	Wetland A buffer	45	45
	Totals	**159**	**159**

4.0 Summary

GeoEngineers performed a wetland and stream delineation for the project within the investigation area that extends from the existing substation to 184th Avenue NE along the south PSE owned parcel. One wetland (Wetland A) was identified. Wetland A is a category II wetland that will require a 110-foot buffer.

Temporary buffer impacts will occur due to four bore holes (BP1 through BP4) that are located within wetland buffer habitat, but the habitat will be restored to pre-disturbance conditions within 1-year. There will be no direct impacts to the wetland. This project is a routine maintenance and repair project and there will be no long-term impacts to the project areas once construction areas are restored.

5.0 Limitations

GeoEngineers has prepared this Wetland and Stream Delineation Report in general accordance with the scope and limitations of our proposal. Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices for wetland and stream delineation in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

This report has been prepared for the exclusive use of Puget Sound Energy, authorized agents and regulatory agencies following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing.

The information contained herein should not be applied for any purpose or project except the one originally contemplated.

The applicant is advised to contact all appropriate regulatory agencies (local, state and federal) prior to design or construction of any development to obtain necessary permits and approvals.

6.0 References

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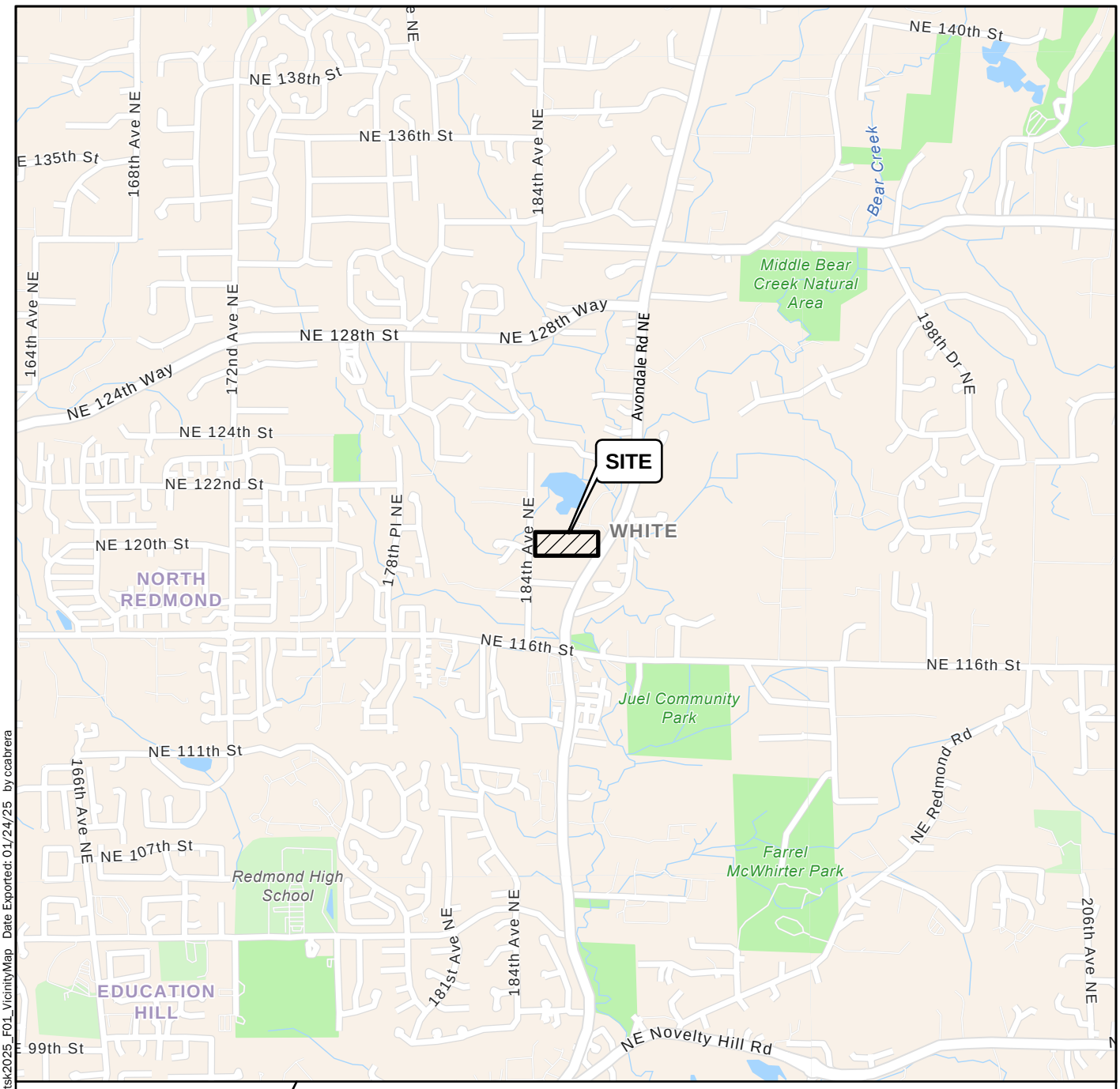
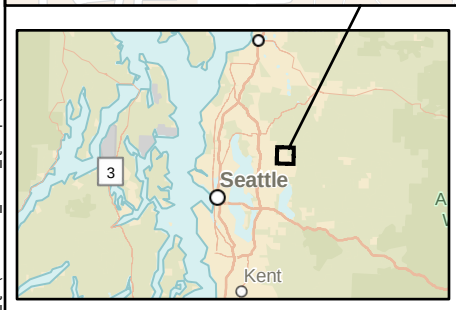
Figures





N

0 2,000

Feet

Source(s):
- ESRI

Coordinate System: NAD 1983 UTM Zone 10N

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Vicinity Map

AVO-13 FDR TW Recond 1600
King County, Washington

GeoEngineers

Figure 1

P:\9_9186184\GIS\9186184_2024_Q2\9186184_2024_Q2.aprx\9186184001tsk2025_F01_VicinityMap Date Exported: 01/24/25 by ccabrera

P:\9 9186184 GIS\9186184_2024_Q2\9186184_2024_Q2.aprx\9186184OtskI2025_F02_WetlandDelineationMap Date Exported: 04/25/25 by ccabrera

Source(s):
- King County GIS

Coordinate System: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

Legend

- Delineated Wetland Boundary
- Estimated Wetland Boundary
- Wetland Buffer
- Bore Pit and Vault
- King County parcels

N

0 100

Feet

Wetland Delineation Map

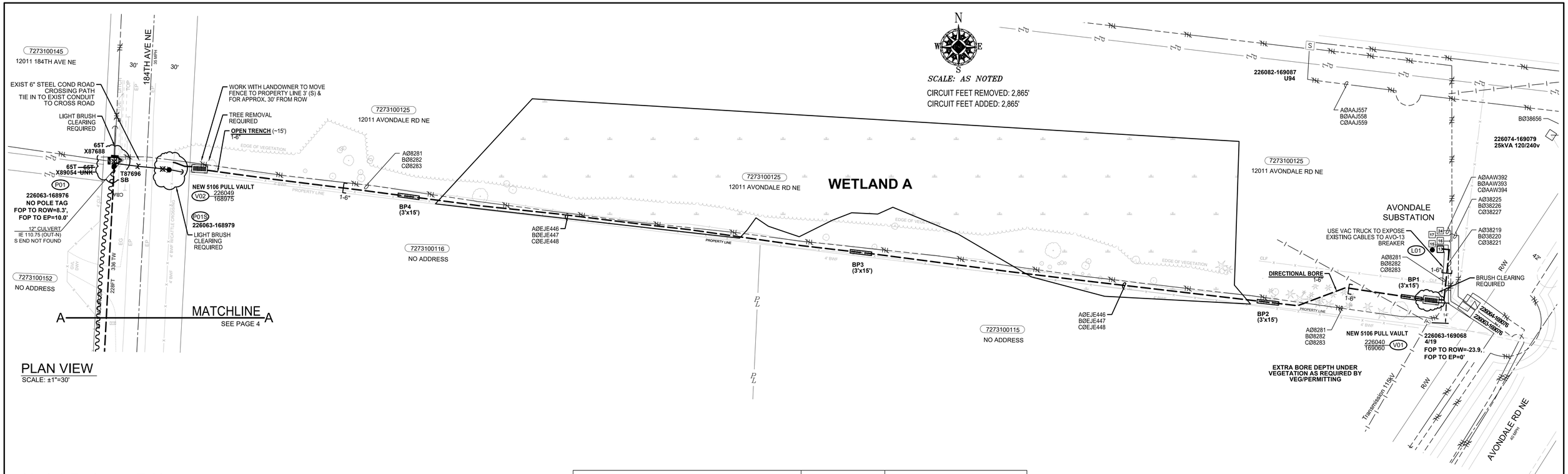
AVO-13 FDR TW Recond 1600
King County, Washington

GeoEngineers

Figure 2

Appendices

Appendix A
PSE Project Drawings



PLAN VIEW
SCALE: ±1"=30'

N
W E
S

SCALE: AS NOTED

CIRCUIT FEET REMOVED: 2,865'
CIRCUIT FEET ADDED: 2,865'

Vault & Equipment Table

Site	Grid Number	Vault Size & Cover	Type & Size Equipment In Vault	Primary Bushings LB	Primary Bushings DC	Transformer ID Numbers (Company ID)	ASBUILT INFORMATION Foreman-Complete (Include Transformer Phase Tapped and Test Secondary Voltage)
NEW V01	226040 169060	HH Fdr Spl 5x11x5 w/Adj PC H20 Matid: 7906630	3-750KCMIL SPLICES Matid: 7666050	-	-		INSTALL NEW 5106 PULL VAULT (SHORT) & SPLICES INSTALL NEW GRID NUMBER (CAP ALL EMPTY CONDUIT)
NEW V02	226049 168975	HH Fdr Spl 5x11x5 w/Adj PC H20 Matid: 7906630	3-750KCMIL SPLICES Matid: 7666050	-	-		INSTALL NEW 5106 PULL VAULT (SHORT) & SPLICES INSTALL NEW GRID NUMBER (CAP ALL EMPTY CONDUIT)

SITE SPECIFIC NOTES:

L01:
LOCATION 1 AT AVONDALE SUBSTATION CIRCUIT 13 BREAKER
CREW TO VERIFY DIRECT BURY PATH INSIDE SUBSTATION AND AT P01 USING VAC-TRUCK TO EXPOSE CABLING BORE FROM V01-V02: CUT AND ABANDON DIRECT BURIED CABLES

V01: NEW 226040-169060

INST HH FDR SPL PULL VAULT	(6051.2000, SVT5ADJ)	2-60A
- PLACE 14' (N) OF TRANSM POLE 226063-169068; PLACE 1 RUN OF 6" CONDUIT		2-59 x 2
INST 4/0 NEUTR CABLE FROM BREAKER TO V01 PER 6275.3000	(8482200)	

V02: NEW 226049-168975

INST HH FDR SPL PULL VAULT	(6051.2000, SVT5ADJ)	2-60A
- PLACE 40' (W) OF TRANSM POLE 226063-169068; PLACE 1 RUN OF 6" CONDUIT		2-59 x 2

P01: 226063-168976 (40', CL-UNK, YR-UNK; AVG 265')
LIGHT BRUSH CLEARING REQUIRED

REPL EXIST w NEW 45' CL-1 POLE; INST 3' (S); MIN 10' FROM EOP	(6010.1000, PD541)	**2-69**
INST 3PH TAN DE 1/0 AND LARGER (S)	(6033.1042, DE3310)	
INST 12KV FEEDER TERM DEADEND ALTERNATE; FIG 6	(6043.1020, TSU3DF1A)	**2-58**
- INST SW BD # T87696		
INST 1PH TAN TAP (N); TAP B PH	(6022.1000, DLS115F)	**2-71C**
- INST LI CO; FUSE @ 65T		
- INST SW BD # **X87688**		
INST LI CO; FUSE @ 65T (W);TAP B PH FDR LINE;INST SW BD # X89054	(6022.1000, DLS115F)	**2-71N**
XFER SNGL PH ARM MOUNT LAT TAP (W)		
INST BRACKETS & 1-6" CONDUIT	(6042.1000, RIS6CSS)	**2-44**
REATTACH PRIM & NEUTR DGUYS TO EXIST ANCH (N)		
INST PRI & NEUTR OH SPAN GUYS TO P01S (36')	(6013.0170, GYD7OW, GYD3OW)	
INST GRID #		
TOP POLE 1' ABOVE COMMS; REMV AFTER COMMS XFER		**2-129**

P01S: 226063-168979
LIGHT BRUSH CLEARING REQUIRED

REPL EXIST w NEW 35' CL-3; INST 4' (E)	(6010.1100, PS353)	**2-69**
- FOP MUST BE 10' FROM EOP		
INST 7/16" & 3/8" PRI NEUTR D GUYS	(6013.0100, GYD7SA, GYD3SAN)	
INST SNGL HELIX ANCHOR BEHIND FENCE; LL = 10'	(6012.1000, ANDH1)	
INST GRID #		

POLE RETIREMENT TABLE

SITE #	POLE DATA GRID #	HEIGHT	CLASS	YEAR	POLE TOPPED	POLE RMVD	TEMP TRANSFERS TEL	TV	FIBER	ST. LIGHT TRANSFERS TRAN	RMVD	ID NUMBER
P01	226063-168976	40	unk	1972	☐	☐	☐	☐	☐	☐	☐	
P01S	226063-168979	30	unk	1959	☐	☐	☐	☐	☐	☐	☐	

POLE TABLE (NEW)

Site #	Pole Data Grid #	Height	Class	Year	Remarks / Location Ref.
P01	226063-168976	45	1		PSE Equip #
P01S	226063-168979	35	3		PSE Equip #

12 kV Feeder Pulling and Straight Splicing Vaults **6051.2000**

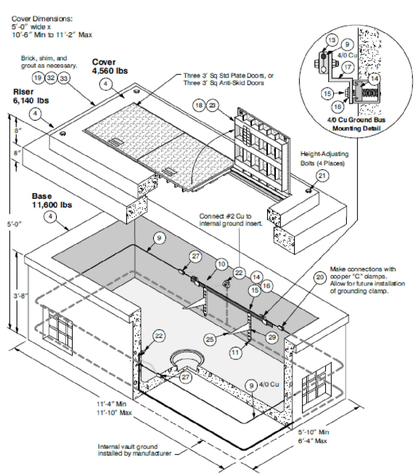


Figure 6 5106 Short Vault with Adjustable Height Cover (Incidental Traffic or Aggressive Traction Pedestrian Traffic)

600 A Terminal Poles **6043.1020**

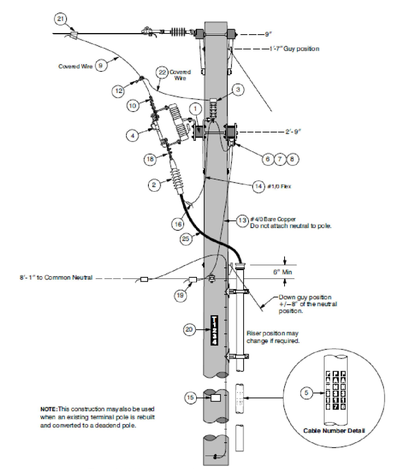
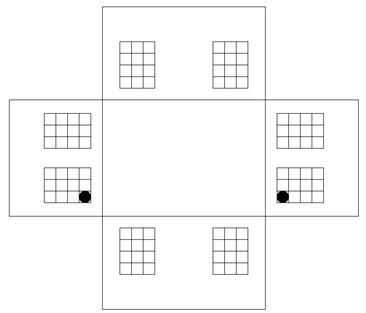


Figure 6 12 kV, three-phase feeder terminations, deadend, alternate



BUTTERFLY LAYOUT PULL/SPLICE VAULT
NOT TO SCALE
(V01, V02)

101134559 - R3

REV#	DATE	BY	DESCRIPTION
3	11/12/24	HERRERA	P07 REMAINS & P07S ANCHOR SHIFT
2	8/7/2024	HERRERA	BORE PIT SHIFT & P09 ADDED
1	3/8/2024	G.HERRERA-J	REVISED LAYOUT

COUNTY	Emer Sect	Gas Wk Ctr	POWER WK CTR
KING	N/A	N/A	QCNOKE
1/4 SEC SE 25-26-05 SW 30-26-06 NE 36-26-05	OP MAP N/A		PLAT MAP N/A
U-MAP NO (POWER) 2605E100,141, 2606E119	OH CKT MAP 2605E144,2606E124	UG CKT MAP Same as U-maps	CIRCUIT NO AVO-13

REAL ESTATE/EASEMENT N/A		PERMIT KING COUNTY	
FUNCTION	CONTACT	PHONE NO	DATE
PROJECT MGR	JOSH LEGG	(208) 484-4233	
ENGR - POWER	G. HERRERA-J	425-429-5789	
ENGR - GAS	N/A	N/A	N/A
DRAWN BY	C.BORGEN	253-234-6484	2/22/2023
CHECKED BY			
APPROVED BY	Andrea Crawford	425.559.5712	11/20/2024
FOREMAN #1			
FOREMAN #2			
MAPPING			

JOINT FACILITIES ARRANGEMENTS				
UTILITIES	N/A	N/A	N/A	N/A
CONTACT	N/A	N/A	N/A	N/A
PHONE#	N/A	N/A	N/A	N/A

PUGET SOUND ENERGY
DESIGNED by PSE

AVO-13 FDR TW RECOND 1600'
OH System Rel Upg r- Tree Wire - Dist
12011 184th Ave NE, Redmond, WA 98052

INCIDENT N/A	MAOP N/A
Gas Order N/A	Elect Order 101134559
SCALE AS NOTED	PAGE 3/7

Appendix B
Background Data and Maps

Appendix C
Site Photographs

Appendix D
Sample Plot Data Sheets

Appendix E
Wetland Rating Form