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.

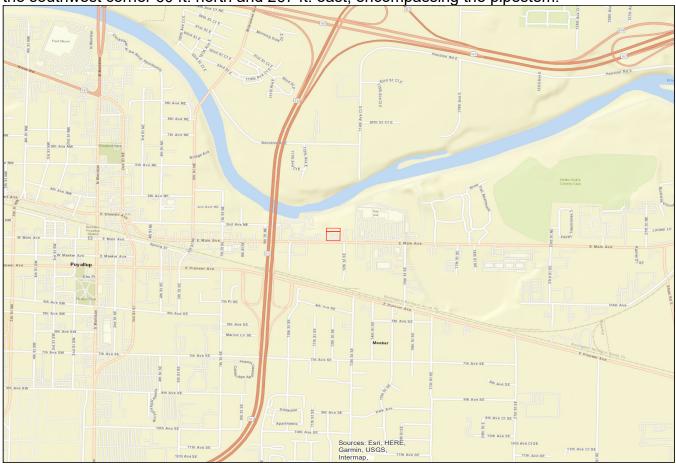


Figure 1. Vicinity Map

## **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.

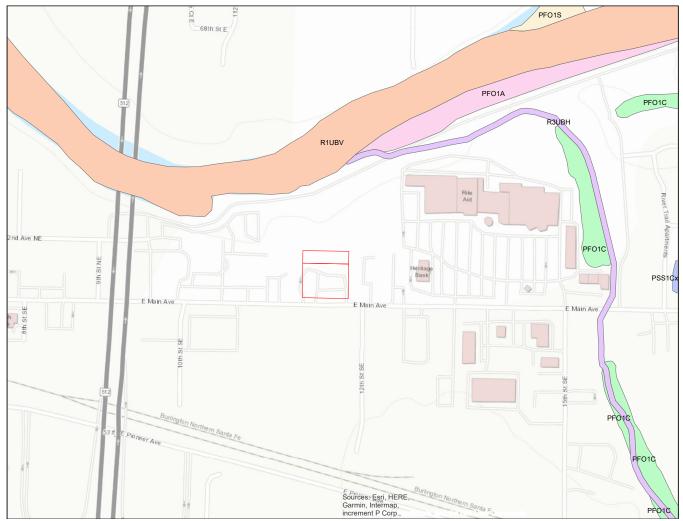


Figure 3. NWI map

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.

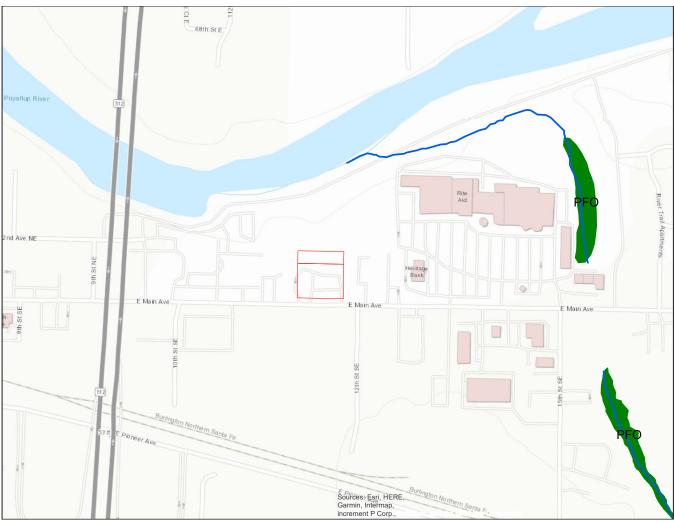


Figure 4. Puyallup Wetland & Stream Map

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.

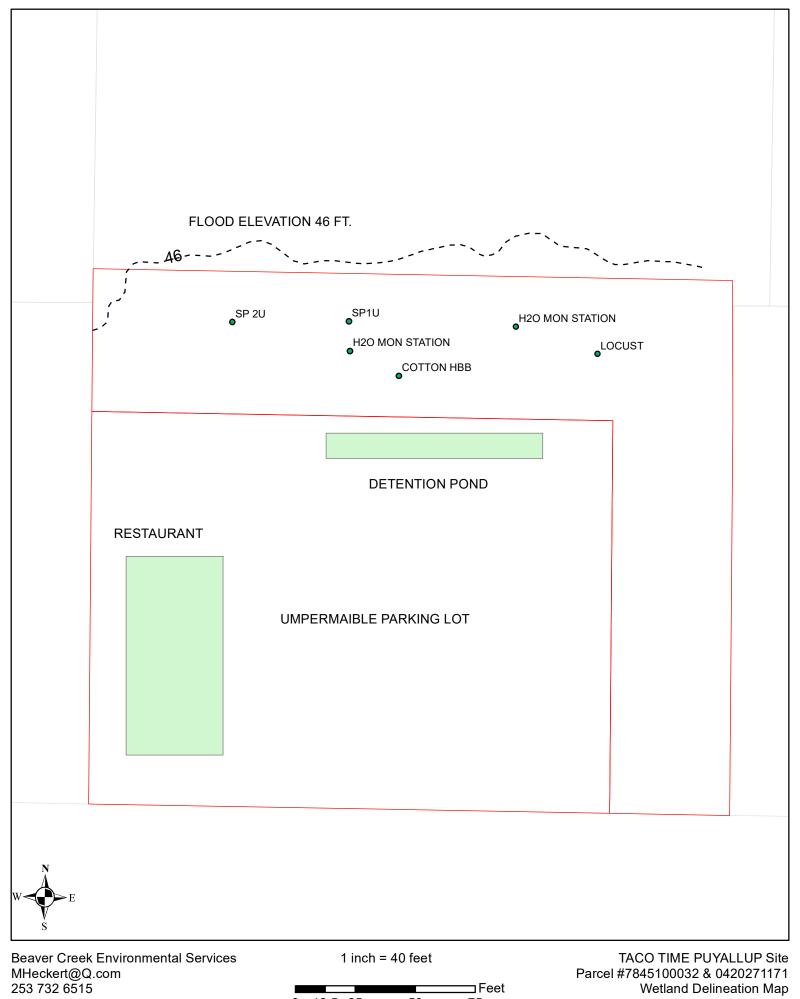
Thank you for allowing BCES the opportunity to assist with this project. Should you have any questions or require additional assistance please call me at 253 732-6515.

Respectfully Submitted,

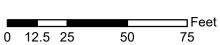
Mark Heckert

Mark Heckert

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



June 17, 2022



Not From Survey Locations by Garmin 64s GPS

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

Project Site:	Taco Time Puy	<u>allup</u>					City/Count	y: <u>Ρι</u>	yallup/Piero	<u>ce</u>	Sampling [	Date:	5/30	/2022	<u>.</u>
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Investigator(s):	M. Heckert								Section, To	wnship, Rar	nge:				
Landform (hillslope, te	rrace, etc.): r	iparian woodland				Loca	al relief (conca	ve, con	vex, none):	none		Slope	(%):	1%	
Subregion (LRR):	•		Lat:					Long	g:			Datum:			
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4								FACV	V species	<u>0</u>		x2 =	<u>0</u>		
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DROLOG etland Hyd imary Indic   Surfac   High V   Satura   Water   Sedim   Drift D   Algal N   Iron Do   Surfac   Inunda   Sparse eld Observ arface Water ater Table aturation Pr	Y Irology Indicators: ators (minimum of one Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concav vations: er Present? Present? Yes esent? Yes esent? Yes	e required Imagery (I	B7)	Water- (except Salt Ci Aquati Hydrog Oxidiz Preser Recen Stunte Other	the MLRA 1, 2, 4 ust (B11) c Invertebrates gen Sulfide Od ed Rhizospherince of Reduced thron Reduction of Stresses (Explain in Rerespith (inches): epth (inches):	4A, and 4B) s (B13) lor (C1) res along Livi d Iron (C4) on in Tilled S Plants (D1) ( marks)	ing Roots (C3 oils (C6) (LRR A)		Water-Sta (MLRA 1, Drainage Dry-Seas Saturation Geomorp Shallow A FAC-Neu Raised Al Frost-Hea	ained Leave , 2, 4A, and Patterns (B on Water Tan Novisible on hic Position Aquitard (Dan tral Test (Dan nt Mounds ( ave Hummo	es (B9) I <b>4B)</b> able (C Aerial (D2) S) (D6) (L ccks (D	C2) Image	ry (C9)	0
DROLOG etland Hyd imary Indic   Surfac   High V   Satura   Water   Sedim   Drift D   Algal N   Iron Do   Surfac   Inunda   Sparse eld Observ arface Water ater Table aturation Pr	Y Irology Indicators: ators (minimum of one Water (A1) Vater Table (A2) Ition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) Ition Visible on Aerial ely Vegetated Concav Vations: er Present? Yes erent? Yes esent?	e required Imagery (I	B7)	Water- (except Salt Ci Aquati Hydrog Oxidiz Preser Recen Stunte Other	the MLRA 1, 2, 4 ust (B11) c Invertebrates gen Sulfide Od ed Rhizospherince of Reduced thron Reduction of Stresses (Explain in Rerespith (inches): epth (inches):	4A, and 4B) s (B13) lor (C1) res along Livi d Iron (C4) on in Tilled S Plants (D1) ( marks)	ing Roots (C3 oils (C6) (LRR A)	33)	Water-Sta (MLRA 1, Drainage Dry-Seas Saturation Geomorp Shallow A FAC-Neu Raised Al Frost-Hea	ained Leave , 2, 4A, and Patterns (B on Water Tan Novisible on hic Position Aquitard (Dan tral Test (Dan nt Mounds ( ave Hummo	es (B9) I <b>4B)</b> able (C Aerial (D2) S) (D6) (L ccks (D	C2) Image .RR A)	ry (C9)	0
DROLOG etland Hyd imary Indic Surface High V Satura Water Sedim Drift D Algal M Iron Do Surface Inunda Sparse eld Observ arface Water ater Table uturation Pr	Y Irology Indicators: ators (minimum of one Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concav vations: er Present? Present? Yes esent? Yes esent? Yes	e required Imagery (I	B7) C (B8) No E No E nitoring wel	Water- (exceptox Salt City Aquatity Hydrogon Oxidizer Recent Stunter Other Stunter Stunder Stu	the MLRA 1, 2, 4 ust (B11) c Invertebrates gen Sulfide Od ed Rhizospher ace of Reduced to Iron Reduction of Stresses (Explain in Rerespith (inches): epth (inches): epth (inches): epth (inches):	4A, and 4B) s (B13) lor (C1) res along Livi d Iron (C4) on in Tilled S Plants (D1) ( marks)	ing Roots (C3 oils (C6) (LRR A)	33)	Water-Sta (MLRA 1, Drainage Dry-Seas Saturation Geomorp Shallow A FAC-Neu Raised Al Frost-Hea	ained Leave , 2, 4A, and Patterns (B on Water Tan Novisible on hic Position Aquitard (Dan tral Test (Dan nt Mounds ( ave Hummo	es (B9) I <b>4B)</b> able (C Aerial (D2) S) (D6) (L ccks (D	C2) Image .RR A)	ry (C9)	• • • • • • • • • • • • • • • • • • •

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

Project Site:	TACO TIME PL	<u>JYALLUP</u>					City/Count	y: <u>Pı</u>	uyallup/Piero	<u>ce</u>	Sampling I	Date:	5/30	)/2022	2
Applicant/Owner:	TACO TIME N	<u>W</u>							Sta	ate: WA	Sampling I	Point:	SP :	<u>2U</u>	
Investigator(s):	M. Heckert								Section, To	wnship, Ran	ge:				
Landform (hillslope, ter	rrace, etc.): r	riparian woodland				Loca	al relief (conca	ve, cor	nvex, none):	<u>none</u>		Slope	(%):	<u>1%</u>	
Subregion (LRR):			Lat:		-			Long	g:			Datum: _			
Soil Map Unit Name:	Pilchuck silt lo	<u>oam</u>								NWI clas	sification:				
Are climatic / hydrologi	c conditions on	the site typical for	this time	of ye	ar?	Y	es 🛛	No	☐ (If	no, explain i	n Remarks.)	)			
Are Vegetation □,	Soil □,	or Hydrology	☐, sigi	nifica	ntly dis	turbec				ces" present?		Yes	$\boxtimes$	No	
Are Vegetation $\square$ ,	Soil □,	or Hydrology	□, nat	urally	proble	matic	? (If nee	eded, e	xplain any a	nswers in Re	emarks.)				
SUMMARY OF FIN		ch site map sl		sam			locations,	transe	ects, impo	rtant featu	res, etc.				
Hydrophytic Vegetation	n Present?		Yes		No	$\boxtimes$	Is the Sample	lad Ara	12						
Hydric Soil Present?			Yes		No		within a Wet		a			Yes		No	
Wetland Hydrology Pre	esent?		Yes		No	$\boxtimes$									
Remarks: N OF RES	STAURANT														
VEGETATION - Use	e scientific na	ames of plants													
Tree Stratum (Plot siz	ze: <u>25 ft</u> )		Absolut % Cove		Domir Specie		Indicator Status	Dom	inance Tes	t Worksheet	:				
1. Populus trichocar	<u>pa</u>		90	_	yes		FAC	Numl	per of Domir	nant Species		-			(4)
2			<u>0</u>							ACW, or FAC		<u>2</u>			(A)
3							<u>=</u>	Total	Number of	Dominant		0			(D)
4								Spec	ies Across A	All Strata:		<u>3</u>			(B)
50% = <u>1</u> , 20% =	_		<u>90</u>		= Tota	al Cove	er	Perce	ent of Domir	nant Species		00			(A /D)
Sapling/Shrub Stratur	<u>n</u> (Plot size: <u>20 t</u>	<u>ft.</u> )								ACW, or FAC	<b>:</b>	<u>66</u>			(A/B)
1. Corylus cornuta			<u>50</u>		<u>ves</u>		<u>UPL</u>	Preva	alence Inde	x workshee	t:				
2. Rubus armeniacu	<u>'S</u>		<u>50</u>		<u>yes</u>		FAC		Tota	I % Cover of	<u>:</u>	Multip	ly by:		
3								OBL	species			x1 =			
4								FAC	N species	<u>0</u>		x2 =	<u>0</u>		
5								FAC	species	<u>140</u>		x3 =	420	<u>)</u>	
50% = <u>1</u> , 20% =	_		<u>100</u>		= Tota	al Cove	er	FACU	J species			x4 =	_		
Herb Stratum (Plot size	ze: <u>20 ft</u> )							UPL:	species	<u>50</u>		x5 =	250	<u>)</u>	
1			<u>0</u>					Colur	mn Totals:	<u>190</u> (A	A)		67	<u>0</u> (B)	
2.			_					Colai	mir rotaio.		ce Index = E	3/A = 3.5		_ ` ′	
3.								Hvdr	ophytic Ve	getation Indi		<u> </u>			
4.								, 		est for Hydro		etation			
5										nce Test is >	. , .				
6.										nce Index is					
7.										•					
8.										logical Adapt Remarks or o			rting		
9.									5 - Wetland	l Non-Vascul	ar Plants <sup>1</sup>	,			
10.								l				1/5			
									Problemation	c Hydrophytic	vegetation	ı (Expiain)			
11					= Tota			<sup>1</sup> Indic	ators of hyd	dric soil and v	vetland hydr	ology must			
50% = <u>1</u> , 20% = <u></u> Woody Vine Stratum		`	<u>0</u>		= 1018	ai Cove	EI	be pr	esent, unles	ss disturbed o	or problemat	tic.			
· ·	(Piot size:	_)													
1								Hvdr	ophytic						
2								-	tation	,	res .		No	)	$\boxtimes$
50% =, 20% =					= Tota	ıı COV	еі	Pres	ent?						
% Bare Ground in He															
Remarks:	blackberry looks	like all new grow	th												

Project Site: <u>TaPu PUYALLUP</u>

Depth Matrix			Redox Feat	ures					
nches) Color (moist)	%	Color (m	oist) %	Type <sup>1</sup> Loc <sup>2</sup>	Texture	<u> </u>	Rema	rks	
<u>0-16</u> <u>10 yr 3/2</u>	100				sandy loa	<u></u>			
			<del></del>						
<del></del>			<del></del>			<del></del>			
<del></del>			<del></del>						
<del></del>	-	-	<del></del>			<del></del>			
<del></del>			<del></del>						
/pe: C= Concentration, D=Deple	etion RM-R	educed Ma	rix CS-Covered or Co	ated Sand Grains	<sup>2</sup> I ocation: PI –	Pore Lining, M=N	// Atrix		
dric Soil Indicators: (Applicat						ators for Proble		: Soils <sup>3</sup> :	
Histosol (A1)			Sandy Redox (S5)			2 cm Muck (A1	•		
Histic Epipedon (A2)			Stripped Matrix (S6)			Red Parent Ma	-		
Black Histic (A3)			Loamy Mucky Minera	al (F1) (except MLRA	1) 🗆	Very Shallow D	ark Surface	(TF12)	
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix	(F2)		Other (Explain	in Remarks)		
Depleted Below Dark Surface	e (A11)		Depleted Matrix (F3)						
Thick Dark Surface (A12)			Redox Dark Surface	(F6)					
Sandy Mucky Mineral (S1)			Depleted Dark Surface	ce (F7)		cators of hydrophy			
Sandy Gleyed Matrix (S4)			Redox Depressions (	F8)		nless disturbed or		ent,	
strictive Layer (if present):									
De:									
oth (inches):				Hydric Soi	Is Present?		Yes	No	Σ
emarks: FILL PAD EDGE									
DROLOGY									
DROLOGY etland Hydrology Indicators:	e required;	check all tha	at apply)		Second	dary Indicators (2	or more requ	uired)	
DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on	e required;	check all tha	at apply) Water-Stained Leave	ss (B9)		dary Indicators (2 Water-Stained Lea	•	uired)	
DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on	e required;						aves (B9)	uired)	
PROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1)	e required;		Water-Stained Leave			Water-Stained Lea	aves (B9) and 4B)	uired)	
PROLOGY etland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2)	e required;	_	Water-Stained Leave	4A, and 4B)	V  ) 	Water-Stained Lea	aves (B9) and 4B) (B10)	uired)	
PROLOGY  Indicators:  Mary Indicators (minimum of on  Surface Water (A1)  High Water Table (A2)  Saturation (A3)	e required;		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11)	<b>4A, and 4B)</b> s (B13)	) () ()	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns	aves (B9) and 4B) (B10) r Table (C2)		
PROLOGY  Indicators: Indicators (minimum of on Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)	e required;		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od	<b>4A, and 4B)</b> s (B13)	) ) 1 1 2 2 2 3	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water	aves (B9) and 4B) (B10) r Table (C2) on Aerial Ima		
PROLOGY  Estland Hydrology Indicators: mary Indicators (minimum of on Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	e required;		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od	4A, and 4B) s (B13) or (C1) es along Living Roots	V (()	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Watel Saturation Visible	aves (B9) and 4B) a (B10) r Table (C2) on Aerial Ima		
PROLOGY  Intertain Hydrology Indicators:  Intertain Hydrology Indicators:  Intertain March (Minimum of on Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)	e required;		Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4)	V (() () () () () () () () () () () () ()	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi	aves (B9) and 4B) a (B10) r Table (C2) on Aerial Ima ion (D2) (D3)		
PROLOGY  International Authority (March 1997)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)	e required;		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reduction Stunted or Stresses I	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	V	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard (	aves (B9) and 4B) a (B10) r Table (C2) on Aerial Imation (D2) (D3) (D5)	agery (C9)	
PROLOGY  Intertage of the process of	Imagery (B		Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reduction	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	agery (C9)	
DROLOGY etland Hydrology Indicators: mary Indicators (minimum of on 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 Sparsely Vegetated Concav	Imagery (B		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reduction Stunted or Stresses I	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mounce	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	agery (C9)	
PROLOGY  Etland Hydrology Indicators: mary Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations:	Imagery (B ve Surface (l		Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mounce	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	agery (C9)	
PROLOGY etland Hydrology Indicators: mary Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations: rface Water Present?	Imagery (B' re Surface (l	7) DB8)	Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer  Depth (inches):	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mounce	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	agery (C9)	
PROLOGY etland Hydrology Indicators: mary Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations: rface Water Present? Yes ater Table Present?	Imagery (B' ve Surface (l		Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mounce	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	agery (C9)	
PROLOGY  Patland Hydrology Indicators: mary Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations: rface Water Present?  Yester Table Present?  Yester Table Present?	Imagery (B' ve Surface (l s	7) DB8)	Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer  Depth (inches):	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A) marks)	(C3)	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mounce	aves (B9) and 4B) f (B10) f Table (C2) on Aerial Imation (D2) (D3) (D5) ds (D6) (LRR	A)	No
DROLOGY etland Hydrology Indicators: imary Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations: urface Water Present?  Yestater Table Present?	Imagery (B' ve Surface (I s	7) DB8) NO M	Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses f Other (Explain in Rer  Depth (inches): Depth (inches):	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A) marks)	V (() () () () () () () () () () () () ()	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mound Frost-Heave Humi	aves (B9) and 4B) a (B10) r Table (C2) on Aerial Ima ion (D2) (D3) (D5) ds (D6) (LRR mocks (D7)	A)	
PROLOGY  Indicators (minimum of on 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 Sparsely Vegetated Concaveld Observations: Inface Water Present?  Inter Table Present?  Vesturation Present?  Yesturation Present?	Imagery (B ve Surface (I s	O O O O O O O O O O O O O O O O O O O	Water-Stained Leave (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer  Depth (inches): Depth (inches): Depth (inches): aerial photos, previous i	4A, and 4B)  s (B13) or (C1) es along Living Roots d Iron (C4) on in Tilled Soils (C6) Plants (D1) (LRR A) marks)	V (() () () () () () () () () () () () ()	Water-Stained Lea MLRA 1, 2, 4A, a Drainage Patterns Dry-Season Water Saturation Visible Geomorphic Positi Shallow Aquitard ( FAC-Neutral Test Raised Ant Mound Frost-Heave Humi	aves (B9) and 4B) a (B10) r Table (C2) on Aerial Ima ion (D2) (D3) (D5) ds (D6) (LRR mocks (D7)	A)	



August 13, 2014

Mr. Vern Strader Strader Development 3307 - 92<sup>nd</sup> 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

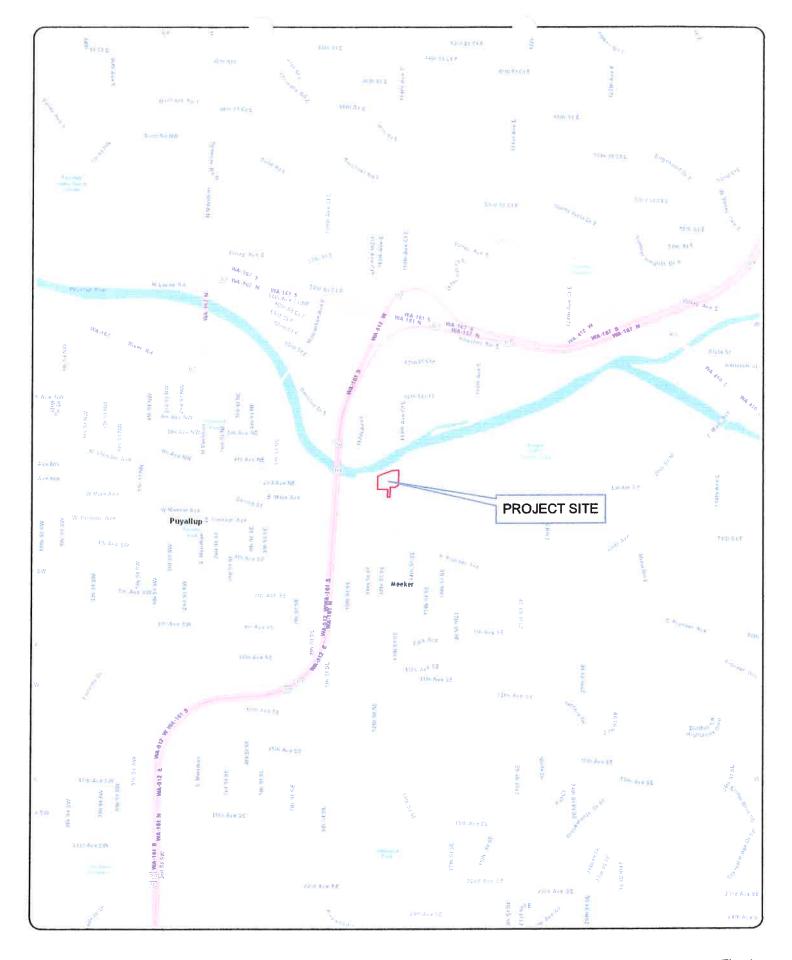


Fig. 1 Strader site

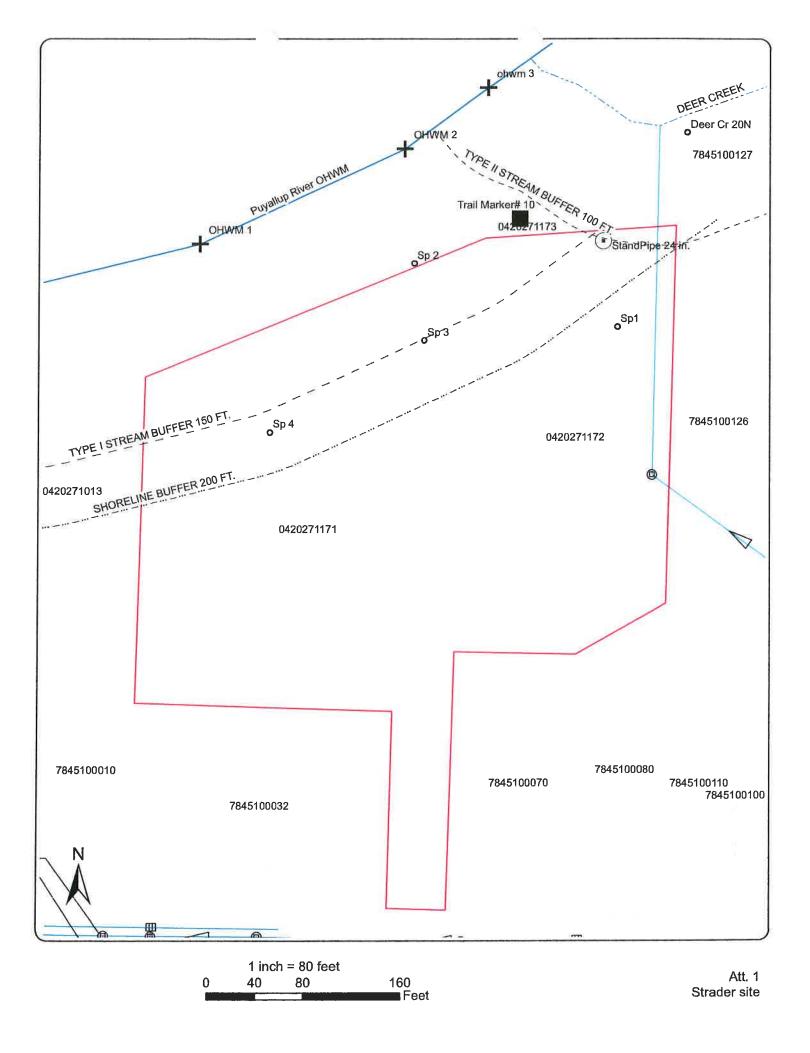


Fig. 2 Strader site



1 inch = 500 feet 0 250 500 1,000 Feet

Fig. 3 Strader site



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

Project Site: <u>Strader</u>					City/Coun	y: <u>Puyallup/Pierce</u> Sampling Date: <u>6/1/2014</u>
Applicant/Owner: Strader Dvelopment						State: WA Sampling Point: SP 1
Investigator(s): M. Heckert						Section, Township, Range:
Landform (hillslope, terrace, etc.): riparian woodland	<u>i</u>			Loc	al relief (conca	ve, 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	r this time	of ye	ar?	Υ	′es ⊠	No [ (If no, explain in Remarks.)
Are Vegetation □, Soil □, or Hydrology	□, sign	ificar	ntly dis	turbe	d? Are "I	lormal Circumstances" present? Yes 🛛 No 🗀
Are Vegetation ☐, Soil ☐, or Hydrology	☐, natu	ırally	proble	matic	? (If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	howing s	amp	oling	poin	t locations,	transects, important features, etc.
Hydrophytic Vegetation Present?			No	×		
Hydrlc Soil Present?	Yes		No	$\boxtimes$	Is the Samp within a Wet	
Wetland Hydrology Present?	Yes		No	×	WILLIIII a TVG	(and )
Remarks: stream corridor upslope of river trail						
VEGETATION - Use scientific names of plants						
Tree Stratum (Plot size: 25 ft)	Absolute <u>% Cover</u>		Domir Specie		Indicator Status	Dominance Test Worksheet:
1. Populus trichocarpa	<u>60</u>	_	yes		FAC	Number of Dominant Species 1
2.	<u>0</u>					That Are OBL, FACW, or FAC:
3.	-				<u>2</u>	Total Number of Dominant
4	- 10					Species Across All Strata:
50% = <u>1</u> , 20% = <u>1</u>	<u>60</u>		= Tota	l Cov	er	Percent of Dominant Species 33 (A
Sapling/Shrub Stratum (Plot size: 20 ft.)						That Are OBL, FACW, or FAC:
1. Rubus procera	<u>50</u>		<u>yes</u>		FACU	Prevalence Index worksheet:
2			-			Total % Cover of: Multiply by:
3.	-					OBL species x1 =
4	-					FACW species $\underline{0}$ $x2 = \underline{0}$
5	-					FAC species $\underline{60}$ $x3 = \underline{180}$
50% = <u>1</u> , 20% =	<u>30</u>		= Tota	l Cov	er	FACU species $50$ $x4 = 200$
Herb Stratum (Plot size: 20 ft)						UPL species $\frac{40}{200}$ x5 = $\frac{200}{200}$
1. <u>Ipomaea purpurea</u>	40		yes		<u>UPL</u>	Column Totals: <u>150</u> (A) <u>580</u> (B)
2						Prevalence Index = B/A = 3.9
3	-				5	Hydrophytic Vegetation Indicators:
4	-		-			☐ 1 – Rapid Test for Hydrophytic Vegetation
5					7	2 - Dominance Test is >50%
6						☐ 3 - Prevalence Index is ≤3.01
7	-					4 - Morphological Adaptations¹ (Provide supporting
8					8	data in Remarks of on a separate sheet)
9			_		( <del></del>	5 - Wetland Non-Vascular Plants <sup>1</sup>
10					33 <del></del>	☐ Problematic Hydrophytic Vegetation¹ (Explain)
11.						<sup>1</sup> Indicators of hydric soil and wetland hydrology must
50% = <u>1</u> , 20% =	<u>40</u>		= Tota	I Cov	er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)						
1	( <del>1)</del>					Hydrophytic
2.			_		<del></del>	Vegetation Yes □ No ⊠
50% =, 20% =	-		= Tota	I Cove	er	Present?
% Bare Ground in Herb Stratum						
Remarks: understory stunted Rubus spp. loc	oks like stu	nted	bt wat	er		

Project Site: Strader SOIL Sampling Point: SP Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features Loc2 Remarks (inches) % Type<sup>1</sup> Texture Color (moist) Color (moist) 0-16 10 yr 3/3 100 sandy loam <sup>2</sup>Location: PL=Pore Lining, M=Matrix <sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Indicators for Problematic Hydric Soils3: Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) П 2 cm Muck (A10) Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Loamy Mucky Mineral (F1) (except MLRA 1) Black Histic (A3) Very Shallow Dark Surface (TF12) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) 3Indicators of hydrophytic vegetation and Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Туре: **Hydric Soils Present?** Yes No  $\boxtimes$ Depth (inches): Remarks: slope - may be fill near HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (2 or more required) Primary Indicators (minimum of one required; check all that apply) Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) High Water Table (A2) (except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) П Salt Crust (B11) Saturation (A3) Water Marks (B1) Dry-Season Water Table (C2) Aquatic Invertebrates (B13) Saturation Visible on Aerial Imagery (C9) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Geomorphic Position (D2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Shallow Aquitard (D3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Stunted or Stresses Plants (D1) (LRR A) Surface Soil Cracks (B6) Frost-Heave Hummocks (D7) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8)

Yes

□ No

 $\boxtimes$ 

Wetland Hydrology Present?

Fleld Observations: Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Remarks:

Yes

Yes

Yes

M

Ø

M

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

Depth (inches):

Depth (inches):

Depth (inches):

No

Nο

No

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

Project Site:	Strader						City/Count	ty: <u>Pu</u>	yallup/Pier	<u>ce</u>	Sampling D	ate:	6/1/:	2014	
Applicant/Owner:	Strader Dvelopme	<u>nt</u>							St	ate: WA	Sampling P	oint:	SP:	2	
Investigator(s):	M. Heckert							;	Section, To	wnship, Ran	ge:				
Landform (hillslope, te	rrace, etc.): ripa	rian woodland				Loca	I relief (conca	ive, con	vex, none):	none		Slope	(%):	1%	
Subregion (LRR):			Lat:					Long	:			Datum:			
Soil Map Unit Name:	Pilchuck silt loam	ł			_			-		NWI clas	sification:				
Are climatic / hydrologi		•	this time	e of v	ear?	Y	es 🛛	No	☐ (If	f no, explain i	in Remarks.)				
Are Vegetation .		Hydrology [					_		•	ces" present	•	Yes	$\boxtimes$	No	П
Are Vegetation □,	_	Hydrology [			-					nswers in Re			_		_
, no regolation,		,	_, ,,,		, prob.	Sincilo	. (117.0	oucu, on	p.2 a		-,,				
SUMMARY OF FIN	DINGS - Attach	site man sh	owina	sam	nlina	point	locations.	transe	cts. impo	rtant featu	ıres. etc.				
Hydrophytic Vegetation			Yes		No	Ø									
Hydric Soil Present?			Yes		No		Is the Samp		<b>a</b>			Yes		No	⊠
Wetland Hydrology Pre	acant?		Yes		No		within a Wet	lland?					_		-
			165		INU										
Remarks: stream co	orridor upslope of	river trail													
					-										
VEGETATION Use	scientific name	es of plants	Absolu	to	Domii		Indicator								
Tree Stratum (Plot siz	ze: <u>25 ft</u> )		% Cov		Speci		Status	Domii	nance Tes	t Worksheet	:				
1. Populus trichocar	pa		90		<u>yes</u>		FAC	Numb	er of Domii	nant Species		4			/A\
2			0					That A	re OBL, F	ACW, or FAC	):	1			(A)
3							2	Total I	Number of	Dominant					(D)
4									es Across A			<u>3</u>			(B)
50% = <u>1</u> , 20% =	_		<u>90</u>		= Tota	al Cove	eΓ	Percei	nt of Domir	ant Species					(4 (=)
Sapling/Shrub Stratur	n (Plot size: 20 ft.)									ACW, or FAC		<u>33</u>			(A/B)
Cornus stolonifera			50		yes		FACW	Preva	lence Inde	x workshee	t:				
2	=								Tota	al % Cover of	:	Multip	ly by:		
3.							-	OBL s	pecies		÷	x1 =			
4									species	50		x2 =	100	)	
5,									pecies	90		x3 =	270	_	
50% = <u>1</u> , 20% =			30		- Tota	al Cove			species	22		x4 =	=	-	
			30		- 100	ai Cove	;1		•		•	x5 =	-	_	
Herb Stratum (Plot siz	- <del></del> -							UPLS	pecies	440.0		X5 =	-	2 (-)	
1. Symphoricarpus a	<u>albus</u>		<u>100</u>		<u>yes</u>		NI NI	Colum	n Totals:	<u>140</u> (A	•		3/0	<u>0</u> (B)	
2.							1			Prevalen	ce Index = B/	A = <u>2.6</u>			
3							S	Hydro	phytic Ve	getation Indi	icators:				
4					-		1 <del>3 11 11 11</del>		1 – Rapid 1	est for Hydro	ophytic Vegel	ation			
5									2 - Domina	nce Test is >	50%				
6								⊠ ;	3 - Prevale	nce Index is	≤3.0¹				
7								_ 4	- Morphol	logical Adapt	ations¹ (Prov	ide suppo	rting		
8			-								n a separate		Ü		
9									5 - Wetland	l Non-Vascul	ar Plants1				
10									Problematic	- Hydronhytic	c Vegetation <sup>1</sup>	(Evolain)			
11.			7				2000	_ '	10Dicilian	o i i yai opii ya	o vogotazon	(Explain)			
50% = <u>1</u> , 20% =			40		= Tota	al Cove	-				vetland hydro		:		
Woody Vine Stratum (			<del>10</del>		- 1016	ii Gove	'	be pre	sent, unles	s disturbed o	or problemation	Э.			
	FIOL SIZE)														
1							: <del></del>	Hvdro	phytic						
2								Veget		,	Yes	$\boxtimes$	No		
50% =, 20% = _					= I ota	il Cove	г	Prese	nt?						
% Bare Ground in Her	b Stratum														
Remarks: r															

Project Site: Strader

SOIL									Sampling Poir	nt: SP 2				
Profile Desc	ription: (Describe	to th	e depth	ı need	ed to d	ocument the indicator or conf	firm the absenc	ce of indicate	ors.)					
Depth	Matrix					Redox Features								
(inches)	Color (moist)		%	Co	olor (mo	ist) % Type <sup>1</sup>	Loç²	Texture			Remark	s		
0-16	10 yr 3/2	_	100	-				sandy lo	am					
-	-	-						-	- /					
-	-	92	-				-		2 2					
	-	-						10-2011						
-		2												
-		_												
		_					-							
		-				STATES STATES								
¹Type: C= Co	ncentration, D=De	pletio	n, RM=I	Reduce	ed Matri	x, CS=Covered or Coated San	d Grains, 2l	Location: PL=	Pore Lining, M=I	Matrix				
						otherwise noted.)		Indic	cators for Proble	ematic I	lydric S	oils³:		
☐ Histoso						Sandy Redox (S5)			2 cm Muck (A		-			
	pipedon (A2)					Stripped Matrix (S6)		_	Red Parent Ma	-	ΓF2)			
_	listic (A3)					Loamy Mucky Mineral (F1) (ex	xcept MLRA 1)		Very Shallow I		•	F12)		
_	en Sulfide (A4)					Loamy Gleyed Matrix (F2)	, , , , , , , , , , , , , , , , , , ,		Other (Explain		•	,		
	ed Below Dark Sur	face (	A11)			Depleted Matrix (F3)		u	Outor (Explain		/			
_ '	ark Surface (A12)	•	A11)			Redox Dark Surface (F6)								
_	Mucky Mineral (S1							3Indie	cators of hydroph	vtic vea	etatlon :	and		
-	Gleyed Matrix (\$4)	•				Depleted Dark Surface (F7) Redox Depressions (F8)		w	etland hydrology	must be	presen			
						Redux Depressions (Fo)	F -10-20	uı	nless disturbed o	r proble	matic.			_
	ayer (if present):						Į.							
Type:	<del></del>						Hydric Soils	D		Yes		No		⊠
Depth (inches Remarks:	slope - may be fill						Trydric dolls	resenti		103	لبا			
YDROLOG	Y													
	rology Indicators	:						******						
Primary Indica	ators (minimum of	one re	equired;	check	all that	apply)		Secon	dary Indicators (2	2 or mor	e require	ed)		
☐ Surface	e Water (A1)					Water-Stained Leaves (B9)			Nater-Stained Le	aves (B	9)			
_	ater Table (A2)				_	(except MLRA 1, 2, 4A, and 4	4B)		MLRA 1, 2, 4A, a	and 4B)	1			
	ion (A3)					Salt Crust (B11)	-,		Drainage Patterns	-				
	Marks (B1)					Aquatic Invertebrates (B13)			Ory-Season Wate		(C2)			
	ent Deposits (B2)					Hydrogen Sulfide Odor (C1)			Saturation Visible		-	erv (C9	)	
_	eposits (B3)					Oxidized Rhizospheres along	Living Roots (C:		Geomorphic Posit		-	, (50	,	
	lat or Crust (B4)					Presence of Reduced Iron (C4			Shallow Aquitard	•	,			
•	posits (B5)					Recent Iron Reduction in Tilled			FAC-Neutral Test					
	e Soil Cracks (B6)					Stunted or Stresses Plants (D	, ,		Raised Ant Moun		(LRR A	١		
	tion Visible on Aeri	ol )~-	naoe : /D	7)		Other (Explain in Remarks)	i) (ENN M)		Frost-Heave Hum			7		
				,	لبا	Other (Explain in Remarks)		L .	-iost-neave rium	IIIIOCKS (	(07)			
☐ Sparse Field Observ	ly Vegetated Conc	ave 3	unace (	(00)										
		<b>/</b>	_	NI-	671	Double (inches)								
Surface Wate		es 		No	Ø	Depth (inches):								
Water Table F		'es		No	$\boxtimes$	Depth (inches):								
Saturation Pre includes capi	Y	'es		No	$\boxtimes$	Depth (inches):	W	etland Hydro	ology Present?		Yes		No	
		n gaud	ge, mon	itorina	well. ac	erial photos, previous inspection	ns), if available:							
	( 52	5			.,		••							
Remarks:		-		-	-								-	
willians.														

# WETLAND DETERMINA... ON DATA FORM - Western Mountains, vaileys, and Coast Region

Project Site: <u>Strader</u>			City/Count	ty: <u>Puyallup/Pierce</u> Sampling Da	ate:	6/1/2014	
Applicant/Owner: <u>Strader Dvelopment</u>				State: WA Sampling Po	int:	SP 3	
Investigator(s): M. Heckert				Section, Township, Range:			
Landform (hillslope, terrace, etc.): riparian woodland		Loc	al relief (conca	ave, convex, none): <u>none</u>	Slope	(%): <u>1%</u>	
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 y	ear?	′es ⊠	No (If no, explain in Remarks.)			
Are Vegetation ☐, Soil ☐, or Hydrology	□, significa	antly disturbe	d? Are "N	Normal Circumstances" present?	Yes	No	
Are Vegetation ☐, Soil ☐, or Hydrology	☐, naturall	y problematio	:? (If nee	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map sh	owing san	pling poin	t locations,	transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes 🗌	No 🛛	Is the Samp	led Area			
Hydric Soil Present?	Yes 🗌	No 🛛	within a Wet	tland?	Yes	☐ No	
Wetland Hydrology Present?	Yes 🔲	No 🛛					
Remarks: stream corridor upslope of river trail							
- NI-LILLING WATER SHOWN THE TRAIN TO THE STATE OF THE ST				11-11-11-11-11-11-11-11-11-11-11-11-11-			
VEGETATION - Use scientific names of plants							
Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. Populus trichocarpa	80	yes	FAC	Number of Dominant Species	1		(A)
2	<u>0</u>			That Are OBL, FACW, or FAC:	1		(^)
3.				Total Number of Dominant	<u>2</u>		(B)
4			-	Species Across All Strata:	2		(5)
50% = <u>1</u> , 20% = <u>1</u>	<u>80</u>	= Total Cov	er	Percent of Dominant Species	<u>50</u>		(A/B)
Sapling/Shrub Stratum (Plot size: 20 ft.)				That Are OBL, FACW, or FAC:			(,,,,
1. Rubus procera	<u>100</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index worksheet:			
2		=(	3 <del></del>	Total % Cover of:	Multip	ly by:	
3		-	-	OBL species	x1 =		
4		-	2	FACW species <u>0</u>	x2 =	<u>0</u>	
5	-		-	FAC species 80	x3 =	<u>240</u>	
50% = 1, 20% =	1000	= Total Cov	er	FACU species 100	x4 =	400	
Herb Stratum (Plot size: 20 ft)				UPL species	x5 =		
1.	<u>0</u>		-	Column Totals: 180 (A)		<u>640</u> (B)	
2				Prevalence Index = B/	4 = <u>3.6</u>		
3				Hydrophytic Vegetation Indicators:			
4	4 10	-	-	☐ 1 – Rapid Test for Hydrophytic Vegeta	ation		
5				☐ 2 - Dominance Test is >50%			
6				☐ 3 - Prevalence Index is ≤3.01			
7			-	4 - Morphological Adaptations¹ (Provi	de suppo	rting	
8				data in Remarks or on a separate	sheet)		
9		. 4		5 - Wetland Non-Vascular Plants <sup>1</sup>			
10	-	-		Problematic Hydrophytic Vegetation <sup>1</sup>	(Explain)		
11		-		4			
50% = 1, 20% =	<u>40</u>	= Total Cov	er	<sup>1</sup> Indicators of hydric soil and wetland hydrol be present, unless disturbed or problematic			
Woody Vine Stratum (Plot size:)							
1			s <del></del>				
2		-	V	Hydrophytic Vegetation Yes [	_	No	×
50% =, 20% =	-	= Total Cov	er	Present?	_		
% Bare Ground in Herb Stratum							
Remarks: understory stunted Rubus spp. loo	ks like stunte	d by water		I The second sec			
Nomario.							

Project Site: Strader

Depth	Matrix	tue aebtu	needed to d	locument the Indic Redox F		II the absence	Of Indicators	··,			
	(moist)	%	Color (mo		Type <sup>1</sup>	Loc2	Texture		Remarks		
	yr 3/3	100					sandy loan	1			
								-			
					,			V			
-			-			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-				
5440443 H			-		-						
=======================================		7		<u></u>		-		-			
-			4.7		-	<del></del>		100000000000000000000000000000000000000			
Type: C= Concentrat	ion, D=Deple	tion, RM≃R	Reduced Mate	rix, CS=Covered or	Coated Sand (	Grains. <sup>2</sup> Lo	——— cation: PL≃Po	ore Lining, M=Matrix	(		
łydric Soil Indicator	s: (Applicab	le to all LF	Rs, unless	otherwise noted.)			Indicat	tors for Problemati	c Hydric Soils	3:	
☐ Histosol (A1)				Sandy Redox (S5	5)			2 cm Muck (A10)			
Histic Epipedon	(A2)			Stripped Matrix (S	36)			Red Parent Materia	l (TF2)		
Black Histic (A3	)			Loamy Mucky Mir	neral (F1) (exc	ept MLRA 1)		Very Shallow Dark	Surface (TF12)	)	
☐ Hydrogen Sulfid	le (A4)			Loamy Gleyed Ma	atrix (F2)			Other (Explain in Re	emarks)		
Depleted Below	Dark Surface	e (A11)		Depleted Matrix (I	F3)						
☐ Thick Dark Surf	ace (A12)			Redox Dark Surfa	ice (F6)		2				
☐ Sandy Mucky №	lineral (S1)			Depleted Dark Su	ırface (F7)			tors of hydrophytic v land hydrology must			
Sandy Gleyed I	Matrix (S4)			Redox Depression	ns (F8)			ess disturbed or prob			_
testrictive Layer (if	present):				4						
уре:									_		_
epth (inches):						Hydric Soils P	resent?	Yes		lo	
								_ <u> </u>			_
YDROLOGY											
Vetland Hydrology I				(			Speeded	un Indicators (2 or m	nome required)	1811	
Vetland Hydrology I Primary Indicators (mi	nimum of one	e required;			Oues (20)			ry Indicators (2 or mater Stainard Legyes			_
Vetland Hydrology I Primary Indicators (mi Surface Water	nimum of one (A1)	e required;	check all that	Water-Stained Le	, ,	<u> </u>	☐ Wa	ater-Stained Leaves	(B9)		
Vetland Hydrology I rimary Indicators (mi Surface Water High Water Tal	nimum of one (A1) ble (A2)	e required;		Water-Stained Le (except MLRA 1,	, ,	)	□ Wa	ater-Stained Leaves LRA 1, 2, 4A, and 4	(B9) <b>IB)</b>		
Vetland Hydrology I rimary Indicators (m Surface Water High Water Tal Saturation (A3)	nimum of one (A1) ble (A2)	e required;	0	Water-Stained Le (except MLRA 1, Salt Crust (B11)	2, 4A, and 4B	)	Wa (M)	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1)	(B9) <b>IB)</b> 0)		
Vetland Hydrology I rimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E	nimum of one (A1) ble (A2)	e required;		Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra	2, 4A, and 4B ates (B13)	)	Wa   (M   Dra   Dra	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat	(B9) IB) 0) ole (C2)	C9)	
Vetland Hydrology I rimary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo	nimum of one (A1) ble (A2) A1) sits (B2)	e required;	0	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide	2, 4A, and 4B ates (B13) Odor (C1)		War (M) Dra	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Pattems (B1 y-Season Water Tat turation Visible on A	(B9) (B) 0) ole (C2) verial Imagery (	C9)	
Vetland Hydrology I Arimary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (I	nimum of one (A1) ble (A2) 31) ssits (B2) B3)	e required;	0000	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp	2, 4A, and 4B ates (B13) Odor (C1) heres along Liv		Wa (M) Dra Dra Sa	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (	(B9) (B) 0) ole (C2) verial Imagery (	C9)	
Vetland Hydrology I Primary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I	nimum of one (A1) ole (A2) i1) osits (B2) B3) ust (B4)	e required;	0000	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu	2, 4A, and 4B ates (B13) Odor (C1) heres along Linced Iron (C4)	ving Roots (C3)	Wa (M) Dra Dra Dra Ge	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3)	(B9) (B9) 0) ole (C2) verial Imagery (	C9)	
Vetland Hydrology I Primary Indicators (m) Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Iron Deposits (I	nimum of one (A1) ole (A2) (A1) osits (B2) (B3) ust (B4)	e required;	00000	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu	2, 4A, and 4B ates (B13) Odor (C1) heres along Living Line (C4) action in Tilled S	ving Roots (C3) Solls (C6)	Wa (M) Dra Dra Dra Ge	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3) C-Neutral Test (D5)	(B9) (B) 0) ole (C2) verial Imagery ( D2)	C9)	
Vetland Hydrology I Primary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I	nimum of one (A1) ble (A2) i1) sits (B2) B3) ust (B4) 35) acks (B6)		00000	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress	2, 4A, and 4B ates (B13) Odor (C1) heres along Living Living (C4) uced Iron (C4) ction in Tilled Ses Plants (D1)	ving Roots (C3) Solls (C6)	Wa (M) (M) Dri	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (  allow Aquitard (D3)  C-Neutral Test (D5)  ised Ant Mounds (D	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)	C9)	
Vetland Hydrology I Irimary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil	nimum of one (A1) ble (A2) sits (B2) B3) ust (B4) acks (B6) ble on Aerial I	magery (B		Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu	2, 4A, and 4B ates (B13) Odor (C1) heres along Living Living (C4) uced Iron (C4) ction in Tilled Ses Plants (D1)	ving Roots (C3) Solls (C6)	Wa (M)  Dra  Dra  Sa  Ge  Sh  Ra	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3) C-Neutral Test (D5)	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)	C9)	
Petland Hydrology I Primary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil	nimum of one (A1) ble (A2) sits (B2) B3) ust (B4) acks (B6) ble on Aerial I	magery (B		Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress	2, 4A, and 4B ates (B13) Odor (C1) heres along Living Living (C4) uced Iron (C4) ction in Tilled Ses Plants (D1)	ving Roots (C3) Solls (C6)	Wa (M) (M) Dri	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (  allow Aquitard (D3)  C-Neutral Test (D5)  ised Ant Mounds (D	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)	C9)	
Vetland Hydrology I Primary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget ield Observations:	nimum of one (A1) ble (A2) sits (B2) B3) ust (B4) acks (B6) ble on Aerial I ated Concave	lmagery (B e Surface (l		Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Linuced Iron (C4) action in Tilled Ses Plants (D1) Remarks)	ving Roots (C3) Solls (C6)	Wa (M) (M) Dri	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (  allow Aquitard (D3)  C-Neutral Test (D5)  ised Ant Mounds (D	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)	C9)	
Petland Hydrology I Primary Indicators (m) Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget ield Observations:	nimum of one (A1) ble (A2) sits (B2) B3) ust (B4) B5) acks (B6) ble on Aerial I ated Concave	lmagery (B e Surface (l	7) No 🛛	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Li- uced Iron (C4) action in Tilled S es Plants (D1) Remarks)	ving Roots (C3) Solls (C6)	Wa (M) (M) Dri	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (  allow Aquitard (D3)  C-Neutral Test (D5)  ised Ant Mounds (D	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)	C9)	
Petland Hydrology I Primary Indicators (m) Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget Field Observations: Furface Water Present Vater Table Present?	nimum of one (A1) ble (A2) sits (B2) B3) ust (B4) B5) acks (B6) ble on Aerial I ated Concave	magery (B' e Surface (l		Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Li- uced Iron (C4) action in Tilled S es Plants (D1) Remarks)	ving Roots (C3) Soils (C6) (LRR A)	Wa (M) C Dra C Dra C Sa C Se C Sh C FA C Fac	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3) .C-Neutral Test (D5) ised Ant Mounds (D ost-Heave Hummocl	(B9) (B9) (D1) (D2) (D2) (B6) (LRR A) (RS (D7)		
Perimary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget Field Observations: Surface Water Present? Saturation Present? Saturation Present? Includes capillary fring	nimum of one (A1) cle (A2) d1) sits (B2) B3) ust (B4) acks (B6) cle on Aerial i ated Concave ft? Yes Yes	magery (B e Surface (I 	7) DB8)	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Lived Iron (C4) action in Tilled S es Plants (D1) Remarks) s):	ving Roots (C3) Soils (C6) (LRR A) Wet	Wa (M) C Dra C Dra C Sa C Se C Sh C FA C Fac	ater-Stained Leaves  LRA 1, 2, 4A, and 4  ainage Pattems (B1  y-Season Water Tat  turation Visible on A  comorphic Position (  allow Aquitard (D3)  C-Neutral Test (D5)  ised Ant Mounds (D	(B9) (BB) 0) ole (C2) Aerial Imagery ( D2) (6) (LRR A)		
Primary Indicators (m) Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget Sield Observations: Surface Water Present?	nimum of one (A1) cle (A2) d1) sits (B2) B3) ust (B4) acks (B6) cle on Aerial i ated Concave ft? Yes Yes	magery (B e Surface (I 	7) DB8)	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Lived Iron (C4) action in Tilled S es Plants (D1) Remarks) s):	ving Roots (C3) Soils (C6) (LRR A) Wet	Wa (M) C Dra C Dra C Sa C Se C Sh C FA C Fac	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3) .C-Neutral Test (D5) ised Ant Mounds (D ost-Heave Hummocl	(B9) (B9) (D1) (D2) (D2) (B6) (LRR A) (RS (D7)		
Perimary Indicators (mi Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Veget Field Observations: Furface Water Present Vater Table Present? Findudes capillary fring	nimum of one (A1) cle (A2) d1) sits (B2) B3) ust (B4) acks (B6) cle on Aerial i ated Concave ft? Yes Yes	magery (B e Surface (I 	7) DB8)	Water-Stained Le (except MLRA 1, Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in	2, 4A, and 4B ates (B13) Odor (C1) heres along Lived Iron (C4) action in Tilled S es Plants (D1) Remarks) s):	ving Roots (C3) Soils (C6) (LRR A) Wet	Wa (M) C Dra C Dra C Sa C Se C Sh C FA C Fac	ater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B1 y-Season Water Tat turation Visible on A comorphic Position ( allow Aquitard (D3) .C-Neutral Test (D5) ised Ant Mounds (D ost-Heave Hummocl	(B9) (B9) (D1) (D2) (D2) (B6) (LRR A) (RS (D7)		

# WETLAND DETERMINA ON DATA FORM - Western Mountains, Jalleys, and Coast Region

Project Site: <u>Strader</u>			City/Coun	ty: <u>Puyallup/Pierce</u> Sampling Date	te:	6/1/2014	<u> </u>
Applicant/Owner: <u>Strader Dvelopment</u>				State: WA Sampling Poi	int:	<u>SP 4</u>	
Investigator(s): M. Heckert				Section, Township, Range:			
Landform (hillslope, terrace, etc.): riparian woodland	1	Loc	al rellef (conc	ave, convex, none): <u>none</u>	Stope	(%): <u>1%</u>	
Subregion (LRR):	Lat:			Long: D	atum: _		
Soil Map Unit Name: Sutan silt loam				NWł classification:			
Are climatic / hydrologic conditions on the site typical for	r this time of y	/ear?	Yes 🖾	No 🔲 (If no, explain in Remarks.)			
Are Vegetation ☐, Soil ☐, or Hydrology	☐, signific	antly disturbe	d? Are "	Normal Circumstances" present?	Yes	⊠ No	
Are Vegetation ☐, Soil ☐, or Hydrology	☐, natural	ly problemati	c? (If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map s			t locations,	transects, important features, etc.			
Hydrophytic Vegetation Present?	Yes 🗌	<del></del>	Is the Samp	aled Area		_	_
Hydric Soil Present?	Yes 🛚	_	within a We		Yes	□ No	⋈
Wetland Hydrology Present?	Yes 🗌	No ⊠	L				1,0
Remarks: stream corridor upslope of river trail							
<u></u>					-		
VEGETATION – Use scientific names of plants		Daminant	Indicator				
Tree Stratum (Plot size: 25 ft)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. Populus trichocarpa	<u>60</u>	yes	<u>FAC</u>	Number of Dominant Species	<u>1</u>		(A)
2.	<u>0</u>		-	That Are OBL, FACW, or FAC:	<u>.</u>		(' ')
3.		-	<u>=</u>	Total Number of Dominant	<u>3</u>		(B)
4.				Species Across All Strata:	<u>=</u>		(-)
50% = <u>1</u> , 20% = <u>1</u>	<u>60</u>	= Total Cov	/er	Percent of Dominant Species	<u>33</u>		(A/B)
Sapling/Shrub Stratum (Plot size: 20 ft.)				That Are OBL, FACW, or FAC:			
1. Rubus procera	<u>50</u>	<u>yes</u>	FACU	Prevalence Index worksheet:			
2.		*******	-	Total % Cover of:	Multipl	ly by:	
3.		<u> </u>	Y	OBL species	x1 =		
4		<del></del> 0	0.77	FACW species 0	x2 =	0	
5.		<del></del> 3)		FAC species <u>60</u>	x3 =	<u>180</u>	
50% = 1, 20% =	<u>30</u>	= Total Cov	/er	FACU species <u>50</u>	x4 =	200	
Herb Stratum (Plot size: 20 ft)				UPL species 40	x5 =	200	
1. <u>Ipomaea purpurea</u>	40	<u>yes</u>	UPL	Column Totals: 150 (A)		<u>580</u> (B	)
2				Prevalence Index = B/A	= <u>3.9</u>		
3.	No. 100			Hydrophytic Vegetation Indicators:			
4			V	☐ 1 – Rapid Test for Hydrophytic Vegetat	tion		
5	2/11/0/17	_		2 - Dominance Test is >50%			
6	*****		s <del></del>	☐ 3 - Prevalence Index is ≤3.01			
7.	-	-		4 - Morphological Adaptations¹ (Provid		rting	
8		-	-	data in Remarks or on a separate s	heet)		
9			· · · · · · ·	5 - Wetland Non-Vascular Plants <sup>1</sup>			
10	<del></del>			Problematic Hydrophytic Vegetation¹ (I	Explain)		
11	-			14 . 15 . 4			
50% = 1, 20% =	40	= Total Cov	er	<sup>1</sup> Indicators of hydric soil and wetland hydrolo be present, unless disturbed or problematic.			
Woody Vine Stratum (Plot size:)							
1.	<del></del>	-					
2				Hydrophytic Vegetation Yes □	î.	No	⋈
50% = 20% =		= Total Cov	er	Present?	\$1		
% Bare Ground in Herb Stratum							
Remarks: understory stunted Rubus spp. loc	oks like stunte	d by water a	ppears to flood	docasionally			

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 Remarks % Loc2 Texture (inches) Color (moist) Color (moist) Type<sup>1</sup> 0-16 10 yr 3/3 100 sandy loam <sup>2</sup>Location: PL=Pore Lining, M=Matrix <sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Indicators for Problematic Hydric Soils3: Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) 2 cm Muck (A10) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) 3Indicators of hydrophytic vegetation and Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (If present): Type: **Hydric Soils Present?** Yes Nο  $\boxtimes$ Depth (inches): Remarks: slope - may be fill near HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) High Water Table (A2) (except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)  $\Box$ Saturation (A3) Salt Crust (B11) Dry-Season Water Table (C2) Water Marks (B1) Aquatic Invertebrates (B13) Saturation Visible on Aerial Imagery (C9) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Geomorphic Position (D2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Shallow Aquitard (D3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Surface Soil Cracks (B6) Frost-Heave Hummocks (D7) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) Field Observations:

Yes

□ No

 $\boxtimes$ 

Wetland Hydrology Present?

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

 $\boxtimes$ 

 $\boxtimes$ 

図

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

No

No

No

Depth (inches):

Depth (inches):

Depth (inches):

П

Yes

Yes

Yes

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



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"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



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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



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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



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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.





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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 E. Billingsley, PE Project 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

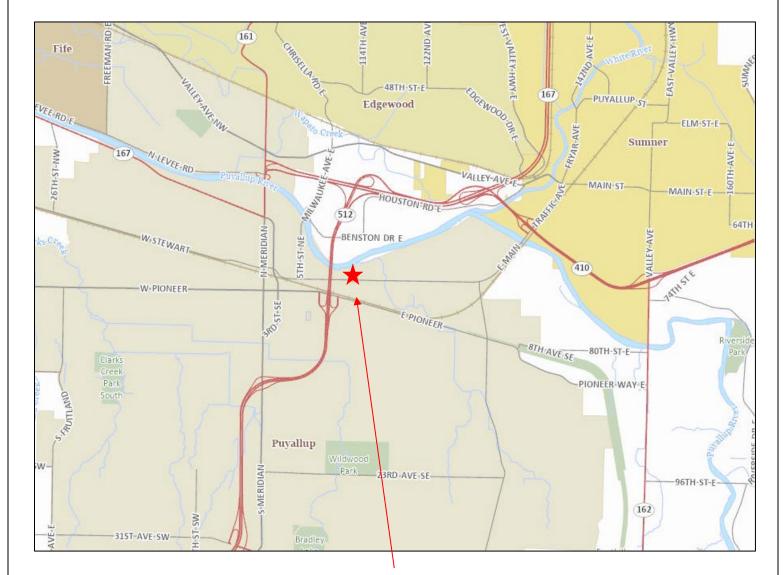
Figure 4: Geologic Map

Appendix A – Subsurface Explorations Appendix B – Laboratory Test Results



Eric W. Heller, PE, LG Senior Geotechnical Engineer





### **Approximate Site Location**

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



Not to Scale



### **Site Location Map**

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

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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)



Not to Scale



## **Site & Exploration Map**

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

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### **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	С
31A	Puyallup fine sandy loam	Alluvium	0 to 3	Slight	Α



Not to Scale

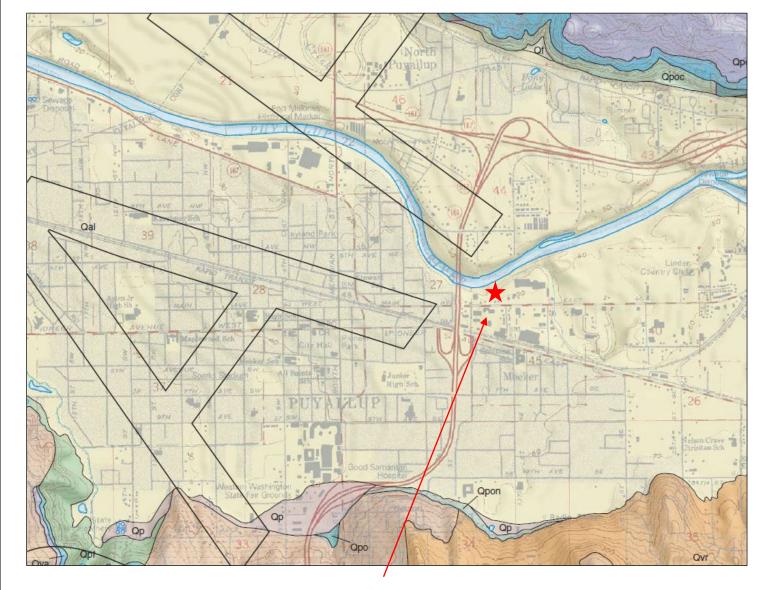


### **NRCS Soils Map**

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

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### **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



## **Geologic Map**

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

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**Appendix A**Subsurface Explorations

### SOIL CLASSIFICATION SYSTEM

MA	JOR DIVISIONS		GROUP SYMBOL	GROUP NAME
	GRAVEL	CLEAN	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
60.1055		GRAVEL	GP	POORLY-GRADED GRAVEL
COARSE GRAINED	More than 50%	GRAVEL	GM	SILTY GRAVEL
SOILS	Of Coarse Fraction Retained on No. 4 Sieve	WITH FINES	GC	CLAYEY GRAVEL
	SAND	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
More than 50%			SP	POORLY-GRADED SAND
Retained on No. 200 Sieve	More than 50%	SAND WITH FINES	SM	SILTY SAND
	Of Coarse Fraction Passes No. 4 Sieve		SC	CLAYEY SAND
	SILT AND CLAY	INORGANIC	ML	SILT
FINE			CL	CLAY
GRAINED SOILS	Liquid Limit Less than 50	ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
More than 50%			СН	CLAY OF HIGH PLASTICITY, FAT CLAY
Passes No. 200 Sieve	Liquid Limit 50 or more	ORGANIC	ОН	ORGANIC CLAY, ORGANIC SILT
HIG	GHLY ORGANIC SOILS		PT	PEAT

#### NOTES:

- Field classification is based on visual examination of soil in general accordance with ASTM D2488-90.
- Soil classification using laboratory tests is based on ASTM D2487-90.
- 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



### **Unified Soils Classification System**

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

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Figure A-1

### Test Pit/ Open Standpipe Piezometer TP/OSP-1

Location: North of existing structure Approximate Elevation: 50'

De	pth	(ft)	Soil Type	Soil Description
0	-	3/4	-	Topsoil/rootzone
3/4	-	5¼	SM	Brown silty sand with significant amounts of cement fragments, some metal, and trace organics (Undocumented fill) (medium dense, moist)
51⁄4	-	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 Type	Soil Description	
0	-	3/4	-	Topsoil/rootzone
3/4	-	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 Logs**

Proposed Taco Time 1115 & 1129 East Main Puyallup, Washington

PN: 7845100032 & 0420271171

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Figure A-2

### Test Pit/Open Standpipe Piezometer TP/OSP-3

Location: Southeast portion of site Approximate Elevation: 54'

D(	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



### **Test Pit Logs**

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

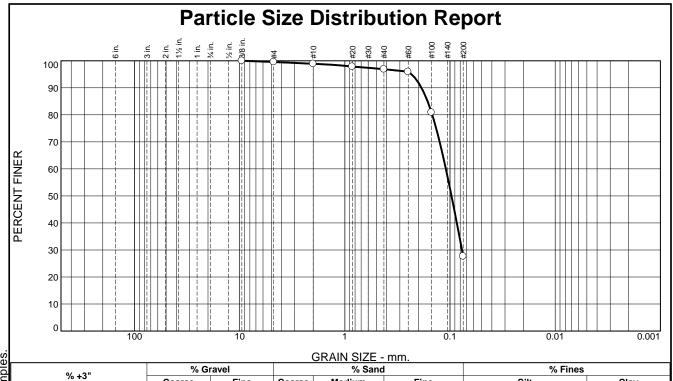
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Figure A-3

# **Appendix B**

Laboratory results



Medium

2.0

Fine

69.2

Test Results (ASTM D 6913 & ASTM D 1140)								
Opening	Percent	Spec.*	Pass?					
Size	Finer	(Percent)	(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							

Coarse

0.0

0.0

Fine

0.5

Coarse

0.6

Material Description								
Silty SAND (SM)								
PL= NP	erberg L LL=	imits (AST NV	M D 4318 Pl=	) NP				
USCS (D 2487)=		assificatio AASHTO		A-2-4(0)				
D <sub>90</sub> = 0.1868 D <sub>50</sub> = 0.0969 D <sub>10</sub> =		0.1634 0.0770		0.1095				
Natural Moisture:	Remarks Natural Moisture: 5.7%							
Date Received:	10/19/21	Date	Tested:	10/19/21				
Tested By:	MAW							
Checked By:	Checked By: KEB							
Title: ]	PM							

Silt

27.7

Clay

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

GeoResources, LLC

**Client:** Taco Time Northwest **Project:** Proposed Taco Time

Project No: TacoTimeNorthwest.EMainSt Figure B-1

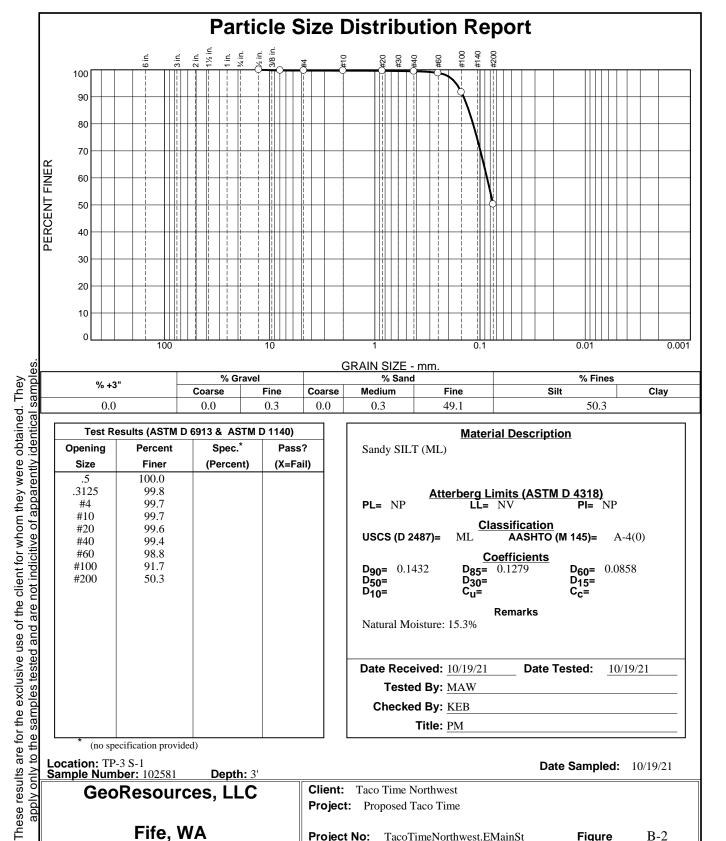
Fife, WA

Project N

Tested By: \_\_\_\_\_ Checked By: \_\_\_\_\_

Checked By:

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples.



Test Results (ASTM D 6913 & ASTM D 1140)  Opening Percent Spec.* Pass?								
Opening	Percent	Spec.	Pass?					
Size	Finer	(Percent)	(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							
*	cification provide							

0.0

0.3

0.0

0.3

0.0

	<u>Materia</u>	I Descrip	<u>tion</u>	
Sandy SILT (ML)				
Atte	erberg Lim LL= N	nits (ASTI	M D 4318)	1
PL= NP	LL= N	٧V	PI=	NP
USCS (D 2487)=		sification AASHTO	<u>n</u> (M 145)=	A-4(0)
D <sub>90</sub> = 0.1432 D <sub>50</sub> = D <sub>10</sub> =	D <sub>85</sub> = 0 D <sub>30</sub> = C <sub>u</sub> =	efficients 0.1279	D <sub>60</sub> = D <sub>15</sub> = C <sub>c</sub> =	0.0858
Natural Moisture:		emarks		
Date Received:	10/19/21	Date	Tested:	10/19/21
Tested By: 1	MAW			
Chapterd But	KEB			
Checked By: ]				

50.3

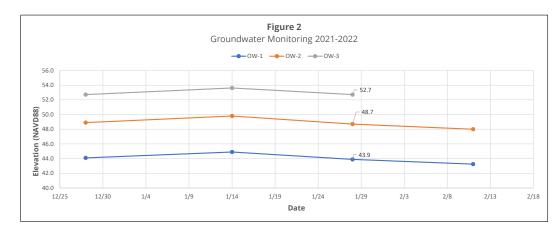
49.1

Location: TP-3 S-1 Sample Number: 102581 **Date Sampled:** 10/19/21 Depth: 3'

GeoResources, LLC Client: Taco Time Northwest **Project:** Proposed Taco Time Fife, WA 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