September 8, 2017

Mr. David Lugliani
McIntosh Ridge Holdings, LLC
16420 SE McGillivray Boulevard, #103-197
Vancouver, Washington 98683

Via email: david.apc@me.com

Regarding: Geotechnical Engineering Report – Addendum No. 1
Dawson Ridge Development, Northern Site Reconnaissance and Exploration
NW McIntosh Road
Camas, Washington
PBS Project No. 73197.000 Phase 0003

Dear Mr. Lugliani:

This report presents results of PBS Engineering and Environmental Inc. (PBS) additional geotechnical engineering services for the proposed Dawson's Ridge development located southeast of the intersection of NW McIntosh Road and SE Brady Road in Camas, Washington (site). The general site location is shown on the Vicinity Map, Figure 1. The locations of PBS' explorations in relation to existing and proposed site features are shown on the Site Plan, Figure 2.

PBS completed a geotechnical engineering evaluation for the then-named McIntosh Ridge development and presented the results in a geotechnical engineering report (GER) dated September 29, 2015.[1] This report should be considered an addendum to and used only in conjunction with the full GER for the project.

PROJECT UNDERSTANDING AND APPROACH

Original development plans included 54 detached, single-family units, with 52 of these ranging in lot sizes between 4,500 and 8,000 square feet (sf), and two lots located in the northeastern portion of the property that will be 24,000 sf. The plan map shows these units will be primarily located in the center of the ridge. An additional 54 condominium units are planned to be constructed within 11 buildings, with a recreational building near the center of the complex. These 12 buildings will be constructed on the south side of the property along the bluff overlooking State Route (SR) 14. Construction will include grading of the entire site and construction of several of the planned structures and site infrastructure to support their use. Updated engineering reports were prepared by PBS in 2017[2,3] to address changes to the original plans, including fewer single-family unit lots and reorientation of access drives and recreational areas, providing updated recommendations as necessary.

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[1] PBS Engineering and Environmental (2015, September 29). *Geotechnical Engineering Report, McIntosh Ridge Development, NW McIntosh Road, Camas, Washington.* Prepared for McIntosh Ridge Holdings LLC. PBS Project No. 73197.000.

[2] PBS Engineering and Environmental (2017, April 7). *Geotechnical Engineering Report, Dawson's Ridge Planned Residential Development, NW McIntosh Road, Camas, Washington.* Prepared for McIntosh Ridge Holdings LLC. PBS Project No. 73197.000.

[3] PBS Engineering and Environmental (2017, April 7). *Geotechnical Engineering Report, Dawson's Ridge Density Transfer Subdivision, NW McIntosh Road, Camas, Washington.* Prepared for McIntosh Ridge Holdings LLC. PBS Project No. 73197.000.

Based on our conversations with Olson Engineering Inc., the Dawson's Ridge development will include construction of an underground stormwater treatment and detention facility north of the existing equestrian center. The facility includes a StormFilter vault for treatment and 72-inch-diameter CMP pipe for detention. The approximate invert elevation (IE) for the detention pipe is 443.50, or approximately 14 feet below the existing ground surface.

PURPOSE AND SCOPE

The purpose of our services was to complete a geologic site reconnaissance of the slopes located north of the existing equestrian center, complete subsurface explorations in the approximate location of the planned stormwater facility, and prepare this addendum discussing stability of the northern slopes.

PBS completed the following additional geotechnical scope of work.

Geologic Map Review and Site Reconnaissance

Portions of the site are mapped within an area identified by Clark County as "Areas of Potential Instability." Geotechnical engineering staff from PBS completed a walking reconnaissance of the project site. Prior to our site reconnaissance, we reviewed available geology maps, geologic hazard maps, aerial imagery, and topographic maps for the area that are available in our files.

Mapping was performed by traversing the slope and noting visible geologic features such as outcrops, scarps, cracks, springs, etc., that are indicative of landslides and landslide features.

Subsurface Exploration

PBS excavated four test pits (TP-26 through TP-29) within the area of the proposed stormwater facility to depths of up to 15 feet below the existing ground surface (bgs). The test pits were logged and representative soil samples collected by a member of the PBS geotechnical engineering staff. Interpreted test pit logs are included as Figures A1 through A4 in Attachment A.

Soils Testing

All samples were returned to our laboratory and classified by the Unified Soil Classification System (ASTM D2487) and/or the Visual-Manual Procedure (ASTM D2488). Laboratory tests included natural moisture contents, grain-size analyses, and Atterberg limits. Laboratory test results are included on the test pit logs in Attachment A; and in Attachment B.

Geotechnical Engineering Analyses

The data collected during the site reconnaissance, subsurface explorations, testing, and literature research were analyzed to develop geotechnical recommendations regarding slope stability of the northern portion of the development.

Report Preparation

This Geotechnical Engineering Report Addendum summarizes the results of our explorations, testing, and analyses, including information relating to the following:

- Field exploration logs and site plan showing approximate exploration locations
- Groundwater considerations
- Discussion of slope stability

- Shallow foundation design recommendations:
    - Minimum embedment
    - Allowable bearing pressure
    - Estimated settlement
    - Sliding coefficient
- Earthwork and grading, cut, and fill recommendations:
    - Structural fill materials and preparation, and reuse of on-site soils
    - Wet weather considerations
    - Utility trench excavation and backfill requirements
    - Temporary and permanent slope inclinations
- Minimum slope setback for storm facility

SITE CONDITIONS

Geologic Reconnaissance

An engineering geologist from PBS completed a site reconnaissance on July 30, 2017, to observe the site conditions and, to the extent possible, identify potential landslide-related features along the north side of the site in the vicinity of the proposed stormwater facility. These slopes generally surround the Cantera Equestrian Facility, including stables, pens, fields, and training grounds. The area is generally bounded by NW McIntosh Road to the north and east and by NW Brady Road to the west.

The site reconnaissance was performed by traversing the slopes, noting visible features such as outcrops, scarps, cracks, springs, hummocks, vegetation, and the general geomorphology that may be indicative of ground movement. Due to the heavy vegetative ground cover and steep slopes along the ridgeline, surface cracks and seeps may have been obscured and not apparent during the fieldwork.

The slopes on the north and northeast sides are generally consistent with the conditions mapped in our previous reports for the project (refer, Figure 3). We observed numerous trees leaning upslope throughout the reconnaissance area. The leaning trees consist almost entirely of deciduous trees, whereas the fir trees are almost all nearly vertical. The leaning trees show no sign of "corrective (new, vertical)" growth, indicating that the movement has been relatively recent. This is consistent with other signs of surficial downslope movement.

Based on conversations with staff at the Equestrian Facility, drain tiles are reportedly present beneath the outdoor arena. These have reportedly been disconnected. PBS observed a drain outlet approximately 8 feet below the upper slope break on the northwest end of the area observed for this study. The pipe was daylighting onto the slope and has eroded a 1- to 1.5-foot-deep channel down the face of the slope

The area in the vicinity of the outdoor arena and adjacent ring have been graded to create relatively flat areas by pushing fill north over the slope. This is consistent with the subsurface conditions encountered in our recent test pit explorations. PBS observed some relatively small, localized failures along the slope break in the relatively soft/loose fill.

Subsurface Conditions

Subsurface conditions in the vicinity of the planned new stormwater structure were explored by excavating four test pits designated TP-26 through TP-29. The test pits were excavated to depths of up to 15 feet bgs by Dan

Fischer Excavating, Inc., of Forest Grove, Oregon, using an extendable boom backhoe (extend-a-hoe) equipped with a 24-inch toothed bucket.

PBS has summarized the subsurface units as follows:

TOPSOIL:	Topsoil composed of silt with variable amounts of fine organics was encountered to depths of 0.5 to 2 feet bgs in TP-26 through TP-28. No Topsoil was observed in TP-29
FILL:	Silt fill was encountered beneath the topsoil in TP-26 through TP-28 and ranged from 2 to 7 feet thick. Based on field observation, the fill ranged from non-plastic to medium plasticity.
SILT:	Low plasticity silt with sand was encountered beneath the fill in all but TP-29, where silt was present for the entire depth of the test pit. Moisture contents ranged from 21 to 29 percent; the plasticity index (PI) for the sample tested was 2.

Groundwater

Static groundwater was not encountered during our explorations to the depths explored. Previous exploration at the site encountered perched groundwater in TP-4 at a depth of 12.5 feet bgs. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors.

CONCLUSIONS AND RECOMMENDATIONS

Subsurface and site conditions observed during the work completed for the preparation of this addendum were generally consistent with those described in our previous geotechnical engineering reports for the project and can be used for design of structures in the vicinity of our recent explorations (TP-26 through TP-29). As a result, foundations and site grading in the vicinity of the planned stormwater facility should be designed in accordance with the recommendations provided in those reports.

Slope Setbacks

Based on review of two undated site plans, labeled “Density Transfer Option” and “P.R.D Option,” the proposed stormwater facility will be located at the offset distances and associated slope heights indicated in Table 1 below.

Table 1. Slope Crest Offset and Slope Height

Configuration	Horizontal Offset from “Steep” Slopes feet	Slope Height feet	Approximate Inclination from Base of Structure to Toe of Slope[1] (horizontal to vertical)
Density Transfer Option	5.5 (NW)	50	4:1
	37 (SW)	38	5.5:1
P.R.D Option	18 (NW)	50	4:1
	31 (SW)	38	5:1

[1] Upward projection from the toe of slope to the base of stormwater facility (approximately 14 feet bgs)

Based on the inclination of the projected slope, below which the proposed stormwater facility foundation will be constructed, our current opinion is the risk of slope instability that would impact the facility is low.

Design and Construction Details

Due to the presence of observed slope creep in surficial soils and the mapped areas of instability along the slopes located north and west of the proposed new stormwater facility, we recommend implementing the following recommendations during design and construction.

Lateral Resistance – Our current understanding is that the new, below-grade structure will be designed to resist lateral earth pressures from the surrounding soils. In addition, the structure should be designed to resist sliding, if lateral resistance was removed on the north or west sides. Sliding resistance can be increased by increasing the weight of the structure or increasing the base area to increase the frictional resistance. The resulting factor of safety against sliding should be greater than 1.1.

Utility Trench Location and Excavation – Due to the presence of mapped areas of previous instability, we recommend the outfall pipe from the stormwater facility extend downslope generally north and west between the mapped areas of instability (see Figure 3). The actual location of the pipe should be confirmed in the field by the geotechnical engineer prior to beginning construction. In addition, removal of vegetation should be limited to that required to install the pipe, with vegetation established over the disturbed area once the installation of the pipe has been completed. The geotechnical engineer should be contacted immediately if subsurface or groundwater conditions vary from those described in this addendum.

Emergency Shutoff – Due to the mapped areas of instability along site slopes, we recommend including an emergency shutoff valve at the stormwater facility structure in case the outfall pipe is ever damaged due to slope movement. This would allow for stormwater to be temporarily contained and reduce the risk of erosion or an increased risk of slope instability from leaking stormwater. The system should include provisions for temporarily redirecting the water if the emergency shutoff valve is used. This could be a hose or above-ground pipe directed to a suitable outfall approved by the civil engineer.

LIMITATIONS

The limitations for our previous reports for the project apply to the information and recommendations contained in this addendum.

CLOSING

Please feel free to contact Ryan White at 503.539.5028 or ryan.white@pbsusa.com with any questions or comments.

Sincerely,

RYAN K. WHITE
STATE OF WASHINGTON
39104
REGISTERED PROFESSIONAL ENGINEER

9/8/2017

Ryan White, PE, GE (OR)
Geotechnical Discipline Lead

Saiid Behboodi, PE, GE (OR)
Principal Geotechnical Engineer

RW:SB:rg

Attachments:

Figures

Figure 1	Vicinity Map
Figure 2	Site Plan
Figure 3	Site Reconnaissance Map

Attachment A

Table A-1	Terminology Used to Describe Soil
Table A-2	Key to Test Pit and Boring Log Symbols
Figures A1–A4	Logs for Test Pits TP-26 through TP-29

Attachment B

Figure B1	Atterberg Limits Test Results
Figure B2	Summary of Laboratory Data

FIGURES

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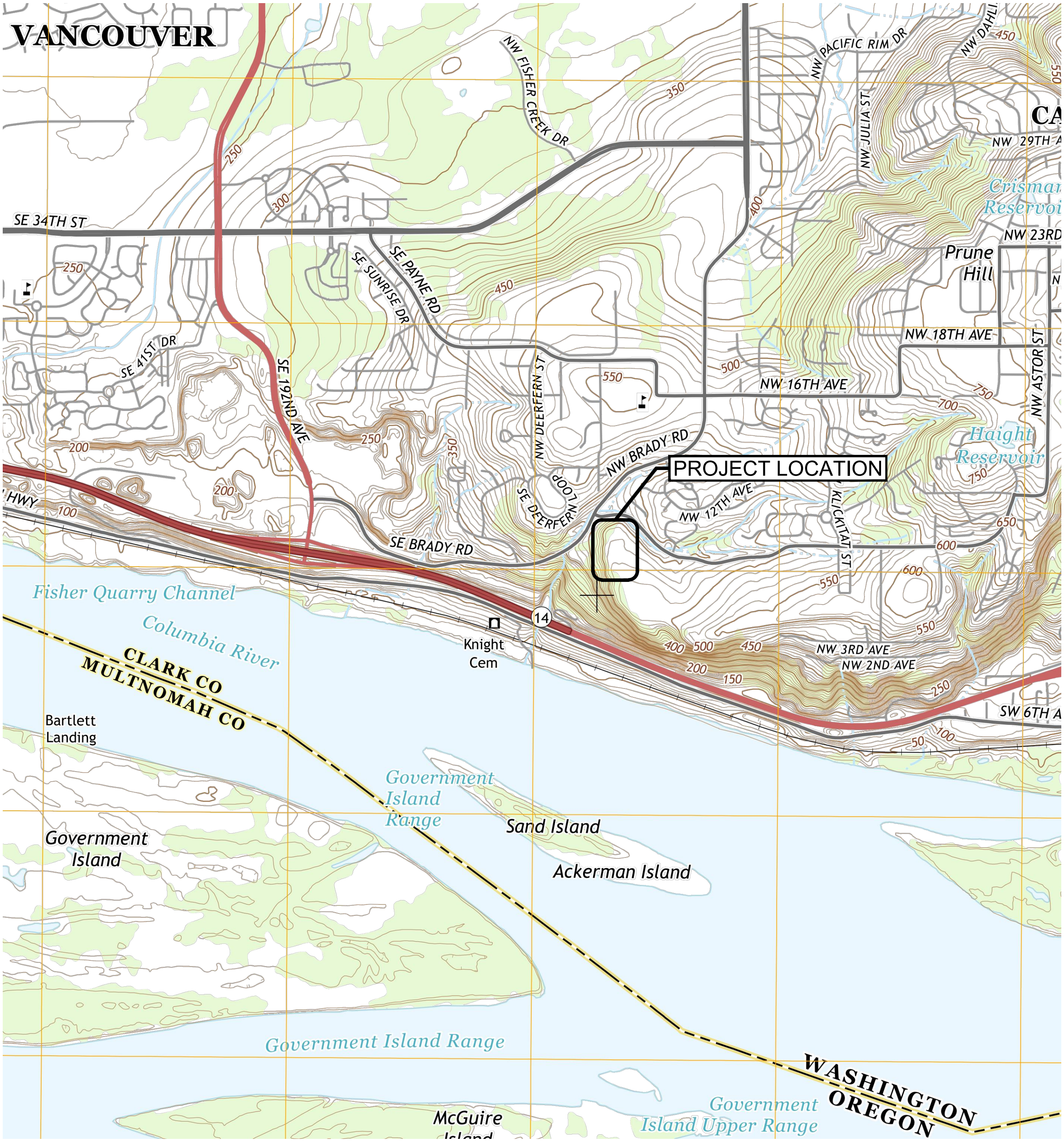

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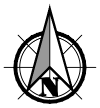

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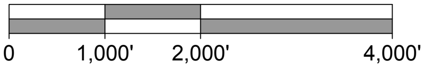


PBS

VICINITY MAP

DAWSON'S RIDGE
CAMAS, WASHINGTON

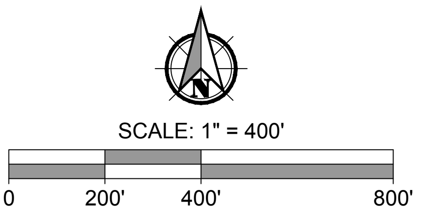
SEPT 2017
73197.000

FIGURE
1

SOURCE: © 2015 GOOGLE EARTH PRO.

LEGEND

▦TP-1 TEST PIT NUMBER AND APPROXIMATE LOCATION



SITE PLAN

DAWSON'S RIDGE
CAMAS, WASHINGTON

SEPT 2017
73197.000

FIGURE
2

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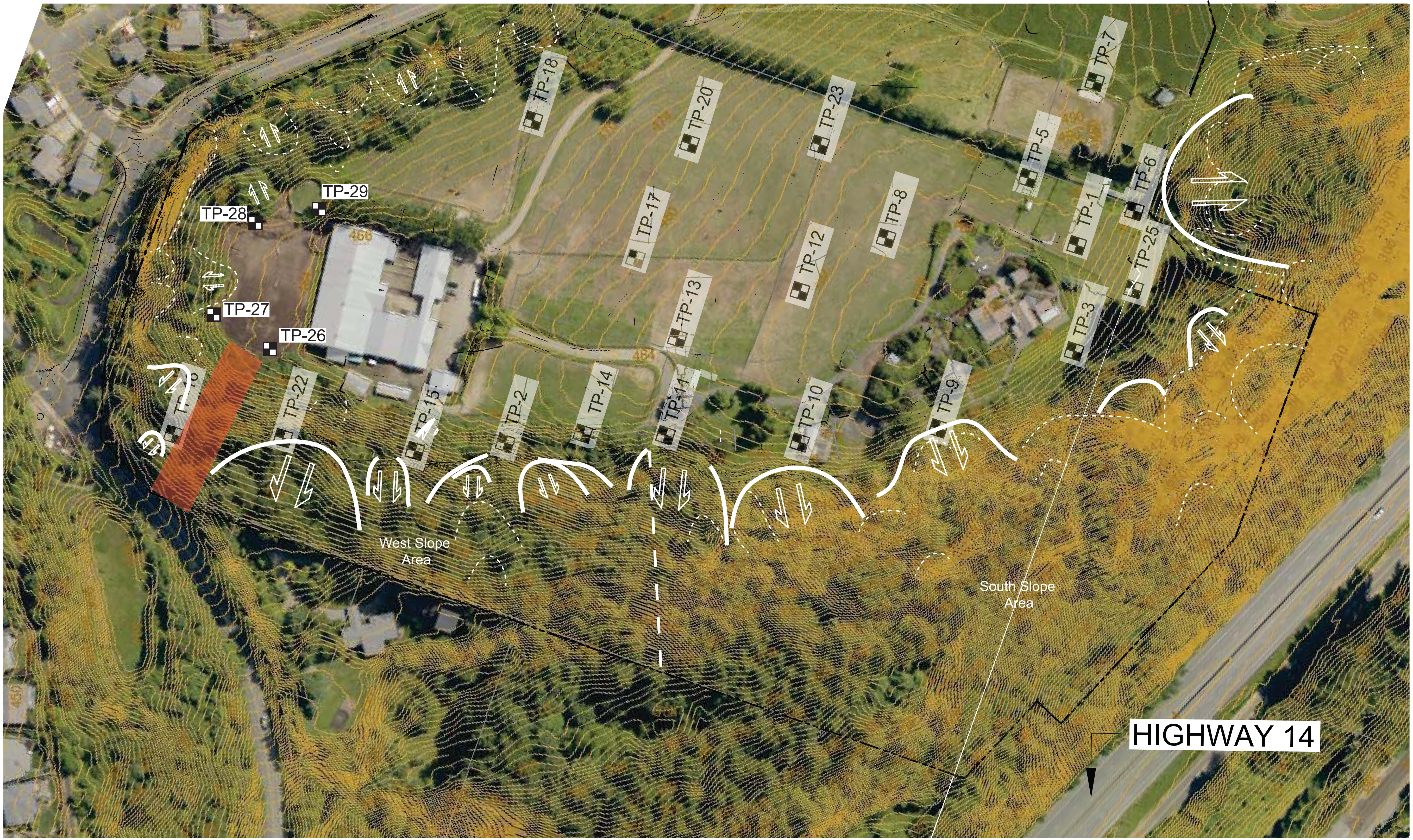


LEGEND

TP-1 TEST PIT NUMBER AND LOCATION

🟥 APPROXIMATE LOCATION FOR OUTFALL PIPELINE

⇓⇓ DIRECTION OF MOVEMENT

INTERPRETED SLOPE INSTABILITY FROM LIDAR CONTOURS

FIELD OBSERVED SLOPE INSTABILITY

SOURCE: CLARK COUNTY MAPSONLINE, SLOPES AND GEOLOGIC HAZARDS, 2 FOOT LIDAR CONTOURS
clark County, WA. GIS - http://gis.clark.wa.gov
WGS_1984_Web_Mercator_Auxiliary_Sphere

0' 75' 150' 300'
SCALE: 1" = 150'

DAWSON'S RIDGE

NW McINTOSH ROAD
CAMAS, WASHINGTON

SITE RECON MAP

PROJECT: 73197.000
DATE: SEPT 2017
FIGURE: 3

ATTACHMENT A

Table A-1
Terminology Used to Describe Soil

Soil Descriptions

Soils exist in mixtures with varying proportions of components. The predominant soil, i.e., greater than 50 percent based on total dry weight, is the primary soil type and is capitalized in our log descriptions (SAND, GRAVEL, SILT, or CLAY). Smaller percentages of other constituents in the soil mixture are indicated by use of modifier words in general accordance with the ASTM D2488-06 Visual-Manual Procedure. “General Accordance” means that certain local and common descriptive practices may have been followed. In accordance with ASTM D2488-06, group symbols (such as GP or CH) are applied on the portion of soil passing the 3-inch (75mm) sieve based on visual examination. The following describes the use of soil names and modifying terms used to describe fine- and coarse-grained soils.

Fine-Grained Soils (50% or greater fines passing 0.075 mm, No. 200 sieve)
The primary soil type, i.e., SILT or CLAY is designated through visual-manual procedures to evaluate soil toughness, dilatency, dry strength, and plasticity. The following outlines the terminology used to describe fine-grained soils, and varies from ASTM D2488 terminology in the use of some common terms.

Primary soil NAME, Symbols, and Adjectives			Plasticity Description	Plasticity Index (PI)
SILT (ML & MH)	**CLAY (CL & CH)**	**ORGANIC SOIL (OL & OH)**		
SILT		Organic SILT	Non-plastic	0 – 3
SILT		Organic SILT	Low plasticity	4 – 10
SILT/Elastic SILT	Lean CLAY	Organic SILT/ Organic CLAY	Medium Plasticity	10 – 20
Elastic SILT	Lean/Fat CLAY	Organic CLAY	High Plasticity	20 – 40
Elastic SILT	Fat CLAY	Organic CLAY	Very Plastic	>40

Modifying terms describing secondary constituents, estimated to 5 percent increments, are applied as follows:

Description	% Composition	
With Sand	% Sand ≥ % Gravel	15% to 25% plus No. 200
With Gravel	% Sand < % Gravel	
Sandy	% Sand ≥ % Gravel	≤30% to 50% plus No. 200
Gravelly	% Sand < % Gravel	

Borderline Symbols, for example CH/MH, are used when soils are not distinctly in one category or when variable soil units contain more than one soil type. **Dual Symbols,** for example CL-ML, are used when two symbols are required in accordance with ASTM D2488.

Soil Consistency terms are applied to fine-grained, plastic soils (i.e., PI ≥ 7). Descriptive terms are based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84, as follows. SILT soils with low to non-plastic behavior (i.e., PI < 7) may be classified using relative density.

Consistency Term	SPT N-value	Unconfined Compressive Strength	
		tsf	kPa
Very soft	Less than 2	Less than 0.25	Less than 24
Soft	2 – 4	0.25 – 0.5	24 – 48
Medium stiff	5 – 8	0.5 – 1.0	48 – 96
Stiff	9 – 15	1.0 – 2.0	96 – 192
Very stiff	16 – 30	2.0 – 4.0	192 – 383
Hard	Over 30	Over 4.0	Over 383

Soil Descriptions

Coarse - Grained Soils (less than 50% fines)

Coarse-grained soil descriptions, i.e., SAND or GRAVEL, are based on the portion of materials passing a 3-inch (75mm) sieve. Coarse-grained soil group symbols are applied in accordance with ASTM D2488-06 based on the degree of grading, or distribution of grain sizes of the soil. For example, well-graded sand containing a wide range of grain sizes is designated SW; poorly graded gravel, GP, contains high percentages of only certain grain sizes. Terms applied to grain sizes follow.

Material NAME	Particle Diameter	
	Inches	Millimeters
SAND (SW or SP)	0.003 – 0.19	0.075 – 4.8
GRAVEL (GW or GP)	0.19 – 3	4.8 – 75
Additional Constituents:		
Cobble	3 – 12	75 – 300
Boulder	12 – 120	300 – 3050

The primary soil type is capitalized, and the fines content in the soil are described as indicated by the following examples. Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 percent. Other soil mixtures will have similar descriptive names.

Example: Coarse-Grained Soil Descriptions with Fines

>5% to < 15% fines (Dual Symbols)	≥15% to < 50% fines
Well graded GRAVEL with silt: GW-GM	Silty GRAVEL: GM
Poorly graded SAND with clay: SP-SC	Silty SAND: SM

Additional descriptive terminology applied to coarse-grained soils follow.

Example: Coarse-Grained Soil Descriptions with Other Coarse-Grained Constituents

Coarse-Grained Soil Containing Secondary Constituents	
With sand or with gravel	≥ 15% sand or gravel
With cobbles; with boulders	Any amount of cobbles or boulders.

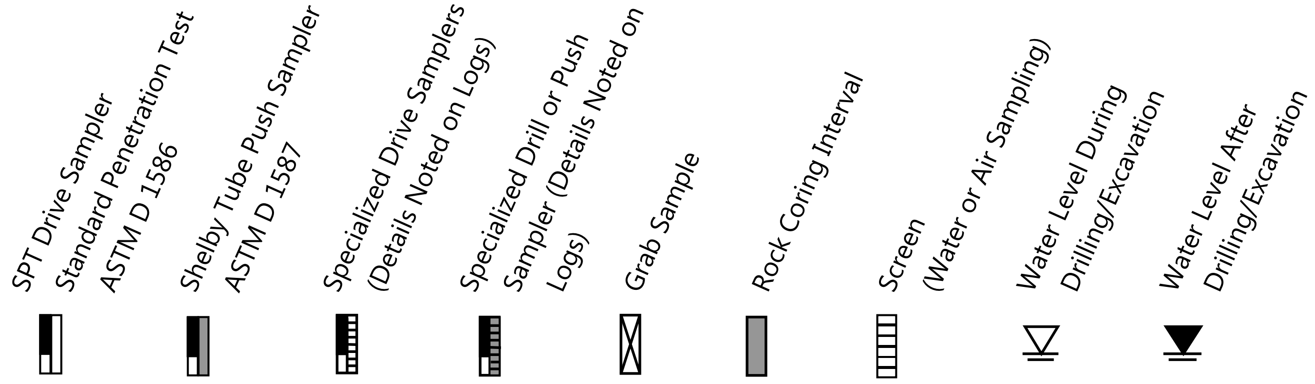
Cobble and boulder deposits may include a description of the matrix soils, as defined above.

Relative Density terms are applied to granular, non-plastic soils based on direct measure or correlation to the Standard Penetration Test N-value as determined by ASTM D1586-84.

Relative Density Term	SPT N-value
Very loose	0 – 4
Loose	5 – 10
Medium dense	11 – 30
Dense	31 – 50
Very dense	> 50

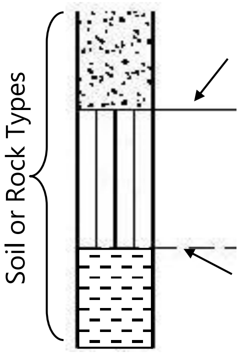
Table A-2
Key To Test Pit and Boring Log Symbols

SAMPLING DESCRIPTIONS



LOG GRAPHICS

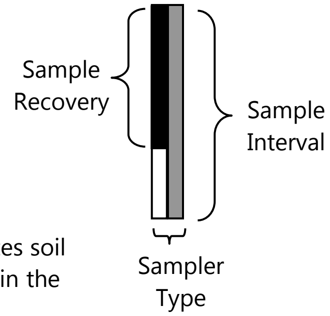
Soil and Rock



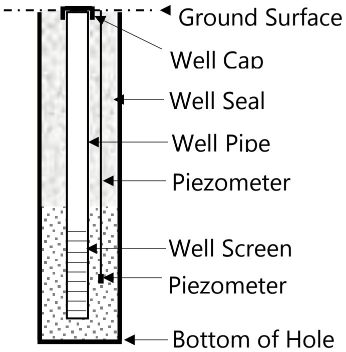
Lithology Boundary: separates distinct units (i.e., Fill, Alluvium, Bedrock) at approximate depths inciated

Soil-type or Material-type Change Boundary: separates soil and material changes within the same lithographic unit at approximate depth indicated

Sampling Symbols



Instrumentation Detail



Geotechnical Testing Acronym Explanations

PP	Pocket Penetrometer
TOR	Torvane
DCP	Dynamic Cone Penetrometer
ATT	Atterberg Limits
PL	Plasticity Limit
LL	Liquid Limit
PI	Plasticity Index
P200	Percent Passing US Standard No. 200 Sieve
OC	Organic Content
CON	Consolidation
UC	Unconfined Compressive Strength
HYD	Hydrometer Gradation
SIEV	Sieve Gradation
DS	Direct Shear
DD	Dry Density
CBR	California Bearing Ratio
RES	Resilient Modulus
VS	Vane Shear
bgs	Below ground surface
MSL	Mean Sea Level
HCL	Hydrochloric Acid

Details of soil and rock classification systems are available on request.

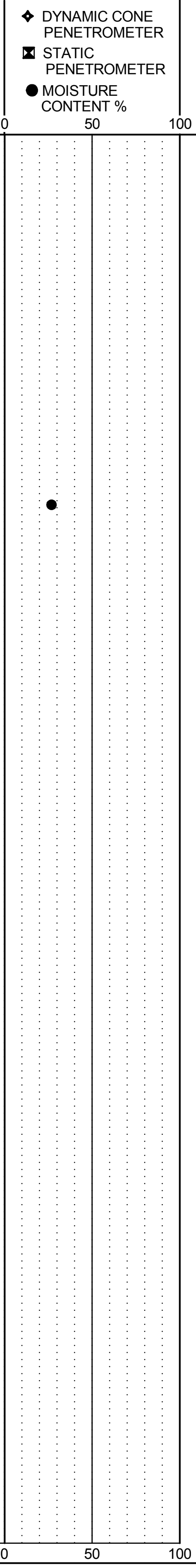
Rev. 02/2017

PBS	DAWSONS RIDGE DEVELOPMENT CAMAS, WASHINGTON	**TEST PIT TP-26**
	PBS PROJECT NUMBER: 73197.000	APPROX. TEST PIT TP-26 LOCATION: (See Site Plan) Lat: 45.585535 Long: -122.457817

Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

Surface Conditions: Riding Arena

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS
0.0	TOPSOIL (6 inches)	0.0			
0.5	Brown SILT (ML); low to medium plasticity; moist **FILL**	0.5		☒ S-1	
2.5	Light brown with gray mottles SILT (ML); low plasticity; moist	2.5		☒ S-2	
	without mottles			☒ S-3	
	with red and gray mottles				
	becomes red-brown; low to medium plasticity; moist to wet				
14.0	Final depth 14.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	14.0			



LOGGED BY: B. Portwood
COMPLETED: 7/10/17

EXCAVATED BY: Dan J. Fischer Excavating, Inc.
EXCAVATION METHOD: Extend-A-Hoe Backhoe

FIGURE A1

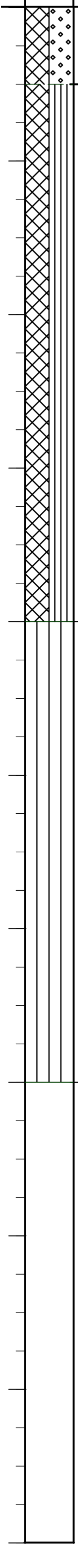
DAWSONS RIDGE DEVELOPMENT
CAMAS, WASHINGTON

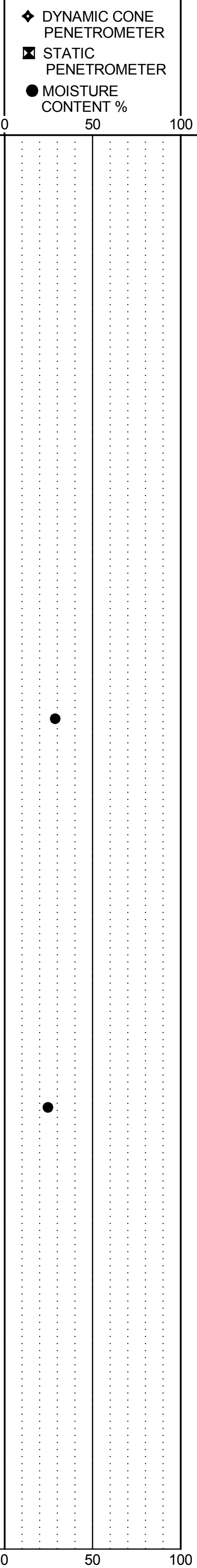
PBS PROJECT NUMBER:
73197.000

TEST PIT TP-27

APPROX. TEST PIT TP-27 LOCATION:
(See Site Plan)
Lat: 45.585763 Long: -122.457776

DEPTH FEET	MATERIAL DESCRIPTION Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS Surface Conditions: Riding Arena
0.0	Brown well graded SAND (SW); fine to coarse sand; moist	0.0		☒ S-1	
1.0	Brown-gray SILT (ML); low to medium plasticity; moist **FILL**	1.0		☒ S-2 ☒ S-3	
8.0	Brown with gray mottles SILT (ML); low to medium plasticity; moist becomes light brown without mottles; low plasticity blocky	8.0		☒ S-4 ☒ S-5	
14.0	Final depth 14.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	14.0			





LOGGED BY: B. Portwood
COMPLETED: 7/10/17

EXCAVATED BY: Dan J. Fischer Excavating, Inc.
EXCAVATION METHOD: Extend-A-Hoe Backhoe

FIGURE A2
Page 1 of 1

DAWSONS RIDGE DEVELOPMENT
CAMAS, WASHINGTON

TEST PIT TP-28

PBS PROJECT NUMBER:
73197.000

APPROX. TEST PIT TP-28 LOCATION:
(See Site Plan)

Lat: 45.585786 Long: -122.457108

MATERIAL DESCRIPTION

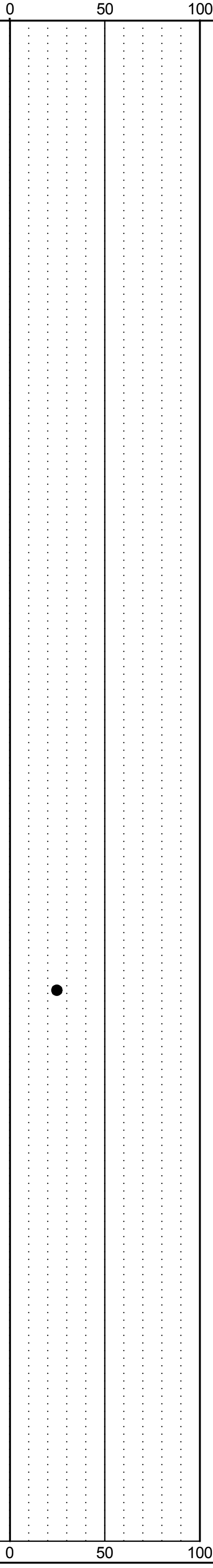
Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

COMMENTS

Surface Conditions: Weeds and Grass

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID
0.0	TOPSOIL (24 inches)	0.0		☒ S-1
2.0	Brown-gray SILT (ML); non-plastic; moist **FILL**	2.0		☒ S-2
7.0	Light brown SILT (ML); non-plastic; moist	7.0		☒ S-3
	becomes red-brown; low plasticity; moist to wet			☒ S-4
14.0	Final depth 14.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	14.0		



LOGGED BY: B. Portwood
COMPLETED: 7/10/17

EXCAVATED BY: Dan J. Fischer Excavating, Inc.
EXCAVATION METHOD: Extend-A-Hoe Backhoe

FIGURE A3

DAWSONS RIDGE DEVELOPMENT
CAMAS, WASHINGTON

TEST PIT TP-29

PBS PROJECT NUMBER:
73197.000

APPROX. TEST PIT TP-29 LOCATION:
(See Site Plan)

Lat: 45.585667 Long: -122.456795

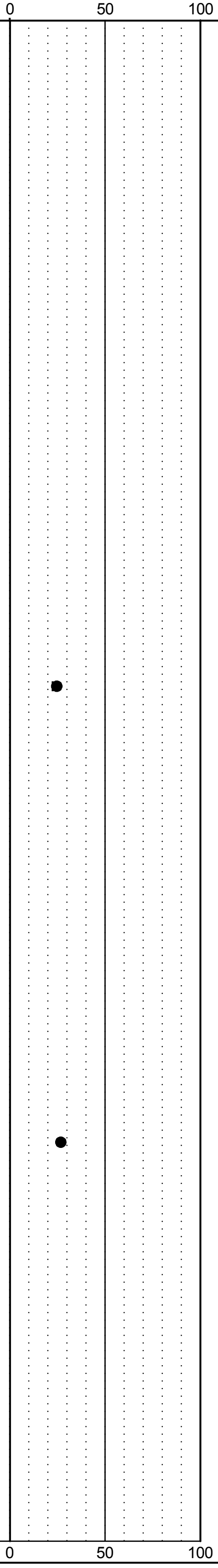
MATERIAL DESCRIPTION

Lines representing the interface between soil/rock units of differing description are approximate only, inferred where between samples, and may indicate gradual transition.

◆ DYNAMIC CONE PENETROMETER
☒ STATIC PENETROMETER
● MOISTURE CONTENT %

Surface Conditions: Slope

DEPTH FEET	MATERIAL DESCRIPTION	DEPTH	TESTING	SAMPLE TYPE SAMPLE ID	COMMENTS
0.0	Brown SILT (ML) with sand; non-plastic; fine sand; dry	0.0			
2.0			P200	☒ S-1	P200 = 75%
4.0	becomes gray with red streaks; low plasticity; moist			☒ S-2	
6.0					
8.0	becomes light brown; non-plastic		ATT	☒ S-3	LL = 25 PL = 23 PI = 2
10.0					
12.0					
14.0	becomes red-brown with black, gray, and brown spots			☒ S-4	
15.0	Final depth 15.0 feet bgs; test pit backfilled with excavated material to existing ground surface. Groundwater not encountered at time of exploration.	15.0			
16.0					
18.0					
20.0					



LOGGED BY: B. Portwood
COMPLETED: 7/10/17

EXCAVATED BY: Dan J. Fischer Excavating, Inc.
EXCAVATION METHOD: Extend-A-Hoe Backhoe

FIGURE A4

ATTACHMENT B

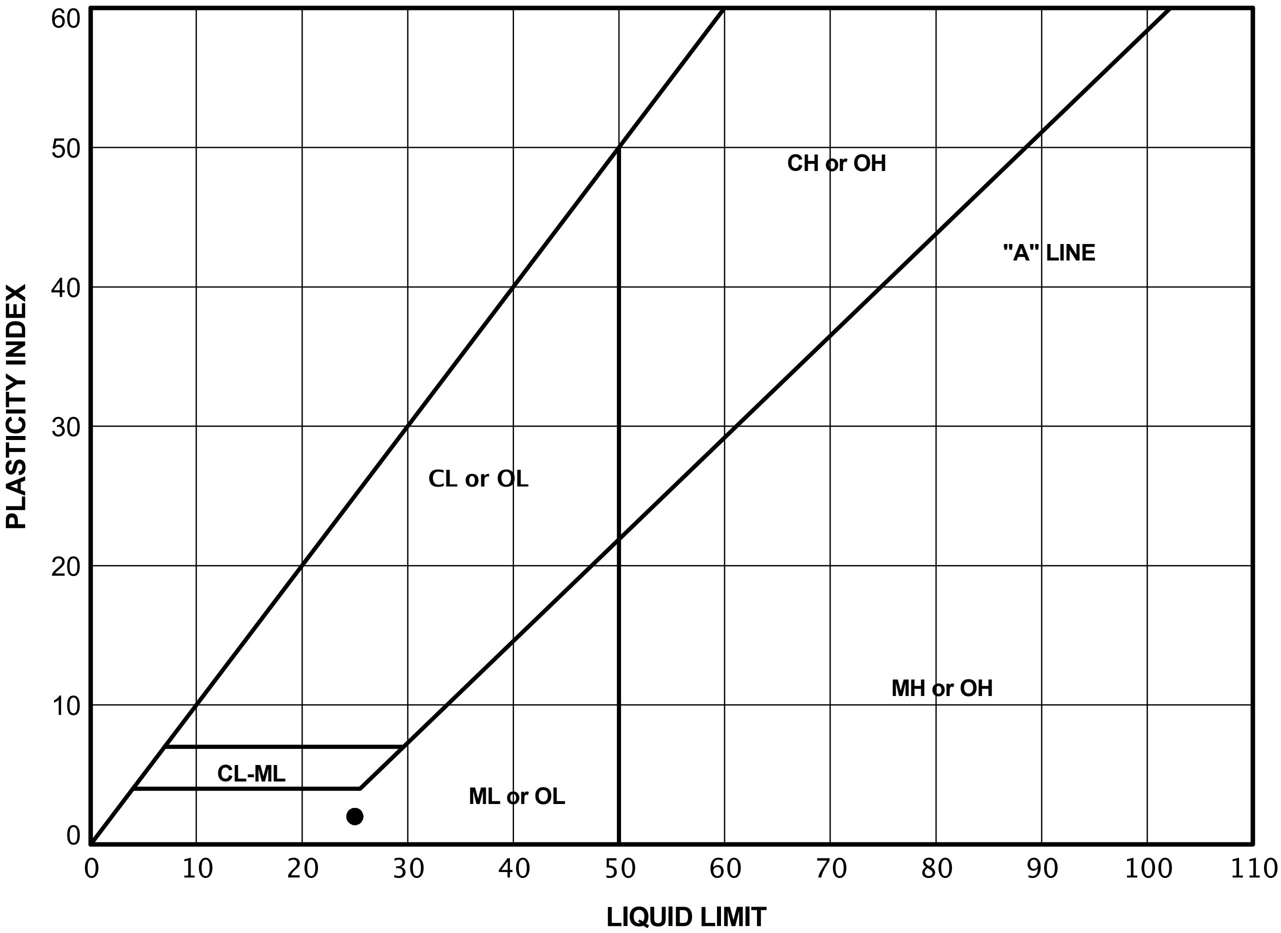
PBS

ATTERBERG LIMITS TEST RESULTS

DAWSONS RIDGE DEVELOPMENT
CAMAS, WASHINGTON

PBS PROJECT NUMBER:
73197.000

TEST METHOD: ASTM D4318



KEY	EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	PERCENT PASSING NO. 40 SIEVE (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	TP-29	S-3	8.5	24.6	NA	25	23	2

ATTERBERG LIMITS 73197.000_TP1-4_20170712.GPJ PBS_DATATMPL_GEO.GDT PRINT DATE: 8/16/17:RPG

FIGURE B1

SUMMARY OF LABORATORY DATA

DAWSONS RIDGE DEVELOPMENT
CAMAS, WASHINGTON

PBS PROJECT NUMBER:
73197.000

SAMPLE INFORMATION				MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
TP-26	S-3	5		26.8							
TP-27	S-4	8		28.7							
TP-27	S-5	13.5		24.6							
TP-28	S-3	12.5		24.7							
TP-29	S-1	2		20.9				75			
TP-29	S-3	8.5		24.6					25	23	2
TP-29	S-4	14.5		26.7							

FIGURE B2