

# FIELD REPORT



<b>Date</b> 2-29-2024	<b>Project Name</b> North Kitsap United	<b>Project No.</b> 20230246H002	<b>Report No.</b> 2024-01
<b>Location</b> South Port Gamble	<b>Municipality</b> Kitsap County	<b>AESI Project Manager</b> Matt Miller, PE	<b>AESI Field Rep</b> Dustin Williams
<b>Permit No.</b>	<b>Client/Owner</b> Raydient	<b>Attn</b> Jon Rose	<b>Requested By</b> Client
<b>Engineer/Architect</b> DEA	<b>General Contractor</b>	<b>Grading Contractor</b> Seton Construction Inc.	<b>Weather</b> Overcast/Rainy

THE FOLLOWING WAS NOTED:

Reference: Associated Earth Sciences, Inc. (AESI), Preliminary Existing Conditions Characterization and Hydrogeologic/Geologic Hazard Analysis for Due Diligence North Kitsap United Property Portions of Sections 19, 30, and 31, T27N, R2E, W.M. Kitsap County, Washington, December 7, 2023.

Site Visit:

On site as requested to observe excavation of three exploration pits and drive three well points adjacent to the pits to a maximum depth of 10.0 feet below ground surface and to conduct a brief site reconnaissance to document presence / absence of surface water.

Arrived on site at 8:15am. Forrest with Seton Construction Inc. (subcontracted through Raydient) arrived on site at approximately 8:25am with a Hitachi EX135UR excavator. The three pits were located along the west side of the site and are noted on Figure 1, Existing Site and Exploration Plan (attached). The pits were located in areas where DEA had identified conceptual stormwater facilities.

The project description, setting, exploration methods, and subsurface conditions are generally described in the above-referenced report. The various types of sediment and groundwater conditions, as well as the depths where sediment and groundwater characteristics changed, are indicated on the exploration pit logs (attached). The depths indicated on the logs where conditions changed may represent gradational variations between sediment types in the field. The locations of our explorations were approximated by measuring from known site features and cell phone-based GPS mapping. Exploration logs should be reviewed in conjunction with the above-referenced report.

Exploration Pit EP-15, EP-18 and Well Point WP-2

Exploration pit EP-15 was located at the base of hummocky hill, north of the main access road. EP-15 was excavated to a total depth of 12.0 feet below ground surface. The excavation encountered Quaternary colluvium near the surface and Pre-Fraser fine grained sediments at approximately 8.0 feet below ground surface. The general characteristic of the sediments observed were fine sands interbedded with silt. Groundwater seeps were observed emanating from sand beds between depths of 8.0 to 9.0 and 10.5 to 11.5 feet below ground surface (bgs) at an estimated flow rate of less than one gallon a minute. Heavy caving was observed between 9.0 to 11.5 due to running sands at the location of groundwater seeps. Once the pit was backfilled, we attempted to drive a well point approximately 15 feet northwest of EP-15. Well point installation was unsuccessful as the steel casing bent while attempting to drive the well point into stiff silt.

Date Mailed: \_\_\_\_\_

Principal / PM: Matt Miller, PE *Matt Miller*

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Groundwater is interpreted to be present at depth in the Vashon recessional outwash at the contact with the pre-Fraser fine-grained sediments.



Photograph 1: Exploration pit EP-15 with groundwater seeps between depths of 8.0 to 9.0 and 10.5 to 11.5 feet bgs.

EP-18 and WP-2 were located downslope from EP-15, near the center of the low area. Exploration pit EP-18 was excavated to a total depth of 12.2 feet below ground surface. The excavation encountered Vashon recessional outwash for the full depth explored. The general characteristics of the recessional sediments observed were fine sands with intermittent discontinuous sandy silt lenses. No groundwater seeps were observed. No caving was observed. Once the pit was backfilled, a drive well point (WP-2) was installed approximately 15 feet northwest of EP-18. Well point WP-2 was driven to a total depth of 9.9 feet below ground surface.



Photograph 2: Well point WP-2 located approximately 15 feet northwest of exploration pit EP-18.

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## Exploration Pit EP-16, EP-17 and Well Point WP-1

Exploration pit EP-16 was located in the low area south of the main access road. EP-16 was excavated to a total depth of 12.8 feet below ground surface. The excavation encountered Vashon recessional outwash near the surface to nearly the total depth. We interpret that Pre-Fraser fine grained sediments were present at approximately 12.5 feet below ground surface, however only a few inches of harder silt were encountered at the maximum reach of the excavator. The general characteristics of the recessional sediments observed were fine sands with intermittent discontinuous thin sandy silt lenses; the limited exposure of Pre-Fraser sediments observed were silt. No groundwater seeps were observed. No caving was observed. Once the pit was backfilled, a drive well point (WP-1) was installed approximately 15 feet northwest of EP-16. Well point WP-1 was driven to a total depth of 9.9 feet below ground surface.



Photograph 3: Exploration pit EP-16 with Vashon recessional outwash fine sand and no groundwater seeps.

Exploration pit EP-17 was excavated further south of EP-16 on the southern side of the low area as an additional datapoint on the extent of the Vashon recessional outwash. Due to time constraints, the test pit was dug to a total depth of 8.5 feet below ground surface. The excavation encountered Vashon recessional outwash for the full depth explored. The general characteristics of the recessional sediments observed were fine sands transitioning to fine to coarse sands and gravels with trace cobbles at approximately 8.0 feet below ground surface. No groundwater seeps were observed. No caving was observed. The pit was backfilled and no well point installation was attempted due to the presence of relatively shallow coarse-grained sediments.

Prior to leaving the site: 1) all the wells were observed a final time and found to be dry on the date of installation, and 2) drainage areas as indicated on Figure 1 – Existing Site and Exploration Plan were observed for the presence of surface water and no surface flow was observed.

We left the site at approximately 4:00pm.

AESI will return to the site to observe the wells and check for the presence of groundwater.

# FIELD REPORT

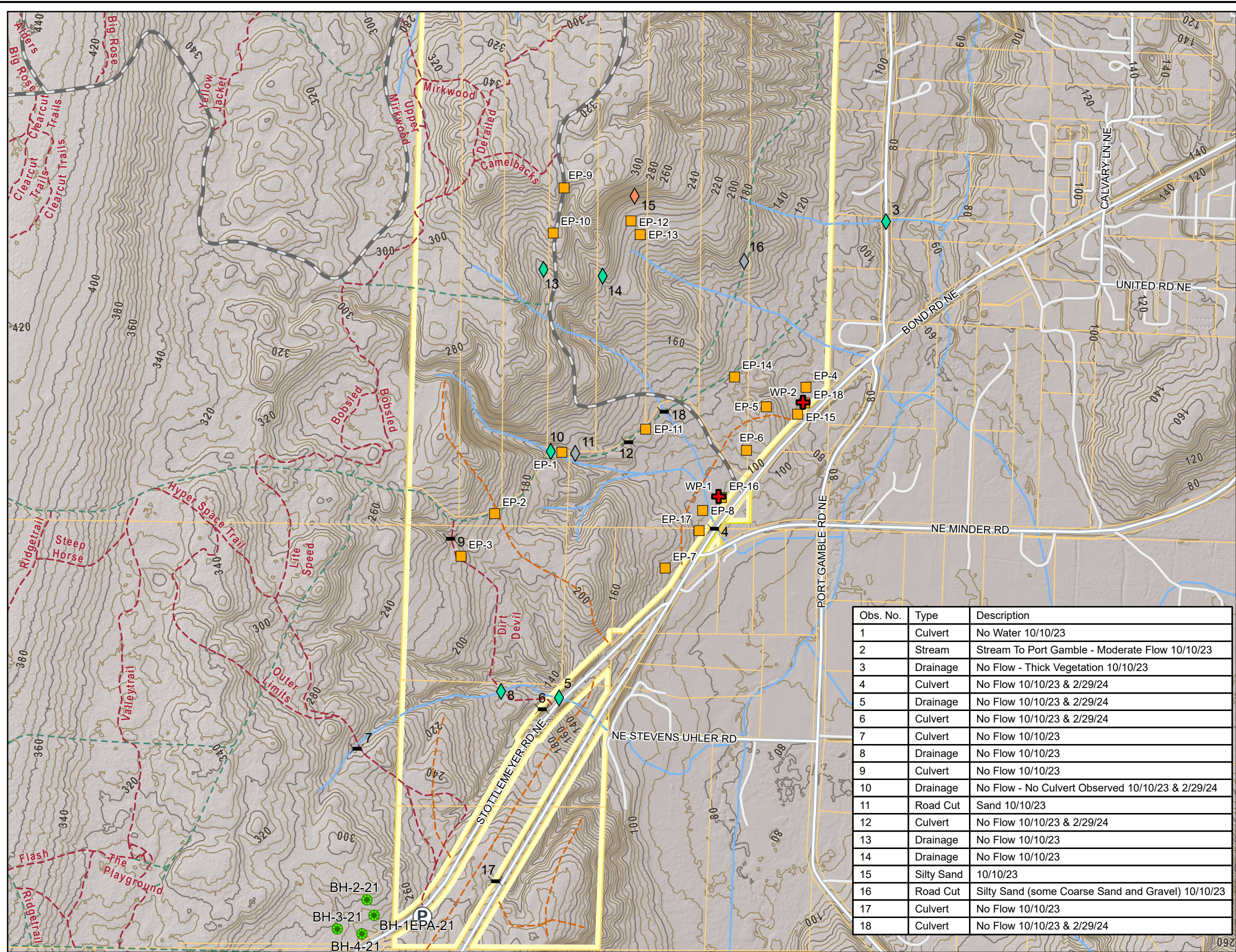


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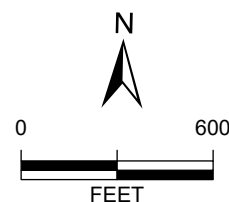
It should be noted that the wells were only installed to a depth of 10 feet. Ten feet is the maximum depth that can be installed without the assistance of a licensed well driller. Depending upon the depth of the proposed facility it may be necessary to explore deeper to verify the required separation to a restrictive layer/ groundwater below the bottom of an infiltration facility.

Attachments: Figure 1 – Existing Site and Exploration Plan  
Exploration Pit Logs

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- LEGEND**
- SITE
  - EXPLORATION PIT, AESI
  - WELL POINT, AESI
  - EXPLORATION BORING  
MUD BAY GEOTECHNICAL 2020
  - FIELD OBSERVATION (10/23)
  - CULVERT
  - DRAINAGE
  - ROAD CUT
  - SILTY SAND
  - ROAD
  - SECONDARY ROAD
  - SERVICE ROAD
  - FOOT PATH; TRAIL
  - MOUNTAIN BIKE TRAIL
  - TRAIL CLEARING 07/23
  - TRAILHEAD PARKING
  - CONTOUR 20 FT
  - CONTOUR 5 FT



Obs. No.	Type	Description
1	Culvert	No Water 10/10/23
2	Stream	Stream To Port Gamble - Moderate Flow 10/10/23
3	Drainage	No Flow - Thick Vegetation 10/10/23
4	Culvert	No Flow 10/10/23 & 2/29/24
5	Drainage	No Flow 10/10/23 & 2/29/24
6	Culvert	No Flow 10/10/23 & 2/29/24
7	Culvert	No Flow 10/10/23
8	Drainage	No Flow 10/10/23
9	Culvert	No Flow 10/10/23
10	Drainage	No Flow - No Culvert Observed 10/10/23 & 2/29/24
11	Road Cut	Sand 10/10/23
12	Culvert	No Flow 10/10/23 & 2/29/24
13	Drainage	No Flow 10/10/23
14	Drainage	No Flow 10/10/23
15	Silty Sand	10/10/23
16	Road Cut	Silty Sand (some Coarse Sand and Gravel) 10/10/23
17	Culvert	No Flow 10/10/23
18	Culvert	No Flow 10/10/23 & 2/29/24

DATA SOURCES/REFERENCES:  
 KITSAP COUNTY: ROADS (6/22), PARCELS (6/22), PARKS (6/22), CITY BOUNDARY (6/22), INDIAN RESERVE (8/20). AERIAL IMAGERY (2021, HEXAGON CONTENT PROGRAM). WA DOE: WATERBODIES (3/19), STREAMS (5/19). WA DNR LIDAR: KITSAP\_COUNTY\_OPSW\_2018, ACQUIRED 12/17 AND 2/18, 3' CELL SIZE. CONTOURS DERIVED FROM LIDAR. OPENSTREETMAP: SECONDARY ROADS AND TRAILS.

BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION. LOCATION AND DISTANCES SHOWN ARE APPROXIMATE.



**EXISTING SITE AND  
EXPLORATION PLAN**  
 NORTH KITSAP UNITED  
 KITSAP COUNTY, WASHINGTON



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**Exploration Pit**

**EP-15**

**North Kitsap United**

Sheet: 1 of 1

Kitsap County, WA  
20230264H002

Date: 2/29/2024  
Total Depth (ft): 12

Logged By: DW  
Approved By: JHS

Depth (ft)	Description	USCS
	Elev.: 85 ft      NAVD88	
0	<p><b>Quaternary Colluvium</b></p> <p>Loose to medium dense, slightly moist, brownish yellow to grayish brown with pockets of oxidation, silty, fine SAND, trace round gravel; trace roots and rootlets; buried organics; chaotic texture (SM).</p>	
2.5	<p>Becomes medium dense, slightly moist to moist, brownish gray with yellow mottling; increase fines content.</p>	
5	<p>Stiff, moist to very moist, gray with yellow mottling, very fine sandy, SILT; trace rootlets; faint wavy laminations (ML). 4 to 8 inches of T-probe penetration within the bottom of the exploration pit.</p>	
7.5	<p><b>Pre-Fraser Fine-Grained Sediments</b></p> <p>Stiff, very moist to wet, gray, very fine sandy, SILT; laminated to thinly bedded; interbedded with medium dense, wet, brownish gray, silty, fine SAND (SM). Groundwater seeps (less than 1 gallon per minute) within sand beds at 8 to 9 feet.</p>	
10	<p>Stiff, very moist, brownish gray, silty, very fine to fine SAND; lenses of wet, brownish gray, fine to medium sand and very moist, light yellowish gray, very fine sandy, silt (SM). Groundwater seeps within sand beds at 10.5 to 11.5 feet on northeast side of the pit above silt interbeds; heavy caving due to running sands.</p>	
12.5	<p>Seepage between 8 to 9 feet and 10.5 to 11 feet. Heavy caving 9 to 11.5 feet due to running sands.</p>	
15		
17.5		
20		

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**Exploration Pit**

**EP-16**

**North Kitsap United**

Sheet: 1 of 1

Kitsap County, WA  
20230264H002

Date: 2/29/2024  
Total Depth (ft): 12.8

Logged By: DW  
Approved By: JHS

Depth (ft)	Description	USCS
0	<p><b>Vashon Recessional Outwash</b></p> <p>Loose to medium dense, slightly moist, light yellowish brown to brownish gray with pockets of oxidation, silty, fine SAND; lenses of fine to medium sand; trace roots and rootlets (&gt;0.25 inches in diameter)(SM).</p> <p>Medium dense, slightly moist, grayish brown, fine SAND, some medium sand; discontinuous lenses of silty, fine sand and very fine sandy, silt (SP/ML).</p> <p>4 to 12 inches of T-probe penetration within the bottom of the exploratory pit, resistance on silt lenses.</p> <p>Medium dense, slightly moist, grayish brown, fine SAND; massive with few thin lenses (≈0.25 inches thick) of very fine sandy, silt and oxidized, silty, very fine sand (SP/ML).</p> <p>Medium dense, slightly moist, grayish brown, silty, very fine to fine SAND; faint thin beds; few interbeds of very moist, very fine sandy, silt (SM/ML).</p>	
12.5	<p><b>Pre-Fraser Fine-Grained Sediments</b></p> <p>Stiff, moist, light olive gray, very fine sandy, SILT; faint wavy laminations (ML).</p> <p>No seepage. No caving.</p>	

Elev.: 95 ft NAVD88

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**Exploration Pit**

**EP-17**

**North Kitsap United**

Sheet: 1 of 1

Kitsap County, WA  
20230264H002

Date: 2/29/2024  
Total Depth (ft): 8.5

Logged By: DW  
Approved By: JHS

Depth (ft)	Description	USCS
	Elev.: 95 ft      NAVD88	
0	<p><b>Vashon Recessional Outwash</b></p> <p>Loose to medium dense, slightly moist, light yellowish brown, silty, fine SAND; some rootlets; trace buried organics (SM).</p> <p>Gradational change to brownish yellow, slightly oxidized.</p> <p>Medium dense, slightly moist, grayish brown, fine SAND; massive (SP).</p> <p>4 to 8 inches of T-probe penetration within the bottom of the exploratory pit.</p> <p>Medium dense, slightly moist to moist, grayish brown, silty, fine SAND, some medium sand, trace round gravel (&lt;0.25 inches in diameter); massive with few thin oxidized, silty beds (SM).</p> <p>Medium dense, slightly moist, grayish brown, fine to coarse SAND, some round gravel, trace cobbles; pockets of oxidized, silty, sand (SW).</p> <p>No seepage. No caving.</p>	USCS
2.5		
5		
7.5		
10		
12.5		
15		
17.5		
20		

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**Exploration Pit**

**EP-18**

**North Kitsap United**

Sheet: 1 of 1

Kitsap County, WA  
20230264H002

Date: 2/29/2024  
Total Depth (ft): 12.2

Logged By: DW  
Approved By: JHS

Depth (ft)	Description	USCS
0	<b>Vashon Recessional Outwash</b> Loose to medium dense, slightly moist, brownish yellow to gray, silty, fine SAND, trace round gravel; trace roots and rootlets (SM).	
2.5	Medium dense, slightly moist, grayish brown, fine SAND; some pockets of very fine sandy, silt (SP).	
5	Medium dense, moist, grayish brown, fine SAND; faint thin beds; interbeds of oxidized silty, fine sand, trace rootlets (SP).	
7.5		
10	Medium dense, slightly moist, grayish brown, fine SAND; massive (SP).	
12.5	Few lenses of oxidized silty, fine sand to silt. No seepage. No caving.	
15		
17.5		
20		

Elev.: 85 ft NAVD88

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### Monitoring Well

### WP-1

North Kitsap United

Sheet: 1 of 1

Kitsap County, WA

Start Date: 2/29/2024

Logged By: DW

20230264H002

Ending Date: 2/29/2024

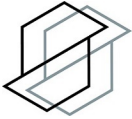
Approved By: JHS

Driller/Equipment: Seaton Construction, Inc./HA  
 Hammer Weight/Drop: N/A  
 Hole Diameter (in):  
 Ground Surface Elevation (ft): 95  
 Water Level Elevation (ft): N/A  
 Groundwater Depth ATD (ft):

Total Depth (ft): 9.87  
 Well Completion Depth (ft): 9.87  
 Well Tag No.:  
 Top of Well Casing Elevation (ft): 98.13  
 Datum: NAVD88  
 Groundwater Depth Post Drilling (ft) (Date): ( )

Depth (ft)	Sample Type	Sample No.	Graphic Symbol	Description	Water Level	Blows/6"					Well Construction
						10	20	30	40	50+	
0				<b>Vashon Recessional Outwash</b> Loose to medium dense, slightly moist, brownish yellow to gray, silty, fine SAND, trace round gravel; trace roots and rootlets (SM).							Pink ribbon used as cap Stick-up monument +3.13 feet Bentonite chips 0 to 1.5 feet Fill 1.5 to 6.5 feet Hand auger used 0 to 6.5 feet  1.25-inch I.D. steel casing +3.13 to 7.22 feet  Native sediments 6.5 to 9.87 feet 1.25-inch I.D. steel well screen 60 AWG slot size 7.22 to 9.22 feet  Steel casing and pointed tip end cap with threaded connection
2.5				Medium dense, slightly moist, grayish brown, fine SAND; some pockets of very fine sandy, silt (SP).							
5				Medium dense, moist, grayish brown, fine SAND; faint thin beds; interbeds of oxidized silty, fine sand, trace rootlets (SP).							
7.5				No groundwater encountered. Well point driven 15 feet northwest of EP-16. Exploration description taken from EP-16.							
10											
12.5											
15											
17.5											

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**Monitoring Well**

**WP-2**

North Kitsap United

Sheet: 1 of 1

Kitsap County, WA

Start Date: 2/29/2024

Logged By: DW

20230264H002

Ending Date: 2/29/2024

Approved By: JHS

Driller/Equipment: Seaton Construction, Inc./HA  
 Hammer Weight/Drop: N/A  
 Hole Diameter (in):  
 Ground Surface Elevation (ft): 85  
 Water Level Elevation (ft): N/A  
 Groundwater Depth ATD (ft):

Total Depth (ft): 9.91  
 Well Completion Depth (ft): 9.91  
 Well Tag No.:  
 Top of Well Casing Elevation (ft): 88.15  
 Datum: NAVD88  
 Groundwater Depth Post Drilling (ft) (Date): ( )

Depth (ft)	Sample Type	Sample No.	Graphic Symbol	Description	Water Level	Blows/6"					Well Construction
						10	20	30	40	50+	
0				<b>Vashon Recessional Outwash</b> Loose to medium dense, slightly moist, brownish yellow to gray, silty, fine SAND, trace round gravel; trace roots and rootlets (SM).							Stick-up monument +3.13 feet
2.5				Medium dense, slightly moist, grayish brown, fine SAND; some pockets of very fine sandy, silt (SP).							Steel threaded end cap Bentonite chips 0 to 2 feet
5				Medium dense, moist, grayish brown, fine SAND; faint thin beds; interbeds of oxidized silty, fine sand, trace rootlets (SP).							Fill 2 to 6.5 feet Hand auger used from 0 to 6.5 feet 1.25-inch I.D. steel casing +3.15 to 7.26 feet
7.5				No groundwater encountered. Well point driven 15 feet northwest of EP-18. Exploration description taken from EP-18.							Native sediments 6.5 to 9.87 feet 1.25-inch I.D. steel well screen 60 AWG slot size 7.26 to 9.26 feet
10											Steel casing and pointed tip end cap with threaded connection
12.5											
15											
17.5											

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