June 17, 2022

Robby Tonkin
Taco Time NW
3401 Lind Ave. SW
Renton, WA 98057

206 255 3633

Robby Tonkin <RTonkin@TacoTimeNw.com>

RE: Wetland and Drainage Corridor Evaluation and Delineation
Parcels # 7845100032 and 0420271171, City of Puyallup, WA

M. Tonkin,

As requested, we have evaluated your property for jurisdictional wetlands, streams, and required buffers. The property is located at 1115 East Main St., and adjacent, City of Puyallup. The project site encompasses parcel #7845100032, and that portion of parcel # 0420271171 from the southwest corner 60 ft. north and 267 ft. east, encompassing the pipestem.

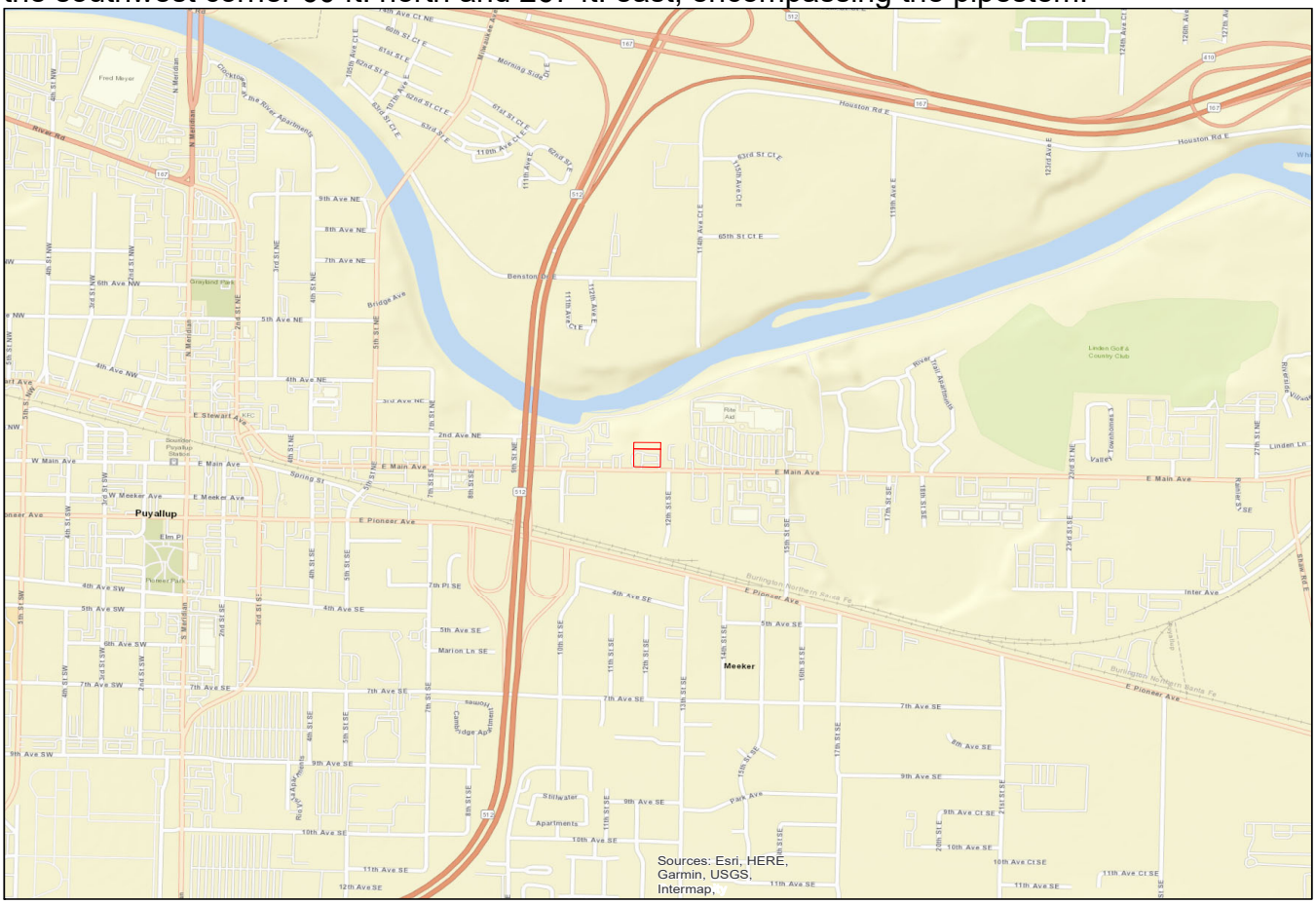


Figure 1. Vicinity Map

Location and Existing Conditions

This site is rectangular, approximately 59,507 sq. ft. The southern parcel is developed to a restaurant, and the northern parcel is vacant and currently undeveloped. Commercial parcels occur east, west, and south of the site. The site is bounded on the north by the riparian corridor of the Puyallup River.

Figure 2. Existing condition

Methodology

The site visit was conducted on May 30, 2022. A combination of field indicators, including: soils, vegetation, and hydrology, were used to determine whether wetlands were present. The methodology used to identify jurisdictional wetlands is described in the *Corps of Engineers (CoE) Wetland Delineation Manual - 2010 Western Mountains, Valleys, and Coast (WMVC) Regional Supplement (CoE Manual)*, Washington State Wetland Rating System for Western Washington (WSWRS), and City of Puyallup Code.

Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil

and on its surface (FGDC, 2013). Wetlands are generally defined as *"those areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."* (Pierce County Title 18E).

Wetlands exhibit three (3) essential characteristics, all of which must be present for an area to meet the established criteria within the CoE Manual. These essential characteristics are:
Hydrophytic Vegetation: Meaning a predominance of plants that are typically adapted for life in saturated soils,
Hydric Soil: Meaning soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons, and;
Wetland Hydrology: Meaning permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

Streams are delineated by identification of the Ordinary High-Water Mark (OHWM). The definition of the OHWM as defined by the Washington State Department of Ecology as a part of the Shoreline Management Act is:

> *"the mark on all lakes, streams, and tidal water that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: Provided, That in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining fresh water shall be the line of mean high water".*

Existing Documentation

National Wetland Inventory (NWI) resources (fig. 3) identifies no wetlands on the project site. Offsite to the north NWI identifies an extensive linear wetland complex, which is the riparian corridor of the Puyallup River.

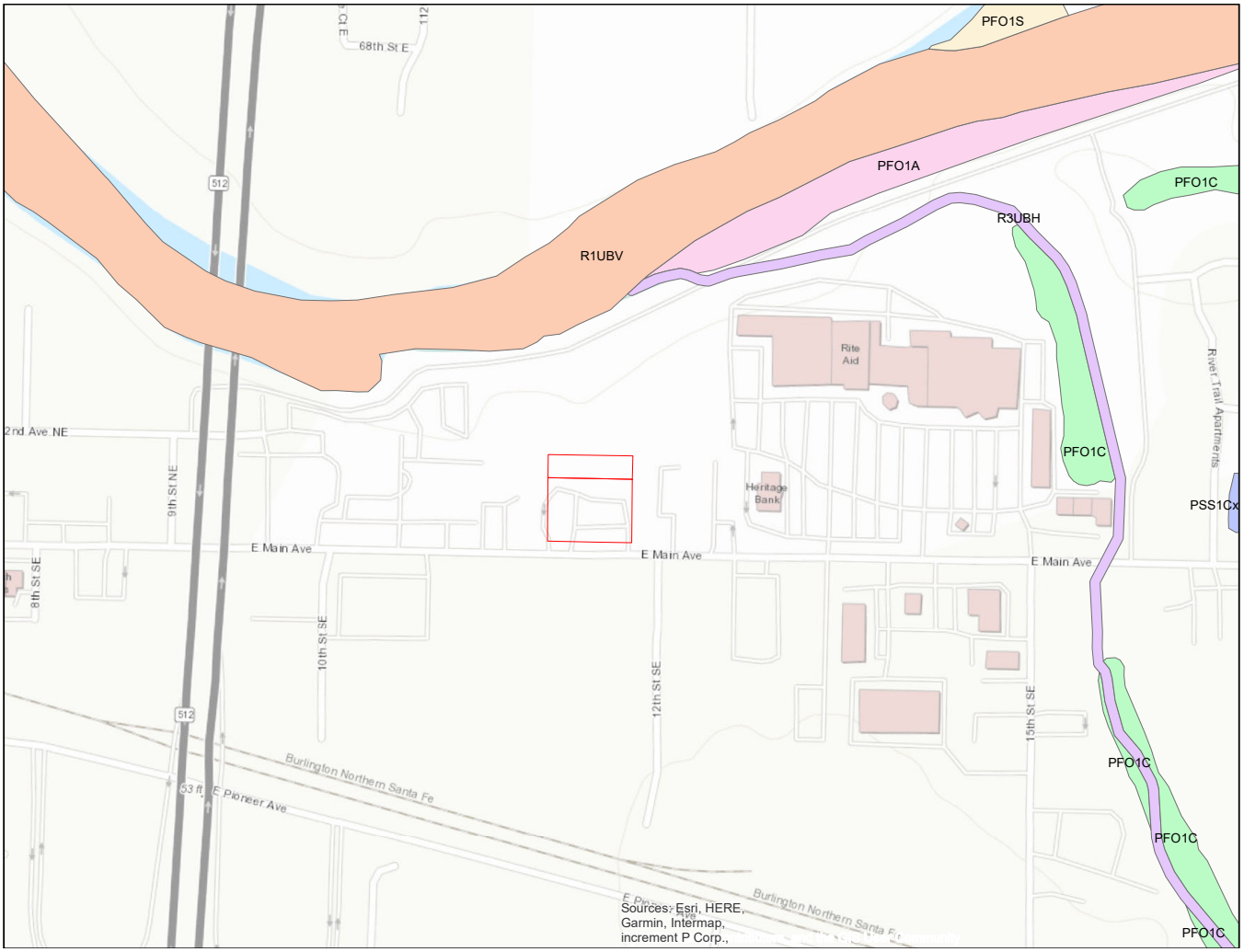


Figure 3. NWI map

The City of Puyallup wetlands map (Fig. 4) located no wetlands on, or adjacent to, the site. Pierce County Hydro describes the river corridor of the Puyallup River approximately 320 ft. north of the north corner of the site.

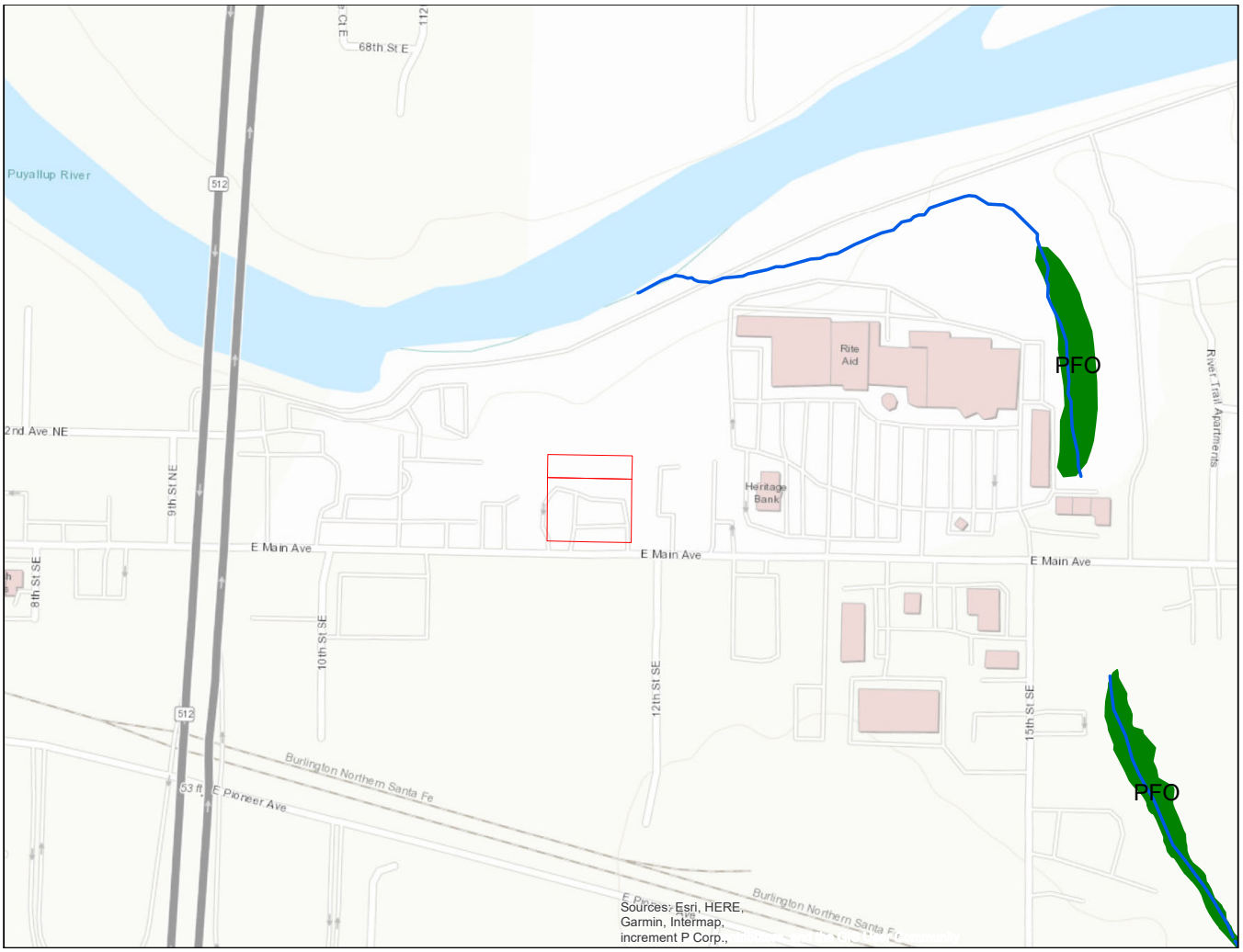


Figure 4. Puyallup Wetland & Stream Map

The soil in the site is Pilchuck fine sand, not designated as “hydric” in Pierce County.

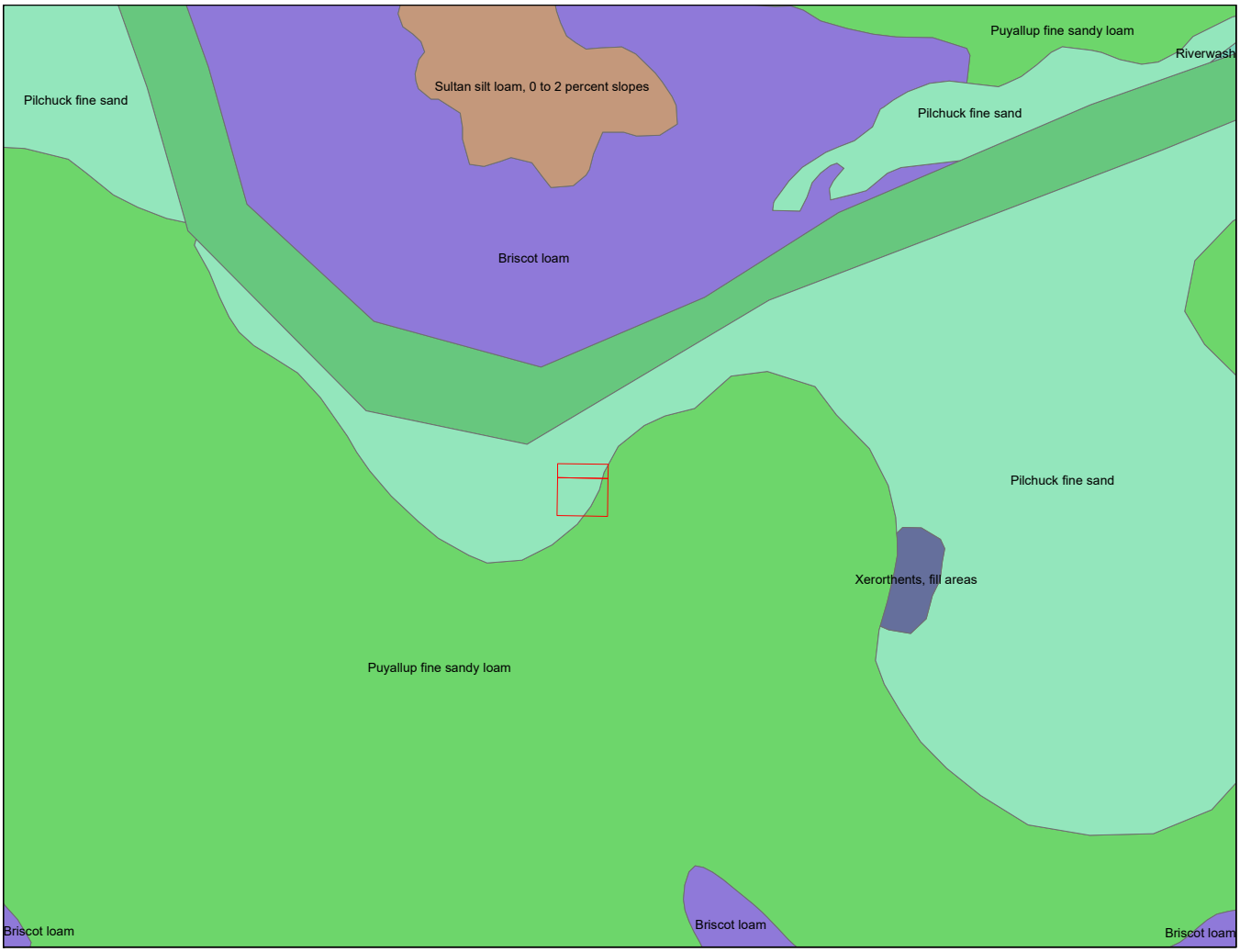


Figure 5. NRCS soil map

Previous Delineation

A wetland verification and fish and wildlife assessment were completed by H & S Consulting August 2014 (attached). This study found no wetlands onsite or in proximity and no exceptional fish or wildlife habitat.

Soils Report

GeoResources completed a soils analysis of the site to address stormwater infiltration, report of December 10, 2021(attached). Soil was described as alluvium with mixed debris, indicating significant fill.

Field Observations

Onsite assessment activities encompassed the entire project site, and 315 feet from the boundary in all directions, as visible. The site is in an urban area of the city. The site is developed

as a restaurant, with impermeable surface covering 90% of the parcel. The northern parcel is undeveloped.

North of the restaurant and parking lot, a detention pond exists. North of that, the site is undeveloped, and slopes to the Puyallup river corridor. The site is a regeneration forest, formally an ag pasture, expressing a mature forest canopy of Black Cottonwood, with depauperate understory, majority Himalayan blackberry new growth. The site slopes to the north and is flat and rolling. The plant community throughout the site was identified as non-hydrophytic in character (i.e., typical of uplands). Field indicators of wetland hydrology were also absent. Soil samples thru the site were silt loam underlain with fill.
Offsite to the north approximately 320 ft. the site drops to the Puyallup River riparian corridor.

No area within 315 ft. was observed to meet the criteria for designation as wetland.

FINDINGS AND CONCLUSIONS

Onsite assessment was completed on May 30, 2022 following the methods and procedures defined within the Wash. Manual, the CoE Manual, and the WDNR Forest Practice Rules.

This assessment identified that no area on the site, or within the immediate vicinity (315 feet) of the project site, exhibited all three of the established criteria for designation as “wetland”. The entire site would be best defined as upland regeneration forest.

No area on-site or immediately upslope exhibited evidence of seeps or springs.

No area was identified onsite that would meet the criteria for designation as a “stream.”

Shoreline Jurisdiction: The OWHM of the Puyallup River is approximately 300 ft. from the site at its nearest point. Apparently, this site does not fall within Shoreline of Statewide Significance jurisdiction.

Fish & Wildlife Habitat: The Puyallup River is a documented habitat for anadromous and resident priority fish species. The project development terminates upslope of the 46 ft. elevation which is the flood elevation. Outside of the flood elevation, there should be no impact on the aquatic habitats proximal to the site.

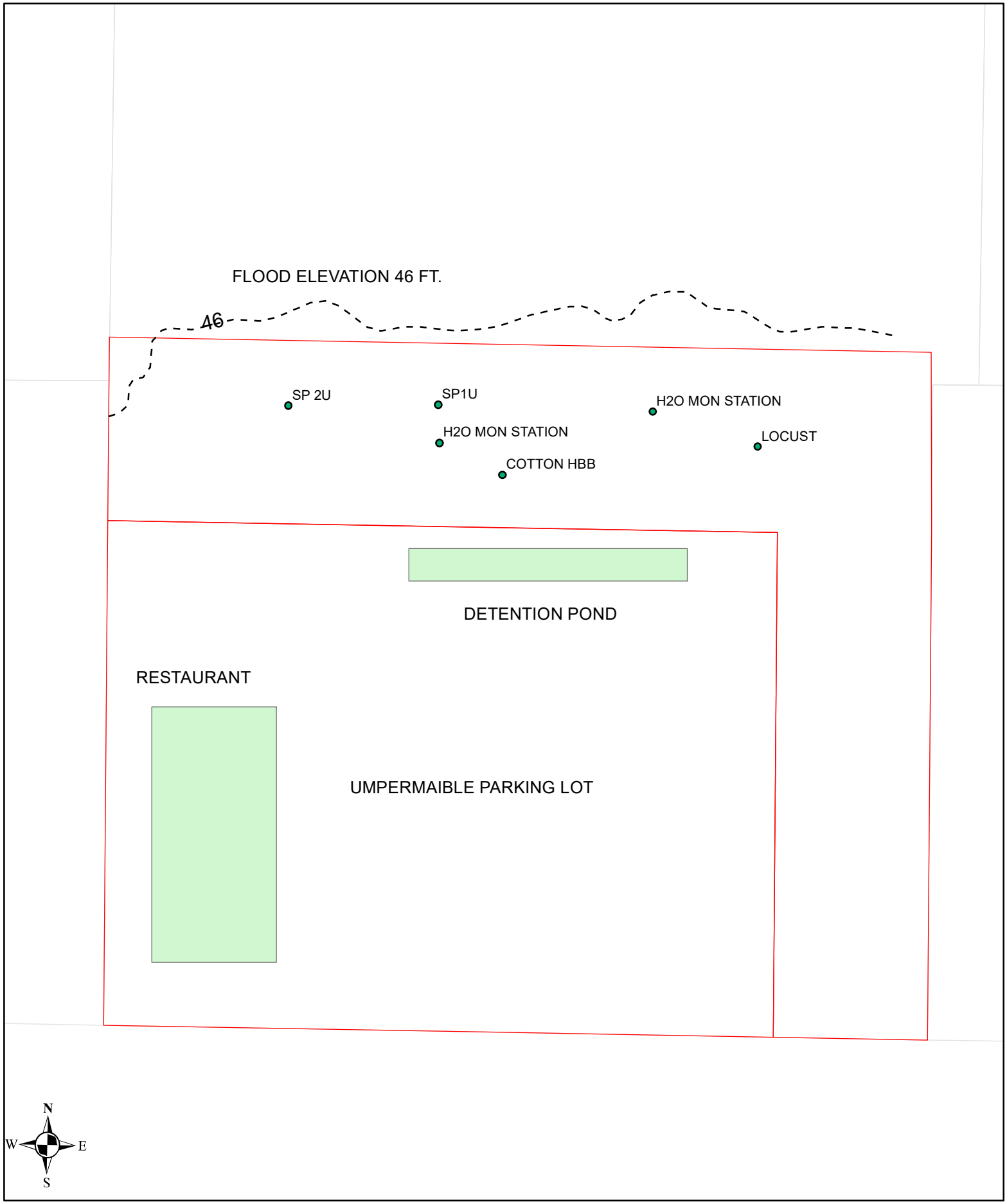
Thank you for allowing BCES the opportunity to assist with this project. Should you have any questions or require additional assistance please call me at 253 732-6515.

Respectfully Submitted,

Mark Heckert

Mark Heckert

Att(3) Sample plot data forms
Site Boundary & Sample Plot map
Soils analysis reports



Beaver Creek Environmental Services
MHeckert@Q.com
253 732 6515
June 17, 2022

1 inch = 40 feet

0 12.5 25 50 75 Feet

TACO TIME PUYALLUP Site
Parcel #7845100032 & 0420271171
Wetland Delineation Map
Not From Survey
Locations by Garmin 64s GPS

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

Project Site: Taco Time Puyallup City/County: Puyallup/Pierce Sampling Date: 5/30/2022
Applicant/Owner: Taco Time NW State: WA Sampling Point: SP 1U
Investigator(s): M. Heckert Section, Township, Range: ____
Landform (hillslope, terrace, etc.): riparian woodland Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): ____ Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Pilchuck silt loam 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: **fill pad N of tacotime**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	90	yes	FAC
2. ____	0	____	____
3. ____	____	____	-
4. ____	____	____	____
50% = 1, 20% = 1	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Rubus procera*	80	yes	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 1, 20% = ____	80	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. ____	____	n/a*	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 1, 20% = ____	0	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= 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:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	0	x2 =	0
FAC species	170	x3 =	510
FACU species	0	x4 =	00
UPL species	0	x5 =	0
Column Totals:	170 (A)		510 (B)

Prevalence Index = B/A = 3

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: understory stunted Rubus spp. looks like stunted by flooding

Project Site: TaPu Puyallup

SOIL Sampling Point: SP 1U

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	10 yr 3/3	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

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

Remarks: slope - defines as fill pad

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: Does NOT MEET WETLAND CRITERIA BY H2O AND SOILS

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

Project Site: TACO TIME PUYALLUP City/County: Puyallup/Pierce Sampling Date: 5/30/2022
Applicant/Owner: TACO TIME NW State: WA Sampling Point: SP 2U
Investigator(s): M. Heckert Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riparian woodland Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Pilchuck silt loam 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: **N OF RESTAURANT**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	90	yes	FAC
2. _____	0		
3. _____			-
4. _____			
50% = 1, 20% = _____	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Corylus cornuta*	50	yes	UPL
2. *Rubus armeniacus*	50	yes	FAC
3. _____			
4. _____			
5. _____			
50% = 1, 20% = _____	100	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. _____	0		
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 1, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	0	x2 =	0
FAC species	140	x3 =	420
FACU species	_____	x4 =	_____
UPL species	50	x5 =	250
Column Totals:	190 (A)		670 (B)

Prevalence Index = B/A = 3.5

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: blackberry looks like all new growth

Project Site: TaPu PUYALLUP

SOIL Sampling Point: SP 2U

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	10 yr 3/2	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

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

Remarks: FILL PAD EDGE

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: DOES NOT WETLAND CRITERIA UP BY VEG. SOIL, H2O

H&S Consulting

August 13, 2014

Mr. Vern Strader
Strader Development
3307 - 92nd Ave Ct E
Edgewood, WA 98371

RE: Wetland & Fish/Wildlife habitat Verification Report for Site Development
Parcels # 0420271171 and 0420271172, City of Puyallup, WA

Dear Mr. Strader,

Following your request H & S Consulting has completed an onsite wetland verification of the 3.33-acre site located at 1129 East Main St., City of Puyallup, WA (Fig. 1). Onsite assessment followed the established criteria and methods as defined within the *Corps of Engineers Wetlands Delineation Manual* (2008 Supplement), the *Washington State Wetlands Identification and Delineation Manual* (Wash. Manual), and the Washington Department of Natural Resources (WDNR) Forest Practice Rules. Site assessment was restricted to the area within 315 ft. of the parcels.
The site is bounded on the north by a City of Puyallup parcel, part of the river trail system, with the bank of the Puyallup River north of the trail, and on the south by East Main St.. On the east and west, the site is bounded by commercial development.

BACKGROUND INFORMATION

National Wetland Inventory Mapping

The National Wetland Inventory (NWI) mapping completed by the U.S. Fish and Wildlife Service was reviewed as a part of this assessment. . This mapping resource identified a large wetland complex associated with the Puyallup River, approximately 100 ft. north of the site(Fig. 2).

City of Puyallup Wetland Inventory and DNR Water Type map

The Pierce County Wetland Inventory and DNR Water Type map was reviewed as a part of this assessment (Fig. 3). This mapping resource identified a large river system 100 ft. to the north as the Puyallup River and a stream at the northeast corner as Deer Creek.

NRCS Soil Map

The NRCS soil type map was reviewed as a part of this assessment. This mapping resource identified soils within the site as Pilchuck fine sand and Puyallup fine sandy loam. These soils are well drained and are not listed as hydric.

P. O. Box 731695 • Puyallup WA 98373
(253) 732-6515 MHeckert@Q.com

ONSITE EVALUATION

CRITERIA FOR WETLAND AND STREAM IDENTIFICATION

Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin et al., 1979). Wetlands are generally defined within land use regulations as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (1987 Manual).

Wetlands exhibit three (3) essential characteristics, all of which must be present for an area to meet the established criteria within the Wash. Manual and the 1987 Manual. These essential characteristics are:

1. **Hydrophytic Vegetation:** A predominance of plants that are typically adapted for life in saturated soils.

2. **Hydric Soil:** A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons.

3. **Wetland Hydrology:** Permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

STUDY METHODS

H & S Consulting completed a specific onsite evaluation of the project area on August 1, 2014. The objective of this evaluation was to define and delineate potential wetland and drainage corridor areas which may be present within and adjacent to the project area as defined by the three-parameter criteria test noted within the Wash. Manual and 1987 Manual, and the water-typing criteria noted within the WDNR Forest Practice Rules (WAC 222-16-030).

Boundaries between wetland and non-wetland areas were established by examining the transitional gradient between wetland and non-wetland characteristics criteria throughout the site. Delineation was performed using the *routine methodology for areas less-than than five acres* as detailed in the 1987 Manual.

FIELD OBSERVATION

As defined by existing site conditions and aerial photos, the project site has been vacant of development. It appears to have been partially filled or graded at some time. The site was generally sloping toward the west.

Soils

The project site was comprised of fine sand and sandy loam. The site is generally flat with a depressional area extending laterally along the south side of the trail.

Hydrology

Hydrology within the project area appeared to be the result of seasonal storm water runoff from onsite and adjacent properties, and flood flow from the Puyallup River. Stormwater surface runoff through the overall project area was directed by a standpipe at the northeast corner to the Puyallup river to the north.

Vegetation

The entire site was cleared and graded approximately 75 years ago. What once was primarily a mixed forest is now an even-aged stand of cottonwood (*Populus trichocaropa*). The shrub layer consists of Himalayan blackberry (*rubus procera*). This plant community was identified as non-hydrophytic in character (i.e. typical of uplands) throughout the site.

WETLAND AND STREAM DETERMINATION

Wetland determination was based on sample plots which contained hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the 2010 Supplement and the Wash. Manual. Based on these methods no wetland was identified within the project area. One area off-site was identified onsite to exhibit characteristics typical of a stream.

WETLAND AND STREAM DETERMINATION

Wetland determination was based on sample plots which contained hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the 2008 Supplement and the Wash. Manual. Based on these methods no wetland was identified on the site, and one regulated river drainage was identified 100 ft. north of the project site.

FINDINGS AND CONCLUSIONS

Onsite assessment was completed on August 1, 2014 following the methods and procedures defined within the Wash. Manual, the 2008 Supplement, and the WDNR Forest Practice Rules.

Wetlands: This assessment identified that NO area within 315 ft. of the parcel exhibited all three of the established criteria for designation as "wetland". The site is best defined as upland vacant site.

Streams: This assessment identified two drainage features within 315 ft. of the project site that met the established criteria for regulation. One is the Puyallup River. The Puyallup River is a Type 1 Stream. Type 1 Water Bodies mandate a 150 ft. buffer, measured perpendicular to the OHWM. In addition, there is no discernable natural hydrologic connection to the river. The site is occluded from the river by the river trail, and presumably flood flow is released to the river from the standpipe in the northeast corner.
The second stream feature is Deer Creek, offsite to the northeast. Deer Creek is a Type 2 Stream. Type 2 Water Bodies mandate a 100 ft. buffer, measured perpendicular to the OHWM. The standard buffer encroaches on to the site in the northeast corner.

Fish Habitat

Site Suitability: fishes

The project site is disconnected from the Puyallup River by the river trail which transects off-site north of the north boundary. There is no surface connection for hydrologic interaction, and the site is drained to the Puyallup River by a 24 in. dia. standpipe which is located at the northeast corner of the site.
There is no ordinary habitat for fishes, and the extreme high water habitat is unknown.

CONCLUSIONS

Wetlands:

This assessment identified that NO area of the site exhibited all three of the established criteria for designation as "wetland".

Type Waters:
The Puyallup River was identified as a regulated City of Puyallup Type 1 stream.
Standard Buffer for a Type 1 Stream is 150 feet, as measured perpendicular to the Ordinary High Water Mark.
Deer Creek (off-site) was identified as a regulated City of Puyallup Type 2 stream.
Standard Buffer for a Type 2 Stream is 100 feet, as measured perpendicular to the Ordinary High Water Mark.

Fisheries Habitat:

Fisheries habitat assessment was based the presence of morphology and hydrology suitable to support the production and maintenance of resident or anadromous fish species.

The site expressed no fish habitat.

Shoreline Management Jurisdiction:

This parcel falls within the the 200 ft. "waters of the state" jurisdiction as mandated by the Shoreline Management Act (SMA – RCW 90.58) and development must obtain shoreline permit under the Puyallup Shoreline master program. The Shoreline master programs (SMP) regulates new development and use of shorelines along larger rivers, lakes over 20 acres, and marine waterfronts. In the City of Puyallup, the only waterways covered under the Shoreline Master Program are the Puyallup River and Clarks Creek.

Thank you for allowing H & S Consulting the opportunity to assist with this project. Should you have any questions or require additional assistance please call me at 253 732-6515.

Respectfully Submitted,

Mark Heckert

Mark Heckert

Attachments (5):

Vicinity Map
NWI map
Pierce wetland map
Wetland Verification Map
Sample Plot Data forms

ATTACHMENT 1 – WETLAND VERIFICATION MAP

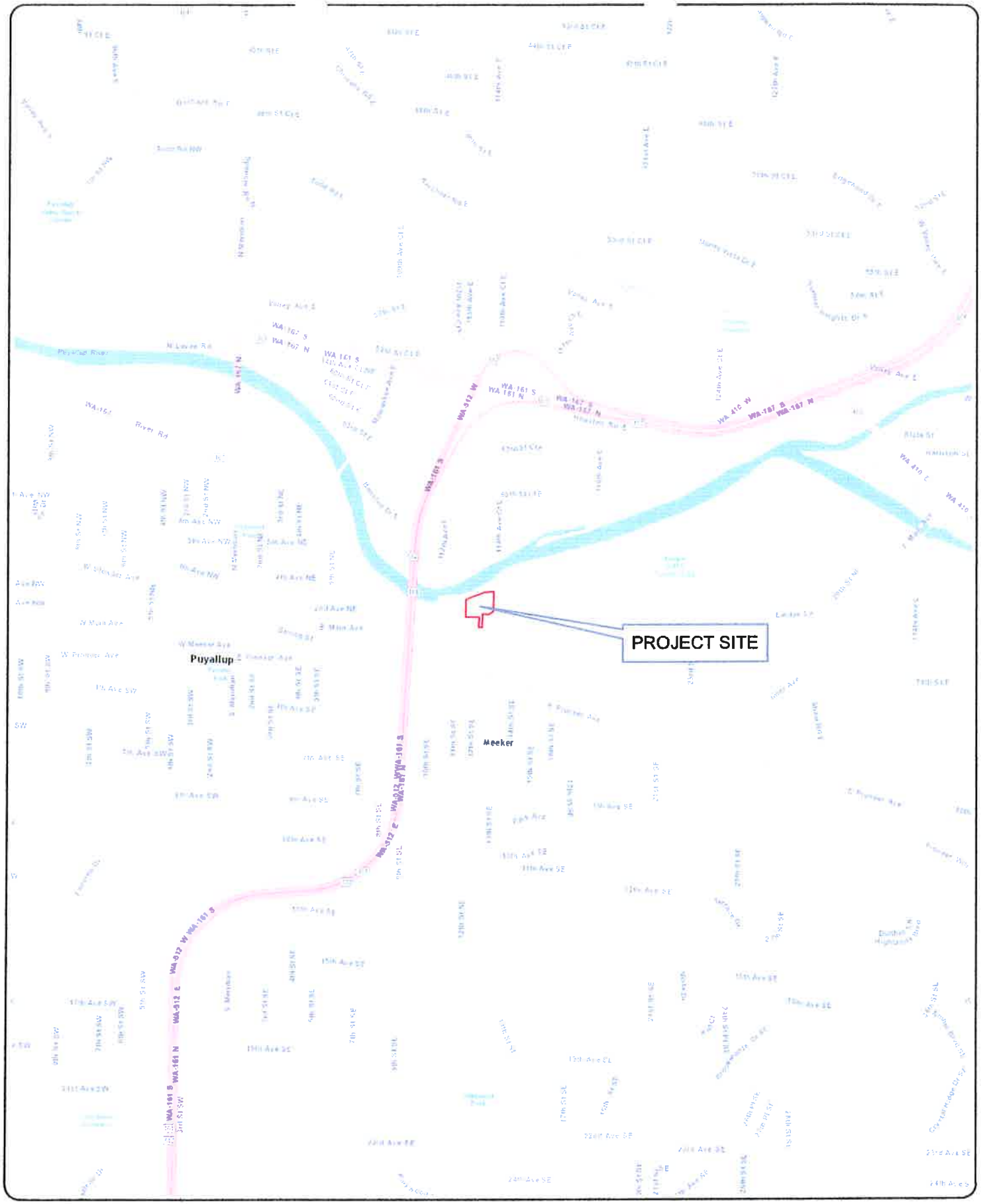


Fig. 1
Strader site

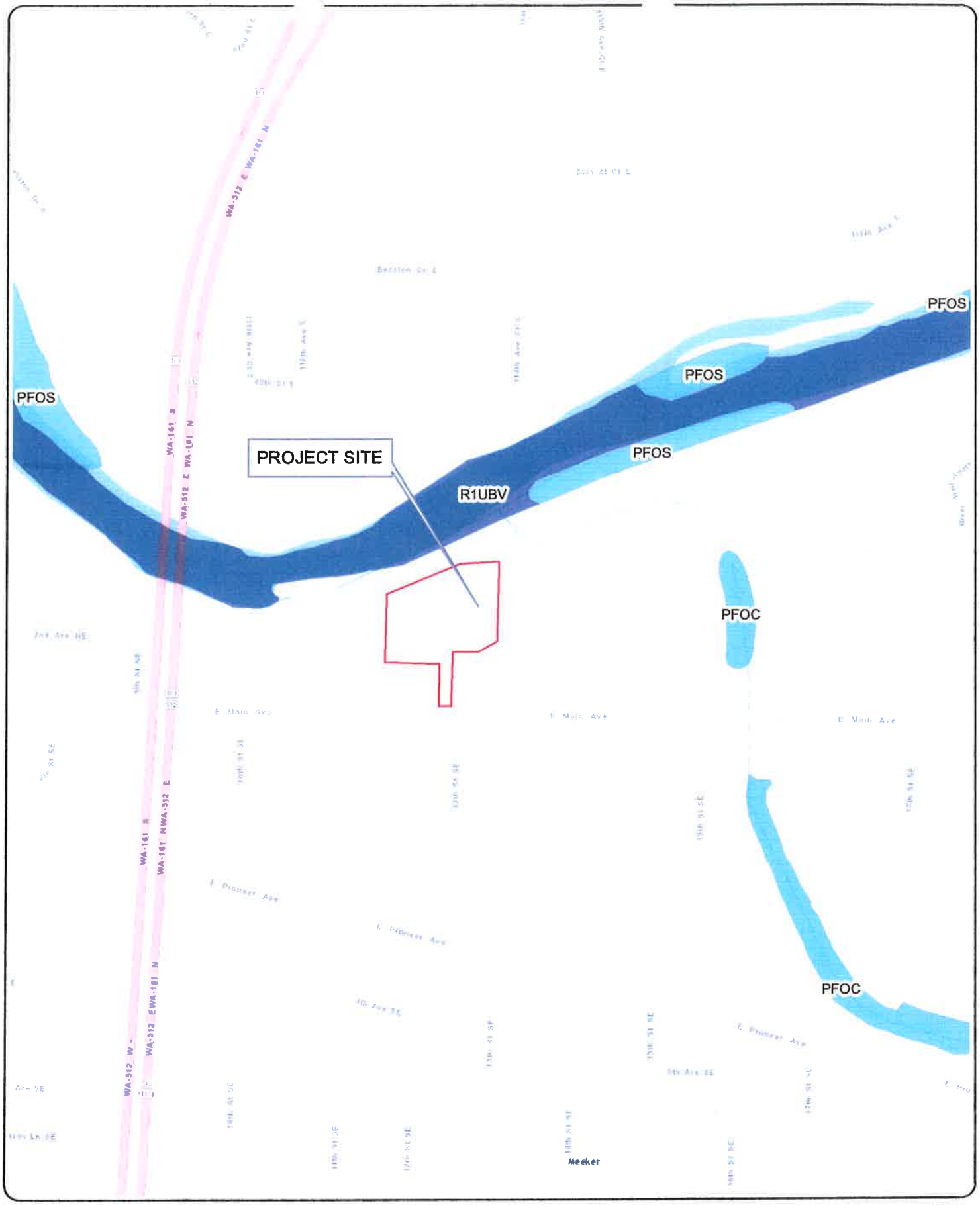
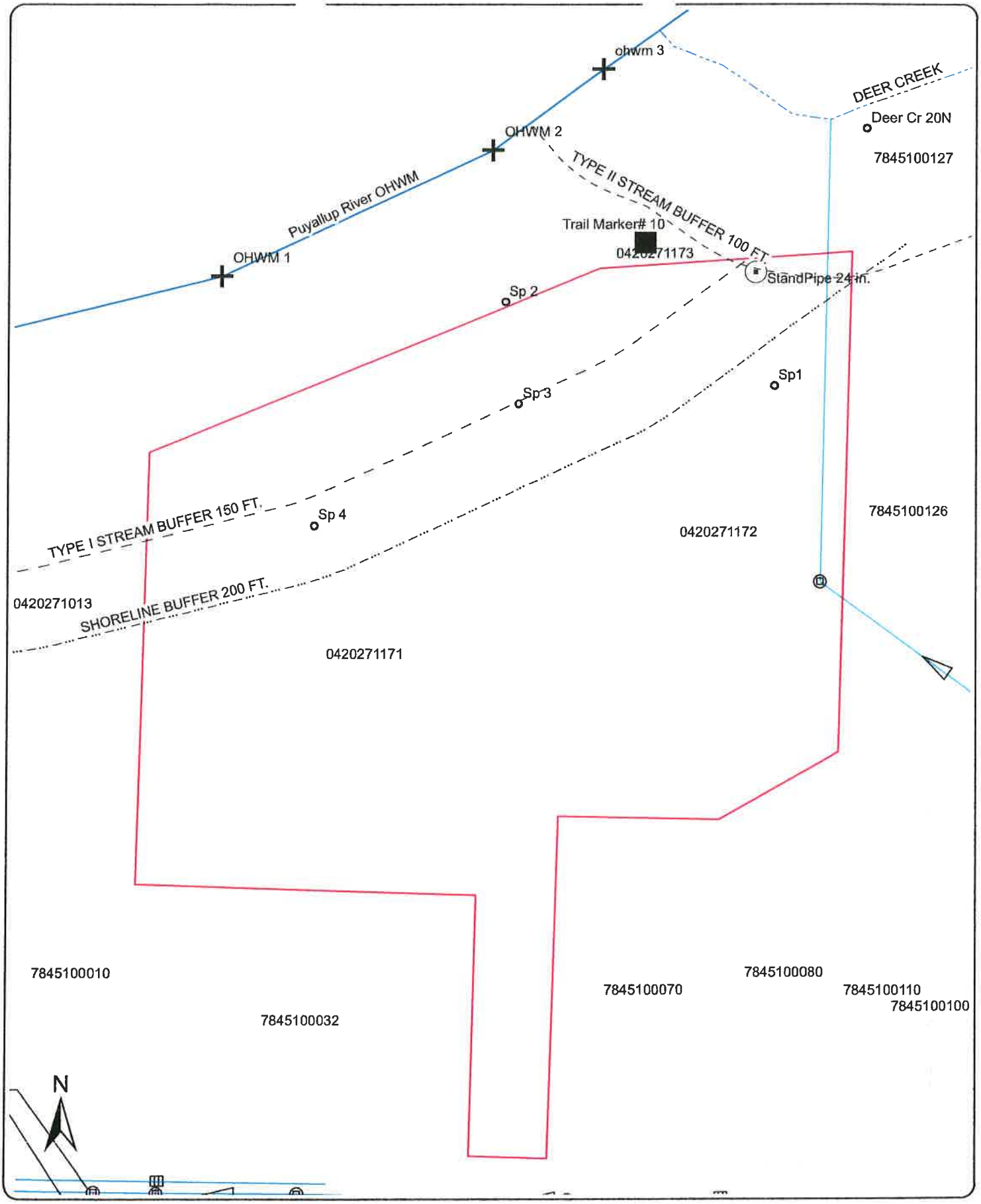


Fig. 2
Strader site

1 inch = 500 feet

0 250 500 1,000 Feet

Fig. 3
Strader site



1 inch = 80 feet

0 40 80 160 Feet

Att. 1
Strader site

WETLAND DETERMINA..ON DATA FORM – Western Mountains, ..alleys, and Coast Region

Project Site: Strader City/County: Puyallup/Pierce Sampling Date: 6/1/2014
Applicant/Owner: Strader Dvelopment State: WA Sampling Point: SP 1
Investigator(s): M. Heckert Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riparian woodland Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Pilchuck silt loam 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: **stream corridor upslope of river trail**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	60	yes	FAC
2. _____	0	____	____
3. _____	____	____	____
4. _____	____	____	____
50% = 1, 20% = 1	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Rubus procera*	50	yes	FACU
2. _____	____	____	____
3. _____	____	____	____
4. _____	____	____	____
5. _____	____	____	____
50% = 1, 20% = _____	30	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. *Ipomaea purpurea*	40	yes	UPL
2. _____	____	____	____
3. _____	____	____	____
4. _____	____	____	____
5. _____	____	____	____
6. _____	____	____	____
7. _____	____	____	____
8. _____	____	____	____
9. _____	____	____	____
10. _____	____	____	____
11. _____	____	____	____
50% = 1, 20% = _____	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	____	____	____
2. _____	____	____	____
50% = _____, 20% = _____	____	= 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:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	_____	x1 =	_____
FACW species	0	x2 =	0
FAC species	60	x3 =	180
FACU species	50	x4 =	200
UPL species	40	x5 =	200
Column Totals:	150 (A)		580 (B)

Prevalence Index = B/A = 3.9

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: understory stunted Rubus spp. looks like stunted bt water

Project Site: Strader

SOIL

Sampling Point: SP 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	10 yr 3/3	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks: slope - may be fill near

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:

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

Project Site: Strader City/County: Puyallup/Pierce Sampling Date: 6/1/2014
Applicant/Owner: Strader Dvelopment State: WA Sampling Point: SP 2
Investigator(s): M. Heckert Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riparian woodland Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Pilchuck silt loam 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: **stream corridor upslope of river trail**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	90	yes	FAC
2. _____	0	____	____
3. _____	____	____	____
4. _____	____	____	____
50% = 1, 20% = _____	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Cornus stolonifera*	50	yes	FACW
2. _____	____	____	____
3. _____	____	____	____
4. _____	____	____	____
5. _____	____	____	____
50% = 1, 20% = _____	30	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. *Symphoricarpus albus*	100	yes	NI
2. _____	____	____	____
3. _____	____	____	____
4. _____	____	____	____
5. _____	____	____	____
6. _____	____	____	____
7. _____	____	____	____
8. _____	____	____	____
9. _____	____	____	____
10. _____	____	____	____
11. _____	____	____	____
50% = 1, 20% = _____	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	____	____	____
2. _____	____	____	____
50% = _____, 20% = _____	____	= 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:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	50	x2 =	100
FAC species	90	x3 =	270
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	140 (A)		370 (B)

Prevalence Index = B/A = 2.6

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: Strader

SOIL

Sampling Point: SP 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	10 yr 3/2	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? Yes ☐ No ☒

Remarks: slope - may be fill near

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:

WETLAND DETERMINA..ON DATA FORM – Western Mountains, ..alleys, and Coast Region

Project Site: Strader | City/County: Puyallup/Pierce | Sampling Date: 6/1/2014
Applicant/Owner: Strader Dvelopment | State: WA | Sampling Point: SP 3
Investigator(s): M. Heckert | Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riparian woodland | Local relief (concave, convex, none): none | Slope (%): 1%
Subregion (LRR): _____ | Lat: _____ | Long: _____ | Datum: _____
Soil Map Unit Name: Pilchuck fine sand | 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: **stream corridor upslope of river trail**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	80	yes	FAC
2. _____	0	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = 1, 20% = 1	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Rubus procera*	100	yes	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 1, 20% = _____	1000	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. _____	0	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 1, 20% = _____	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= 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:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	_____	x1 =	_____
FACW species	0	x2 =	0
FAC species	80	x3 =	240
FACU species	100	x4 =	400
UPL species	_____	x5 =	_____
Column Totals:	180 (A)		640 (B)

Prevalence Index = B/A = 3.6

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: understory stunted Rubus spp. looks like stunted by water

Project Site: Strader

SOIL

Sampling Point: SP 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	10 yr 3/3	100					sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? Yes ☐ No ☒

Remarks: slope - may be fill near

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:

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

Project Site: Strader City/County: Puyallup/Pierce Sampling Date: 6/1/2014
Applicant/Owner: Strader Dvelopment State: WA Sampling Point: SP 4
Investigator(s): M. Heckert Section, Township, Range: _____
Landform (hillslope, terrace, etc.): riparian woodland Local relief (concave, convex, none): none Slope (%): 1%
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Sutan silt loam 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: **stream corridor upslope of river trail**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus trichocarpa*	60	yes	FAC
2. _____	0	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = 1, 20% = 1	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 ft.)			
1. *Rubus procera*	50	yes	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 1, 20% = _____	30	= Total Cover	
Herb Stratum (Plot size: 20 ft)			
1. *Ipomaea purpurea*	40	yes	UPL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 1, 20% = _____	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= 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:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	_____	x1 =	_____
FACW species	0	x2 =	0
FAC species	60	x3 =	180
FACU species	50	x4 =	200
UPL species	40	x5 =	200
Column Totals:	150 (A)		580 (B)

Prevalence Index = B/A = 3.9

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: understory stunted Rubus spp. looks like stunted by water appears to flood ocasionally

Project Site: Strader

SOIL

Sampling Point: SP 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	10 yr 3/3	100					sandy loam	

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- ☐ 2 cm Muck (A10)
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- ☐ 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: slope - may be fill near

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)
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- ☐ 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)**
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- ☐ 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:

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December 10, 2021

Taco Time Northwest
3401 Lind Avenue SW
Renton, Washington 98057

Attn: Robby Tonkin
(206) 499-1360
rtonkin@tacotimenw.com

Preliminary Soils Report
Proposed Restaurant
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171
Doc ID: TacoTimeNorthwest.EMainSt.SR.doc

INTRODUCTION

This *Preliminary Soils Report* summarizes our site observations and geotechnical data review, and addresses the feasibility of stormwater infiltration for the proposed restaurant to be constructed at 1115 and 1129 East Main in Puyallup, Washington. The approximate site location is shown on Figure 1.

Our understanding of the project is based on our correspondence with you and Azure Green Consultants, our review of the provided site plan, our understanding of the City of Puyallup's development codes, and our experience in the site area. We understand that you propose to construct a new restaurant on the undeveloped portion of the site. Development will also include expanding parking and converting the existing restaurant into a separate retail space. We anticipate that the new structure will be a one- to two-story, wood-framed structure supported by conventional shallow foundations.

SCOPE

The purpose of our services was to evaluate the surface and subsurface conditions across the site as a basis for providing geotechnical recommendations and design criteria for the proposed restaurant. Specifically, the scope of services for this project included the following:

1. Reviewing the available geologic, hydrogeologic, and geotechnical data for the site area;
2. Exploring surface and subsurface conditions by reconnoitering the site and monitoring the excavation of a series of three test pits at select locations across the site and installed shallow (less than 10 feet) groundwater monitoring stand pipes in each of the test pits;
3. Describing surface and subsurface conditions, including soil type, depth to groundwater, if encountered, and an estimate of seasonal high groundwater levels;

4. Providing our opinion about the feasibility of onsite infiltration in accordance with the 2014 SWMMWW, including a preliminary design infiltration rate based on grain size analysis, as applicable; and,
5. Prepared this *Preliminary Soils Report* that satisfies the 2014 SWMMWW requirements and summarizes our site observations and conclusions, and our geotechnical recommendations, along with the supporting data.

The above scope of work was summarized in our *Proposal for Geotechnical Engineering Services* dated September 21, 2021. We received written authorization to proceed from you on October 1, 2021.

SITE CONDITIONS

Surface Conditions

As mentioned above, the site is located at 1115 and 1129 East Main in Puyallup, Washington, within an area of existing commercial development. The site consists of two tax parcels, that when combined is generally trapezoidal in shape, measures approximately 480 to 570 feet long (north to south) by approximately 275 feet wide (east to west), and encompasses approximately 3.3 acres. The site is bounded by the Puyallup River to the north, E Main St to the south, an RV park to the west, and commercial and non-developed parcels to the east. The southern portion of the site is currently developed. An existing Taco Time building is located in the southwestern portion of the site. The remaining area of the southern portion of the site is developed with automobile parking. The northern portion of the site is undeveloped.

Based on topographic information obtained from Pierce County Public GIS and our site observations, the ground surface of the site generally slopes down to the north. In the southern portion of the site, in the area of the existing commercial development, the ground surface is relatively level. In the central portion of the site, the ground surface slopes down to the north at approximately 4 to 8 percent. These slopes continue at similar inclinations throughout the northern portion of the site. The total topographic relief of the site is on the order of approximately 15 feet. The existing site configuration and topography are shown on the Site & Exploration Map, Figure 2.

Vegetation in the southern portion of the site generally consists of commercial landscaping in the parking lot area with some scattered coniferous and deciduous trees with areas of maintained grass. In the central and northern portion of the site, vegetation generally consists of a moderate stand of coniferous and deciduous trees with a moderately dense understory of native and invasive plants and shrubs. No seeps, springs, or standing water was observed at the time of our site reconnaissance. No areas of surficial erosion or slope movement were observed at the time of our site visit.

Site Soils

The Natural Resource Conservation Service (NRCS) Web Soil Survey maps the site as being underlain by Pilchuck fine sandy loam (29A) and Puyallup sandy loam (31A). The Pilchuck soils are mapped across the northern portion of the site, are derived from mixed alluvium under hardwoods and conifers, form on slopes of less than 3 percent, have a “none” erosion hazard when exposed, and are included in hydrologic soils group C. The Puyallup fine sandy loam soils are mapped across the southern portion of the site, are derived from alluvium, form on slopes of 0 to 3 percent, have a

"slight" erosion hazard when exposed, and are included in hydrologic soils group A. A copy of the NRCS soils map is included as Figure 3.

Site Geology

According to the *draft Geologic map of the Puyallup 7.5-minute Quadrangle, Washington* by Troost, (in review) the site is mapped as being underlain by Quaternary Alluvium (Qal). Alluvial soils generally consist of normally consolidated, stratified deposits of sand, silt, clay, and occasional peat that were deposited along the Puyallup River channel. The existing topography, as well as the surficial and shallow soils in the area, are the result of fluvial action, including down-cutting by the river, channel meandering and migration, and flood deposits. An excerpt from the geologic map is included as Figure 4.

Subsurface Explorations

On October 14, 2021, a field representative from GeoResources visited the site and monitored the excavation of three test pits to depths of about 9½ to 10½ feet below the existing ground surface, logged the subsurface conditions encountered in each test pit, and obtained representative soil samples. The test pits were excavated by a small track-mounted excavator operated by a licensed operated working under subcontract to GeoResources. The soil densities presented on the logs were based on the difficulty of excavation and our experience. The number and location of the test pits were selected in the field based on project information provided by Azure Green Consultants, consideration for underground utilities, existing site conditions, and current site usage. An open standpipe piezometer (OSP) was installed in each test pit and backfilled with the excavated soils and bucket tamped, but not otherwise compacted.

The subsurface explorations excavated as part of this evaluation indicate the subsurface conditions at specific locations only, as actual subsurface conditions can vary across the site. Furthermore, the nature and extent of such variation would not become evident until additional explorations are performed or until construction activities have begun. Based on our experience in the area and extent of prior explorations in the area, it is our opinion that the soils encountered in the explorations are generally representative of the soils at the site.

The soils encountered were visually classified in accordance with the Unified Soil Classification System (USCS) and ASTM D: 2488. The approximate locations of our test pits are indicated on the attached Site & Exploration Map, Figure 2. The USCS is included in Appendix A as Figure A-1, while the descriptive logs of our test pits are included as Figures A-2 through A-3.

Subsurface Conditions

At the locations of our test pits we encountered relatively somewhat uniform subsurface conditions that in our opinion generally confirmed the mapped stratigraphy at the site. Our test pits generally encountered approximately ¾ to 1 foot of topsoil. Underlying the topsoil in test pit TP-1 we encountered approximately 4½ feet of brown silty sand with significant amounts of concrete, some metal, and trace organics. We interpret these soils to be undocumented fill. Underlying the topsoil in test pit TP-2 we encountered brown poorly graded sand with some silt and gravel in a loose to medium dense, moist condition. We interpret these soils be weathered alluvium. Underlying the topsoil in test pit TP-3 and the weathered alluvium in test pit TP-2, we encountered brown-grey to grey fine silty sand in a medium dense, moist condition. We interpret these soils to be alluvium and were encountered to the full depth explored in test pit TP-2. Underlying the undocumented fill in test pit TP-1 and the alluvium in test pit TP-3, we encountered brown grey sandy silt in a stiff, moist

condition. We interpret these soils to be consistent with alluvium deposits. These soils were encountered to the full depth explored.

Laboratory Testing

Geotechnical laboratory tests were performed on two samples retrieved from the test pits to estimate index engineering properties of the soils encountered. Laboratory testing included visual soil classification per ASTM D: 2487 and ASTM D: 2488, moisture content determinations per ASTM D: 2216, and grain size analyses per ASTM D: 6913 standard procedures. The results of the laboratory tests are included in Appendix B.

Groundwater Conditions

At the locations of our test pits we did not encounter groundwater seepage within the depths explored. However, we did observe iron-oxide staining/discoloration, otherwise known as mottling, at approximately 4 to 5¼ feet below existing ground surface. Mottling is generally indicative of a seasonal or fluctuating groundwater surface, often associated with perched groundwater. Perched groundwater table develops when the vertical infiltration of precipitation through a more permeable soil, is slowed at depth by a deeper, less permeable soil type. We anticipate fluctuations in the local groundwater levels will occur in response to precipitation patterns, off-site construction activities, and site utilization. Analysis or modeling of anticipated groundwater levels during construction is beyond the scope of this report. We will monitor groundwater levels bi-weekly throughout the wet season, prior to issuance of the *Final Soils Report*.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our data review, site reconnaissance, and subsurface explorations, it is our opinion that the infiltration of stormwater runoff generated onsite by the new impervious surfaces may be feasible for this project.

Infiltration Recommendations

Based on our site observations and subsurface explorations, it is our opinion that stormwater infiltration via a trench or basin type system may be feasible at the site. Per Volume 3.1.1 of the 2014 SWMMWW, downspout infiltration is considered feasible on lots or sites if 3 feet or more of permeable soil from the proposed final grade to the seasonal high ground water table exists and at least 1 foot of clearance from the expected bottom elevation of the infiltration facility to the seasonal high ground water table can be met. For the purposes of this infiltration feasibility evaluation, we have assumed that, at a minimum, the standard infiltration trench section (6 inches of topsoil over a 2 foot deep trench) and the standard permeable pavement section (6 inches of pavement over 6 inches of storage course) would be used. Deeper trenches and thicker storage courses may be designed by a civil engineer where the vertical separation requirements can be met. The silty sand to sandy silt alluvium soils encountered in test pits TP-2 and TP-3 encountered mottling at approximately 4 to 5 feet below existing ground surface. We interpret the mottling to be indicative of seasonal high groundwater. Test pit TP-1 encountered approximately 4½ feet of undocumented fill, therefore infiltration is not feasible near this location.

We completed a soil gradation analyses on three representative soil samples from the site per the 2014 SWMMWW, Volume III, Section 3.3.6, Method 3 and in accordance with ASTM D6913. Based on our gradation analyses, we recommend a design infiltration rate of 2.5 inches per hour in the silty

sand alluvium encountered in test pit TP-2. Appropriate correction factors have been applied to these values in accordance with the 2014 SWMMWW, Volume III, Section 3.3.6, Table 3.3.1, including correction factors for site variability ($F_{variability}$), testing method ($F_{testing}$) and maintenance for situation biofouling ($F_{maintenance}$).

All proposed infiltration facilities should be designed and constructed in accordance with the 2014 SWMMWW. All minimum separations, setback requirements, and infeasibility criteria per 2014 SWMMWW should be considered prior to the selection, design and location of any stormwater facility for the proposed development.

It is our opinion that the mottling observed in the test pits represents seasonal high groundwater levels at the site. However, we will continue to monitor groundwater levels until the end of the prescriptive wet season as required by the City of Puyallup. Additionally, the City will require that an in-situ small-scale Pilot Infiltration Test (PIT) be completed to verify these rates prior to permit issuance. We will issue a *Final Soils Report* after the wet season ends that summarizes our observations and refines seasonal high groundwater levels as appropriate.

Construction Considerations

Appropriate design, construction and maintenance measures will be required to ensure the infiltration rate can be effectively maintained over time. Stormwater Best Management Practices (BMPs) in accordance with the 2014 SWMMWW should be included in the project plans and specifications to minimize the potential for fines contamination of Low Impact Development BMPs utilized at the site.

Suspended solids could clog the underlying soil and reduce the infiltration rate. To reduce potential clogging of the infiltration systems, the infiltration system should not be connected to the stormwater runoff system until after construction is complete and the site area is landscaped, paved or otherwise protected. Additional measures may also be taken during construction to minimize the potential of fines contamination of the proposed infiltration system, such as utilizing an alternative storm water management location during construction or leaving the bottom of the permanent systems 1 to 2 feet high, and subsequently excavating to the finished grade once the site soils have been stabilized. All contractors working on the site (builders and subcontractors) should divert sediment laden stormwater away from proposed infiltration facilities during construction and landscaping activities. No concrete trucks should be washed or cleaned, and washout areas should not be within the vicinity of the proposed infiltration facilities. After construction activities have been completed, periodic sweeping of the paved areas will help extend the life of the infiltration system.

LIMITATIONS

We have prepared this report for use by Taco Time NW and other members of the design team, for use in the permitting and design of a portion of this project. The data used in preparing this report and this report should be provided to prospective contractors for their bidding or estimating purposes only. Our report, conclusions and interpretations are based on subsurface explorations and data from others and limited site reconnaissance, and should not be construed as a warranty of the subsurface conditions.

Variations in subsurface conditions are possible between the explorations and may also occur with time. A contingency for unanticipated conditions should be included in the budget and schedule. Sufficient monitoring, testing and consultation should be provided by our firm during construction to

confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork and foundation installation activities comply with contract plans and specifications.

The scope of our services does not include services related to environmental remediation and construction safety precautions. Our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

If there are any changes in the loads, grades, locations, configurations or type of facilities to be constructed, the conclusions and recommendations presented in this report may not be fully applicable. If such changes are made, we should be given the opportunity to review our recommendations and provide written modifications or verifications, as appropriate.

◆ ◆ ◆

We have appreciated the opportunity to be of service to you on this project. If you have any questions or comments, please do not hesitate to call at your earliest convenience.

Respectfully submitted,
GeoResources, LLC

Davis Carlsen, GIT
Staff Geologist

KYLE EUGENE BILLINGSLEY
STATE OF WASHINGTON
56931
REGISTERED
PROFESSIONAL ENGINEER
12/10/2021

Kyle E. Billingsley, PE
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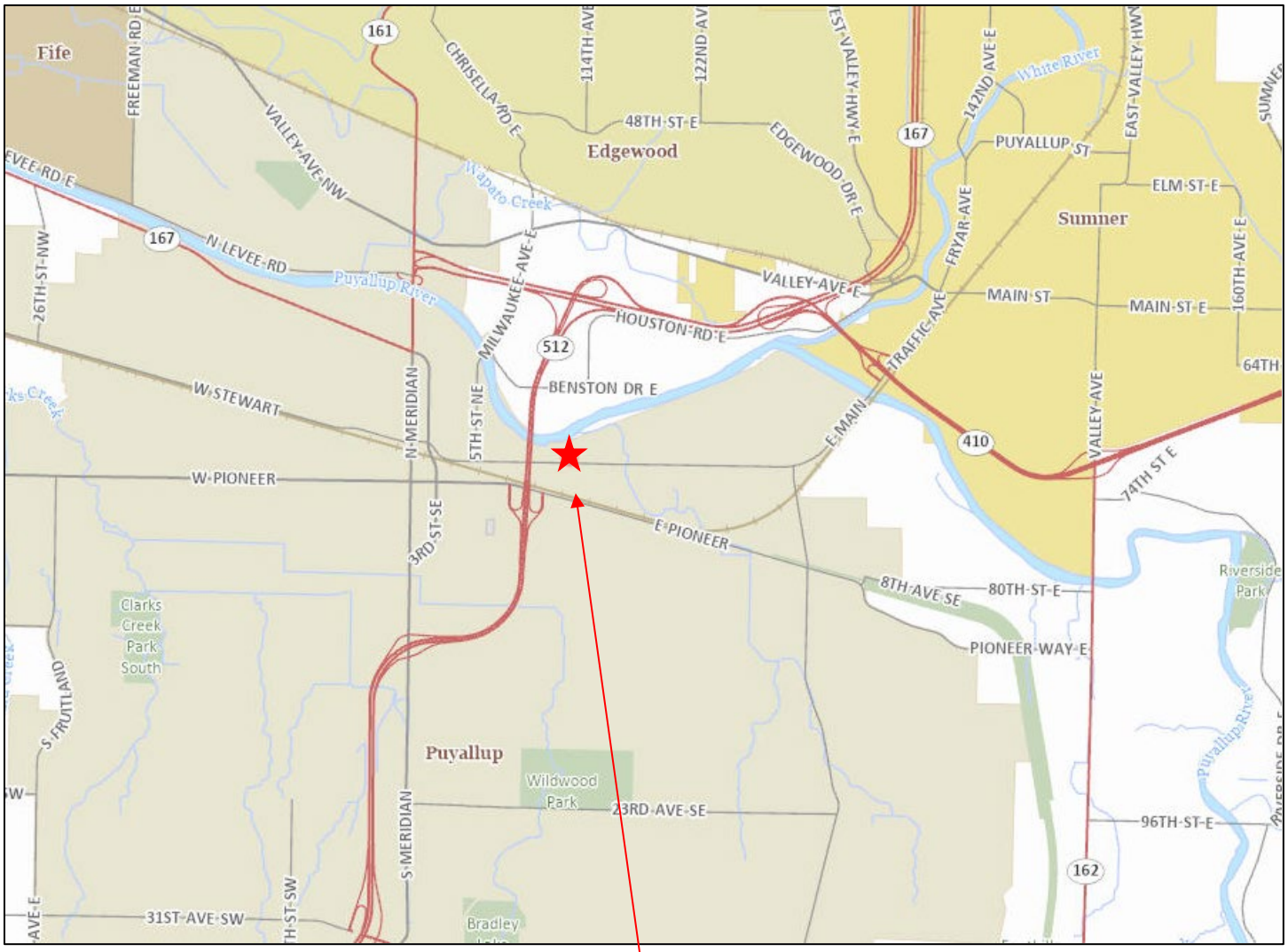
12/10/2021

Eric W. Heller, PE, LG
Senior Geotechnical Engineer

DC:KEB:EWH/dc
DocID: TacoTimeNorthwest.EMainSt.SR
Attachments: Figure 1: Site Vicinity Map
Figure 2: Site & Exploration Map
Figure 3: NRCS Soils Map
Figure 4: Geologic Map
Appendix A – Subsurface Explorations
Appendix B – Laboratory Test Results



Approximate Site Location

Map created from Peirce County Public GIS (https://matterhornwab.co.pierce.wa.us/publicgis/)

Not to Scale

GEORESOURCES
earth science & geotechnical engineering
4809 Pacific Hwy. E. | Fife, WA 98424 | 253.896.1011 | www.georesources.rocks

Site Location Map

Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171

DocID: TacoTimeNorthwest.EMainSt.F.docx	December 2021	Figure 1

Map created from Peirce County Public GIS (https://matterhornwab.co.pierce.wa.us/publicgis/)

Number and approximate location of test pit exploration and open standpipe piezometer (OSP) (GeoResources 2021)

N
W
E
S

Not to Scale

GEORESOURCES
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Site & Exploration Map

Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171

DocID: TacoTimeNorthwest.EMainSt.F.docx	December 2021	Figure 2

Approximate Site Location

Map created from Web Soil Survey (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)

Soil Type	Soil Name	Parent Material	Slopes	Erosion Hazard	Hydrologic Soils Group
W	Water	-	-	-	-
29A	Pilchuck fine sandy loam	Mixed alluvium under hardwoods and conifers	<3	None	C
31A	Puyallup fine sandy loam	Alluvium	0 to 3	Slight	A

N W E S

Not to Scale

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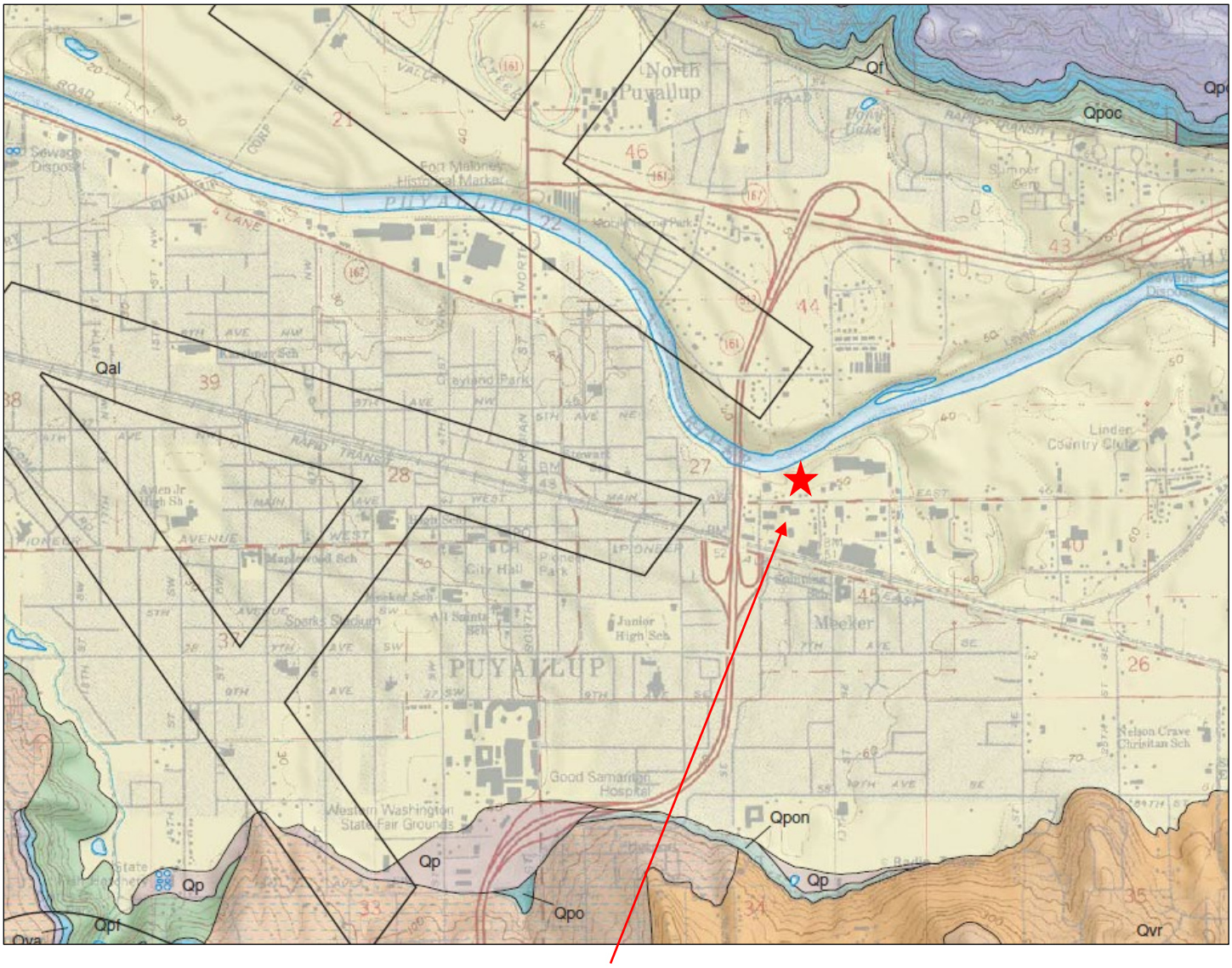
NRCS Soils Map

Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171



Approximate Site Location

Excerpt from the draft *Geologic Map of the Puyallup 7.5-Minute Quadrangle, Washington*
By Troost, K.G. (in review)

Qal	Alluvium

Not to Scale

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Geologic Map

Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171

DocID: TacoTimeNorthwest.EMainSt.F.docx	December 2021	Figure 4

Appendix A

Subsurface Explorations

SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS More than 50% Retained on No. 200 Sieve	GRAVEL More than 50% Of Coarse Fraction Retained on No. 4 Sieve	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND More than 50% Of Coarse Fraction Passes No. 4 Sieve	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS More than 50% Passes No. 200 Sieve	SILT AND CLAY Liquid Limit Less than 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY Liquid Limit 50 or more	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

NOTES:

1. Field classification is based on visual examination of soil in general accordance with ASTM D2488-90.
2. Soil classification using laboratory tests is based on ASTM D2487-90.
3. Description of soil density or consistency are based on interpretation of blow count data, visual appearance of soils, and or test data.

SOIL MOISTURE MODIFIERS:

Dry- Absence of moisture, dry to the touch

Moist- Damp, but no visible water

Wet- Visible free water or saturated, usually soil is obtained from below water table

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Unified Soils Classification System

Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171

Test Pit/ Open Standpipe Piezometer TP/OSP-1

Location: North of existing structure
Approximate Elevation: 50'

Depth (ft)			Soil Type	Soil Description
0	-	¾	-	Topsoil/rootzone
¾	-	5¼	SM	Brown silty sand with significant amounts of cement fragments, some metal, and trace organics (Undocumented fill) (medium dense, moist)
5¼	-	10½	ML	Brown-grey sandy silt (alluvium deposits) (stiff, moist)

Terminated at 10½ feet below ground surface.
Mottling observed at approximately 5¼ feet below existing ground surface
No significant caving observed at the time of excavation.
No seepage observed at the time of excavation.

Test Pit/ Open Standpipe Piezometer TP/OSP-2

Location: East-central portion of site
Approximate Elevation: 52'

Depth (ft)			Soil Type	Soil Description
0	-	¾	-	Topsoil/rootzone
¾	-	1¾	SP-SM	Brown poorly graded sand with some silt and gravel (Weathered Alluvium) (loose to medium dense, moist)
1¾	-	10	SM	Grey silty fine sand (Alluvium) (medium dense, moist)

Terminated at 10 feet below ground surface.
Mottling observed at approximately 5 feet below existing ground surface
No significant caving observed at the time of excavation.
No seepage observed at the time of excavation.

Logged by: DC **Excavated on: October 14, 2021**

Test Pit/Open Standpipe Piezometer TP/OSP-3

Location: Southeast portion of site
Approximate Elevation: 54'

Depth (ft)			Soil Type	Soil Description
0	-	1	-	Topsoil/rootzone
1	-	7	SM	Brown-grey silty fine sand (medium dense, moist) (alluvium)
7	-	9½	ML	Brown-grey sandy silt (Stiff, moist) (alluvium deposits)

Terminated at 9½ feet below ground surface.
Mottling observed at approximately 4 feet below existing ground surface
No significant caving observed at the time of excavation.
No seepage observed at the time of excavation.

Logged by: DC **Excavated on: October 14, 2021**

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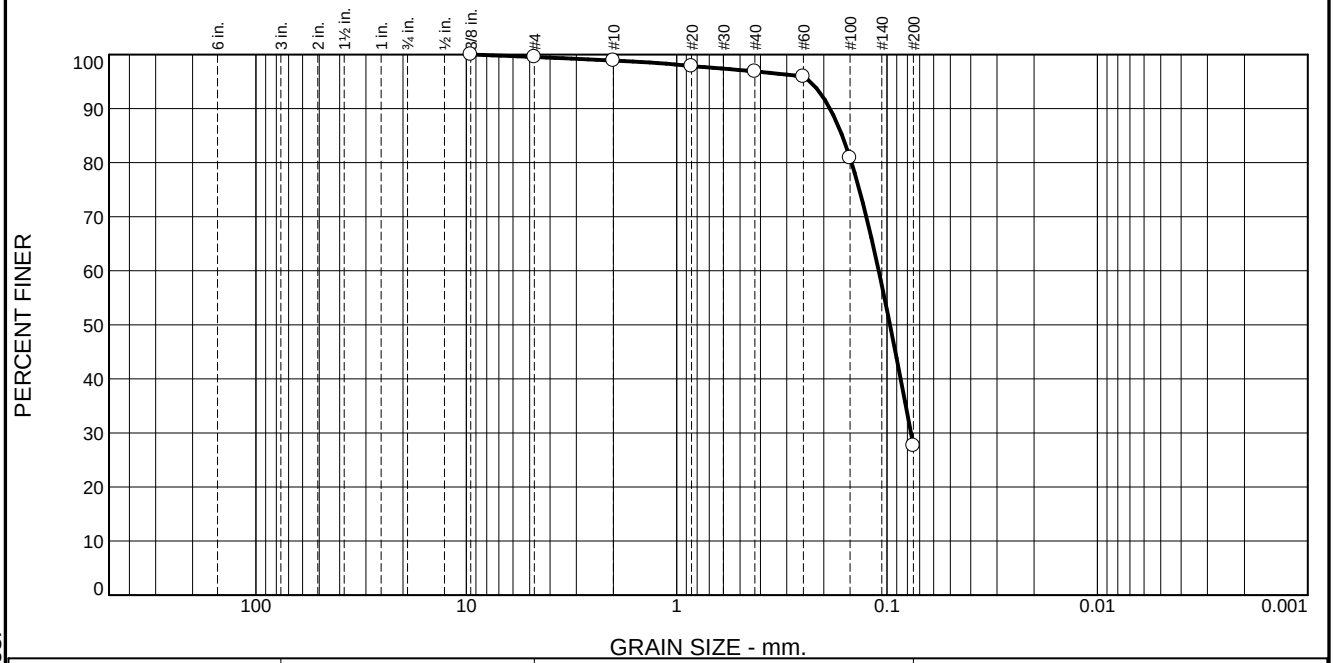
Test Pit Logs
Proposed Taco Time
1115 & 1129 East Main
Puyallup, Washington
PN: 7845100032 & 0420271171

Appendix B

Laboratory results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.6	2.0	69.2	27.7	

Test Results (ASTM D 6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375	100.0		
#4	99.5		
#10	98.9		
#20	97.8		
#40	96.9		
#60	95.9		
#100	80.9		
#200	27.7		

* (no specification provided)

Material Description

Silty SAND (SM)

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.1868 D_{85}= 0.1634 D_{60}= 0.1095
D_{50}= 0.0969 D_{30}= 0.0770 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural Moisture: 5.7%

Date Received: 10/19/21 **Date Tested:** 10/19/21

Tested By: MAW

Checked By: KEB

Title: PM

Location: TP-2, S-1 **Date Sampled:** 10/19/21
Sample Number: 102580 **Depth:** 4'

GeoResources, LLC

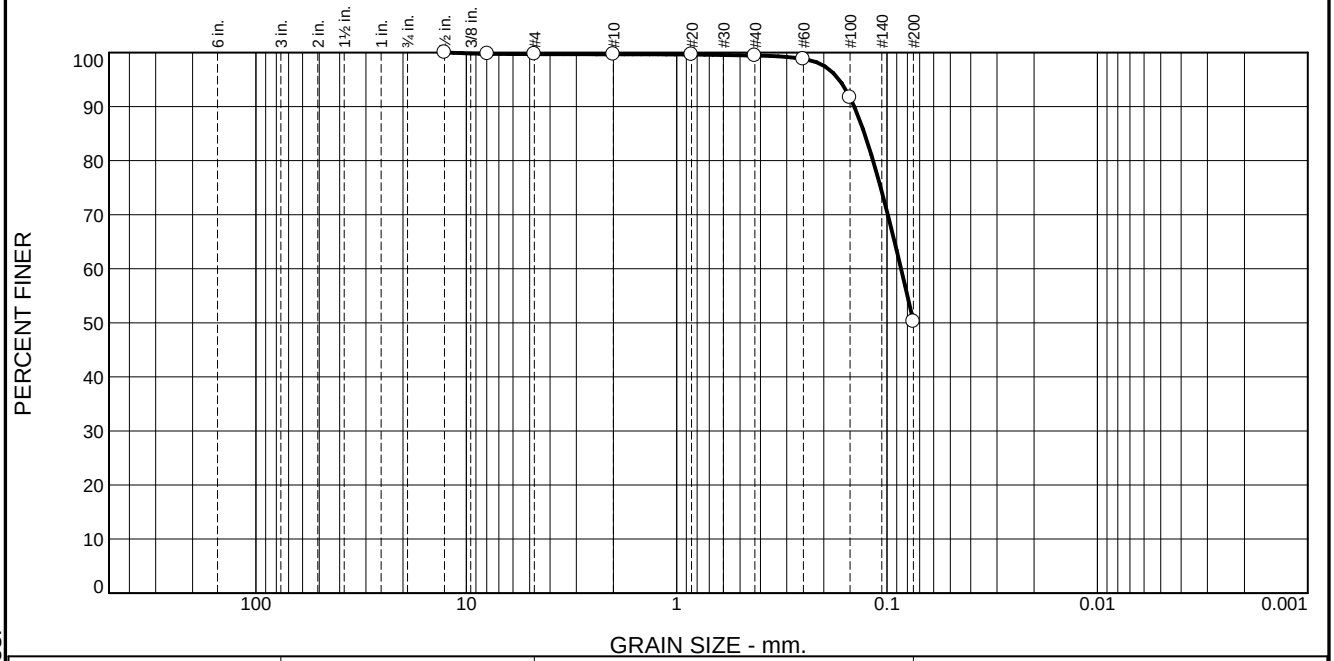
Fife, WA

Client: Taco Time Northwest
Project: Proposed Taco Time

Project No: TacoTimeNorthwest.EMainSt **Figure** B-1

Tested By: _____ **Checked By:** _____

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.0	0.3	49.1	50.3	

Test Results (ASTM D 6913 & ASTM D 1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5	100.0		
.3125	99.8		
#4	99.7		
#10	99.7		
#20	99.6		
#40	99.4		
#60	98.8		
#100	91.7		
#200	50.3		

* (no specification provided)

Material Description

Sandy SILT (ML)

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.1432 D_{85}= 0.1279 D_{60}= 0.0858
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural Moisture: 15.3%

Date Received: 10/19/21 **Date Tested:** 10/19/21

Tested By: MAW

Checked By: KEB

Title: PM

Location: TP-3 S-1
Sample Number: 102581 **Depth:** 3'

Date Sampled: 10/19/21

GeoResources, LLC

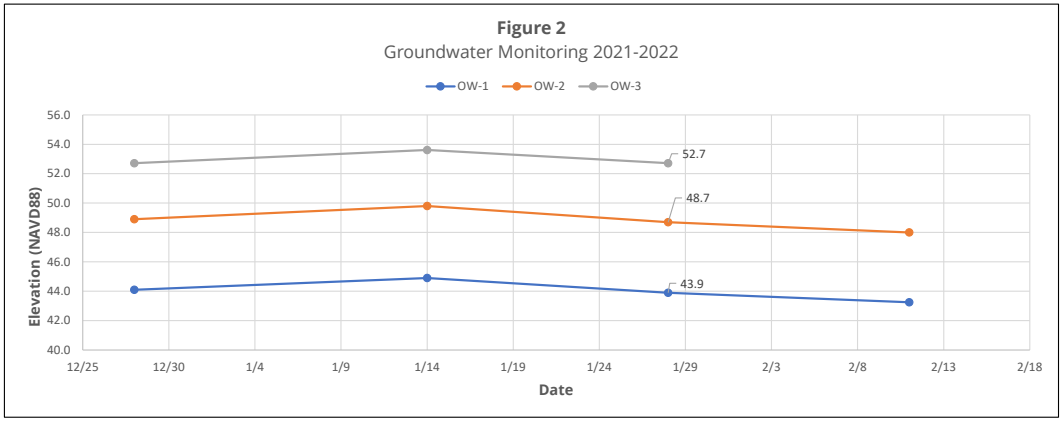
Fife, WA

Client: Taco Time Northwest
Project: Proposed Taco Time

Project No: TacoTimeNorthwest.EMainSt **Figure** B-2

Tested By: _____ **Checked By:** _____

TacoTimeNW.EMainSt



	Well name: Location		***Well name: Location***		***Well name: Location***	
Date	Measured Depth to Water	Water Elevation	Measured Depth to Water	Water Elevation	Measured Depth to Water	Water Elevation
12/28/2021	6.9	44.1	6.6	48.9	9.7	52.7
1/14/2022	6.1	44.9	5.7	49.8	8.8	53.6
1/28/2022	7.1	43.9	6.8	48.7	9.7	52.7
2/11/2022	7.8	43.3	7.5	48.0		
		51.0		55.5		62.4
		51.0		55.5		62.4
		51.0		55.5		62.4

Well ID	***Ground surface elevation at well location (Feet)***	***Correction for riser stickup to GS (feet)***	***Well Elevation***
Well	50	1	51
Well	55	0.5	55.5
Well	60	2.416666667	62.41666667

Note: Use column "K" only if needed. Do not use for flush-mount well monuments with known/ surveyed elevations