Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

AOA
Environmental
Planning &
Landscape
Architecture

June 24, 2025

AOA-5152

Sonam Ghag
s.g90@hotmail.com

SUBJECT: **Critical Areas Study for Ghag Residence – 13633 – 171st Ave SE**
Parcels 722980-0360, -0365, and -0390, King County, WA
ADDC22-0144, CADS24-0263, and RESS25-0015

Dear Sonam,

On August 9, 2024, AOA conducted a wetland delineation on the undeveloped subject parcels 722980-0365 and -0360 utilizing the methodology outlined in the May 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).* Critical areas on Parcel -0390 were approved as part of the constructed house permit (ADDC22-0144).

Actually, DWEL16-0236

1.0 EXISTING CRITICAL AREAS

One wetland (Wetland A) was identified and delineated through the center of Parcels 722980-0365 and -0360 during the field investigation. The wetland boundary and classification on these parcels was approved as part of CADS24-0263. Wetland A also extends into the western portion of Parcel -0390. Wetland A has been approved as a Category IV wetland that requires a 50-foot buffer and 15-foot building setback.

Vegetation within Wetland A contained a forested plant community that included black cottonwood (*Populus balsamifera*), western crabapple (*Malus fusca*), Douglas spirea (*Spiraea douglasii*), Himalayan blackberry (*Rubus armeniacus*), creeping buttercup (*Ranunculus repens*), slough sedge (*Carex obnupta*), lady fern (*Athyrium filix-femina*), and western sword fern (*Polystichum munitum*). Vegetation within the uplands surrounding Wetland A consisted of a mixed upland forest which included Douglas fir (*Pseudotsuga menziesii*), big leaf maple (*Acer macrophyllum*), vine maple (*Acer circinatum*), beaked hazelnut (*Corylus cornuta*), Himalayan blackberry (*Rubus armeniacus*), osoberry (*Oemleria cerasiformis*), western sword fern (*Polystichum munitum*), and trailing blackberry (*Rubus ursinus*).

Attachment A contains data sheets prepared for representative locations in both the wetland and uplands. These data sheets document the vegetation, soils, and hydrology information that aided in the wetland boundary delineation.

2.0 PROPOSED PROJECT

The project consists of the construction of a new drainfield associated with the recently constructed single-family residence on Parcel 722980-0390. A buffer averaging and enhancement report for the residence (**Attachment B**) was approved as part of ADDC22-0144.

Actually under DWEL16-0236

As part of the current project, a septic conveyance line would be installed to a new drainfield in the western portion of Parcel 722980-0360. The new drainfield is primarily located outside of the wetland buffer. Only a very small (26 s.f.) buffer area would be temporarily impacted and restored. To minimize potential impacts to the wetland and buffer it is my understanding that the conveyance line would be bored beneath the wetland and buffer to avoid impacting vegetation.

2.1 Buffer Enhancement

The previously approved buffer enhancement plan for the house includes removing the invasive species and re-planting with native species. An updated enhancement plan has been prepared (**Figures 1 through 5**). The proposed plantings would significantly increase the plant species and structural diversity of the buffer over current conditions and would provide much improved physical and visual screening to the wetland from the constructed residence.

It is my understanding that during the house construction the contractor inadvertently cleared the buffer. Therefore we are now also enhancing those areas that were previously native and not enhanced as part of the last approved plan.

The only buffer impact on Parcel –0390 currently required is for several dispersion trenches (119 s.f.). This minor impact will be fully mitigated through implementation of the buffer enhancement plan. As required, a three-year maintenance and monitoring program has been prepared (**Figure 4**) and will be implemented as part of the project.

2.2 Mitigation Sequencing

Per KCC 21A.24.125, an applicant for a development proposal or alteration, shall apply the following sequential measures, which appear in order of priority, to avoid impacts to critical areas and critical area buffers:

1. *Avoiding the impact or hazard by not taking a certain action*;

All direct impacts to critical areas will be avoided by boring under the wetland. Buffer impacts have also been avoided to the extent feasible and are limited to a very small (26 s.f.) disturbance area for the drainfield and 119 s.f. of disturbance associated with the required dispersion trenches.

2. *Minimizing the impact or hazard by*:

a. limiting the degree or magnitude of the action with appropriate technology; or

b. taking affirmative steps, such as project redesign, relocation or timing;

Critical area impacts have been minimized through the use of boring technology for the conveyance line rather than trenching through the wetland and buffer.

3. *Rectifying the impact to critical areas by repairing, rehabilitating or restoring the affected critical area or its buffer*;

All temporarily impacted areas will be fully restored and all degraded buffer areas on Parcel -0390 will be replanted with a variety of native plant species.

4. *Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods*;

All temporarily impacted areas will be fully restored as part of the project.

5. *Reducing or eliminating the impact or hazard over time by preservation or maintenance operations during the life of the development proposal or alteration*;

All of the buffer areas will be preserved in perpetuity. A rail fence will .be installed along the buffer edge to limit pedestrian intrusion

6. Compensating for the adverse impact by enhancing critical areas and their buffers or creating substitute critical areas and their buffers; and

An updated enhancement plan has been prepared (**Figures 1 through 5**). The proposed plantings would significantly increase the plant species and structural diversity of the buffer over current conditions and would provide much improved physical and visual screening to the wetland from the constructed residence.

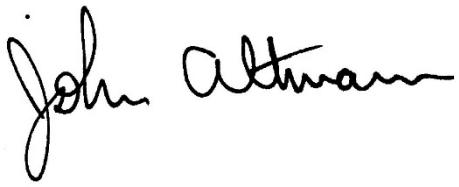
7. *Monitoring the impact, hazard or success of required mitigation and taking remedial action*.

A three-year maintenance and monitoring program has been prepared (**Figure 4**) and will be implemented as part of the project.

If you have any questions, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC



John Altmann
Ecologist

Attachments

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AOA
Environmental Planning & Landscape Architecture

King County
Parcels: 7229800365
& 7229800360

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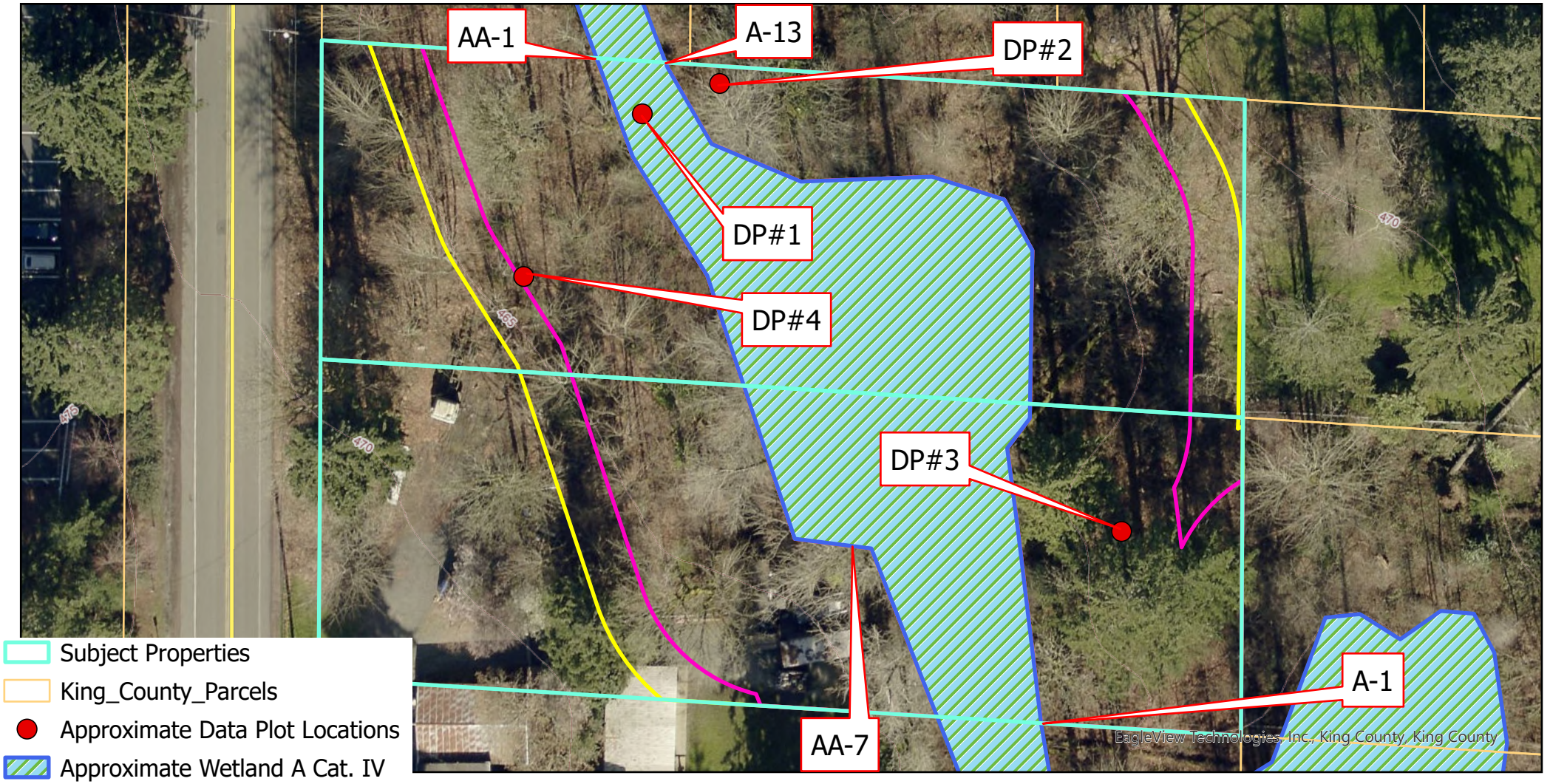
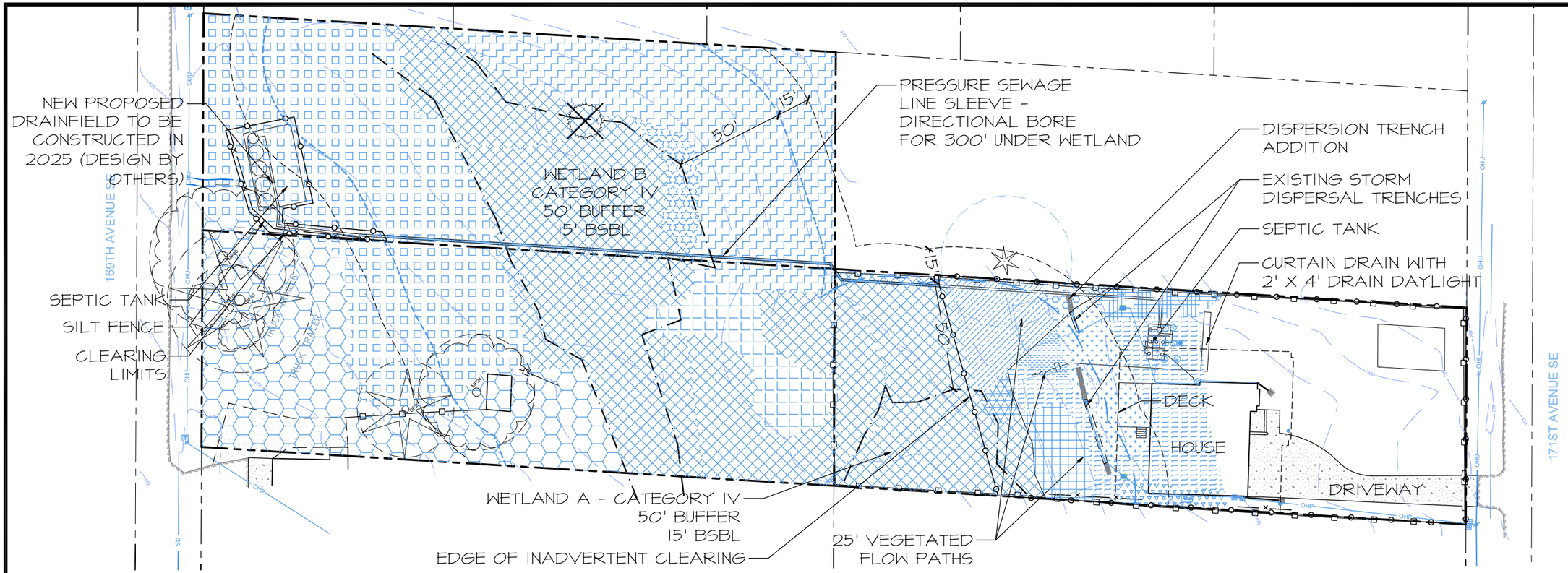
Critical Areas Map



Subject Properties
King_County_Parcels
Approximate Data Plot Locations
Approximate Wetland A Cat. IV
Approximate 50' Wetland Buffer
Approximate 15' Building Setback

0 15 30 60 90 120
US Feet

N



EXISTING VEGETATION LEGEND

	80% NATIVE CANOPY- 95% NATIVE SHRUBS - 5% INVASIVES	23,905 SF
	100% DOUGLAS FIR AND BIG LEAF MAPLE CANOPY - 95% HOLLY & LAUREL - 5% NOOTKA ROSE, OSO PLUM, SWORD FERN & BEAKED HAZEL	2,307 SF
	NO CANOPY - 95% HIMALAYAN BLACK BERRY - 5% OREGON ASH, SPIREA, SWORD FERN & OSOBERRY	867 SF
	50% RED ALDER, BLACK COTTONWOOD & BIG LEAF MAPLE - 95% HIMALAYAN BLACKBERRY, LAUREL, HOLLY & IVY - 5% OSOBERRY, SWORD FERN, SPIREA	9,875 SF
	100% BIG LEAF MAPLE CANOPY - 90% VINE MAPLE, OSOBERRY & SWORD FERN - 10% HOLLY & LAUREL	16,028 SF
	70% BIG LEAF MAPLE & DOUGLAS FIR, 100% OPEN WITH NEIGHBOR'S JUNK	10,931 SF
	100% LAUREL AND HIMALAYAN BLACKBERRY	1,688 SF
	90% NATIVE, REMOVE LAUREL	258 SF
	LARGE ORNAMENTAL TREES AND HIMALAYAN BLACKBERRY	39 SF
	85% HIMALAYAN BLACKBERRY, 15% BIG LEAF MAPLE SAPLINGS	257 SF
	50% NATIVE, 50% HIMALAYAN BLACKBERRY THAT WAS INADVERTENTLY CLEARED	451 SF
	80% NATIVE CANOPY- 95% NATIVE SHRUBS - 5% INVASIVES THAT WAS INADVERTENTLY CLEARED	1,041 SF
	85% HIMALAYAN BLACKBERRY, 15% BIG LEAF MAPLE SAPLINGS THAT WAS INADVERTENTLY CLEARED	3,549 SF
	100% LAUREL AND HIMALAYAN BLACKBERRY THAT WAS INADVERTENTLY CLEARED	285 SF
	90% NATIVE, REMOVE LAUREL THAT WAS INADVERTENTLY CLEARED	1,761 SF
	LARGE ORNAMENTAL TREES AND HIMALAYAN BLACKBERRY THAT WAS INADVERTENTLY CLEARED	689 SF

PLAN LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- STANDARD 50' WETLAND BUFFER
- 15' BSBL
- CLEARING LIMITS
- LAUREL TO BE REMOVED

GRAPHIC SCALE

(IN FEET)

0 25 50 75 100 150

SCALE: 1:50

N

NOTES

1. BASE INFORMATION PROVIDED BY RICK JONES & ASSOCIATES, 1400 112TH AVE. SE, BELLEVUE, WA 98004, (425) 442-2028.
2. SEPTIC INFORMATION PROVIDED BY DAVIS SEPTIC DESIGN, 11726 CLEARVIEW DR, EDMONDS, WA 98026, (425) 478-7309

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FIGURE 1: EXISTING VEGETATION MAP
BUFFER MITIGATION PLAN
BABUL RESIDENCE
13633 171ST AVE. SE
RENTON, WASHINGTON
PARCEL 7229801-0390

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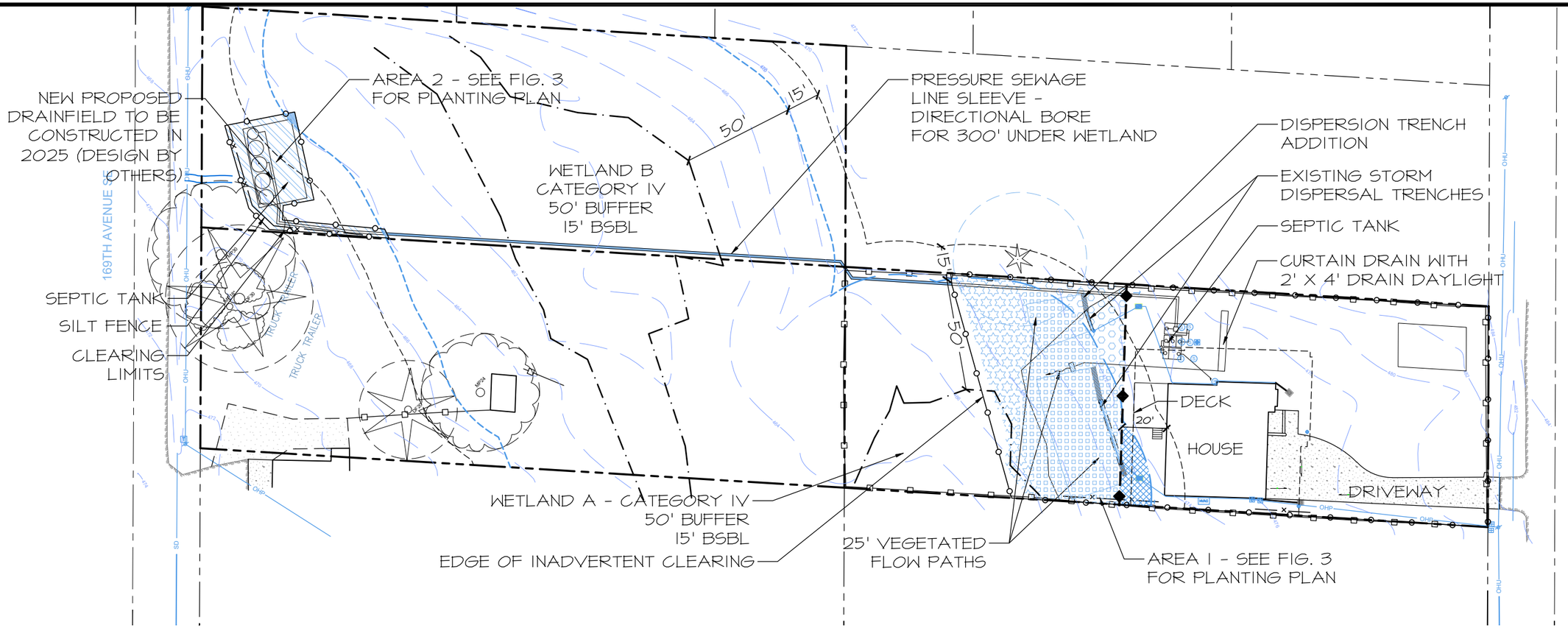

PLAN LEGEND

- PROPERTY LINE
- WETLAND BOUNDARY
- STANDARD 50' WETLAND BUFFER
- 15' BSBL
- SPLIT-RAIL FENCE AND NGPA SIGNS ALONG PROPOSED BUFFER
- CLEARING LIMITS
- TEMPORARY IMPACT OUTSIDE OF BUFFER - STABILIZE PER SEPTIC DESIGN - 1,499 SF

IMPACTS LEGEND

	BUFFER REDUCTION	427 SF
	DISPERSION TRENCHES WITHIN BUFFER	119 SF
SEE FIGURE 1	INADVERTENTLY CLEARED BUFFER	3,024 SF

MITIGATION LEGEND

BUFFER REPLACEMENT/RESTORATION	917 SF
WETLAND/BUFFER ENHANCEMENT	1,659 SF
BUFFER RESTORATION	3,132 SF
TEMPORARY BUFFER IMPACT TO BE RESTORED	26 SF

GRAPHIC SCALE

(IN FEET)

0 25 50 75 100 150

SCALE: 1:50

N

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FIGURE 2: IMPACTS & MITIGATION
BUFFER MITIGATION PLAN
BABUL RESIDENCE
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RENTON, WASHINGTON
PARCEL 7229800390

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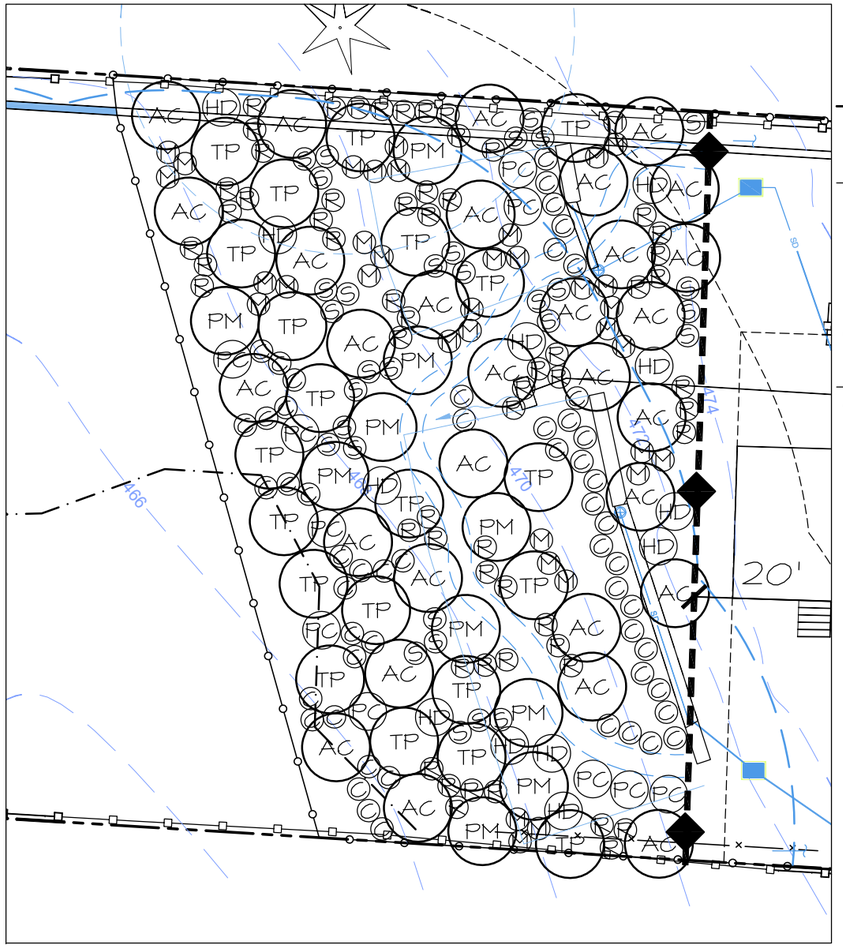
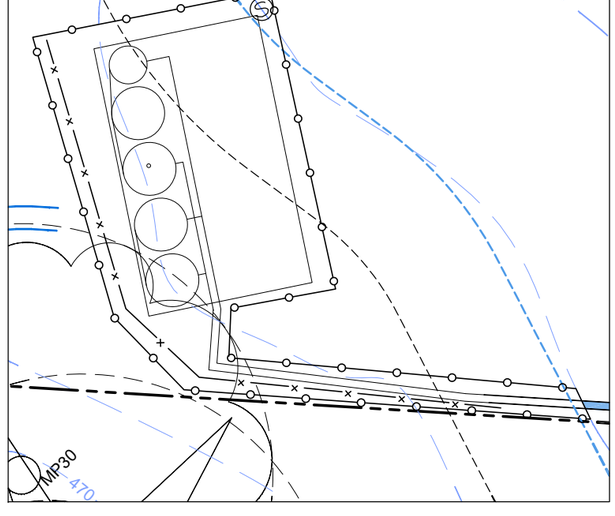


PLANTING PLAN - AREA 1

SCALE - 1:20



PLANTING PLAN - AREA 2

SCALE - 1:20

PLANT SCHEDULE

TREES

KEY	SCIENTIFIC NAME	COMMON NAME	DENSITY	QTY.	SIZE (MIN.)	NOTES
AC	ACER CIRCINATUM	VINE MAPLE	9' O.C.	31	2 GAL.	MULTI-STEM (3 MIN.)
PM	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	9" O.C.	10	2 GAL.	FULL & BUSHY
TP	THUJA PLICATA	WESTERN RED CEDAR	9' O.C.	21	2 GAL.	FULL & BUSHY

SHRUBS

KEY	SCIENTIFIC NAME	COMMON NAME	DENSITY	QTY.	SIZE (MIN.)	NOTES
C	CORNUS SERICEA	RED-OSIER DOGWOOD	6' O.C.	55	1 GAL.	MULTI-CANE (3 MIN.)
HD	HOLODISCUS DISCOLOR	OCEAN SPRAY	6' O.C.	12	1 GAL.	MULTI-CANE (3 MIN.)
M	MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	6' O.C.	36	1 GAL.	FULL & BUSHY
PC	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	6' O.C.	10	1 GAL.	MULTI-CANE (3 MIN.)
R	ROSA NUKANA	NOOTKA ROSE	6' O.C.	60	1 GAL.	MULTI-CANE (3 MIN.)
S	SYMPHORICARPOS ALBUS	SNOWBERRY	6' O.C.	32	1 GAL.	MULTI-CANE (3 MIN.)

GRAPHIC SCALE
(IN FEET)

0 10 20 30 40 60

SCALE: 1:20

N

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FIGURE 3: PLANTING PLAN
BUFFER MITIGATION PLAN
BABUL RESIDENCE
13633 171ST AVE. SE
RENTON, WASHINGTON
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SPECIFICATIONS

1. IN GRADED AREAS, PLACE 4" OF IMPORTED CEDAR GROVE COMPOST OVER SUBSOILS AND LIGHTLY TILL INTO THE TOP 6" OF SUBGRADE. IN NON-GRADED AREAS, REMOVE INVASIVES AND LIGHTLY TILL 6" TO LOOSEN SUBGRADE, OUTSIDE OF TREE DRIPLINES.
2. PRIOR TO PLANTING, ALL NON-ORGANIC DEBRIS AND NON-NATIVE VEGETATION SHALL BE REMOVED AND GRUBBED FROM ALL ENHANCEMENT AREAS PRIOR TO PLANT INSTALLATION.
3. KC NGPA SIGNS SHALL BE INSTALLED PER KC STANDARDS AT 48' SPACING ALONG THE PROPOSED BUFFER BOUNDARY AS DEPICTED ON FIGURE 2.
4. ALL PLANTS SHOULD BE INSTALLED BETWEEN DECEMBER 1ST AND MARCH 15TH UNLESS TEMPORARY IRRIGATION IS PROVIDED AT TIME OF PLANTING.
5. PRIOR TO INSTALLATION OF PLANT MATERIAL, THE BEDS WILL BE LAID OUT BASED ON THE PLANTING PLAN AND APPROVED BY AOA PRIOR TO INSTALLATION.
6. ALL PLANTS SHALL BE PIT-PLANTED IN PLANTING PITS EXCAVATED 2X THE DIAMETER OF THE PLANT. PITS SHALL BE BACKFILLED WITH A 30/70 MIX OF STEERCO TO NATIVE SOIL. PLANTS SHALL BE INSTALLED 3" HIGH AND SURFACED MULCHED TO A DEPTH OF 3" WITH WOODCHIPS OR COMPOSTED HOG-FUEL PLACED CONTINUOUSLY THROUGHOUT THE PLANTING BED.
7. ALL TREES SHALL BE 3' HT, 2-GALLON MIN. ALL SHRUBS SHALL BE 1-GALLON MIN.
8. ALL PLANTS SHALL BE NURSERY GROWN (IN W. WA OR OR.) FOR AT LEAST 1 YEAR FROM PURCHASE DATE, FREE FROM DISEASE OR PESTS, WELL-ROOTED, BUT NOT ROOT-BOUND AND TRUE TO SPECIES.
9. PLANT LAYOUT SHALL BE APPROVED BY AOA PRIOR TO INSTALLATION AND APPROVED UPON COMPLETION OF PLANTING.
10. UPON COMPLETION OF PLANTING, ALL PLANTS SHALL BE THOROUGHLY WATERED OR WATERED VIA A TEMPORARY IRRIGATION SYSTEM.
11. UPON APPROVAL OF PLANTING INSTALLATION BY AOA, KING COUNTY WILL BE NOTIFIED TO CONDUCT A SITE REVIEW FOR FINAL APPROVAL OF CONSTRUCTION.
12. MAINTENANCE SHALL BE IMPLEMENTED ON A REGULAR BASIS ACCORDING TO THE SCHEDULE.
13. ALL PLANTS SHALL BE HAND-WATERED OR WATERED VIA A TEMPORARY IRRIGATION SYSTEM. WATERING SHOULD OCCUR TWICE-WEEKLY JUNE 15-OCTOBER 15 THE FIRST YEAR AFTER PLANTING AND ONCE WEEKLY JULY 1-SEPTEMBER 30 THE SECOND YEAR AFTER PLANTING. FLOW SHOULD OCCUR AT A RATE OF 1/2" OF WATER DURING EACH WATERING EVENT, ENSURING COMPLETE SATURATION OF THE ROOT ZONE.

MAINTENANCE & MONITORING

1. PERFORMANCE STANDARDS INCLUDE:
   1) YEAR 1 - THERE WILL BE 100% SURVIVAL OF ALL PLANTED SPECIES. FOLLOWING YEARS 2-3, THERE WILL BE 80% SURVIVAL RATE OF ALL PLANTED SPECIES OR EQUIVALENT REPLACEMENT OF A COMBINATION OF PLANTED AND RE-COLONIZED NATIVE SPECIES.
   2) FOLLOWING THE FIRST YEAR AFTER PLANTING, A COMBINATION OF NATIVE OR NATURALIZED WOODY VEGETATION WILL COVER AT LEAST 10% OF THE MITIGATION AREA. THE AREAL COVERAGE WILL INCREASE TO AT LEAST 20% FOLLOWING THE SECOND YEAR AFTER PLANTING,AND 30% FOLLOWING THE THIRD YEAR AFTER PLANTING.
   3) AFTER CONSTRUCTION AND FOLLOWING EVERY MONITORING EVENT FOR A PERIOD OF AT LEAST 3 YEARS, EXOTIC AND INVASIVE PLANT SPECIES WILL BE MAINTAINED AT LEVELS BELOW 10% TOTAL COVERAGE IN ALL PLANTED AREAS. THESE SPECIES INCLUDE BUT ARE NOT LIMITED TO; HIMALAYAN AND EVERGREEN BLACKBERRY, REED CANARYGRASS, MORNING GLORY, JAPANESE KNOTWEED, ENGLISH IVY, LAUREL, POISON HEMLOCK, THISTLE, PERIWINKLE, AND CREEPING NIGHTSHADE.
2. ANNUAL MONITORING REPORTS WILL BE PREPARED AND SUBMITTED TO KING COUNTY IN THE FALL OF EACH OF THE 3 YEARS OF THE 3-YEAR MONITORING PERIOD. THE REPORTS WILL DETAIL IF THE SITE IS MEETING THE PERFORMANCE STANDARDS AND PROVIDE PHOTOS FROM ESTABLISHED PHOTO POINTS.
3. UPON APPROVAL OF PLANTING INSTALLATION BY AOA, KING COUNTY WILL BE NOTIFIED TO CONDUCT A SITE REVIEW FOR FINAL APPROVAL OF CONSTRUCTION.
4. MAINTENANCE SHALL BE IMPLEMENTED IN MARCH, MAY, JULY AND OCTOBER FOR THE DURATION OF THE MONITORING PERIOD ACCORDING TO THE SCHEDULE BELOW.

ANNUAL MAINTENANCE SCHEDULE												
MAINTENANCE ITEM	J	F	M	A	M	J	J	A	S	O	N	D
WATERING - YEAR 1						4	8	8	8	4		
WATERING - YEAR 2							4	4	4			
WEED CONTROL			1	1	1	1	1	1	1	1	1	
GENERAL MAINT.	1	1	1	1	1	1	1	1	1	1	1	1
1-8 = NUMBER OF TIMES TASK SHALL BE PERFORMED PER MONTH.												

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FIGURE 4: SPECIFICATIONS
BUFFER MITIGATION PLAN
BABUL RESIDENCE
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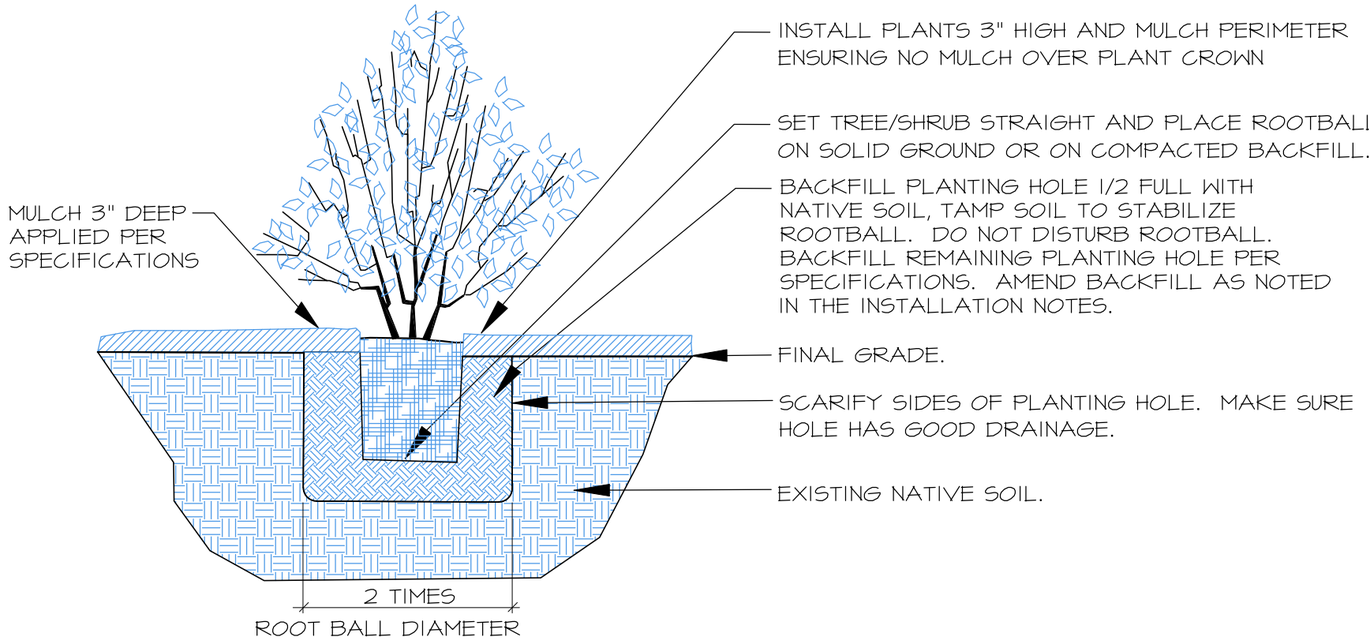
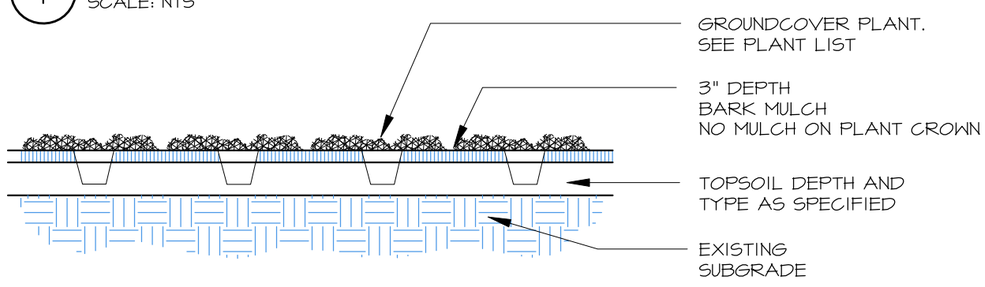
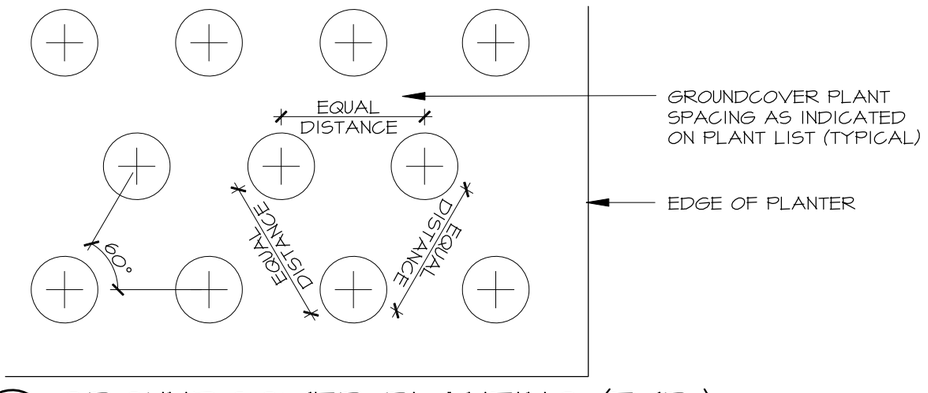


1 CONTAINER TREE/SHRUB PLANTING (TYP.)

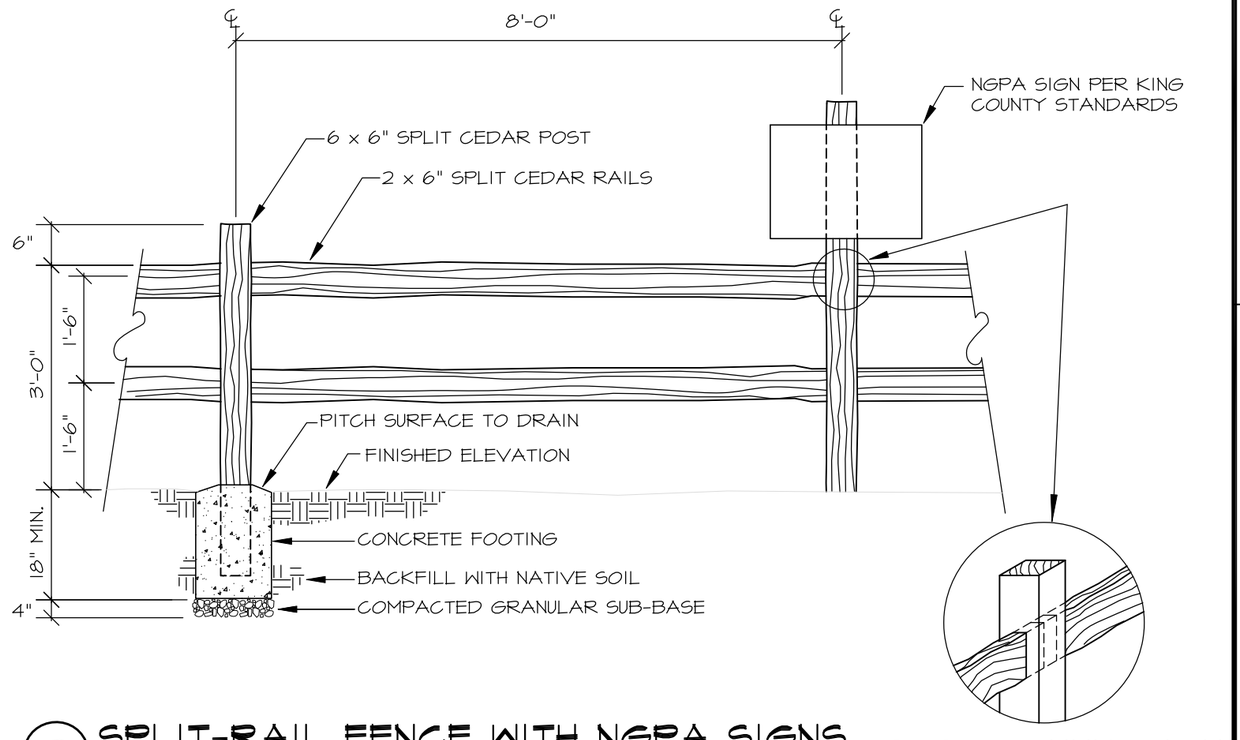
SCALE: NTS





2 GROUNDCOVER PLANTING (TYP.)

SCALE: NTS



3 SPLIT-RAIL FENCE WITH NGPA SIGNS

SCALE: NTS

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FIGURE 5: CONSTRUCTION DETAILS
BUFFER MITIGATION PLAN
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ATTACHMENT A
DATA SHEETS

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

Project Site: Parcel 722980-0360, -0365 City/County: /King Sampling Date: 8-9-24
Applicant/Owner: Ghaq State: WA Sampling Point: DP#1
Investigator(s): John Altmann, Dain Altmann Section, Township, Range: S13,T23N,R5E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): A Lat: 47.479805 Long: -122.11454 Datum: ____
Soil Map Unit Name: AgC NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Located 10' into wetland at A-13**.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	40	yes	FAC
2.			
3.			
4.			
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *Populus balsamifera*	20	yes	FAC
2. *Rubus spectabilis*	20	yes	FAC
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Phalaris arundinacea*	40	yes	FACW
2. *Ranunculus repens*	40	yes	FAC
3. *Epilobium ciliatum*	20	no	FACW
4. *Schedonorus arundinaceus*	20	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 60, 20% = 24	120	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1. *Rubus ursinus*	10	yes	FACU
2.			
50% = 5, 20% = 2	10	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Parcel 722980-0360, -0365

SOIL

Sampling Point: DP#1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	95	10YR5/6	5	RM	M	gravel loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: dry

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

Project Site: Parcel 722980-0360, -0365 City/County: /King Sampling Date: 8-9-24
Applicant/Owner: Ghaq State: WA Sampling Point: DP#2
Investigator(s): John Altmann, Dain Altmann Section, Township, Range: S13,T23N,R5E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): A Lat: 47.479805 Long: -122.11454 Datum: ____
Soil Map Unit Name: AgC NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Located 10' into upland off A-13.**.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	90	yes	FACU
2. *Populus balsamifera*	10	no	FAC
3. ____	____	____	____
4. ____	____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *Ilex aquifolium*	70	yes	FACU
2. *Oemleria cerasiformis*	20	no	FACU
3. *Rubus spectabilis*	20	no	FAC
4. *Prunus laurocerasus*	10	no	NL (UPL)
5. ____	____	____	____
50% = 60, 20% = 24	120	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	5	yes	FACU
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1. *Rubus ursinus*	30	yes	FACU
2. ____	____	____	____
50% = 15, 20% = 6	30	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Parcel 722980-0360, -0365

SOIL Sampling Point: DP#2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/4	100					gravel loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: no redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: dry

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

Project Site: Parcel 722980-0360, -0365 City/County: /King Sampling Date: 8-9-24
Applicant/Owner: Ghaq State: WA Sampling Point: DP#3
Investigator(s): John Altmann, Dain Altmann Section, Township, Range: S13,T23N,R5E
Landform (hillslope, terrace, etc.): gentle slope Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): A Lat: 47.479805 Long: -122.11454 Datum: ____
Soil Map Unit Name: AgC NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Upland plot, see map for location.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	70	yes	FACU
2. *Pseudotsuga menziesii*	60	yes	FACU
3. ____	____	____	____
4. ____	____	____	____
50% = 65, 20% = 26	130	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *Oemleria cerasiformis*	60	yes	FACU
2. *Acer circinatum*	40	yes	FAC
3. *Ilex aquifolium*	20	no	FACU
4. *Rubus spectabilis*	10	no	FAC
5. ____	____	____	____
50% = 65, 20% = 26	130	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Lapsana communis*	5	yes	FACU
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1. *Rubus ursinus*	60	yes	FACU
2. ____	____	____	____
50% = 30, 20% = 12	60	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	16	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Parcel 722980-0360, -0365

SOIL Sampling Point: DP#3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR5/4	100					gravel loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: no redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: dry

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

Project Site: Parcel 722980-0360, -0365 City/County: /King Sampling Date: 8-9-24
Applicant/Owner: Ghaq State: WA Sampling Point: DP#4
Investigator(s): John Altmann, Dain Altmann Section, Township, Range: S13,T23N,R5E
Landform (hillslope, terrace, etc.): gentle slope Local relief (concave, convex, none): concave Slope (%): ____
Subregion (LRR): A Lat: 47.479805 Long: -122.11454 Datum: ____
Soil Map Unit Name: AgC NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Upland plot, see map for location.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	90	yes	FACU
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10')			
1. *Prunus lusitanica*	20	yes	NL (UPL)
2. *Acer circinatum*	20	yes	FAC
3. *Oemleria cerasiformis*	10	yes	FACU
4. ____	____	____	____
5. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Polystichum munitum*	10	yes	FACU
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 5, 20% = 2	10	= Total Cover	
Woody Vine Stratum (Plot size: 10')			
1. *Rubus ursinus*	90	yes	FACU
2. ____	____	____	____
50% = 45, 20% = 18	90	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	16	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: Parcel 722980-0360, -0365

SOIL Sampling Point: DP#4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR5/4	100					gravel loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: no redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: dry

Attachment B

Altmann Oliver Associates, LLC

AOA

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

Environmental Planning & Landscape Architecture

August 26, 2020

AOA-5152

Tanya Tonnu
Tanya.T.Tonnu@boeing.com

SUBJECT: **Critical Areas Impact Assessment (DWEL16-0236)**
Parcel 722980-0390, King County, WA (Revised)

Dear Tanya:

We have prepared an updated wetland buffer averaging and enhancement plan (**Figures 1 through 5**) for the proposed single-family residence on the subject property.

One wetland (Wetland A) is located in the southwest corner of the property. Wetland A is a Sloped Hydrogeomorphic (HGM) Class wetland that slopes gently down from northeast to southwest. Vegetation within Wetland A consisted of a forested plant community that was dominated by a canopy of black cottonwood (*Populus trichocarpa*) and willow (*Salix* sp.) with an understory of Himalayan blackberry (*Rubus armeniacus*), salmonberry (*Rubus spectabilis*), and vine maple (*Acer circinatum*). Wetland A meets the criteria for a Category IV wetland that requires a standard 50-foot buffer plus 15-foot building setback from the wetland edge.

Although the project has been designed to minimize impacts to the buffer on the site, it is my understanding that due to the septic drainfield requirements, buffer averaging is required for construction of the residence.

Wetland buffer averaging can be approved by King County if the following conditions outlined in the applicable code (KCC 21A.24.325.C) are met:

a. *the ecological structure and function of the buffer after averaging is equivalent to or greater than the structure and function before averaging;*

The existing buffer consists of a mix of native vegetation as well as non-native and invasive Himalayan blackberry and laurel. As part of the project, invasive species would be removed and the area re-planted with native trees, shrubs, and groundcover to increase the plant species and structural diversity of the buffer over current conditions. Following re-planting the ecological structure and function of the buffer after averaging will be greater than the structure and function before averaging.

2. *The resulting buffer meets the following standards:*

   a. *the total area of the buffer after averaging is equivalent to or greater than the area of the buffer before averaging;*

Under the proposed buffer averaging plan, 460 s.f. of buffer area would be reduced and replaced with 681 s.f. of additional buffer area.

   b. *the additional buffer is contiguous with the standard buffer; and*

The additional buffer area is contiguous to the standard buffer and this criterion is met.

   c. *if the buffer width averaging allows a structure or landscaped area to intrude into the area that was buffer area before averaging, the resulting landscaped area shall extend no more than fifteen feet from the edge of the structure's footprint toward the reduced buffer.*

The reduced buffer is 15 feet from the edge of the buffer and this condition has been met.

Buffer Enhancement

The buffer enhancement plan includes removing the invasive species and re-planting with native species. The proposed plantings would significantly increase the plant species and structural diversity of the buffer over current conditions and would provide much improved physical and visual screening to the wetland from the proposed residence.

As required, a three-year maintenance and monitoring program has been prepared (**Figure 4**) and will be implemented as part of the project.

If you have any questions regarding the buffer averaging or proposed mitigation, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

John Altmann
Ecologist

Attachment