January 15, 2020

Marcus Graefenhain
Project Developer
Cypress Creek Renewables
3402 Pico Blvd.
Santa Monica, California 90405

Cypress Creek Renewables – Ostrea Solar Project
Draft Geotechnical Report

ANS Geo, Inc. is pleased to provide this Draft Geotechnical Report (Report) to Cypress Creek Renewables (CCR) to summarize the results of our geotechnical field investigation in support of the proposed Ostrea Solar project located in Moxee, Washington. To guide the design and construction of the proposed solar facility, ANS Geo developed and implemented a geotechnical investigation program which encompassed a brief desktop study of local geologic conditions, soil borings, test pit excavations, field electrical resistivity testing, preliminary environmental due diligence sampling, laboratory thermal resistivity testing, and laboratory soil material testing.

It is expected that the successful EPC selected to perform final design and construction will perform supplemental investigations and studies, including pile load testing, to confirm the information presented and develop more detailed information which may be required for the final design.

1. Methodology

1.1 Soil Borings

ANS Geo retained Elite Drilling Services (EDS) of Denver, Colorado to advance 16 soil borings completed at select locations across the project site between December 2 and 7, 2020. The soil boring locations are depicted in the Investigation Location Plan, provided as **Attachment A**. It should be noted that the original scope of work included 29 soil borings; however, shallow rock was encountered throughout the site. Therefore, during our investigation program it was agreed, between ANS Geo and CCR, that test pit excavations would be better suited to observe geologic conditions in replacement of soil borings at several locations. As such, soil boring and test pit IDs may appear interchanged and/or missing (ie. B-01, TP-02, B-03, TP-04, etc.).

Each soil boring was advanced to practical refusal, generally encountered between 1.4 and 9.8 feet below ground surface (BGS). A track-mounted Mobile B-57 drill rig was used to collect soil samples using the Standard Penetration Test (SPT) Method through hollow-stem augers in accordance with ASTM Standard D1586. Soil samples were collected continuously to the termination depth in each boring. Soil borings, proposed by ANS Geo and confirmed by Cypress Creek review, were distributed throughout the project's array area to provide coverage across development areas. One boring, B-SS-1, was situated within the proposed substation footprint. At the substation location (B-SS-1), rock coring was conducted using a wireline setup in accordance with ASTM D2113 to confirm the presence and quality of bedrock. All soil borings were overseen and logged by an ANS Geo representative under the direction of a Professional Engineer licensed in the State of Washington. Typed soil boring logs are presented within **Attachment B**.

At select soil boring locations, auger cuttings were collected within four (4) feet of grade with the purpose of obtaining bulk soil samples for laboratory California Bearing Ratio (CBR), thermal resistivity testing (TRT), and corrosivity testing. Upon completion, each borehole was backfilled to its existing grade with soil cuttings.

1.2 Test Pits

As discussed in the previous section, 13 test pits were excavated by EDS at select locations across the project site between December 4 and 5, 2020. The test pit locations are depicted in the Investigation Location Plan, provided as **Attachment A**.

All test pits were excavated using a John Deere 26G excavator and were overseen and documented by a ANS Geo geotechnical representative under the direction of a Professional Engineer licensed in the State of Washington. Soil strata changes, soil classification, and excavation depths were documented during each test pit excavation and are presented within the test pit logs provided as **Attachment C**. Test pits were all excavated to bedrock which was encountered between 1.0 and 4.3 feet below grade. Similar to soil boring locations, bulk samples were collected from select test pits for laboratory testing. Upon completion, each test pit excavation was backfilled with native soil cuttings, bucket-tamped, and tracked over with the excavator to minimize any post-excavation settlement.

1.3 Electrical Resistivity Testing

As part of our field investigation program, ANS Geo performed field Electrical Resistivity Tomography (ERT) testing on October 29 and 30, 2020. Testing was conducted at 14 locations within the proposed array area(s) and one (1) location within the proposed substation footprint. In-situ soil resistivity measurements were obtained by utilizing the Wenner 4-Pin Method in accordance with ASTM G57 and IEEE Standard 80.

Two (2) mutually perpendicular traverses were collected at each location utilizing “a”-spacings of 1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, and 75 feet within the array areas, with additional 100 and 150-foot spacings at the substation location. Test results are presented as **Attachment D**.

2. Geology and Subsurface Conditions

ANS Geo conducted a brief, desktop review of surficial and bedrock geology maps and reports made available by the United States Geological Survey (USGS) prior to conducting our field investigation. The available mapping indicates that the site lies within Quaternary nonmarine deposits. This particular surficial unit includes eolian deposits consisting of light brown, homogenous loessial silt with minor gravel, boulders, and sand inclusions.

Bedrock geology of the area consists of Miocene volcanic rocks Unit from the Middle Miocene age. The unit is generally known as Yakima ballast, and locally interchanged with Columbia River Basalts. The bedrock is described as dark-gray to black, dense, aphanitic basalt flows; commonly columnar jointed Dark-gray to black, dense aphanitic basalt flows; commonly columnar jointed, less commonly irregularly and platy jointed; some flows vesicular, grading to scoriaceous; includes minor pillow lava, palagonite beds, and interbedded soil profiles and sedimentary beds; contains diatomite beds locally. Maximum thickness in south-central Washington may be in excess of 10,000 feet; much thinner in western Washington, where flows are mostly associated with marine sedimentary rocks. Includes acidic and intermediate volcanic rocks in northern Cascade Mountains.The mapped surficial unit is mostly consistent with the findings of our field investigations.

ANS Geo has provided the generalized subsurface conditions within Table 1 based upon the observations made during our geotechnical investigation for the Ostrea Solar project. Soil boring and test pit logs have been provided as **Attachments B** and **C**, respectively, and should be reviewed for specific soil condition observations.

Table 1 – Generalized Subsurface Profile

Average Depth (ft)	Material	Average Consistency	Description
0' – 0.5'	Topsoil	-	Approximately three (3) to nine (9) inches of topsoil existed at the surface throughout most of the project area.
0.5 – 3'	Silt (ML)	Medium Stiff	Light brown silt with varying amounts of sand, gravel, and clay were encountered beneath the topsoil layer in most locations. This material was noted to be very dry and predominantly nonplastic. Gravels and rock fragments were frequently encountered near the bottom of this stratum.
3' – 4'	Gravel / Cobbles (GM)	Dense	Dense silty gravel and/or cobbles were frequently encountered beneath the silt layer.
4' +	Basalt	-	Strong, generally moderately weathered basalt bedrock was encountered or inferred at all investigation locations beginning between one (1) and 9.8 feet below grade.

3. Laboratory Results

3.1 Soil Index Testing

Representative soil samples were collected during our investigation and submitted to ANS's accredited materials testing laboratory. A summary of the index laboratory test results is provided within Table 2. As-received laboratory test results are included within **Attachment E**.

Table 2 – Soil Index Testing Summary

Boring ID	Sample ID	Depth (feet)	% Gravel	% Sand	% Fines		% Moisture
					% Silt	% Clay	
B-01	S-3	4 – 6	5.6	29.5	57.8	7.1	6.5
B-07	S-2	2 – 4	58.7	24.1	17.2		2.9
B-10	S-2	2 – 4	28.3	50.8	20.9		8.8
B-18	S-3	4 – 6	32.4	53.1	14.5		8.4
B-20	S-1	0 – 2	0	33.6	60.5	5.9	6.7
B-21	S-2	2 – 4	25.9	28.6	45.5		7.1
B-24	S-1	0 – 2	4.9	27.0	68.1		5.8
B-26	S-2	2 – 4	24.1	37.9	38.0		5.6
B-SS-1	S-2	2 – 4	32.1	53.4	14.5		5.5
Boring ID	**Sample ID**	**Depth (feet)**	**Liquid Limit**	**Plastic Limit**	**Plasticity Index**		**% Moisture**
B-13	S-2	2 – 4	28.0	19.6	8.4		4.8
B-27	S-1	0 – 2	28.3	19.7	8.6		6.1

3.2 Thermal Resistivity Testing

ANS Geo collected bulk samples from eight (8) investigation locations generally between one (1) and four (4) feet below grade for laboratory testing of Thermal Resistivity. Soils were collected in a five-gallon bucket and delivered to ANS Consultants' accredited laboratory for testing. The soil was compacted to 85 percent of its Standard Proctor Density in accordance with ASTM D698, and Thermal Resistivity Testing was conducted in

accordance with IEEE Standard 442-2017. Results of the thermal testing are summarized within Table 3. Complete, as-received results have been provided within **Attachment E**.

Table 3 – Thermal Resistivity Testing Summary

Boring ID	Material Type	Thermal Resistivity Values at Various Moisture Contents					Received Moisture Content (%)	Re-Molded Dry Density (lb/ft^3)
		% water	% water	% water	% water	% water		
		(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)		
TP-02	Silt, little Sand (ML)	0	4	8	12	16.2	3.9	90.7
		779	**315**	**178**	**145**	**135**		
TP-05	Silt, little Gravel (ML)	0	3.5	7.2	11.1	14.9	4.1	87.2
		754	**314**	**181**	**142**	**126**		
TP-09	Silt, little Sand (ML)	0	5	10	15	19.1	6.7	87.0
		773	**322**	**152**	**98**	**86**		
TP-16	Silt, little Sand (ML)	0	4	8	12	16.1	4.03	85.5
		740	**308**	**178**	**139**	**125**		
TP-17	Silt, little Sand (ML)	0	4	8	12	15.7	4.07	90.7
		615	**247**	**126**	**79**	**70**		
B-23	Silt, some Sand (ML)	0	4	8	12	15.4	4.06	89.5
		762	**325**	**192**	**149**	**132**		
TP-28	Silt, little Sand (ML)	0	3.5	7.8	12	15.6	4.76	88.3
		768	**328**	**194**	**150**	**133**		
B-SS-01	Gravelly Sand (SM)	0	4	8	12	15.4	4.81	89.1
		588	**228**	**132**	**109**	**99**		

3.3 Corrosivity Testing

ANS Geo collected additional samples from one (1) to three (3) feet below grade for corrosivity testing. The results of the testing, completed by ANS Consultants, have been summarized within Table 4 and are detailed within **Attachment E**.

Table 4 – Corrosivity Testing Summary

Boring/Test pit ID	pH	Sulfate (mg/kg)	Chloride (mg/kg)	Soil Box (Calculated Resistivity) (Ω/cm)	Redox Potential (average) (mV)
B-01	6.38	14	30	9,000	193
TP-02	6.27	0	15	11,000	236
TP-05	6.44	15	25	9,000	215
B-07	6.59	17	90	8,000	190
B-10	6.76	9	50	6,000	183
B-13	6.88	6	25	7,000	177
TP-16	6.47	16	45	6,000	187
TP-17	5.10	27	40	8,500	186
B-18	6.76	14	35	7,000	172
TP-19	6.74	22	35	9,000	221
TP-22	6.52	20	55	10,000	203
TP-23	6.72	11	30	9,000	211
TP-25	5.91	15	35	10,500	197
TP-28	5.72	18	60	13,000	195

3.4 California Bearing Ratio

ANS Geo collected an additional sample at three (3) locations from one (1) to three (3) feet below grade for testing of California Bearing Ratio (CBR) in accordance with ASTM D1883. The results of the testing, completed by ANS Consultants, have been summarized within Table 5 and are detailed within **Attachment E**.

Table 5 – California Bearing Ratio Summary

Location ID	CBR Ratio (%)
TP-09	6.2
B-23	3.3
B-SS-01	4.2

4. Environmental Sampling

Although no "recognized environmental considerations" ("RECs") were observed during the Phase I Environmental Site Assessment (ESA) conducted for the Ostrea project site, ANS Geo collected three grab soil samples to evaluate for background soil characteristics.

ANS Geo proposed and conducted a sampling and evaluation methodology during our investigation program as follows:

1. Advance excavation to a shallow depth (0 – 2 foot interval), and utilize a MiniRae 3000 photo-ionization detector (PID) to screen the sample and bottom of excavation for any indications of volatile organic content readings.
2. Visually screen soil samples for staining, discoloration, foreign debris (man-made fill), as well as note any odors. Preserve each sample in glass jars.
3. Using the PID equipment and observations, target the highest reading for environmental testing. If none of the samples were observed to have a reading or visual/odor marker, take a near-surface sample (1- 2 foot depth) and perform a full environmental test suite for volatile organics, semi-volatile organics (BTEX, MTBE, typical gas/diesel range organics), and metals.

Using this evaluation method and procedure, ANS Geo collected three surficial grab samples to determine baseline/background soil environmental characteristics. Samples were collected within TP-04, TP-11, and TP-19 and submitted for laboratory testing to evaluate the presence of specific compounds and their concentrations within the project area. These select samples were submitted to Cascade Analytical, a USEPA-accredited environmental laboratory, for testing in accordance with their respective methods and standards. A summary of the compounds detected, and their concentration, is presented within Table 6. Complete environmental sampling results are provided within **Attachment F**.

Table 6 – Summary of Environmental Exceedances

Compounds	TP-04 (1'-2')	TP-11 (1'-2')	TP-19 (1'-2')
Arsenic	**5.2**	**3.3**	-
Cadmium	0.083 J	0.091 J	-
Chromium	**16**	**15**	-
Lead	**8.5**	**6.4**	-
Mercury	0.018 J	0.020 J	-
Motor Oil	33 J	31 J	36 J
Naphthalene	-	6.7 J B	-

Table Notes:
- Only concentrations above their respective method detection limits are summarized.
- Concentrations in bold text are greater than or equal to their respective reporting limits.
- All concentrations are reported in mg/Kg (parts per billion).
- J = approximate value
- B = compound detected in both blank and sample

5. Seismic Site Classification

Based on the observations recorded within our subsurface investigation program and utilizing the N-Value method as prescribed in Chapter 20 of ASCE 7-16, Site Class C, at minimum, can be assumed as the average condition across the project site.

The following Site Class C seismic ground motion values were obtained from the USGS Seismic Hazard Maps, referenced in ASCE 7-16 Standard, for this site:

- 0.2 second spectral response acceleration, S_S= 0.422 g
- 1 second spectral response acceleration, S_1= 0.172 g
- Maximum spectral acceleration for short periods, S_{MS}= 0.549 g
- Maximum spectral acceleration for a 1-second period, S_{M1}= 0.257 g
- 5% damped design spectral acceleration at short periods, S_{DS}= 0.366 g
- 5% damped design spectral acceleration at 1-second period, S_{D1}= 0.172 g

5.1 Preliminary Seismic Evaluation

The designated seismic site class is anticipated based on results from our limited investigation program and using select areas of the site which have been investigated by ANS Geo. Backup data for the site class determination is provided as **Attachment G**. Based on our observation of subsurface conditions, estimated Site Class rating, and review of USGS's 2018 National Seismic Hazard Map, ANS Geo concludes that there is a low to moderate risk of significant seismic activity which may impact the proposed solar facility.

6. Foundation Considerations

ANS Geo anticipates that, as typical with solar farm construction, embedded posts, such as W6x9 H-piles, will be used to support the proposed solar panels. Conventional shallow foundations such as sonotubes, spread footings, or similar systems may also be utilized for equipment pads and associated support structures.

6.1 Corrosion Considerations

Given the soil's measured acidity, sulfate and chloride concentrations, resistivity, and redox potential summarized in **Section 3.3** (Table 4), in consideration with the soil and moisture conditions observed, the influence of corrosion attack on embedded steel piles is considered to be generally mild.

6.2 Frost & Adfreeze Considerations

Within Yakima County, Washington, frost depth is mapped to exist at approximately 18 inches below grade. As such, ANS Geo recommends that all structural foundations be founded at 18 inches (1.5 feet) below grade or deeper to ensure adequate protection from frost conditions which may jeopardize the integrity of subgrade soils and associated substructure.

Given the location of the project and soils encountered, the potential for frost heave against post foundations should be considered. Fine-grained soils, or granular soils with greater than 10 percent fine-grained content are frost-susceptible due to the inability of entrapped moisture from infiltrating or evaporating prior to freezing. Trapped moisture will begin to create ice lenses, which will grip the steel posts or embedded structures, followed by ice-jacking due to frost heave. The phenomenon is more commonly referred to as "adfreeze stress", which can be considered as an external, upward force applied to the post. The magnitude of the upward force will depend on the depth/thickness of the frost zone, the interface bond stress between embedded structure/material and the surrounding area, and the surface area of the structure/material in contact with this bond stress. As predominantly silty soils were observed near grade, ANS Geo recommends that an unfactored adfreeze (uplift) stress of 1,500 pounds per square foot (10.4 psi) be considered for the upper 1.5 feet of overburden soil during panel foundation sizing and design.

6.3 Recommended Soil Parameters

Based on our interpretation of the subsurface conditions observed within our limited investigation program, and the laboratory testing results, ANS Geo recommends that the soil parameters, as depicted within Table 7, be considered for preliminary design purposes.

Table 7 – Recommended Preliminary Soil Parameters

Depth	Material	Total Unit Weight	Internal Friction Angle	Cohesion	Soil Modulus (k)	Soil Strain (E_{50})	Allowable Bearing Capacity	Allowable Side Resistance
0' – 1.5'	Topsoil / Upper Silt	95 lb/ft^3	20°	0 lb/ft^2	20 lb/in^3	-	300 lb/ft^2	0 lb/ft^2
1.5' – 3'	Silt (ML)	105 lb/ft^3	31°	0 lb/ft^2	100 lb/in^3	-	2,000 lb/ft^2	50 lb/ft^2
3' – 4'	Gravel (GM)	120 lb/ft^3	35°	0 lb/ft^2	250 lb/in^3	-	4,000 lb/ft^2	100 lb/ft^2
4' +	Basalt (bedrock)	140 lb/ft^3	37°	0 lb/ft^2	500 lb/in^3	0.001	6,000 lb/ft^2	400 lb/ft^2

ANS Geo recommends that allowable side resistance within the upper 1.5 feet be neglected due to anticipated surficial disturbance, and adfreeze stresses as noted in **Section 6.2** should be considered. These allowable capacities and resistances provided are based on a serviceability limit of one-inch of maximum deflection/settlement. It should also be noted that these parameters have been established based on our engineering judgment. A detailed investigation program, including pile load testing, should be performed to confirm and calibrate these values prior to construction.

7. Construction Recommendations

7.1 Excavation

Based on the encountered subsurface conditions and anticipated foundation configurations, some excavations may extend deeper than four feet below grade. As such, excavations deeper than four feet should be shored or sloped and benched, in accordance with OSHA regulations, to ensure safe working conditions within the excavations. For benching purposes, overburden soils may be considered as "Type C" material and should be sloped no steeper than 1.5H:1V (horizontal to vertical). Intact basalt bedrock, if deemed stable, may be vertically cut within shallow temporary excavations and trenches. OSHA soil classifications should be field-determined by the contractor's "competent person" prior to excavation. Any proposed shoring systems should be designed by the contractor's "competent person", be certified by a Professional Engineer licensed in the State of Washington, and should be submitted to the engineer for review.

The contractor should expect cobbles, boulders, and bedrock within shallow excavations and earthwork activities. ANS Geo notes that pre-drilling for post locations to clear cobbles, boulders, and bedrock should be anticipated and is further discussed in **Section 7.6**.

7.2 Dewatering

ANS Geo did not encounter groundwater at the time of our investigation program. Notwithstanding, the contractor should be prepared to manage any perched water and/or infiltrated stormwater as needed using localized pump-and-sump or similar techniques to allow for concrete foundation construction in-the-dry. Water discharge should be managed in compliance with applicable state and local regulations. The contractor should be sure to grade the surface as necessary to divert stormwater away from open excavation to the extent possible.

7.3 Subgrade Preparation

Prior to the installation of shallow concrete foundations, ANS Geo recommends overexcavating the subgrade by at least four (4) inches, lining the exposed material with a geotextile separation fabric, and bringing the subgrade back up to the design foundation elevation with compacted structural fill as specified within Table 8. Native material beneath the separation fabric should be inspected for unsatisfactory conditions such as standing water, frozen soil, organics, or deleterious materials. Should any unsatisfactory conditions exist within the native subgrade, the excavation should be undercut an additional four inches (8 total inches beneath proposed foundation depth) prior to placement of the geotextile separation fabric.

Table 8 – Recommended Gradation of Structural Fill

Sieve Size	Percent Passing
3-inch	100
1 ½-inch	60 – 100
No. 4	30 – 60
No. 200	0 – 10

Structural fill material should be placed in loose lifts not exceeding eight (8) inches in height and be compacted to at least 95 percent of its Modified Proctor Density in accordance with ASTM D1557.

7.4 Backfilling and Re-use of Native Soils

ANS Geo notes that native fine-grained soils (silts) on site will likely be difficult to handle, place, and compact without proper moisture conditioning and protection. ANS Geo recommends the following measures be considered to reduce the adverse impacts of moisture-sensitive soils:

- Positive measure should be implemented and maintained to intercept and direct surface water away from moisture-sensitive subgrade surfaces.
- Subgrade surfaces should be sloped and, as appropriate, seal-rolled to facilitate proper drainage. Surfaces should be properly prepared in anticipation of inclement weather. Moisture should not be allowed to collect on subgrade surfaces.
- To the extent practical, the limits of exposed subgrade soils should be minimized.
- Construction traffic should be limited to properly constructed haul roads.
- Disturbed soils should be removed and replaced with compacted controlled fill material.
- In place moisture contents should be maintained with two percent wet/dry of the optimum moisture content as determined by the Modified Proctor Test (ASTM D1557).

These soils may be re-used across the project area for fill in landscaped areas; however, it should not be used under or above foundations or load-bearing structures where typically imported structural fill is used. Native material used as backfill for cable trenches should be handled and placed at a moisture content at or above its optimum value to ensure representative thermal properties are maintained.

In areas around and above installed foundations, large utilities, and other buried site features, ANS Geo recommends importing a clean granular material with less than 15 percent fine-grained content for use as general backfill. General backfill material should not be used beneath any load-bearing structures and should be placed in loose lift thicknesses not exceeding 12 inches and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557). Soil used as backfill should not be handled when frozen and should be free of excessive moisture, organics, and deleterious material.

In fill areas beneath foundations, access roads, and load-bearing structures, ANS Geo recommends structural fill as described in **Section 7.3** and Table 8.

7.5 Access Roads

ANS Geo understands that an access road will likely be required to enter and exit the project site as well as provide access to the equipment pad locations. It is also our understanding that this access road will likely be unpaved, to accommodate occasional light vehicular traffic such as utility pickup truck or similar vehicle. As such, ANS Geo recommends that access roads be constructed with at least six (6) inches of crushed stone as specified within Table 9.

Table 9 – Recommended Gradation of Crushed Stone

Sieve Size	Percent Passing
1 ½-inch	100
¾-inch	55 – 90
No. 4	25 – 50
No. 50	5 – 20
No. 200	3 – 10

Prior to roadway construction, the subgrade should be stripped of vegetation and topsoil, and be proof-rolled with at least four (4) roundtrip passes of a smooth-drum roller with a minimum operating weight of eight (8) tons. The prepared subgrade should be confirmed to maintain a minimum CBR value of 10. Although not anticipated, if required, additional stabilization may be obtained through chemical treatment of the subgrade including introduction of lime or cement. Crushed stone should be placed in loose lifts not exceeding eight (8) inches in height and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557).

7.6 Pile Drivability

ANS Geo anticipates that, as typical with solar farm construction, solar panels will be supported by steel H-Piles (wide-flanged sections) driven to approximately 8 to 10 feet below grade. It is ANS Geo's professional opinion that the parameters provided in **Section 6.3** may be used to preliminarily size the proposed piles,

however, piles should be axially and laterally load tested to confirm their capacities at representative locations prior to final design and construction. These steel piles are typically installed via direct-push, vibration, and/or percussive hammer methods.

Based on our observations within our investigation program, Based on our observations within our investigation program, **we expect that regular obstructions or refusals associated with bedrock, cobbles, and/or boulders will be encountered as shallow as two feet below grade.** As such, ANS Geo recommends that the contractor pre-drill all proposed post locations. We recommend that pre-drilled holes be completed to a diameter slightly smaller than the diagonal dimension of the proposed pile section to ensure a tight fit once the pile is driven to its targeted depth. For example, a six (6)-inch diameter hole may be drilled and utilized for W6x9 section (approx. 7.1-inch diagonal measurement). The contractor should be aware, however, that heavier sections (ie. W6x12 or W6x15) may have limiting "bending" capacity in its flanges, and therefore require a hole of a slightly larger proportion.

8. Limitations

ANS Geo notes that the findings and recommendations presented within this Draft Geotechnical Report are based on our limited investigation program conducted in October through December 2020 and our engineering judgment. A load testing program should be completed prior to conducting a detailed post foundation design. Should the scope of the project or proposed site layout change, ANS Geo should be given the opportunity to review the applicability of the collected information and modify our recommendations, as needed.

We sincerely appreciate the opportunity to support this project, and please feel free to contact us should you have any questions regarding the findings of this Report.

Yours Truly,

Vatsal Shah, PE, Ph.D, D.GE
Principal Engineer
ANS Geo, Inc.
(908) 754-8800
vatsal.shah@ansgeo.com

Eric Pauli, PE
Senior Engineer
ANS Geo, Inc.
(908) 754-8800
eric.pauli@ansgeo.com

Attachments

Attachment A – Investigation Location Plan

Attachment B – Soil Boring Logs

Attachment C – Test Pit Photo Logs

Attachment D – Electrical Resistivity Results

Attachment E – Geotechnical Laboratory Test Results

Attachment F – Environmental Sampling Results

Attachment G – Seismic Support Data

Attachment A

Investigation Location Plan

ANS GEO

Client:

CYPRESS CREEK RENEWABLES

INVESTIGATION LOCATION PLAN OVERVIEW

CYPRESS CREEK RENEWABLES
OSTREA SOLAR PROJECT
MOXEE, WASHINGTON

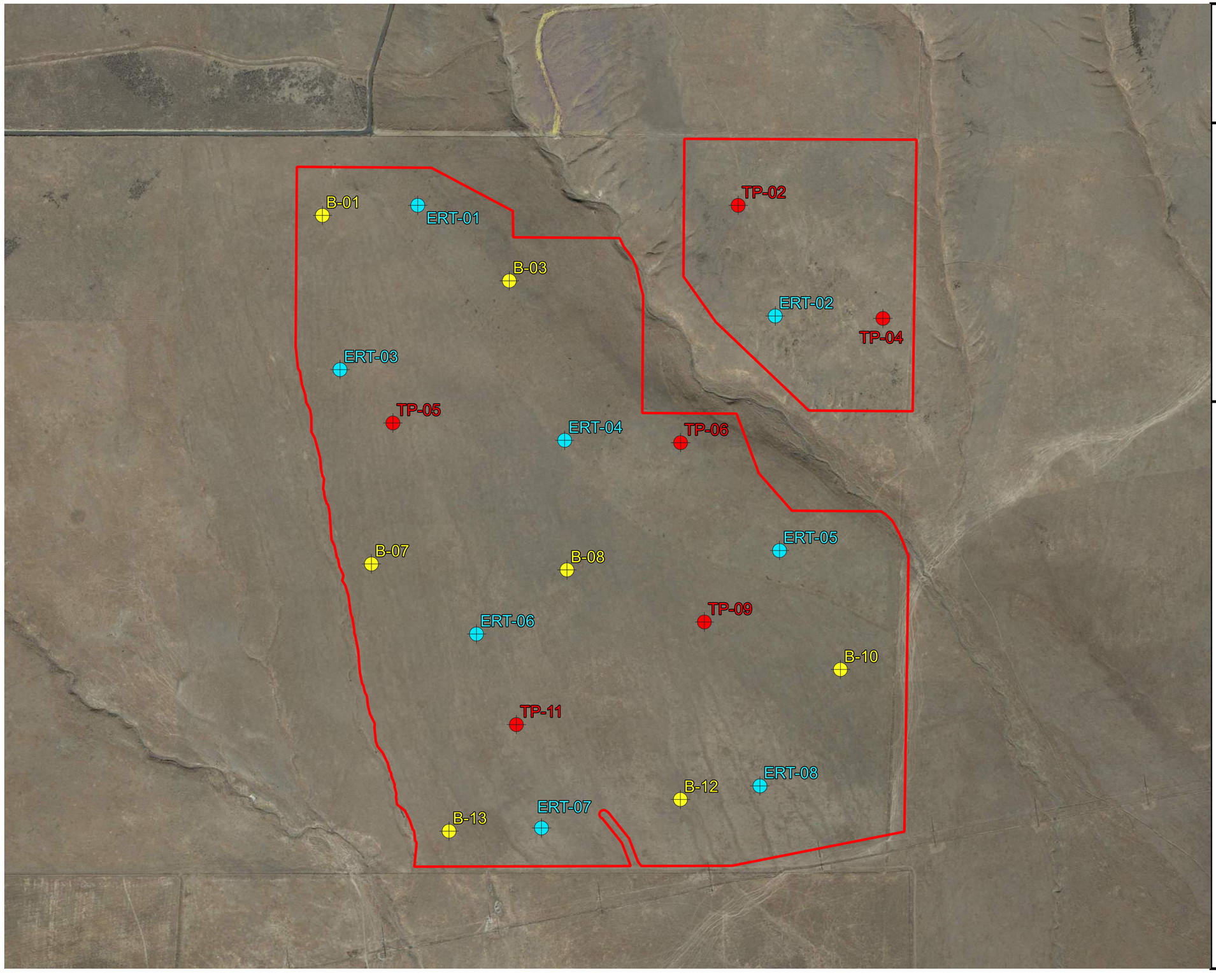
Legend

- Project Boundary
- Substation Boundary
- Soil Boring Location
- Test Pit Location
- Electrical Resistivity Location

0 1,000 2,000 3,000 4,000 ft

Reference Scale: 1:24,000
Absolute Scale: 1 inch = 2000 feet
Scale at 11" x 17" AS SHOWN

Prepared by: Kyle Hansen
Date: January 14, 2021
Drawing Number: ILP-1 Rev.0



ANS GEO

Client:

CYPRESS CREEK RENEWABLES

INVESTIGATION LOCATION PLAN
WEST REGION

CYPRESS CREEK RENEWABLES
OSTREA SOLAR PROJECT
MOXEE, WASHINGTON

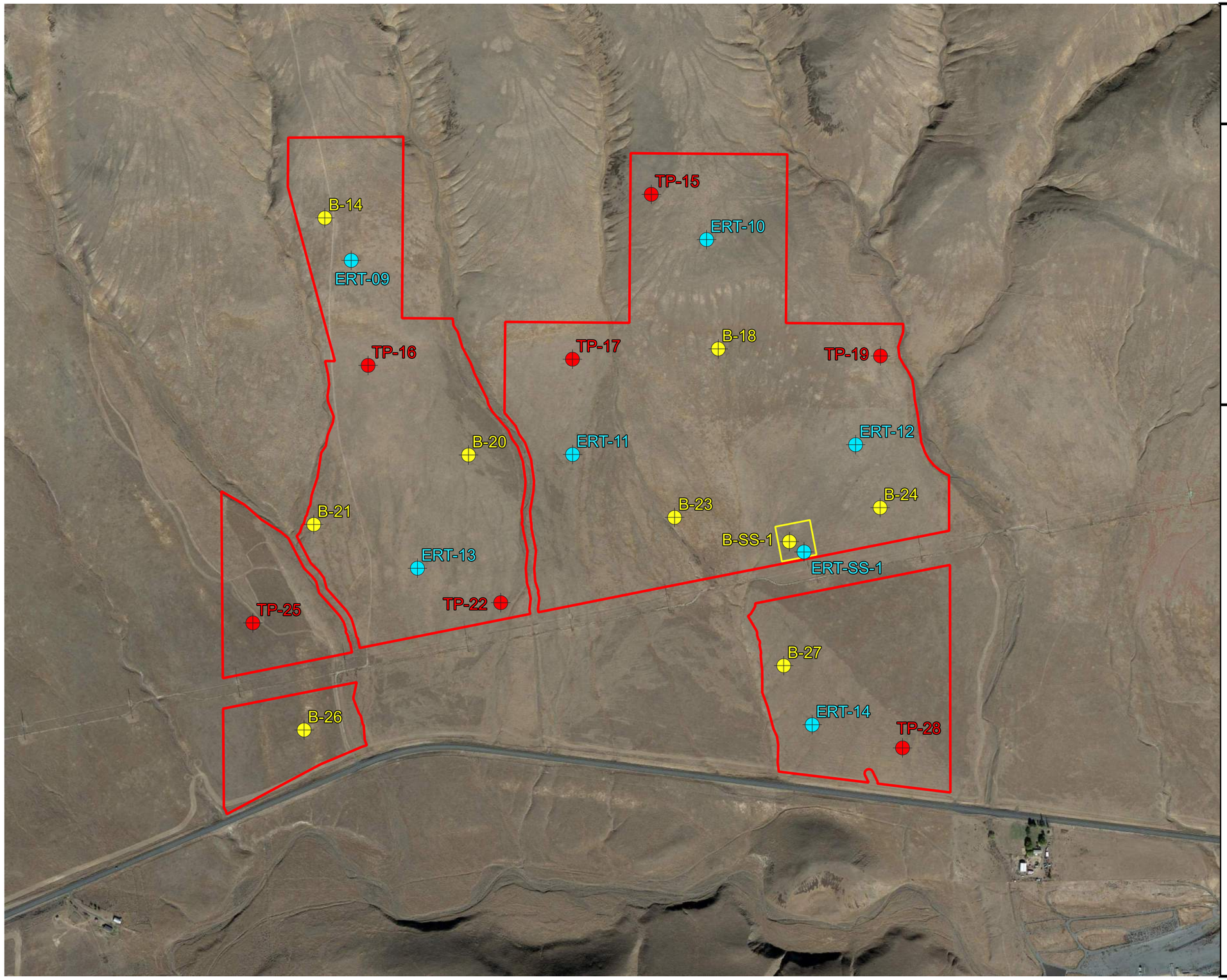
Legend

- Project Boundary
- Soil Boring Location
- Test Pit Location
- Electrical Resistivity Location

0 500 1,000 1,500 2,000 ft

Reference Scale: 1:12,000
Absolute Scale: 1 inch = 1000 feet
Scale at 11" x 17" AS SHOWN

Prepared by: Kyle Hansen
Date: January 14, 2021
Drawing Number: ILP-W-1 Rev.0



ANS GEO

Client:

CYPRESS CREEK RENEWABLES

INVESTIGATION LOCATION PLAN
EAST REGION

CYPRESS CREEK RENEWABLES
OSTREA SOLAR PROJECT
MOXEE, WASHINGTON

Legend

- Project Boundary
- Substation Boundary
- Soil Boring Location
- Test Pit Location
- Electrical Resistivity Location

0 500 1,000 1,500 2,000 ft

Reference Scale: 1:12,000
Absolute Scale: 1 inch = 1000 feet
Scale at 11" x 17" AS SHOWN

Prepared by: Kyle Hansen
Date: January 14, 2021
Drawing Number: ILP-E-1 Rev.0

Attachment B

Soil Boring Logs

SOIL BORING LOG

BORING NO.: **B-01**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 12:05 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 12:35 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.546888° **Long:** -119.954184° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	10	1 1 1 2		ML	0.4 (5") - TOPSOIL Soft, light brown SILT, little medium to fine Sand, dry (ML) 2.0	-	-	-	-	PID = 0
	S-2 2.0'- 4.0'	6	5 14 20 9		GP	Dense, gray coarse to fine GRAVEL, little medium to fine Sand, trace Silt, dry (GP) 4.0	-	-	-	-	Gravel is Basalt.
5	S-3 4.0'- 6.0'	10	20 23 24 28		ML	Very stiff, light brown SILT, some medium to fine Sand, trace Clay, trace fine Gravel, dry (ML) 6.0	-	-	-	-	
	S-4 6.0'- 6.8'	4	7 50/4"		GM	Very dense, gray coarse to fine GRAVEL, little medium to fine Sand, little Silt, dry (GM) 6.8	-	-	-	-	Gravel is Basalt.
10						Spoon Refusal at 6.8 feet BGS. Auger Refusal at 7 feet BGS. End of Boring at 6.8 feet BGS. Borehole backfilled with soil cuttings.					
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-01**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-03**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 12:45 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 1:10 pm

Elevation: Grade ft. **Vertical Datum:** **Boring Location:** See Boring Location Plan **Coord.:** **Lat:** 46.545611° **Long:** -119.948883°

Horizontal Datum: NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	
☑ ATV	☐ Geoprobe	☑ Winch	
☑ Track	☐ Air Track	☐ Roller Bit	
☐ Skid	☐ _____	☑ Cutting Head	

Hammer Type

☐ Safety	
☐ Doughnut	
☑ Automatic	
☐ _____	

Drilling Fluid

☐ Bentonite	
☐ Polymer	
☐ Water	
☑ None	

Drill Rod Size:

Casing Advance

Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	14	4 4 12 2			0.5 (6") - TOPSOIL	-	-	-	-	PID = 0
	0.5'-'				ML	Very stiff, light brown Sandy SILT, trace fine Gravel, dry (ML)	-	-	NP	-	
	S-2 2.0'- 4.0'	12	10 18 21 50/5"		ML	Hard, light brown Sandy SILT, little coarse to fine Gravel, dry (ML)	-	-	NP	-	Gravel is Basalt.
						4.1					
	S-3 4.0'- 6.0'	0	50/1"			Spoon Refusal at 4.1 feet BGS. Auger Refusal at 4.1 feet BGS. End of Boring at 4.1 feet BGS. Borehole backfilled with soil cuttings.	-	-	-	-	
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-03**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-07**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 11:30 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 11:50 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.540085° **Long:** -119.952795° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	24	3 4 20 24			0.5 (6") - TOPSOIL	-	-	-	-	PID = 0
					ML	1.0 (6") - Light brown SILT, dry (ML)					
					GM	(12") - Gray to brown coarse to fine GRAVEL, little Silt, trace fine Sand, dry (GM)					
	S-2 2.0'- 3.0'	7	36 50/3"		GM	Very dense, gray coarse to fine GRAVEL, some coarse to fine Sand, little Silt, dry (GM)	-	-	-	-	Gravel is Basalt. Auger grinding from 1 to 2 feet BGS. Gravel is thin round Basalt fragments.
						3.0 Spoon Refusal at 2.75 feet BGS. Auger Refusal at 3 feet BGS. Offset Auger Refusal at 2 feet BGS. End of Boring at 3 feet BGS. Borehole backfilled with soil cuttings.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-07**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-08**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 1:45 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 2:00 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.539970° **Long:** -119.947247° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid
☐ Bentonite
☐ Polymer
☐ Water
☑ None

Drill Rod Size:

Casing Advance
Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 1.6'	14	3 4 43 50/1"			(9") - TOPSOIL 0.8	-	-	-	-	PID = 0 Gravel is Basalt. Auger grinding from 1 to 1.6 feet BGS.
					GM	Light brown to gray coarse to fine GRAVEL, some Silt, little medium to fine Sand, dry (GM) 1.6					
						Spoon Refusal at 1.6 feet BGS. Auger Refusal at 1.75 feet BGS. Offset Auger Refusal at 1.5 feet BGS.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

O Open End Rod
T Thin-Wall Tube
U Undisturbed Sample
S Split Spoon Sample
G Grab Sample

Notes:

Boring No.: **B-08**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-10**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 2:10 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 2:50 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.538025° **Long:** -119.939489° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	16	2 3 5 11			(8") - TOPSOIL 0.6	-	-	-	-	PID = 0
					ML	Medium stiff, light brown to gray Gravelly SILT, little medium to fine Sand, dry (ML) 2.0					
	S-2 2.0'- 4.0'	7	9 50/5"		SM	Very dense, gray to brown coarse to fine SAND, some coarse to fine Gravel, some Silt, dry (SM) 4.0	-	-	-	-	Gravel is Basalt.
5	S-3 4.0'- 5.9'	14	9 26 42 50/5"		GP	Very dense, gray coarse to fine GRAVEL, little medium to fine Sand, trace Silt, dry (GP) 5.9	-	-	-	-	Gravel is Basalt. Auger grinding from 2.5 to 5.5 feet BGS.
						Spoon Refusal at 5.9 feet BGS. Auger Refusal at 5.5 feet BGS. End of Boring at 5.9 feet BGS. Borehole backfilled with soil cuttings.					
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-10**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-12**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 3:15 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 3:30 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.535489° **Long:** -119.944029° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head
☑ ATV	☐ Geoprobe	☑ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ _____	☑ Cutting Head

Hammer Type

☐ Safety
☐ Doughnut
☑ Automatic
☐ _____

Drilling Fluid

☐ Bentonite
☐ Polymer
☐ Water
☑ None

Drill Rod Size:

Casing Advance

Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 1.4' 0.6'-'	14	2 9 50/5"			0.6 (7") - TOPSOIL	-	-	-	-	
					GP	Very dense, gray coarse to fine GRAVEL, little medium to fine Sand, dry (GP) 1.4	-	-	-	-	PID = 0 Gravel is Basalt.
						Spoon Refusal at 1.4 feet BGS. Auger Refusal at 2 feet BGS. Offset Auger Refusal at 1.5 feet BGS. End of Boring at 1.4 feet BGS. Borehole backfilled with soil cuttings.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-12**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid | Toughness: L - Low M - Medium H - High | Plasticity: NP - Non-Plastic L - Low M - Medium H - High | Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-13**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 2, 2020 at 10:40 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 2, 2020 at 11:15 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.534871° **Long:** -119.950592° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	18	2 2 3 4			0.5 (6") - TOPSOIL	-	-	-	-	PID = 0
					ML	Medium stiff, light brown SILT, little medium to fine Sand, dry (ML)					
						2.0					
	S-2 2.0'- 4.0'	19	5 5 5 5		CL	Stiff, light brown Silty CLAY, little medium to fine Sand, dry (CL)	-	-	L	-	
						4.0					
	S-3 4.0'- 6.0'	24	8 20 35 40		GM	Very dense, light brown to gray coarse to fine GRAVEL, little Silt, trace medium to fine Sand, dry (GM)	-	-	-	-	Gravel is Basalt. Auger grinding from 4 to 6 feet BGS.
5						6.0					
	S-4 6.0'- 7.2'	11	20 38 50/3"		GP	Very dense, light brown to gray coarse to fine GRAVEL, little medium to fine Sand, trace Silt, dry (GP)	-	-	-	-	Gravel is Basalt. Auger grinding
						7.2					
						Spoon Refusal at 7.2 feet BGS. Auger Refusal at 7 feet BGS. End of Boring at 7 feet BGS. Borehole backfilled with soil cuttings.					
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-13**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-14**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 4, 2020 at 12:00 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 4, 2020 at 12:35 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.546730° **Long:** -119.913149° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head
☑ ATV	☐ Geoprobe	☑ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ _____	☑ Cutting Head

Hammer Type

☐ Safety
☐ Doughnut
☑ Automatic
☐ _____

Drilling Fluid

☐ Bentonite
☐ Polymer
☐ Water
☑ None

Drill Rod Size:

Casing Advance

Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	14	4			(7") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		9			0.6					
	0.6'-'		17		ML	Light brown SILT, little medium to fine Sand, dry (ML)	-	-	-	-	PID = 0 Gravel in tip of spoon is Basalt.
			50/1"			2.0					
						Spoon Refusal at 1.6 feet BGS. Auger Refusal at 2 feet BGS. Offset, Auger Refusal at 1.5 feet BGS. End of Boring at 2 feet BGS. Borehole backfilled with soil cuttings.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-14**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid | Toughness: L - Low M - Medium H - High | Plasticity: NP - Non-Plastic L - Low M - Medium H - High | Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-18**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 9:00 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 5, 2020 at 10:00 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.544194° **Long:** -119.902071° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	16	2			(7") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		3			0.6					
	0.6'-'		3		ML	Medium stiff, light brown SILT, some medium to fine Sand, dry (ML)	-	-	-	-	PID = 0
			6			2.0					
	S-2	20	16		GM	Dense, light brown to gray coarse to fine GRAVEL, some Silt, little medium to fine Sand, dry (GM)	-	-	-	-	
	2.0'- 4.0'		35								
			10								
			9			4.0					
	S-3	13	4		SM	Medium dense, light brown Gravelly coarse to fine SAND, little Silt, dry (SM)	-	-	-	-	
	4.0'- 6.0'		7								
5			10								
			5			6.0					
	S-4	16	9		GP	Dense, gray coarse to fine GRAVEL, some medium to fine Sand, trace Silt, dry (GP)	-	-	-	-	Gravel is Basalt.
	6.0'- 7.7'		16								
			32								
			50/2"			7.7					
						Spoon Refusal at 7.7 feet BGS. Auger Refusal at 7 feet BGS. End of Boring at 7.7 feet BGS. Borehole backfilled with soil cuttings.					
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-18**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid | Toughness: L - Low M - Medium H - High | Plasticity: NP - Non-Plastic L - Low M - Medium H - High | Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-20**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 4, 2020 at 1:20 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 4, 2020 at 2:20 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.542139° **Long:** -119.909104° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	18	3			0.5 (6") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		3		ML	Medium stiff, light brown Sandy SILT, trace Clay, dry (ML)	-	-	NP	-	PID = 0
	0.5'-'		3								
			3								
	S-2	14	7		ML	Stiff, light brown Sandy SILT, dry (ML)	-	-	NP	-	PID = 0
	2.0'- 4.0'		6								
			5								
			7			4.0					
	S-3	20	5		SM	Medium dense, light brown Silty medium to fine Sand, dry (SM)	-	-	-	-	PID = 0
	4.0'- 6.0'		7								
5			10								
			9			6.0					
	S-4	10	16		GP	Very dense, gray to light brown coarse to fine GRAVEL, some medium to fine Sand, trace Silt, dry (GP)	-	-	-	-	Gravel is Basalt. Auger grinding from 6.5 to 11 feet BGS.
	6.0'- 8.0'		20								
			32								
			22								
	S-5	14	16		GP	Very dense, gray to light brown coarse to fine GRAVEL, little medium to fine Sand, dry (GP)	-	-	-	-	
	8.0'- 10.0'		22								
			42								
10			50/4"								
						11.0					
						Spoon Refusal at 9.8 feet BGS. Auger Refusal at 11 feet BGS. End of Boring at 11 feet BGS. Borehole backfilled with soil cuttings.					
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-20**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-21**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 4, 2020 at 10:45 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 4, 2020 at 11:30 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.540793° **Long:** -119.913460° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0' 0.5'-'	18	3 9 11 10			0.5 (6") - TOPSOIL	-	-	-	-	
					GM	Light brown to gray Silty coarse to fine GRAVEL, little medium to fine Sand, dry (GM)	-	-	-	-	PID = 0
	S-2 2.0'- 4.0'	19	3 5 10 7		ML	2.0 Stiff, light brown to gray SILT, some coarse to fine Gravel, some coarse to fine Sand, dry (ML)	-	-	NP	-	Gravel is Basalt.
	S-3 4.0'- 6.0'	14	24 21 19 50/2"		GM	4.0 Dense, light brown to gray coarse to fine GRAVEL, some coarse to fine Sand, little Silt, dry (GM)	-	-	-	-	
5						6.0 Spoon Refusal at 5.8 feet BGS. Auger Refusal at 6 feet BGS. End of Boring at 6 feet BGS. Borehole backfilled with soil cuttings.					
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-21**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid | Toughness: L - Low M - Medium H - High | Plasticity: NP - Non-Plastic L - Low M - Medium H - High | Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-23**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 11:45 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 5, 2020 at 12:10 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.540931° **Long:** -119.903300° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic
☐ Skid	☐ _____	☑ Cutting Head	☐ _____

Hammer Type

Drilling Fluid: ☐ Bentonite ☐ Polymer ☐ Water ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0'	12	2 3 7 8			0.5 (6") - TOPSOIL	-	-	-	-	PID = 0
	0.5'-'				ML	Very stiff, light brown SILT, some coarse to fine Sand, little coarse to fine Gravel, dry (ML)	-	-	NP	-	
	S-2 2.0'- 4.0'	10	12 21 31 45		ML	Hard, gray to light brown SILT, some coarse to fine Sand, some coarse to fine Gravel, dry (ML)	-	-	NP	-	Gravel is Basalt.
						4.1					
	S-3 4.0'- 6.0'	0	50/2"			Spoon Refusal at 4.2 feet BGS. Auger Refusal at 4.2 feet BGS. End of Boring at 4.2 feet BGS. Borehole backfilled with soil cuttings.	-	-	-	-	
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-23**

Field Test Legend:
Dilatancy: N - None S - Slow R - Rapid
Toughness: L - Low M - Medium H - High
Plasticity: NP - Non-Plastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-24**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 10:50 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 5, 2020 at 11:40 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.541120° **Long:** -119.897513° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety	☐ Bentonite
☑ ATV	☐ Geoprobe	☑ Winch	☐ Doughnut	☐ Polymer
☑ Track	☐ Air Track	☐ Roller Bit	☑ Automatic	☐ Water
☐ Skid	☐ _____	☑ Cutting Head	☐ _____	☑ None

Drill Rod Size: | **Casing Advance:** Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1 0.0'- 2.0' 0.6'-'	19	3 4 10 21			(7") - TOPSOIL 0.6	-	-	-	-	
					ML	Medium stiff, brown SILT, some coarse to fine Sand, trace fine Gravel, dry (ML) 2.0	-	-	-	-	PID = 0
	S-2 2.0'- 3.0'	7	42 50/4"		GM	Very dense, light brown to gray coarse to fine GRAVEL, little medium to fine Sand, little Silt, dry (GM) 3.0	-	-	-	-	
						Spoon Refusal at 2.8 feet BGS. Auger Refusal at 3 feet BGS. Offset, Auger Refusal at 2.5 feet BGS. End of Boring at 2.5 feet BGS. Borehole backfilled with soil cuttings.					

5
10
15

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-24**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid; Toughness: L - Low M - Medium H - High; Plasticity: NP - Non-Plastic L - Low M - Medium H - High; Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-26**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 4, 2020 at 9:50 am
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 4, 2020 at 10:30 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.536814° **Long:** -119.913732° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head
☑ ATV	☐ Geoprobe	☑ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ _____	☑ Cutting Head

Hammer Type

☐ Safety
☐ Doughnut
☑ Automatic
☐ _____

Drilling Fluid

☐ Bentonite
☐ Polymer
☐ Water
☑ None

Drill Rod Size:

Casing Advance

Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	24	3			0.5 (6") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		5		ML	Light brown SILT, some medium to fine Sand, dry (ML)	-	-	NP	-	PID = 0
	0.5'-'		5								
			3								
	S-2	11	4		ML	Hard, light brown to gray Sandy SILT, some coarse to fine Gravel, dry (ML)	-	-	NP	-	Gravel is Basalt.
	2.0'- 4.0'		20								
			30								
			34			4.0					
	S-3	7	21		GM	Very dense, light brown to gray coarse to fine GRAVEL, little medium to fine Sand, little Silt, dry (GM)	-	-	-	-	Gravel is Basalt. Auger grinding from 3 to 5.5 feet BGS.
	4.0'- 5.5'		22								
5			50/4"			5.5					
						Spoon Refusal at 5.3 feet BGS. Auger Refusal at 5.5 feet BGS. Offset, Auger Refusal at 5 feet BGS. End of Boring at 5.5 feet BGS. Borehole backfilled with soil cuttings.					
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-26**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid | Toughness: L - Low M - Medium H - High | Plasticity: NP - Non-Plastic L - Low M - Medium H - High | Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-27**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 12:15 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 5, 2020 at 12:45 pm

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.538060° **Long:** -119.900227° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	-
Length	5 ft	2 ft	-
Inside Dia. (in.)	4.25	1.375	-
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head
☑ ATV	☐ Geoprobe	☑ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ _____	☑ Cutting Head

Hammer Type: ☐ Safety, ☐ Doughnut, ☑ Automatic, ☐ _____

Drilling Fluid: ☐ Bentonite, ☐ Polymer, ☐ Water, ☑ None

Drill Rod Size:

Casing Advance: Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	18	2			0.5 (6") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		3		CL	Medium stiff, light brown Silty CLAY, little medium to fine Sand, dry (CL)	-	-	L	-	PID = 0
	0.5'-'		2								
			2			2.0					
	S-2	13	5		GM	Dense, light brown to gray coarse to fine GRAVEL, little medium to fine Sand, little Silt, dry (ML)	-	-	-	-	Gravel is Basalt.
	2.0'- 3.8'		16								
			32								
			50/4"			3.8					
						Spoon Refusal at 3.8 feet BGS. Auger Refusal at 3.5 feet BGS. Offset, Auger Refusal at 3 feet BGS. End of Boring at 3.8 feet BGS. Borehole backfilled with soil cuttings.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-27**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid; Toughness: L - Low M - Medium H - High; Plasticity: NP - Non-Plastic L - Low M - Medium H - High; Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

SOIL BORING LOG

BORING NO.: **B-SS-1**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 1:00 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 7, 2020 at 9:00 am

Elevation: Grade ft. **Vertical Datum:** | **Boring Location:** See Boring Location Plan | **Coord.:** **Lat:** 46.540462° **Long:** -119.900067° | **Horizontal Datum:** NAD 1983

Item	Casing	Sampler	Core Barrel
Type	HSA	SS	NQ
Length	5 ft	2 ft	- ft
Inside Dia. (in.)	4.25	1.375	1.875
Hammer Wt. (lb.)	140	140	-
Hammer Fall (in.)	30	30	-

Rig Make & Model: Mobile B-57

☐ Truck	☐ Tripod	☐ Cat-Head
☑ ATV	☐ Geoprobe	☑ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ _____	☑ Cutting Head

Hammer Type

☐ Safety
☐ Doughnut
☑ Automatic
☐ _____

Drilling Fluid

☐ Bentonite
☐ Polymer
☐ Water
☑ None

Drill Rod Size:

Casing Advance

Hollow Stem Auger

Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbol	Visual - Manual Identification & Description (Density/consistency, color, Group Name, constituents, particle size, structure, moisture, optional descriptions, geologic interpretation, Symbol)	Field Tests: Dilatancy	Toughness	Plasticity	Dry Strength	Remarks
	S-1	24	2			0.5 (6") - TOPSOIL	-	-	-	-	
	0.0'- 2.0'		4		ML	(12") - Brown Sandy SILT, dry (ML)	-	-	-	-	PID = 0
	0.5'-'		4			1.5					
			38		GM	(6") - Gray coarse to fine GRAVEL, little Silt, dry (GM) 2.0					
	S-2	10	15		SM	Very dense, gray Gravelly coarse to fine SAND, little Silt, dry (SM)	-	-	-	-	Gravel is Basalt.
	2.0'- 4.0'		15								
			47								
			50/1"			4.0					
						Auger Refusal at 4 feet BGS. See Rock Coring Log.					
5											
10											
15											

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water

Sample Type

- **O** Open End Rod
- **T** Thin-Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Grab Sample

Notes:

Boring No.: **B-SS-1**

Field Test Legend: Dilatancy: N - None S - Slow R - Rapid; Toughness: L - Low M - Medium H - High; Plasticity: NP - Non-Plastic L - Low M - Medium H - High; Dry Strength: N - None L - Low M - Medium H - High VH - Very High

NOTES: 1.) "ppd" denotes soil sample average diametral pocket penetrometer reading. 2.) "ppa" denotes soil sample average axial pocket penetrometer reading.
3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

CORE BORING LOG

BORING NO.: **B-SS-1**
Page **1** of **1**

Project:	Ostrea Solar	**Project No.:**	N/A
Location:	Moxee, Washington	**Project Mgr:**	N/A
Client:	Cypress Creek Renewables	**Field Eng. Staff:**	Mihir Shah
Drilling Co.:	Elite Drilling Services	**Date/Time Started:**	December 5, 2020 at 1:00 pm
Driller/Helper:	Lenny Jecminek /Greg	**Date/Time Finished:**	December 7, 2020 at 9:00 am

Elevation: Grade ft.		**Vertical Datum:**		**Boring Location:** See Boring Location Plan	**Coord.:** **Lat:** 46.540462° **Long:** -119.900067°
Item	**Casing**	**Core Barrel**	**Core Bit**		
Type	HSA	NQ	Imp. Diamond	**Horizontal Datum:** NAD 1983	**Drilling Method:** Wireline
Length	5 ft	5 ft	6 in	**Rig Make & Model:** Mobile B-57	
Inside Dia. (in.)	4.25	1.875	1.875		

Depth/ Elev. (ft)	Avg Core Rate (min /ft)	Depth (ft)	Run/ (Box) No.	Rec (in. / %)	RQD (in / %)	Rock Core Hard.	Rock Core Weath	Stratum Graphic	Visual Identification, Description and Remarks (Rock type, colour, texture, weathering, field strength, discontinuity spacing, optional additional geological observations)	Depth (ft.)	Discontinuities (See Legend for Rock Description System) Type	Dip	Rgh	Wea	Aper	Infill	Remarks
									SEE TEST BORING LOG FOR OVERBURDEN DETAILS								
	1.50	4.0							BASALT, gray, fine grained, highly weathered, strong, extremely close spaced discontinuities 4' - 7' Highly Weathered zone								Loss of water at 4.5 feet BGS.
5	1.00		R-1	16 44%	0 0%	R4	H										
	0.75	7.0															
	1.50	7.0							BASALT, gray, fine grained, highly weathered, strong, extremely close spaced discontinuities 7' - 11' Highly Weathered zone								
	2.00																Loss of water at 8 feet BGS.
	2.50		R-2	24 50%	0 0%	R4	H										
10	2.00	11.0															Loss of water at 9.75 feet BGS.
	1.25	11.0							BASALT, gray, fine grained, highly weathered, strong, extremely close spaced discontinuities 11' - 15' Highly Weathered zone								
	2.00																
	2.25		R-3	21 44%	0 0%	R4	H										
	1.50	15.0															
15									15.0 End of Boring at 15 feet BGS. Borehole backfilled with soil cuttings.								
20																	

Water Level Data

Date	Time	Elapsed Time (hr)	Depth in feet to: Bot. of Casing	Bottom of Hole	Water
		-			

Notes:

Attachment C

Test Pit Photo Logs

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-02
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	**Time Opened**	1:20 PM
Groundwater Depth	Not Encountered	**Time Closed**	1:45 PM

0-6”
Topsoil

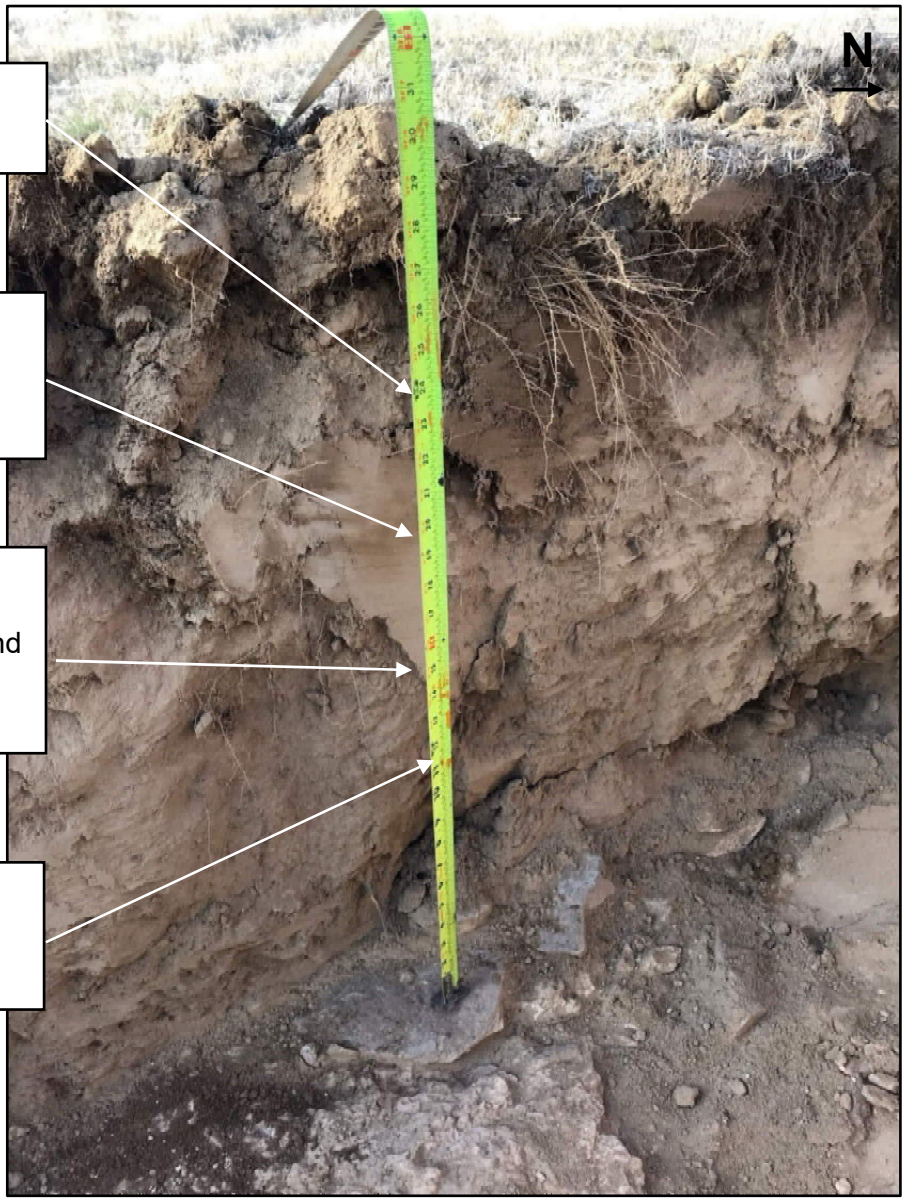
6-20”
Light brown SILT, little medium to fine Sand, dry (ML)

20-24”
Gray to light brown COBBLES, with Silt and Gravel interspersed throughout

24”
Gray BASALT

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-04
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	30 inches (2.5 feet)	**Time Opened**	12:45 PM
Groundwater Depth	Not Encountered	**Time Closed**	1:10 PM



0-6”
Topsoil

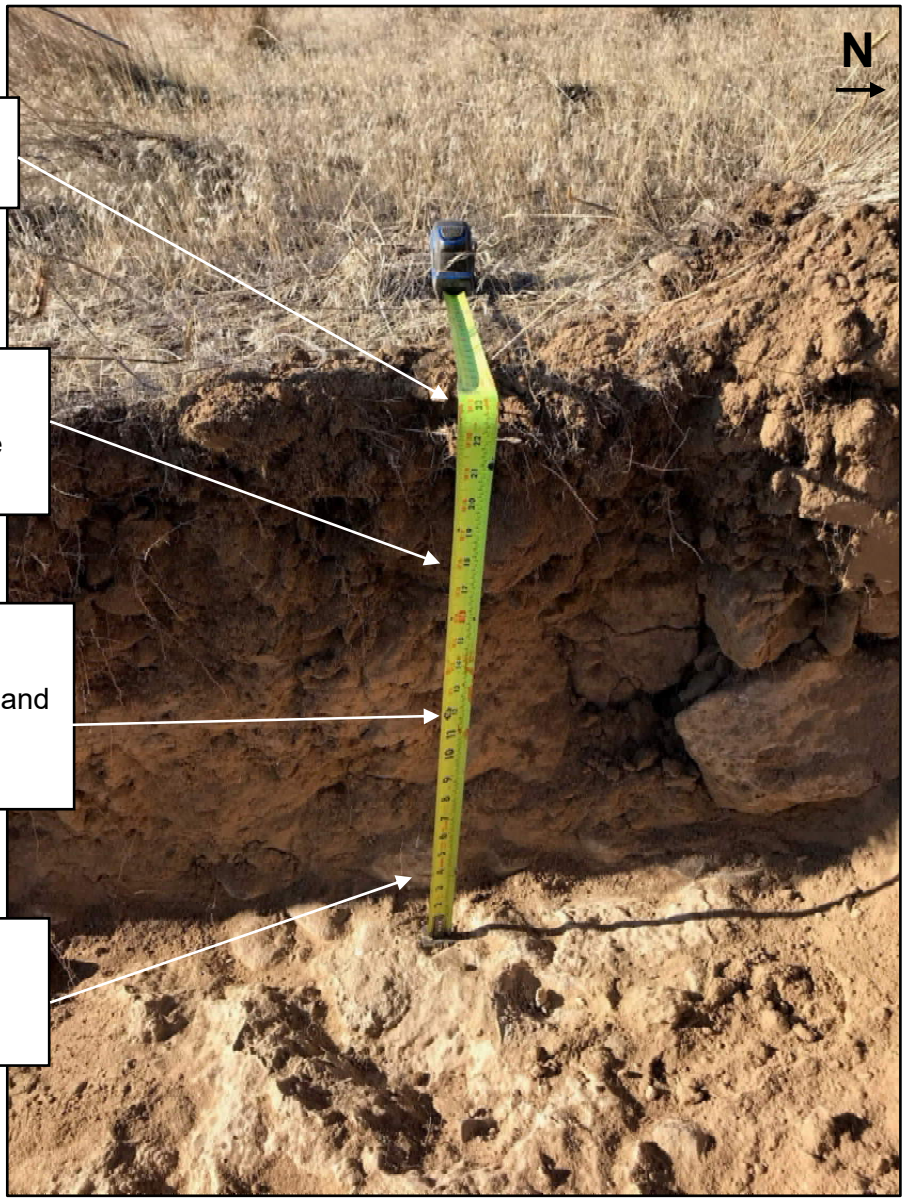
6-27”
Light brown SILT, little medium to fine Sand, dry (ML)

27-30”
Gray to light brown COBBLES, with Silt and Gravel interspersed throughout

30”
Gray BASALT

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-05
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	35°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	**Time Opened**	10:40 AM
Groundwater Depth	Not Encountered	**Time Closed**	11:05 AM



TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-06
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	14 inches (1.2 feet)	**Time Opened**	11:15 AM
Groundwater Depth	Not Encountered	**Time Closed**	11:40 AM

0-6”
Topsoil

6-8”
Light brown SILT, little medium to fine Sand, dry (ML)

8-14”
Gray to light brown COBBLES, with Silt and Gravel interspersed throughout

14”
Gray BASALT

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-09
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	30 inches (2.5 feet)	**Time Opened**	11:45 AM
Groundwater Depth	Not Encountered	**Time Closed**	12:20 PM

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-11
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	35°F / Sunny
Final Test Pit Depth	22 inches (1.8 feet)	**Time Opened**	10:05 AM
Groundwater Depth	Not Encountered	**Time Closed**	10:35 AM

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-15
Site Location	Moxee, Washington	**Date**	12/5/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	25°F / Cloudy
Final Test Pit Depth	12 inches (1.0 feet)	**Time Opened**	11:40 AM
Groundwater Depth	Not Encountered	**Time Closed**	12:15 PM

TEST PIT PHOTO LOG

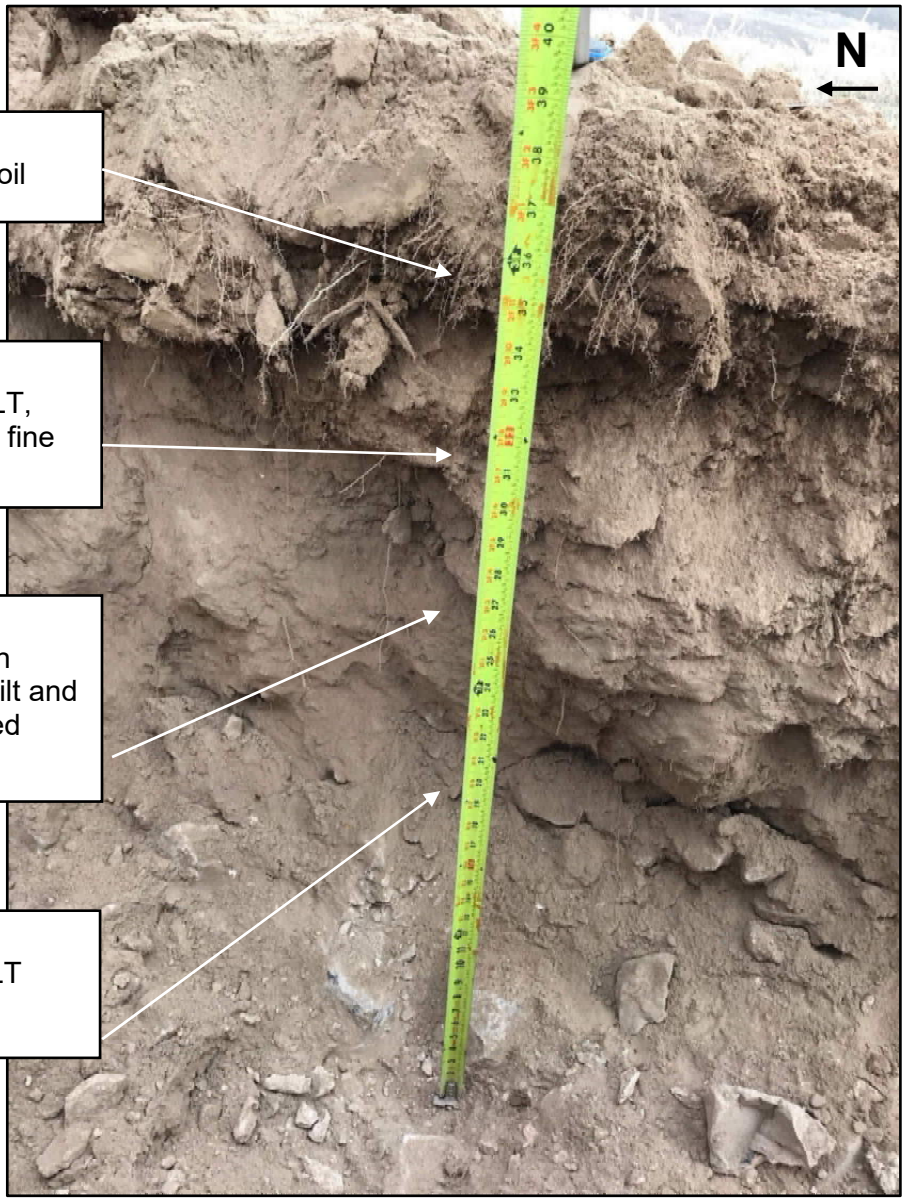
Project Name	Ostrea Solar	**Test Pit ID**	TP-16
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	21 inches (1.8 feet)	**Time Opened**	2:50 PM
Groundwater Depth	Not Encountered	**Time Closed**	3:25 PM

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-17
Site Location	Moxee, Washington	**Date**	12/5/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	20°F / Cloudy
Final Test Pit Depth	52 inches (4.3 feet)	**Time Opened**	8:55 AM
Groundwater Depth	Not Encountered	**Time Closed**	9:20 AM

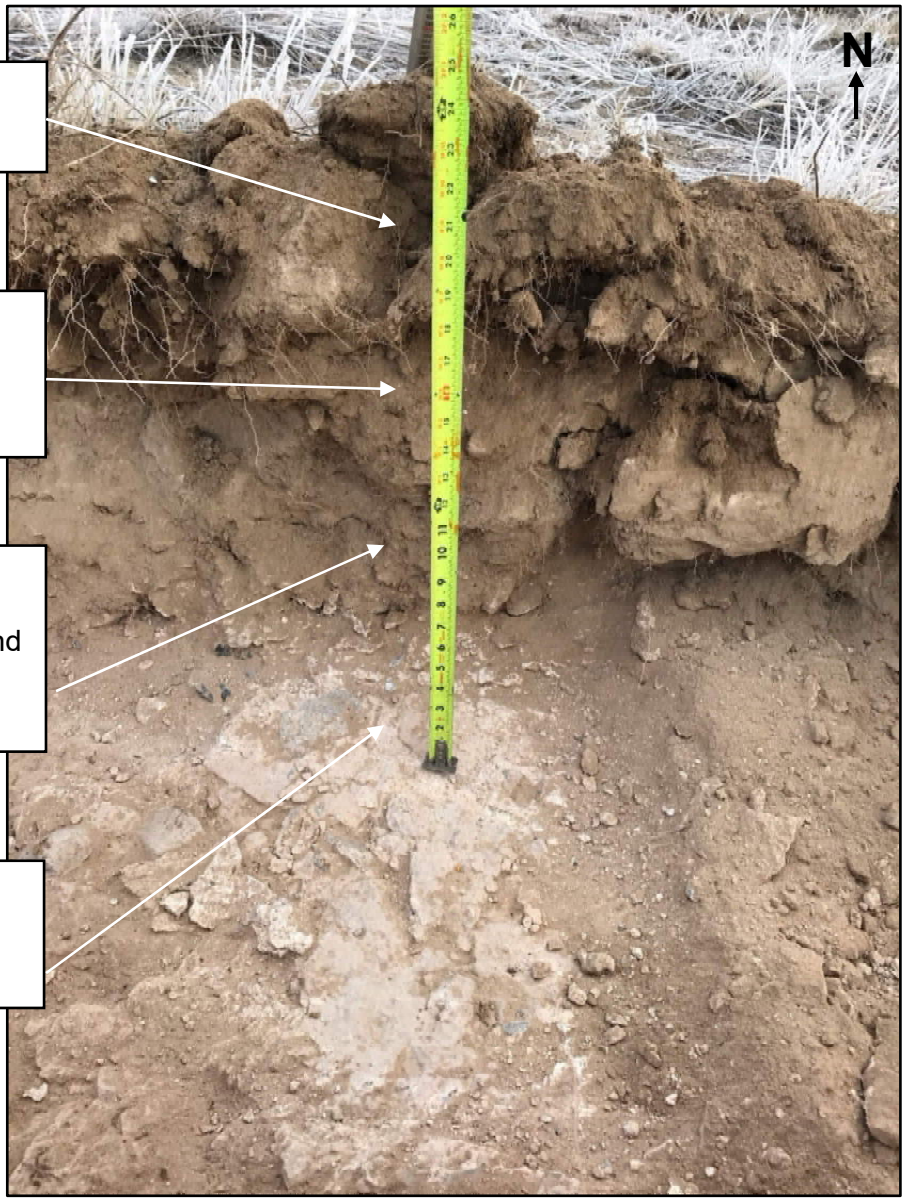
TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-19
Site Location	Moxee, Washington	**Date**	12/5/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	25°F / Cloudy
Final Test Pit Depth	38 inches (3.2 feet)	**Time Opened**	10:45 AM
Groundwater Depth	Not Encountered	**Time Closed**	11:20 AM



TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-22
Site Location	Moxee, Washington	**Date**	12/5/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	15°F / Cloudy
Final Test Pit Depth	22 inches (1.8 feet)	**Time Opened**	7:50 AM
Groundwater Depth	Not Encountered	**Time Closed**	8:30 AM



0-6”
Topsoil

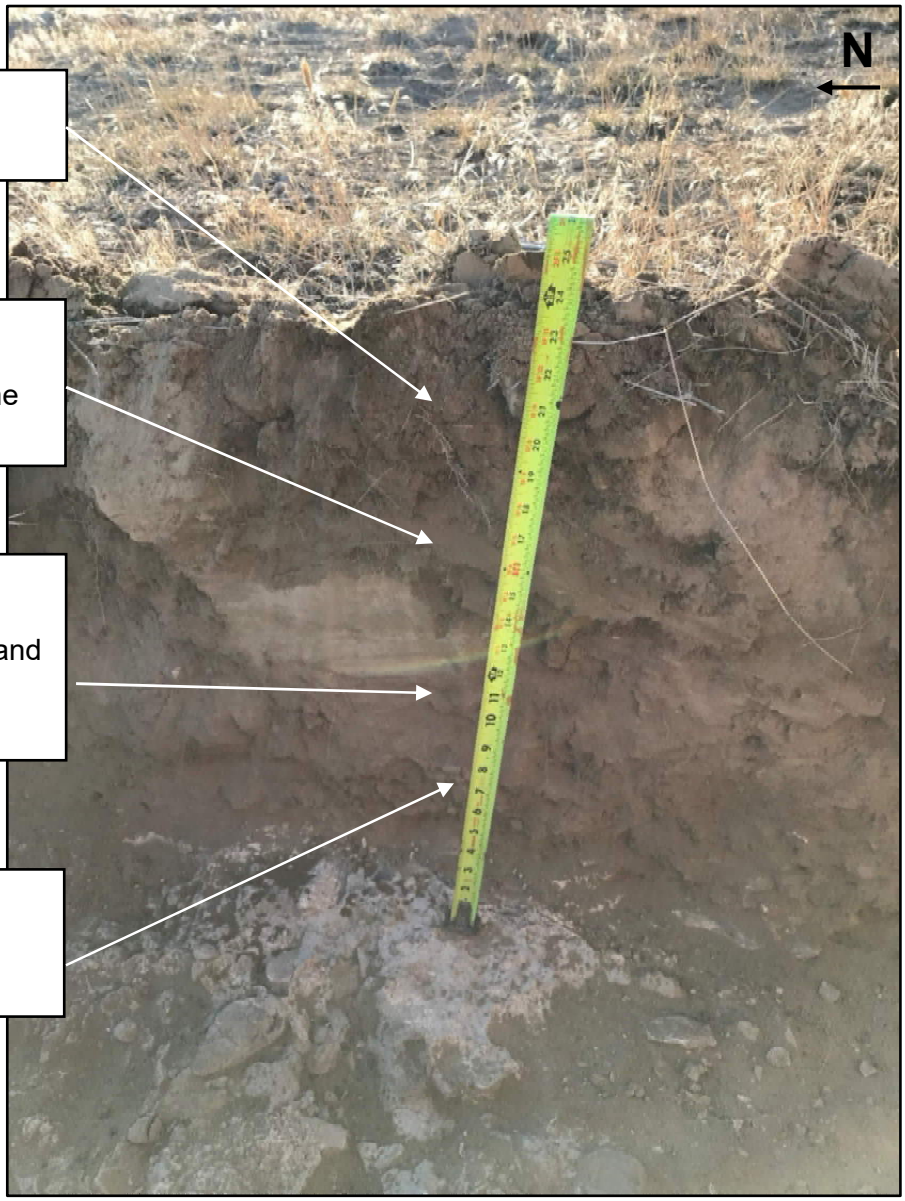
6-17”
Light brown SILT, little medium to fine Sand, dry (ML)

17-22”
Gray to light brown COBBLES, with Silt and Gravel interspersed throughout

22”
Gray BASALT

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-25
Site Location	Moxee, Washington	**Date**	12/4/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	40°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	**Time Opened**	2:15 PM
Groundwater Depth	Not Encountered	**Time Closed**	2:40 PM



0-6”
Topsoil

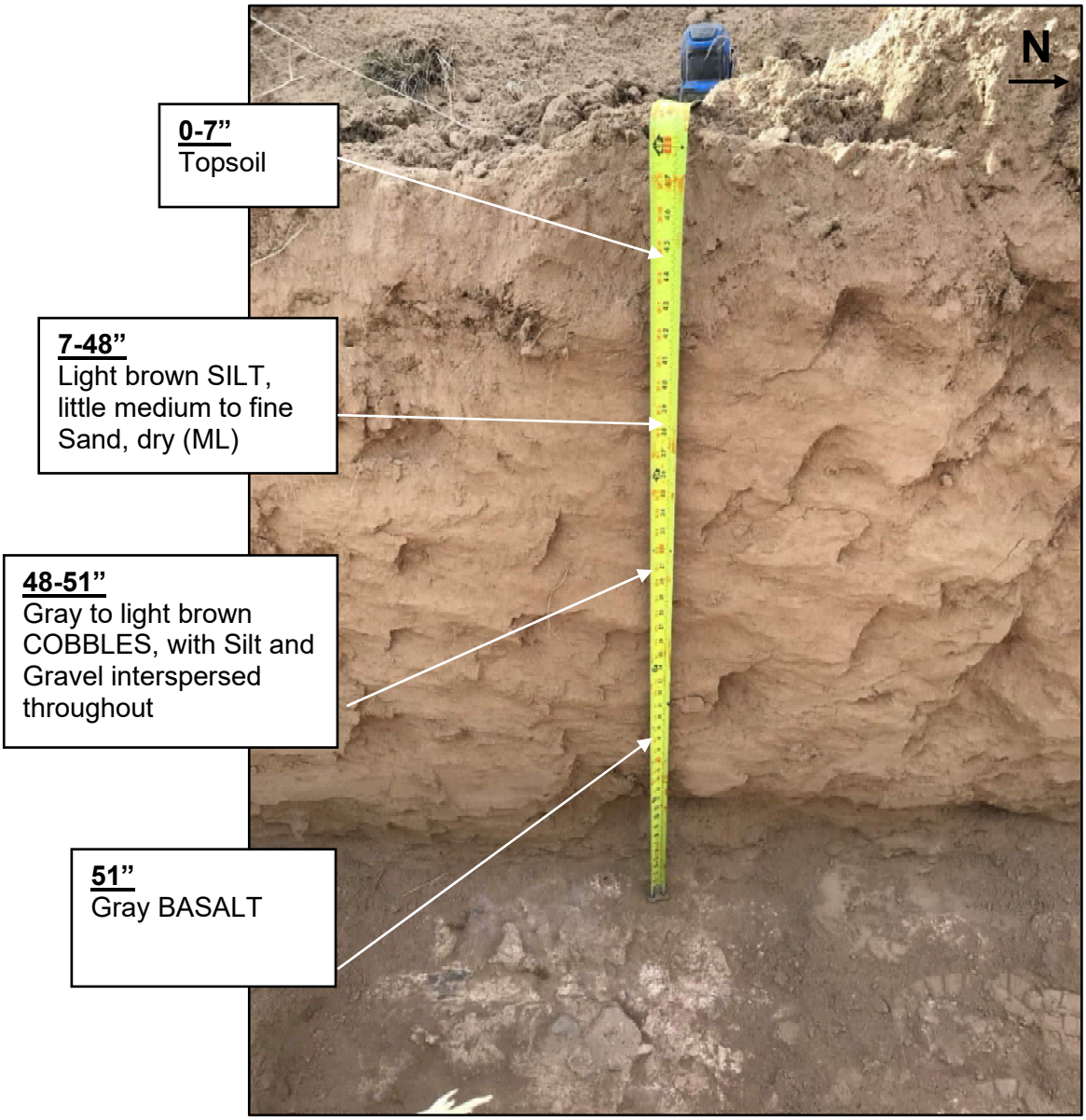
6-22”
Light brown SILT, little medium to fine Sand, dry (ML)

22-24”
Gray to light brown COBBLES, with Silt and Gravel interspersed throughout

24”
Gray BASALT

TEST PIT PHOTO LOG

Project Name	Ostrea Solar	**Test Pit ID**	TP-28
Site Location	Moxee, Washington	**Date**	12/5/2020
Test Pit Contractor	Elite Drilling Services	**ANS Geo Representative**	Mihir Shah
Equipment Used	John Deere 26G	**Weather/Temp**	25°F / Cloudy
Final Test Pit Depth	51 inches (4.3 feet)	**Time Opened**	12:45 PM
Groundwater Depth	Not Encountered	**Time Closed**	1:15 PM



Attachment D

Electrical Resistivity Results

Soil Resistivity Results

Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)											
			1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
ERT-01	N-S	Measured Resistance (Ω)	344.00	202.00	139.40	68.41	64.07	22.19	13.92	7.30	3.91	2.20	1.42	0.66
		Apparent Resistivity (Ω-m)	658.67	580.34	534.01	393.19	552.30	297.52	266.64	209.76	168.68	147.22	136.25	95.04
	E-W	Measured Resistance (Ω)	321.30	213.70	104.70	56.95	31.96	22.12	13.30	7.24	3.78	1.81	1.39	0.95
		Apparent Resistivity (Ω-m)	615.39	613.87	401.12	327.05	275.42	296.51	254.75	207.93	163.01	121.46	133.17	136.03
ERT-02	N-S	Measured Resistance (Ω)	375.30	220.00	158.30	108.80	64.44	39.96	24.85	17.10	11.50	7.90	4.59	2.60
		Apparent Resistivity (Ω-m)	718.72	631.85	606.25	625.14	555.35	535.53	476.10	491.34	495.60	529.44	439.52	372.77
	E-W	Measured Resistance (Ω)	364.60	307.40	174.40	90.23	55.24	38.26	23.99	16.49	9.99	6.31	4.17	2.68
		Apparent Resistivity (Ω-m)	698.30	883.01	667.82	518.46	476.10	512.98	459.33	473.66	430.99	422.76	398.68	384.35
ERT-03	N-S	Measured Resistance (Ω)	405.10	256.40	169.70	85.18	38.25	18.34	9.75	7.58	5.85	4.36	2.80	1.64
		Apparent Resistivity (Ω-m)	776.02	736.40	649.83	489.51	329.49	245.85	186.72	217.66	253.99	291.97	268.16	235.49
	E-W	Measured Resistance (Ω)	414.80	259.30	151.80	83.06	41.33	16.23	9.79	7.87	5.72	4.00	2.86	1.64
		Apparent Resistivity (Ω-m)	794.31	744.93	581.25	477.32	356.31	217.51	187.48	226.10	246.55	267.80	273.44	236.19
ERT-04	N-S	Measured Resistance (Ω)	193.10	138.10	93.64	59.35	42.02	24.48	16.38	11.68	9.95	8.42	6.90	4.78
		Apparent Resistivity (Ω-m)	369.72	396.54	358.75	341.07	362.10	328.27	313.64	335.58	428.55	564.79	660.81	686.10
	E-W	Measured Resistance (Ω)	258.50	114.90	99.24	62.10	44.98	24.60	16.02	11.86	10.02	9.43	7.61	4.65
		Apparent Resistivity (Ω-m)	495.00	329.79	380.09	356.87	387.71	329.79	306.93	340.77	431.60	632.46	728.78	668.43
		Site Average (Ω)	**375.59**	**198.35**	**129.69**	**65.41**	**36.15**	**19.01**	**12.19**	**8.37**	**6.26**	**4.61**	**3.40**	**2.24**
		Site Average (Ω-m)	**719.30**	**569.77**	**496.73**	**375.84**	**311.58**	**254.83**	**233.28**	**240.68**	**355.18**	**309.24**	**326.58**	**321.95**

Soil Resistivity Results

Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)											
			1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
ERT-05	N-S	Measured Resistance (Ω)	182.40	100.10	67.74	36.85	22.81	12.08	7.50	5.19	3.85	3.05	2.58	2.19
		Apparent Resistivity (Ω-m)	349.30	287.64	259.48	211.71	196.57	162.00	143.53	148.99	165.84	204.43	246.71	314.55
	E-W	Measured Resistance (Ω)	218.90	121.60	87.44	49.77	25.77	12.12	5.97	4.33	4.26	3.71	3.27	2.50
		Apparent Resistivity (Ω-m)	419.40	349.30	334.98	285.93	222.05	162.52	114.36	124.36	183.70	248.78	313.33	359.36
ERT-06	N-S	Measured Resistance (Ω)	399.00	230.10	177.50	108.60	56.62	26.44	15.91	11.20	9.09	6.32	5.15	3.67
		Apparent Resistivity (Ω-m)	764.13	661.11	679.70	623.62	487.98	354.48	304.68	321.56	391.67	423.37	492.86	526.69
	E-W	Measured Resistance (Ω)	367.60	252.30	203.60	111.90	60.91	24.66	16.12	10.82	8.98	6.74	4.77	3.11
		Apparent Resistivity (Ω-m)	704.09	724.81	779.98	643.13	524.87	330.40	308.76	310.90	386.79	451.41	453.85	446.23
ERT-07	N-S	Measured Resistance (Ω)	187.80	105.40	58.33	23.41	11.72	8.28	7.22	5.65	5.06	4.20	3.83	2.92
		Apparent Resistivity (Ω-m)	359.66	302.70	223.42	134.51	101.01	111.04	138.26	162.28	218.15	281.54	366.67	419.40
	E-W	Measured Resistance (Ω)	170.90	106.40	57.72	25.27	14.13	8.11	6.49	5.99	5.41	4.29	3.22	2.29
		Apparent Resistivity (Ω-m)	327.05	305.71	221.07	145.18	121.77	108.75	124.21	172.12	233.26	287.40	308.15	329.18
ERT-08	N-S	Measured Resistance (Ω)	289.70	176.30	118.40	56.40	24.83	13.45	9.27	7.42	6.58	5.38	4.66	3.66
		Apparent Resistivity (Ω-m)	554.74	506.27	453.54	324.00	214.00	180.17	171.51	213.18	283.71	360.88	445.92	525.78
	E-W	Measured Resistance (Ω)	283.00	173.20	104.70	50.57	23.23	12.37	9.22	7.31	6.61	6.21	5.02	4.01
		Apparent Resistivity (Ω-m)	541.93	497.43	400.81	290.57	200.19	165.87	176.48	209.98	2849.58	416.36	480.06	575.16
		Site Average (Ω)	**262.41**	**158.18**	**109.43**	**57.85**	**30.00**	**14.69**	**9.71**	**7.24**	**6.23**	**4.99**	**4.06**	**3.04**
		Site Average (Ω-m)	**524.43**	**478.19**	**430.35**	**341.82**	**266.42**	**203.12**	**191.85**	**209.55**	**586.30**	**327.34**	**378.34**	**423.28**

Soil Resistivity Results

Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)											
			1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
ERT-09	N-S	Measured Resistance (Ω)	497.70	259.70	158.20	60.05	24.05	15.87	10.15	7.15	6.03	5.62	5.02	3.88
		Apparent Resistivity (Ω-m)	953.11	746.15	605.94	345.03	207.29	212.72	194.43	205.25	251.70	376.43	480.97	556.87
	E-W	Measured Resistance (Ω)	455.70	207.20	157.10	62.33	31.38	15.57	10.62	7.26	6.08	5.56	4.60	3.63
		Apparent Resistivity (Ω-m)	872.64	595.27	601.68	358.14	270.45	208.73	203.39	208.57	261.95	373.68	440.44	520.60
ERT-10	N-S	Measured Resistance (Ω)	824.60	343.90	210.50	115.60	73.25	41.25	27.34	19.42	15.35	11.45	8.01	4.24
		Apparent Resistivity (Ω-m)	1579.17	987.86	806.20	664.16	631.24	552.91	523.65	557.78	661.42	767.49	766.88	608.38
	E-W	Measured Resistance (Ω)	840.60	335.60	207.70	120.40	69.31	42.42	29.72	21.30	16.93	12.90	8.28	4.98
		Apparent Resistivity (Ω-m)	1609.95	964.08	795.53	691.90	597.41	568.76	569.37	611.43	729.39	864.41	816.86	715.06
ERT-11	N-S	Measured Resistance (Ω)	661.50	250.00	149.30	95.58	52.18	23.84	11.75	5.44	3.25	1.32	0.60	0.42
		Apparent Resistivity (Ω-m)	1266.75	718.11	571.80	549.25	449.58	319.74	225.06	156.15	139.87	88.54	57.73	59.68
	E-W	Measured Resistance (Ω)	656.40	287.90	201.60	85.81	55.35	25.27	11.70	5.50	3.08	1.32	0.57	0.38
		Apparent Resistivity (Ω-m)	1257.30	827.23	772.36	492.86	477.01	338.63	224.12	158.04	132.80	88.15	54.96	55.05
ERT-12	N-S	Measured Resistance (Ω)	256.60	149.70	99.46	35.73	15.46	7.11	4.00	1.97	0.99	0.64	0.52	0.32
		Apparent Resistivity (Ω-m)	491.34	430.07	381.00	205.28	133.23	95.25	76.69	56.66	42.85	42.67	50.11	46.57
	E-W	Measured Resistance (Ω)	254.10	141.40	100.40	36.55	15.64	6.90	4.04	1.96	1.11	0.65	0.52	0.32
		Apparent Resistivity (Ω-m)	486.46	405.99	384.35	210.01	134.78	92.45	77.33	56.42	47.61	43.28	49.50	45.42
		Site Average (Ω)	**555.90**	**246.93**	**160.53**	**76.51**	**42.08**	**22.28**	**13.67**	**8.75**	**6.60**	**4.93**	**3.52**	**2.27**
		Site Average (Ω-m)	**1080.52**	**704.09**	**658.25**	**489.72**	**412.46**	**315.19**	**263.36**	**252.22**	**276.29**	**309.19**	**311.02**	**303.40**

Soil Resistivity Results

Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)											
			1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
ERT-13	N-S	Measured Resistance (Ω)	507.20	173.50	115.80	58.26	26.15	8.29	4.15	2.35	1.68	1.07	0.76	0.52
		Apparent Resistivity (Ω-m)	971.40	498.35	443.48	334.67	225.34	111.16	79.40	67.51	72.45	71.90	72.42	74.68
	E-W	Measured Resistance (Ω)	377.90	171.60	151.60	71.54	24.65	7.68	4.60	2.66	1.58	0.89	0.72	0.49
		Apparent Resistivity (Ω-m)	723.90	493.17	580.64	410.87	212.38	102.90	88.09	76.47	68.06	59.77	68.55	70.10
ERT-14	N-S	Measured Resistance (Ω)	362.70	214.10	126.40	31.45	14.82	10.06	8.79	6.88	5.44	4.05	2.72	1.31
		Apparent Resistivity (Ω-m)	694.64	614.78	484.33	180.69	127.68	134.78	168.25	197.75	234.24	271.39	260.36	188.43
	E-W	Measured Resistance (Ω)	307.80	176.90	92.20	43.10	18.45	10.72	9.10	8.01	5.39	3.17	2.33	1.29
		Apparent Resistivity (Ω-m)	589.48	508.10	353.26	247.65	159.01	143.65	174.19	230.06	232.20	212.72	223.33	185.07
		Site Average (Ω)	**349.47**	**187.53**	**219.35**	**79.90**	**43.43**	**21.68**	**12.16**	**6.46**	**4.14**	**2.62**	**1.86**	**1.04**
		Site Average (Ω-m)	**669.34**	**538.68**	**597.41**	**334.39**	**235.64**	**179.00**	**163.97**	**153.86**	**153.47**	**152.85**	**156.17**	**128.88**

Soil Resistivity Results

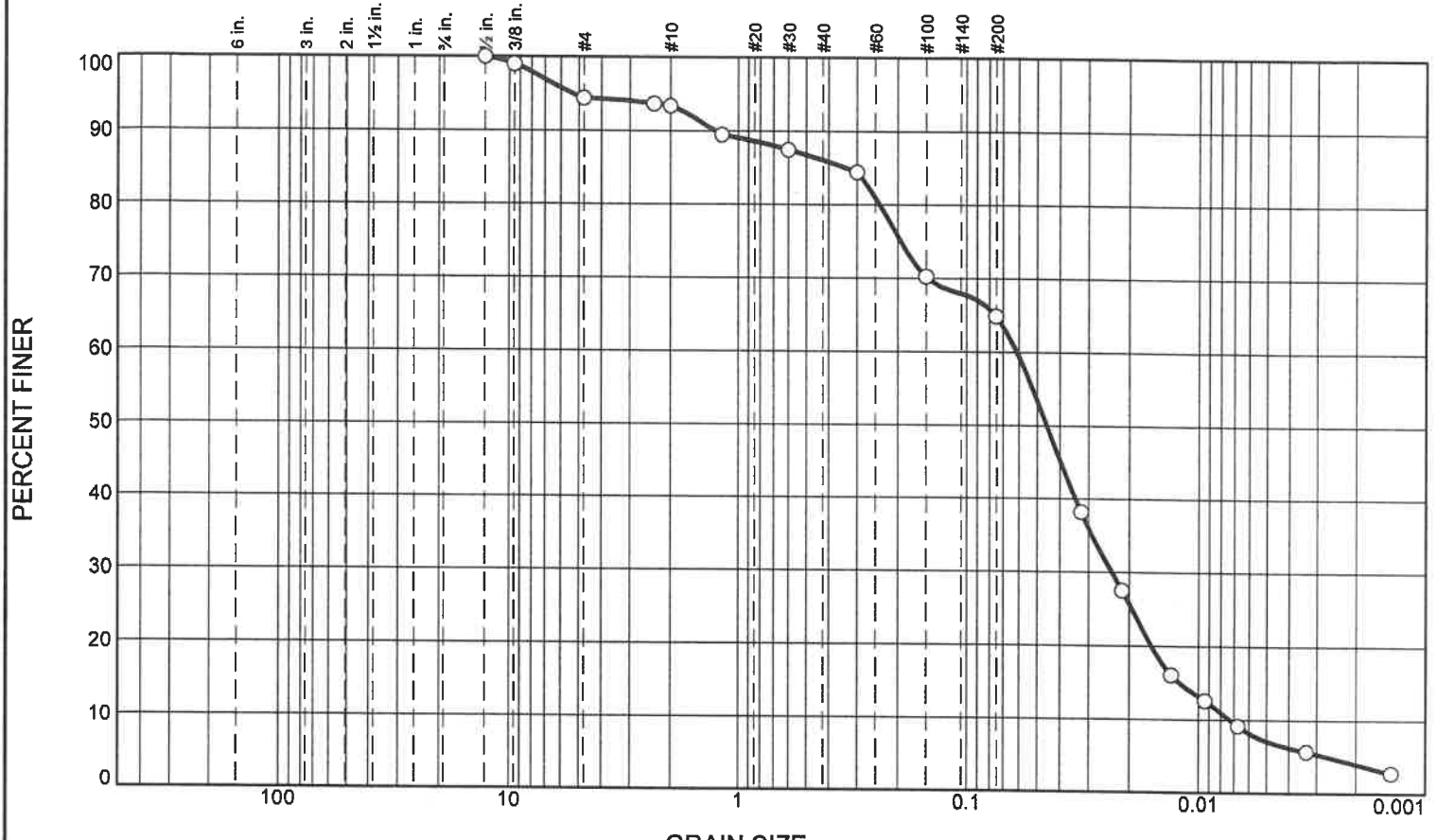
Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)													
			1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0	100.0	150.0
ERT-SS-1	N-S	Measured Resistance (Ω)	237.60	129.50	76.87	33.76	19.43	16.06	11.75	7.95	5.13	2.70	1.61	0.77	0.36	0.13
		Apparent Resistivity (Ω-m)	455.07	372.16	294.44	193.94	167.46	215.28	225.03	228.36	221.13	180.84	153.77	110.55	68.85	38.56
	E-W	Measured Resistance (Ω)	251.40	132.30	76.98	35.41	22.19	15.57	12.33	8.08	5.29	2.74	1.62	0.77	0.37	0.16
		Apparent Resistivity (Ω-m)	481.28	380.09	294.83	203.42	191.26	208.73	236.07	243.72	228.14	183.79	155.05	111.13	70.50	45.87
		Site Average (Ω)	**244.50**	**130.90**	**76.93**	**34.59**	**20.81**	**15.82**	**12.04**	**8.02**	**5.21**	**2.72**	**1.61**	**0.77**	**0.36**	**0.15**
		Site Average (Ω-m)	**468.17**	**376.12**	**294.63**	**198.68**	**179.36**	**212.00**	**230.55**	**236.04**	**224.64**	**182.32**	**154.41**	**110.84**	**69.68**	**42.21**

Attachment E

Geotechnical Laboratory Test Results

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.6	1.0	7.3	21.2	57.8	7.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	99.0		
#4	94.4		
#8	93.7		
#10	93.4		
#16	89.5		
#30	87.5		
#50	84.4		
#100	70.3		
#200	64.9		

* (no specification provided)

Material Description

Grayish brown in color. sandy silt. Silt Loam.

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.2657 D_{85}= 0.3352 D_{60}= 0.0611
D_{50}= 0.0455 D_{30}= 0.0238 D_{15}= 0.0121
D_{10}= 0.0073 C_u= 8.34 C_c= 1.27

Classification

USCS= ML AASHTO= A-4(0)

Remarks

In-Situ %MC=6.5
F.M.=0.81

Location: B-1, S-3, 4'-6'
Sample Number: S-18 **Depth:** 4'-6' **Date:**

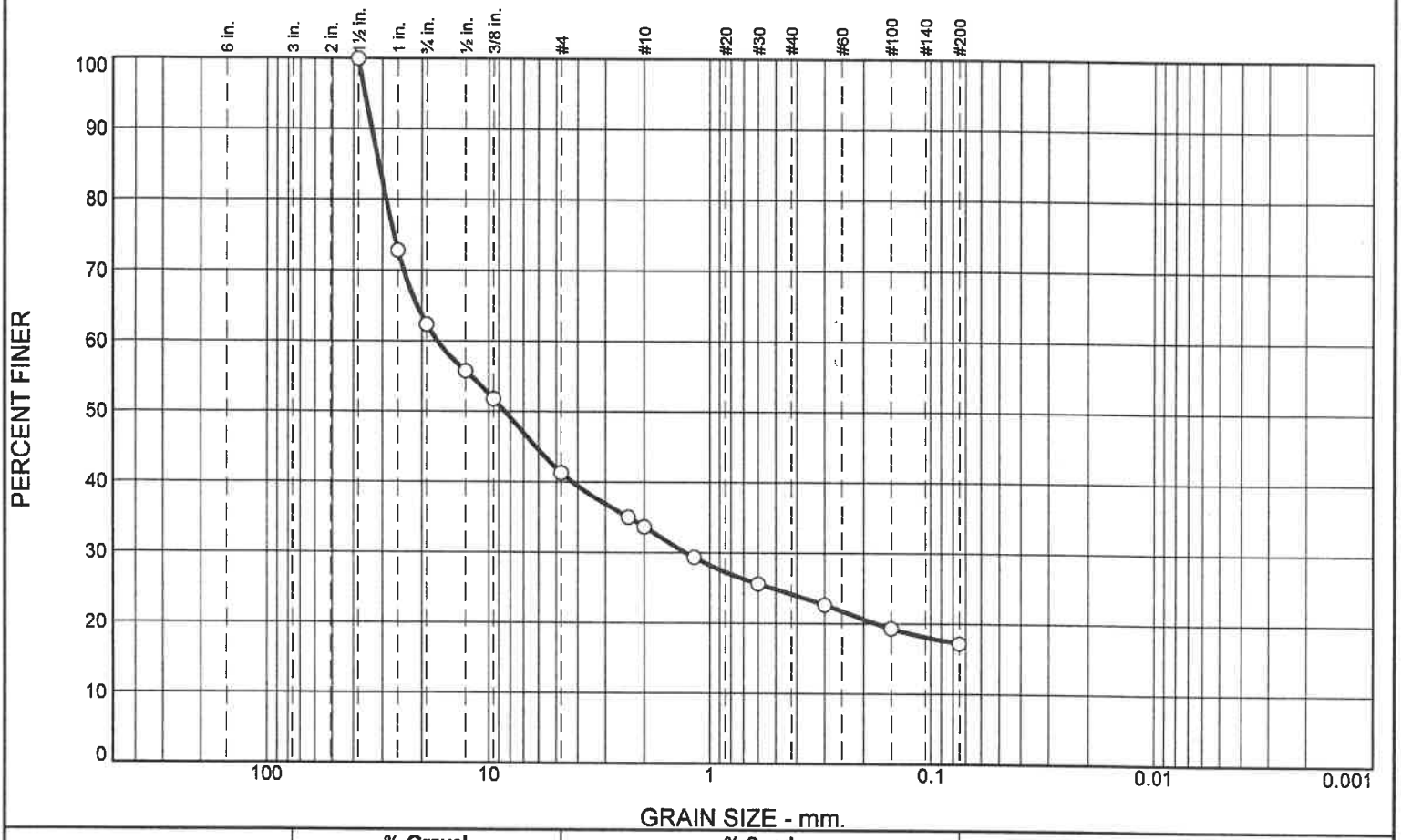
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 18 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	37.7	21.0	7.6	9.5	7.0	17.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	72.8		
3/4	62.3		
1/2	55.7		
3/8	51.8		
#4	41.3		
#8	35.0		
#10	33.7		
#16	29.3		
#30	25.6		
#50	22.6		
#100	19.3		
#200	17.2		

* (no specification provided)

Material Description

silty gravel with sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 33.3005 D_{85}= 31.0311 D_{60}= 17.0801
D_{50}= 8.4783 D_{30}= 1.2908 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-b

Remarks

In-Situ %MC=2.9
F.M.=5.13

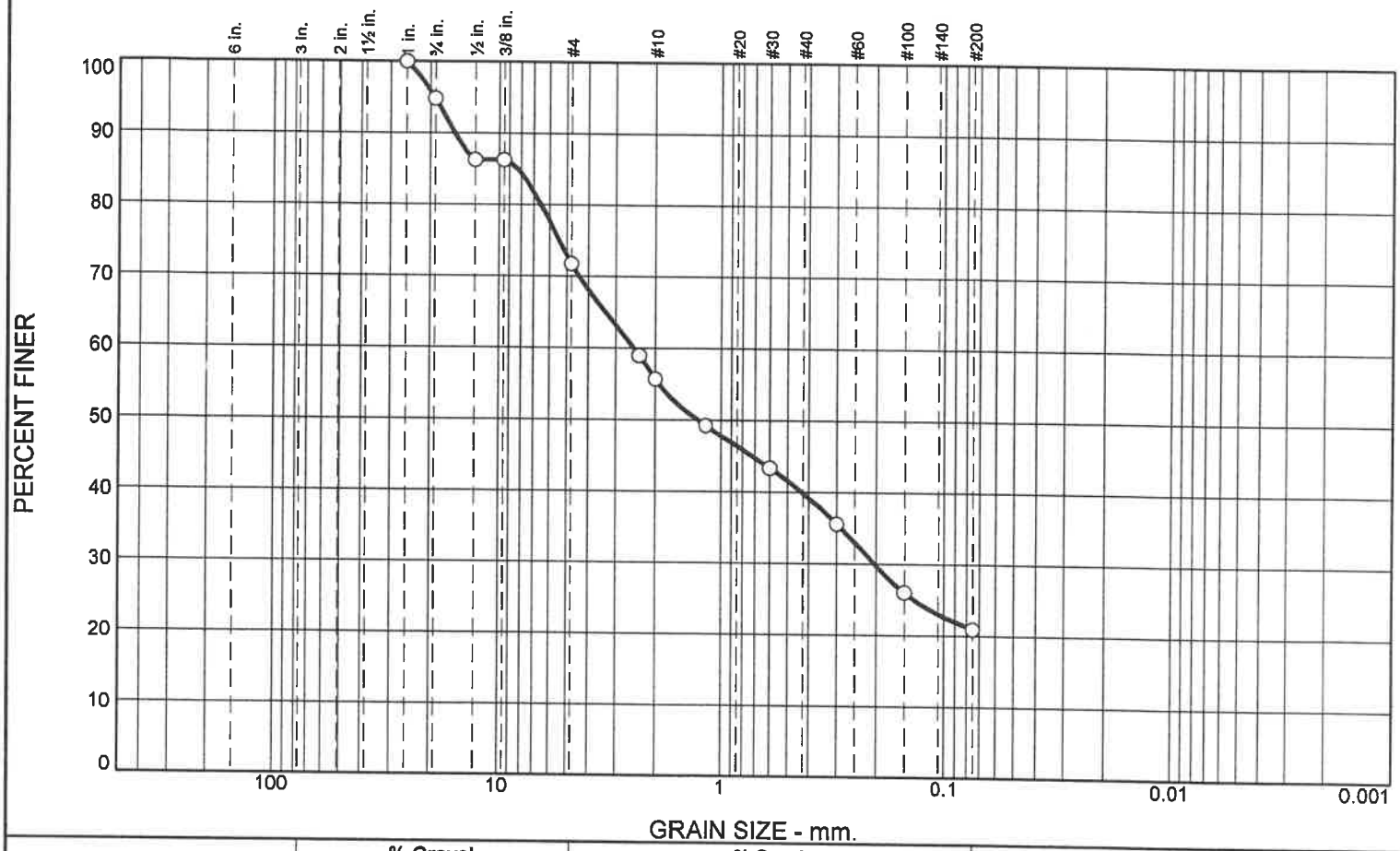
Location: B-7, S-2, 2'-4'
Sample Number: S-19 **Depth:** 2'-4' **Date:**

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA
Project No: AOB-5632 **Figure 19 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.2	23.1	16.0	15.8	19.0	20.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	94.8		
1/2	86.3		
3/8	86.3		
#4	71.7		
#8	59.0		
#10	55.7		
#16	49.2		
#30	43.4		
#50	35.6		
#100	26.0		
#200	20.9		

* (no specification provided)

Material Description

silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 15.6966 D_{85}= 8.2809 D_{60}= 2.4913
D_{50}= 1.2848 D_{30}= 0.2036 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

In-Situ %MC=8.8
F.M.=3.34

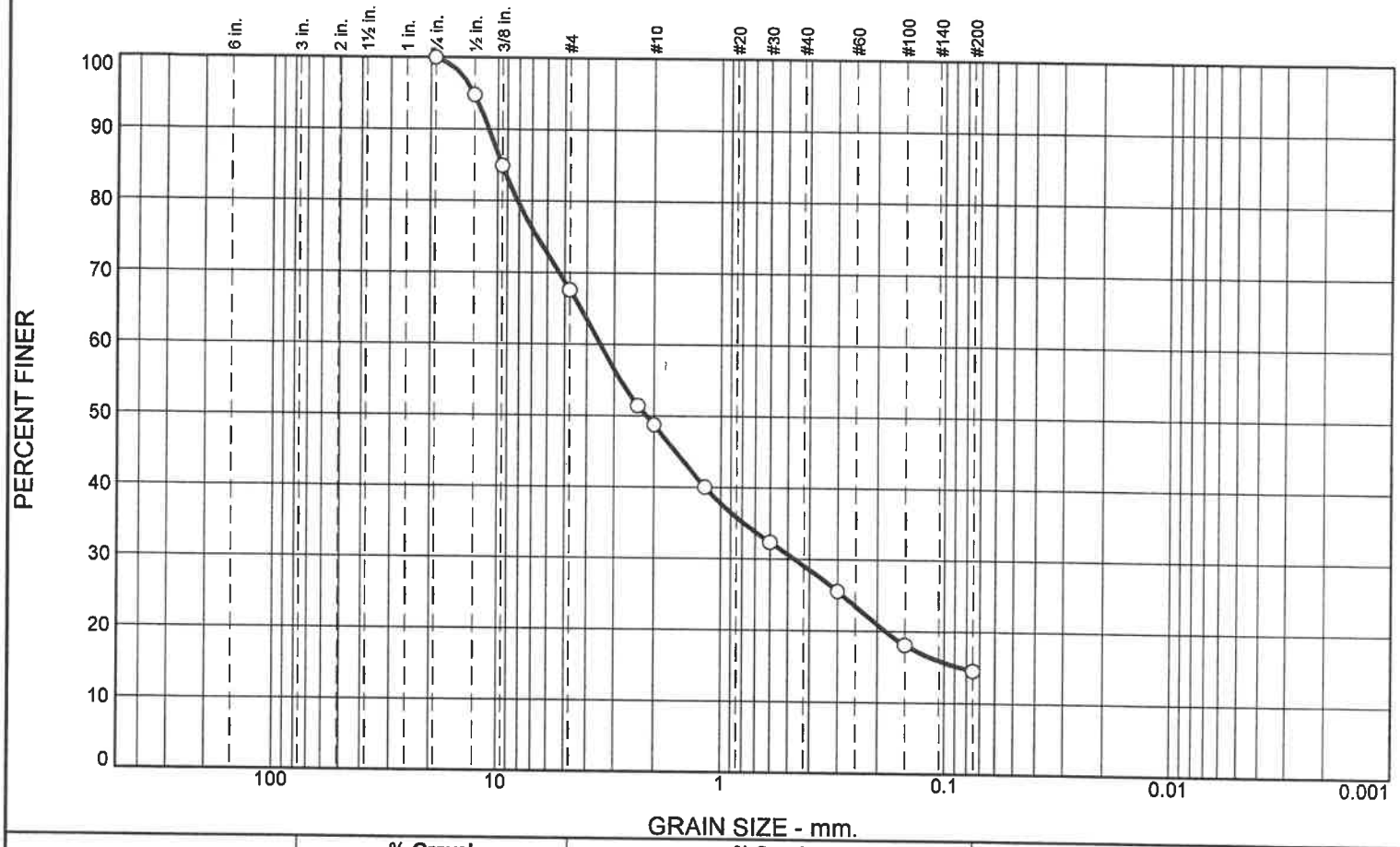
Location: B-10, S-2, 2'-4'
Sample Number: S-20 **Depth:** 2'-4' **Date:**

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA
Project No: AOB-5632 **Figure 20 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	32.4	18.9	19.6	14.6	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	94.8		
3/8	84.9		
#4	67.6		
#8	51.4		
#10	48.7		
#16	40.0		
#30	32.4		
#50	25.5		
#100	18.1		
#200	14.5		

* (no specification provided)

Material Description

silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 10.9640 D_{85}= 9.5481 D_{60}= 3.4759
D_{50}= 2.1658 D_{30}= 0.4673 D_{15}= 0.0852
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-a

Remarks

In-Situ %MC=8.4
F.M.=3.80

Location: B-18, S-3, 4'-6'
Sample Number: S-22 **Depth:** 4'-6' **Date:**

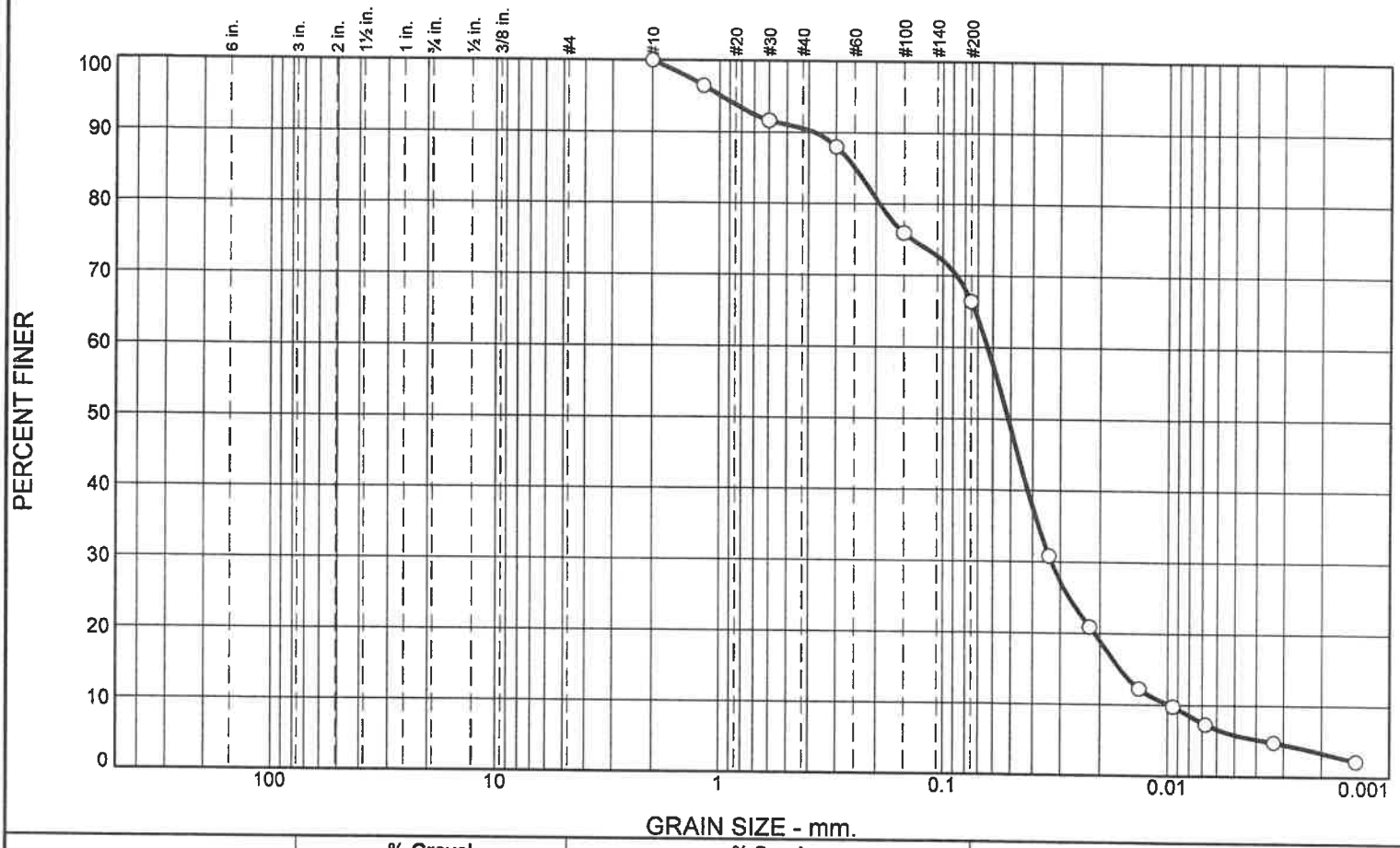
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 22 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.4	24.2	60.5	5.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	96.5		
#30	91.6		
#50	88.0		
#100	75.9		
#200	66.4		

* (no specification provided)

Material Description

sandy silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.3759 D_{85}= 0.2485 D_{60}= 0.0633
D_{50}= 0.0513 D_{30}= 0.0330 D_{15}= 0.0161
D_{10}= 0.0098 C_u= 6.45 C_c= 1.75

Classification

USCS= ML AASHTO= A-4(0)

Remarks

In-Situ %MC=6.7
F.M.=0.48

Location: B-20, S-1, 0'-2'
Sample Number: S-23 **Depth:** 0'-2' **Date:**

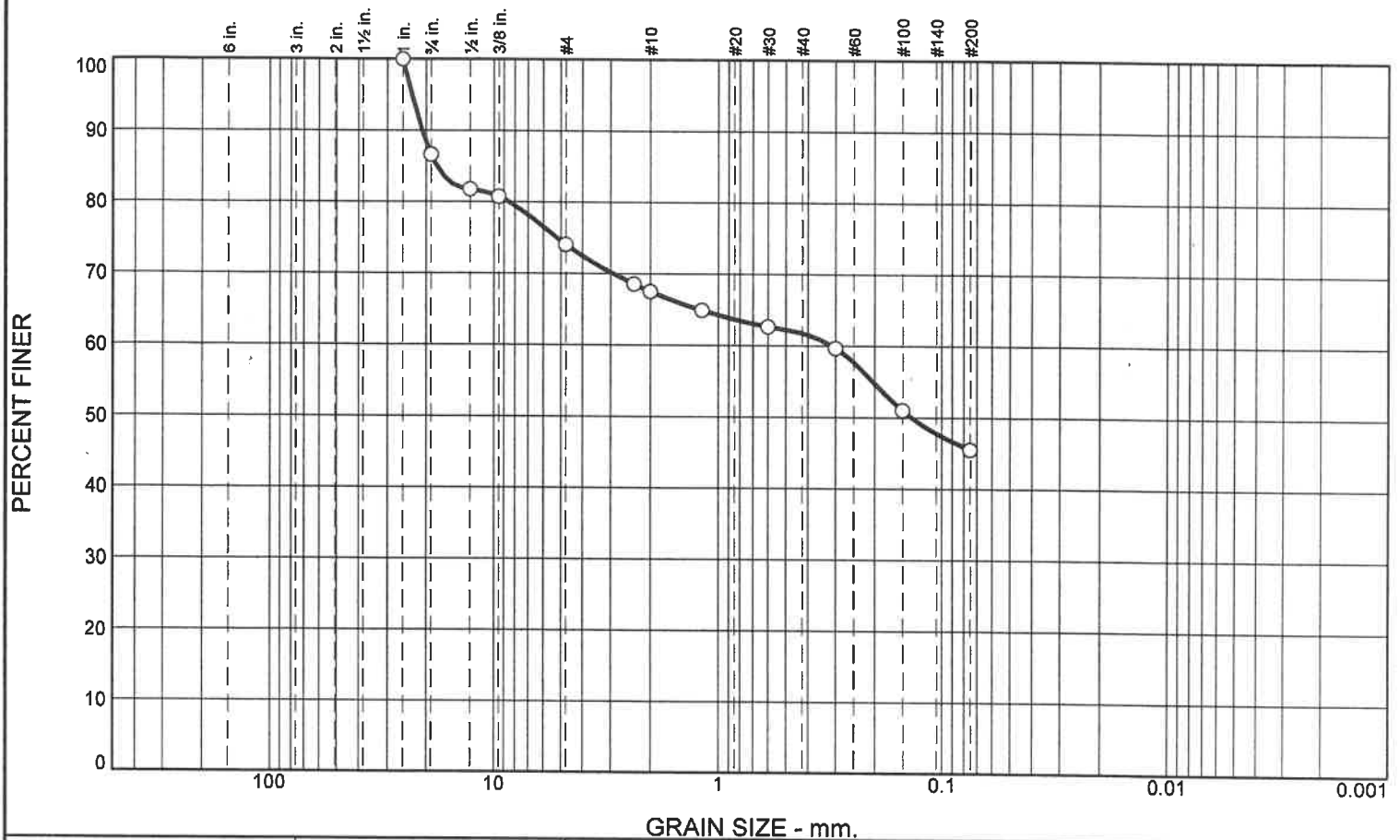
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 23 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.4	12.5	6.6	5.8	16.2	45.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	86.6		
1/2	81.8		
3/8	80.8		
#4	74.1		
#8	68.6		
#10	67.5		
#16	64.9		
#30	62.6		
#50	59.7		
#100	51.0		
#200	45.5		

* (no specification provided)

Material Description

silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 20.8195 D_{85}= 17.9775 D_{60}= 0.3119
D_{50}= 0.1364 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

In-Situ %MC=7.1
F.M.=2.52

Location: B-21, S-2, 2'-4'
Sample Number: S-24 **Depth:** 2'-4' **Date:**

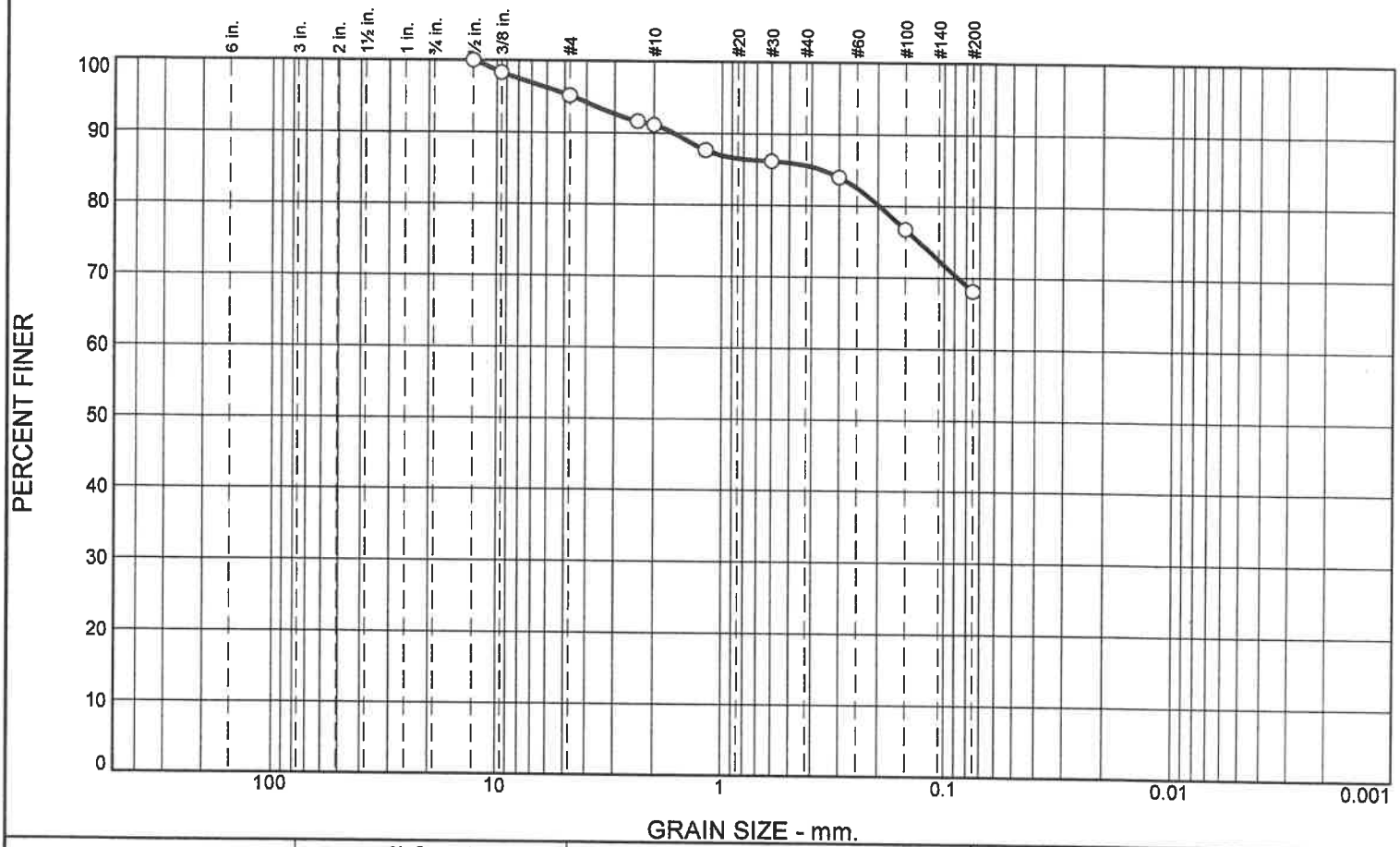
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 24 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.9	4.0	5.5	17.5	68.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	98.3		
#4	95.1		
#8	91.6		
#10	91.1		
#16	87.6		
#30	86.2		
#50	84.0		
#100	76.8		
#200	68.1		

* (no specification provided)

Material Description

sandy silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.6396 D_{85}= 0.3594 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

IN-Situ %MC=5.8
F.M.=0.80

Location: B-24, S-1, 0'-2'
Sample Number: S-25 **Depth:** 0'-2' **Date:**

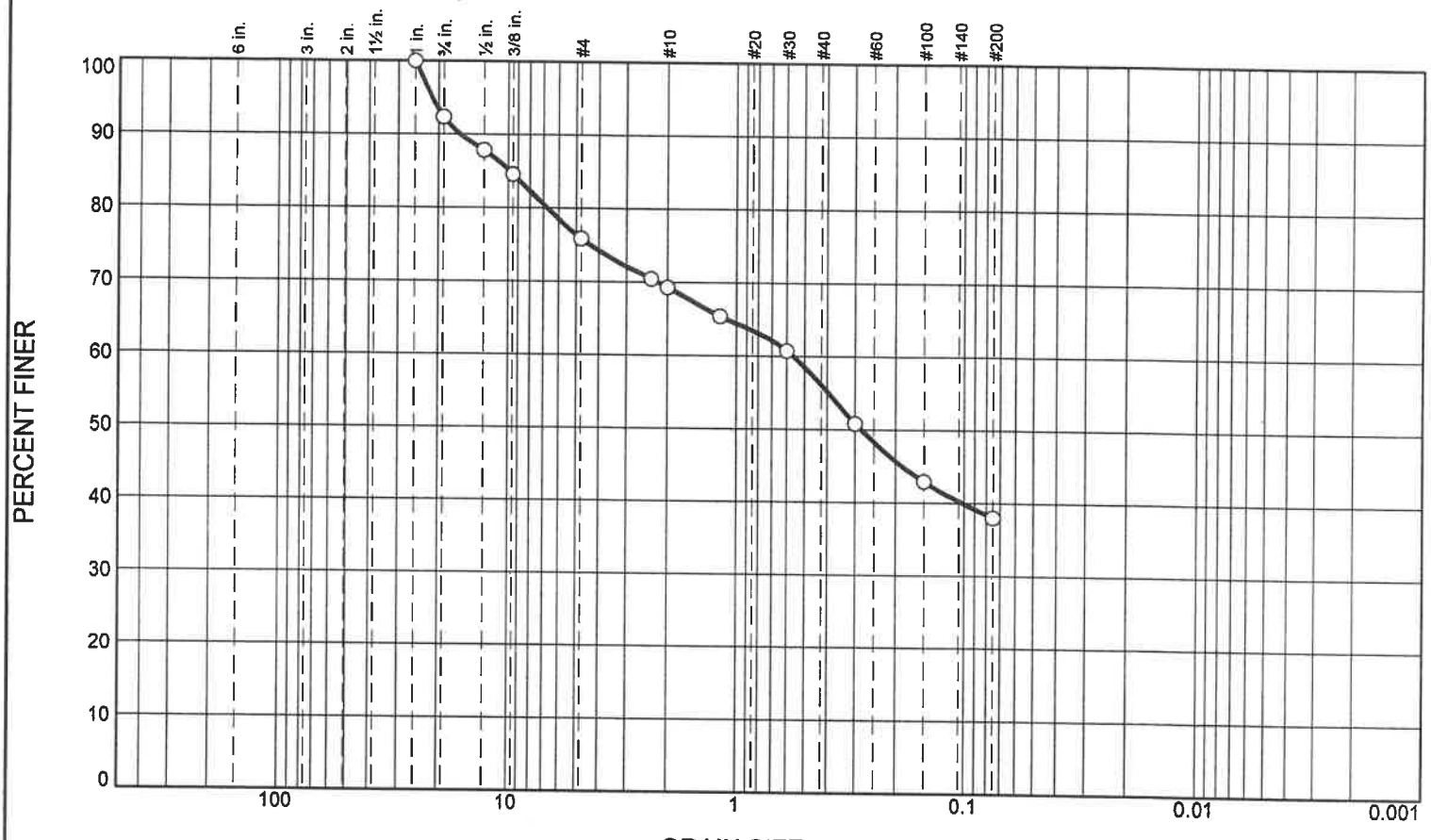
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 25 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.7	16.4	6.6	13.2	18.1	38.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	92.3		
1/2	87.8		
3/8	84.6		
#4	75.9		
#8	70.5		
#10	69.3		
#16	65.4		
#30	60.7		
#50	50.8		
#100	42.9		
#200	38.0		

* (no specification provided)

Material Description

silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 16.2607 D_{85}= 9.8590 D_{60}= 0.5623
D_{50}= 0.2834 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

In-Situ %MC=5.6
F.M.=2.57

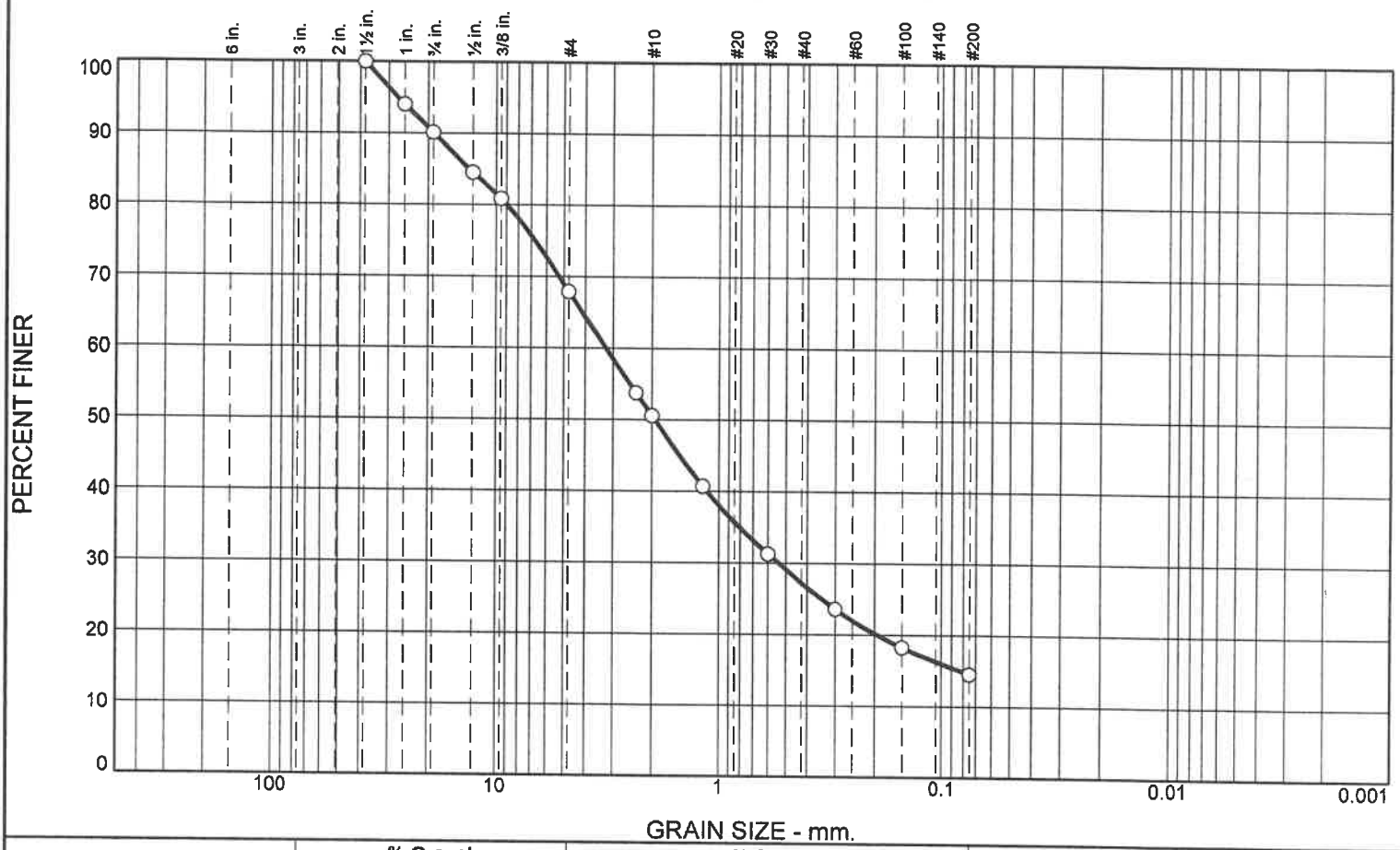
Location: B-26, S-2, 2'-4'
Sample Number: S-26 **Depth:** 2'-4' **Date:**

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA
Project No: AOB-5632 **Figure 26 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.9	22.2	17.3	23.4	12.7	14.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	94.0		
3/4	90.1		
1/2	84.5		
3/8	80.9		
#4	67.9		
#8	53.7		
#10	50.6		
#16	40.7		
#30	31.3		
#50	23.6		
#100	18.3		
#200	14.5		

* (no specification provided)

Material Description

Grayish brown in color. silty sand with gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 18.9057 D_{85}= 13.1761 D_{60}= 3.2362
D_{50}= 1.9415 D_{30}= 0.5384 D_{15}= 0.0822
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

In-Situ %MC=5.5
F.M.=3.93

Location: B-SS-1, S-2, 2'-4'
Sample Number: S-17 **Depth:** 2'-4' **Date:**

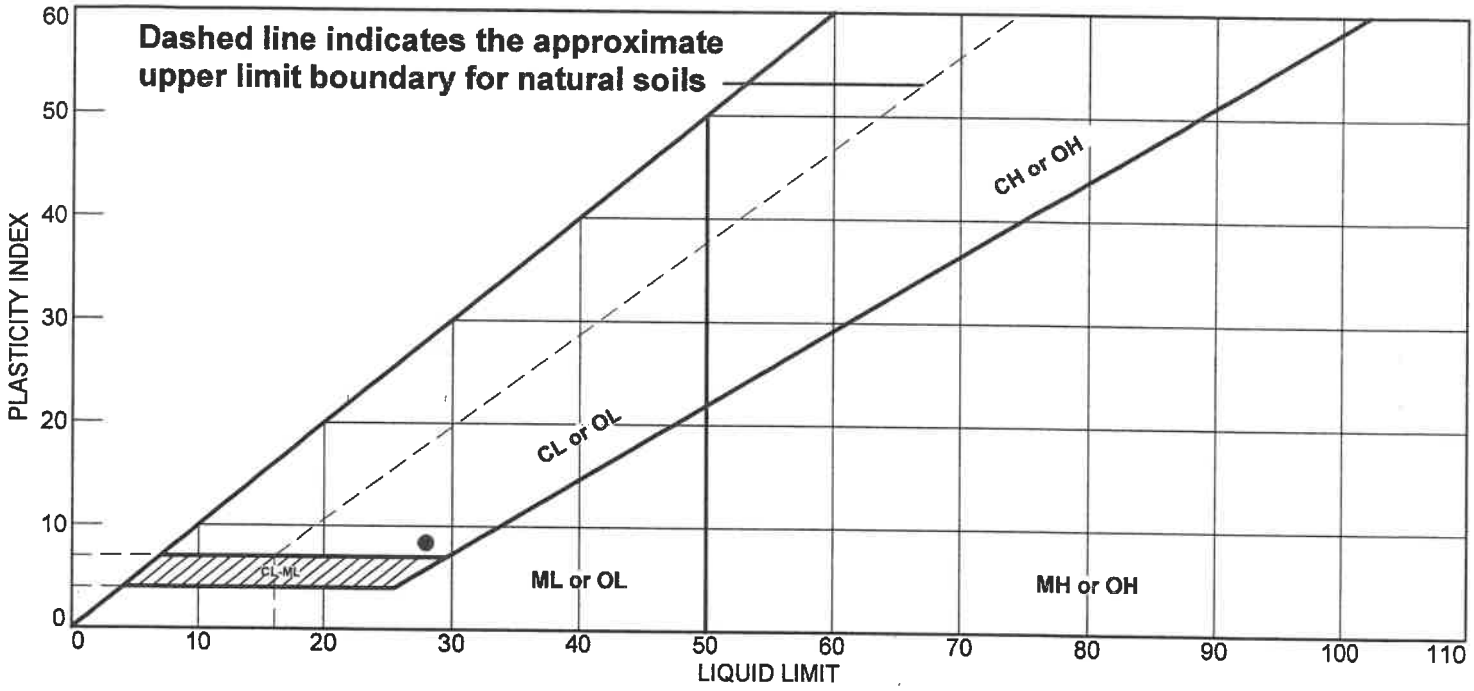
ANS CONSULTANTS, INC.

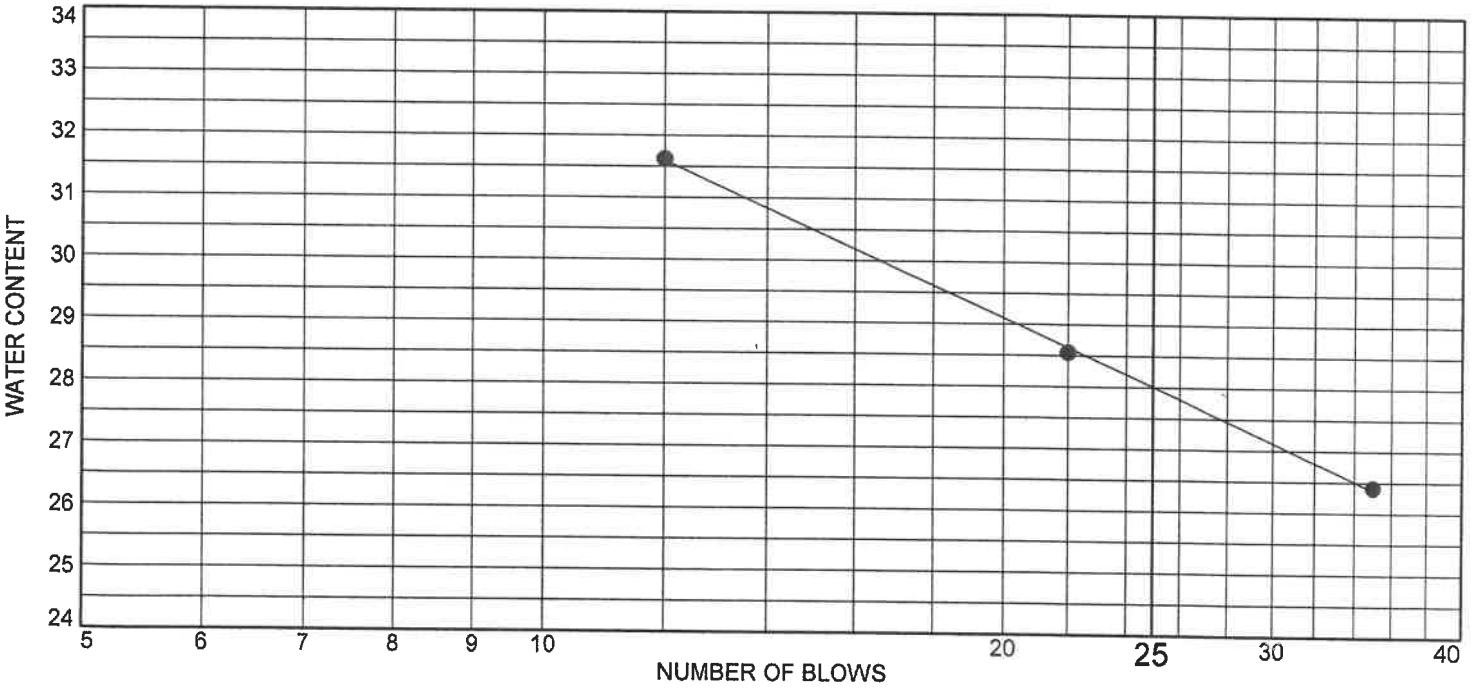
South Plainfield, New Jersey

Client: ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

Project No: AOB-5632 **Figure 17 F 1**

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.0	19.6	8.4			

Project No. AOB-5632 **Client:** ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-13, S-2, 2'-4'
Sample Number: S-21 **Depth:** 2'-4'

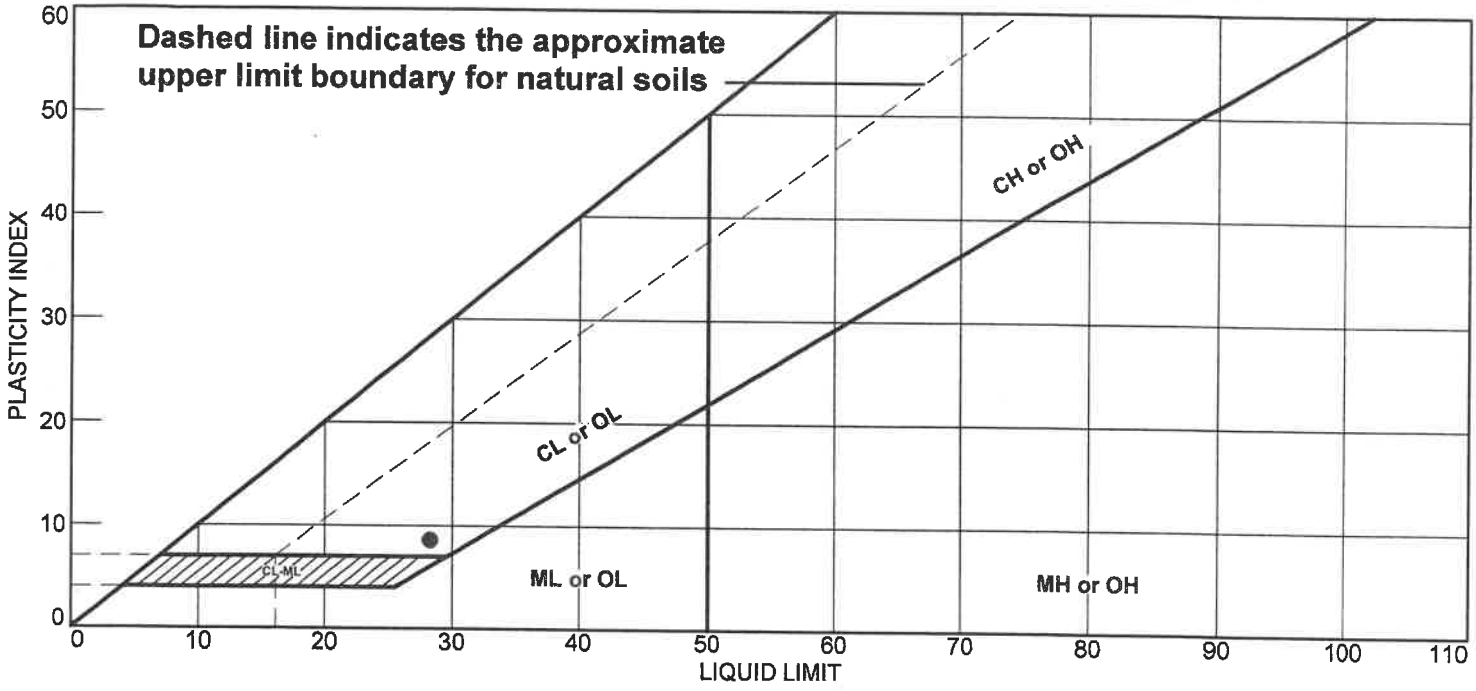
ANS CONSULTANTS, INC.

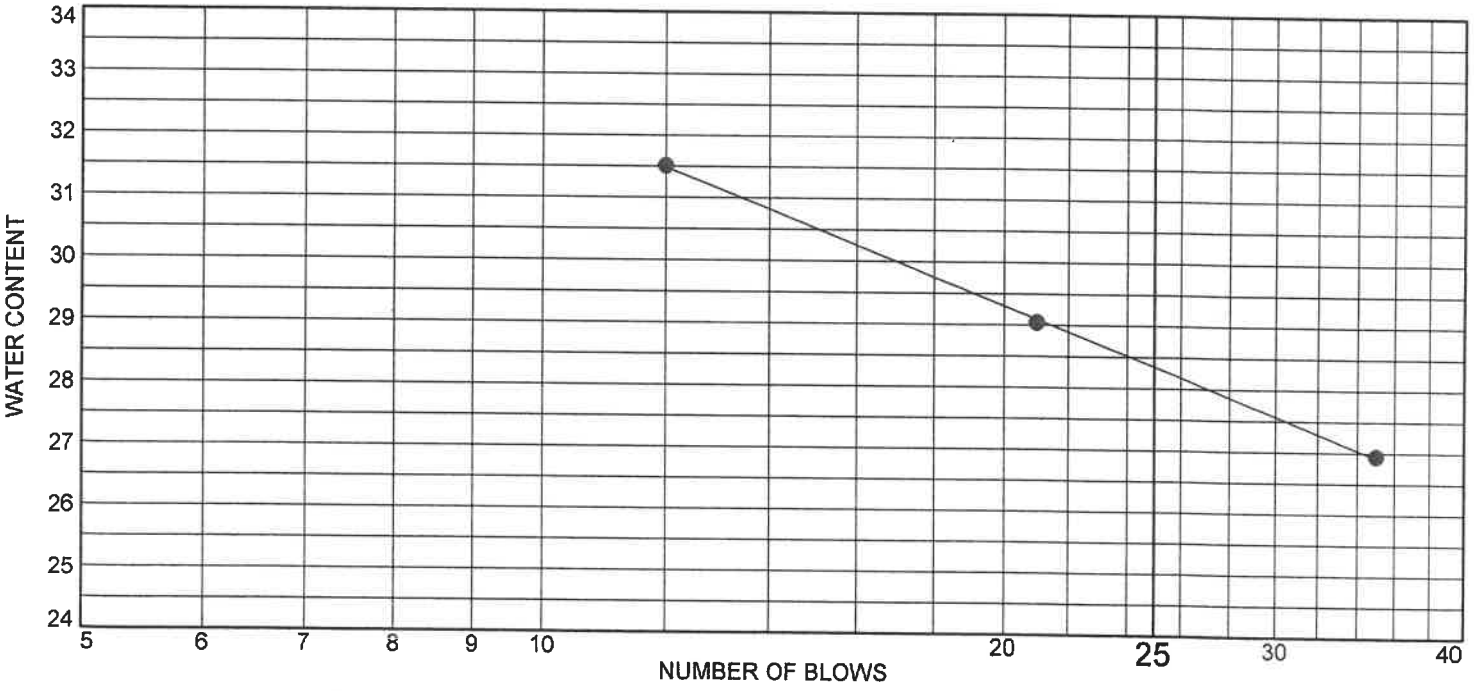
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=4.8

Figure 21 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.3	19.7	8.6			

Project No. AOB-5632 **Client:** ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-27, S-1, 0'-2'
Sample Number: S-27 **Depth:** 0'-2'

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Remarks:
● In-Situ %Mc=6.1

Figure 27 F 3

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

CERTIFICATE OF TEST ANALYSIS

CLIENT : ANS GEO Inc.
4405 South Clinton Avenue
South Plainfield, NJ 07080

DATE : 12/21/2020

FILE NO.: AOB-5632

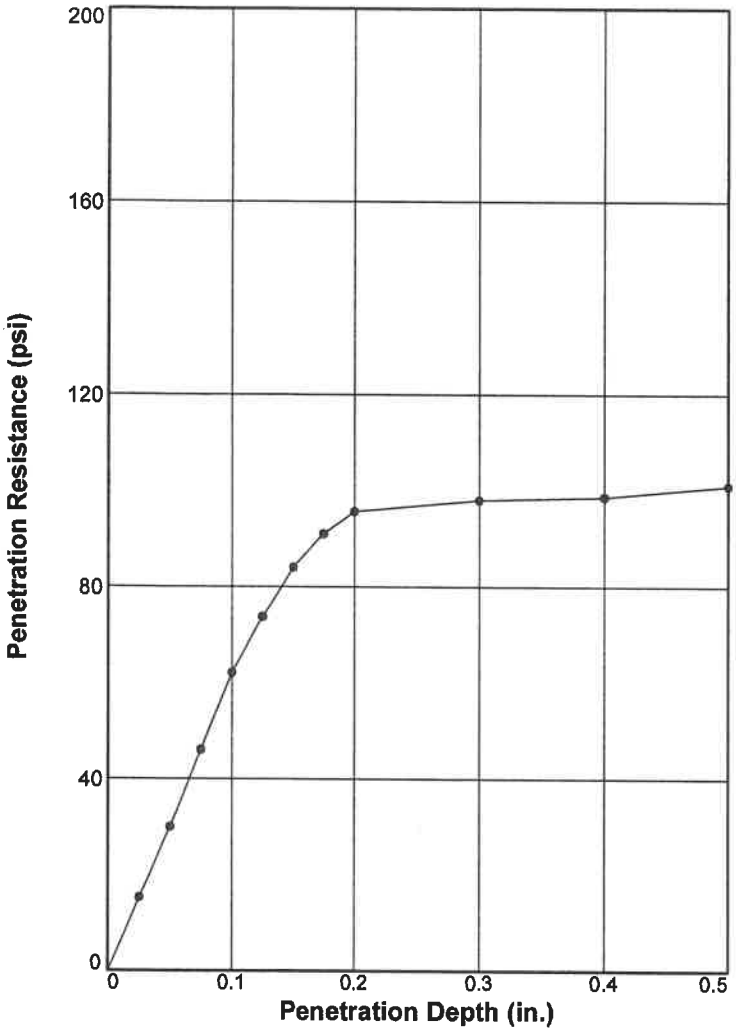
PROJECT : Cypress Creek
Ostrea Solar
Moxee, WA

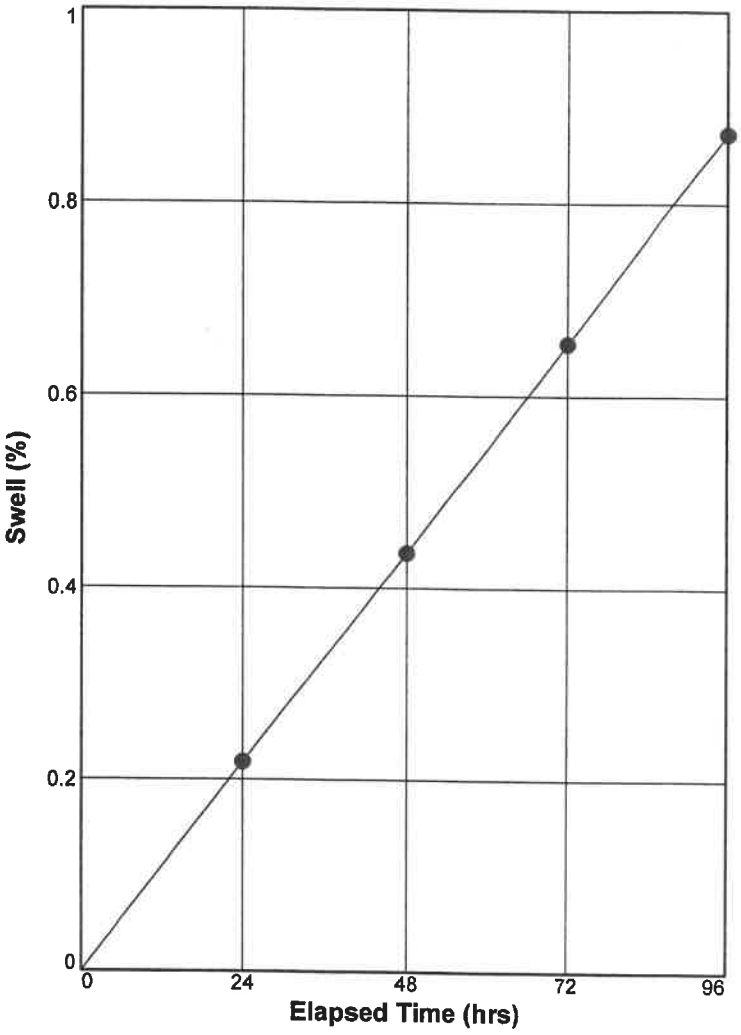
REPORT NO. : S, 6-9,12-27

TEST PERFORMED : Standard Test Method for Moisture Content as per **ASTM-D 2216**

Report No.	Sample ID	Moisture Content %
S - 6	TP-1, Bulk, 1'-2.5'	7.6
S - 7	TP-19, bulk, 05'-2.5'	5.8
S - 9	TP-25, Bulk, 1'-2'	7.9
S - 12	B-1, Bag, 1'-3'	4.4
S - 13	B-7, Bag, 1'-3'	4.7
S -14	B-10, Bag 1'-3'	3.1
S - 15	B-13, Bag, 1'-3'	7.0
S -16	B-16, Bulk, 1'-3'	5.3
S -17	B-SS-01,S-2, Bag, 2'-4'	5.5
S - 18	B-1,S-3 Bag, 1-'3'	6.5
S - 19	B-7, S-2,, 0'-2', bag	2.9
S -20	B-10, S-2, 2'-4', bag	8.8
S -21	B-13, S-2, 2'-4', bag	4.8
S - 22	B-18, S-3, 4'- 5', bag	8.4
S - 23	B-20, S-1, 0'-2'bag	6.7
S - 24	B-21, S-2, 2'-4' bag	7.1
S -25	B-24, S-1, 0'-2', bag	5.8
S - 26	B-26, S-2, 2'-4', bag	5.6
S - 27	B-27, S-1, 0'-2', bag	6.1

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	87.6	85.5	19.1	86.8	84.8	24.0	6.2	6.4	0.000	10	0.9
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		102.4	19.1		

Project No: AOB-5632

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: TP-09, Bulk, 1'-2.5'

Sample Number: S-3 **Depth:** 1'-2.5'

Date:

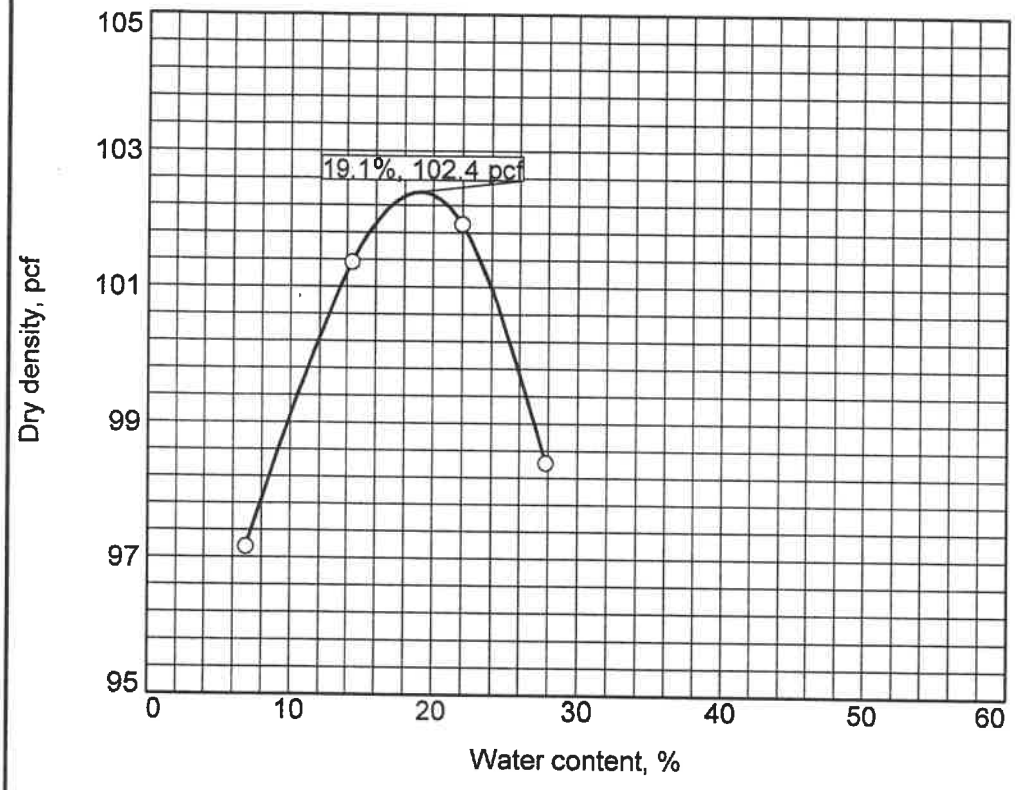
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 3 F 4

COMPACTION TEST REPORT



Curve No.
S-3

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.54	22.44	23.07	23.18		
WM	13.75	13.75	13.75	13.75		
WW + T #1	708.6	655.1	877.4	872.9		
WD + T #1	662.8	572.8	719.3	682.9		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.9	14.4	22.0	27.8		
DRY DENSITY	97.2	101.4	101.9	98.4		

TEST RESULTS

Maximum dry density = 102.4 pcf

Optimum moisture = 19.1 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-09, Bulk, 1'-2.5' **Depth:** 1'-2.5' **Sample Number:** S-3

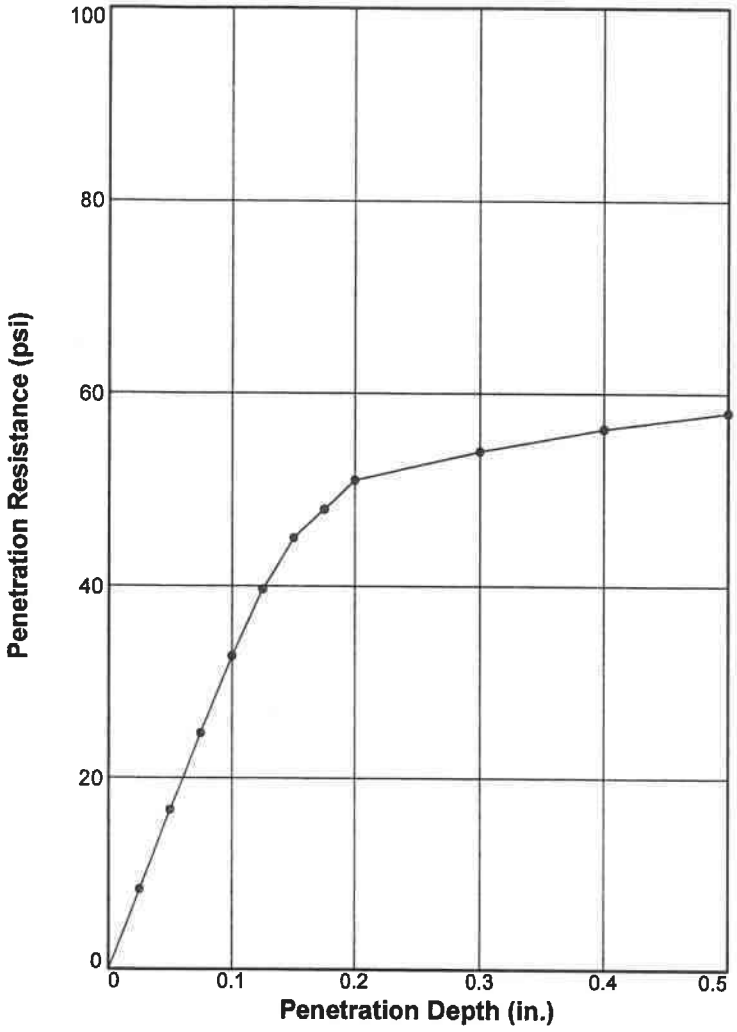
ANS CONSULTANTS, INC.

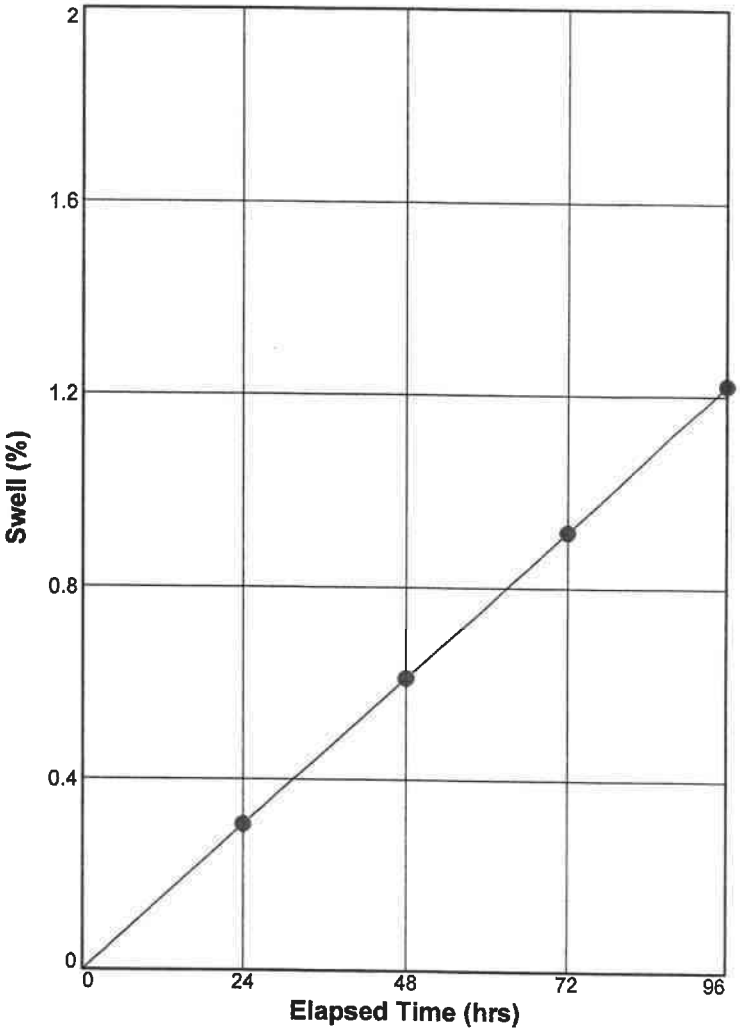
South Plainfield, New Jersey

Checked by:
Title:

Figure 3 F 2

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	89.8	85.3	15.4	88.7	84.3	23.9	3.3	3.4	0.000	10	1.2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		105.3	15.4		

Project No: AOB-5632

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-23, Bulk, 1'-3'

Sample Number: S-8 **Depth:** 1'-3'

Date:

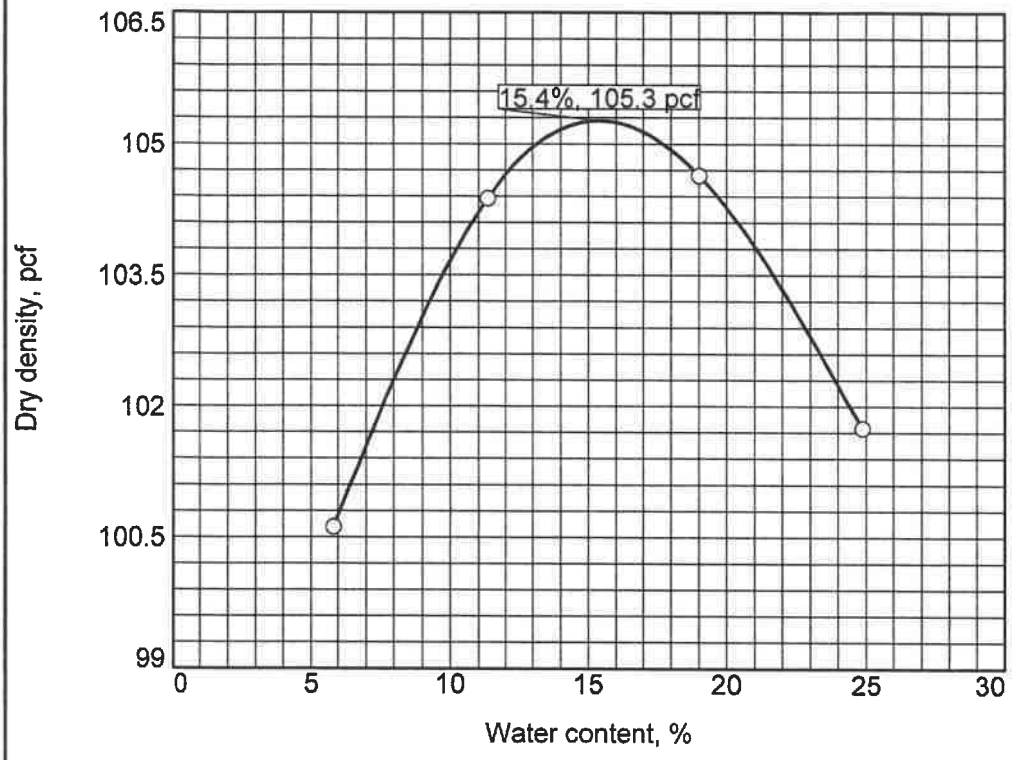
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 8 F 4

COMPACTION TEST REPORT



Curve No.
S-8

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.73	22.46	23.09	23.28		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	852.9	792.3		
WD + T #1	666.6	522.9	716.6	634.5		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.3	19.0	24.9		
DRY DENSITY	100.6	104.4	104.6	101.7		

TEST RESULTS

Maximum dry density = 105.3 pcf

Optimum moisture = 15.4 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** B-23, Bulk, 1'-3' **Depth:** 1'-3' **Sample Number:** S-8

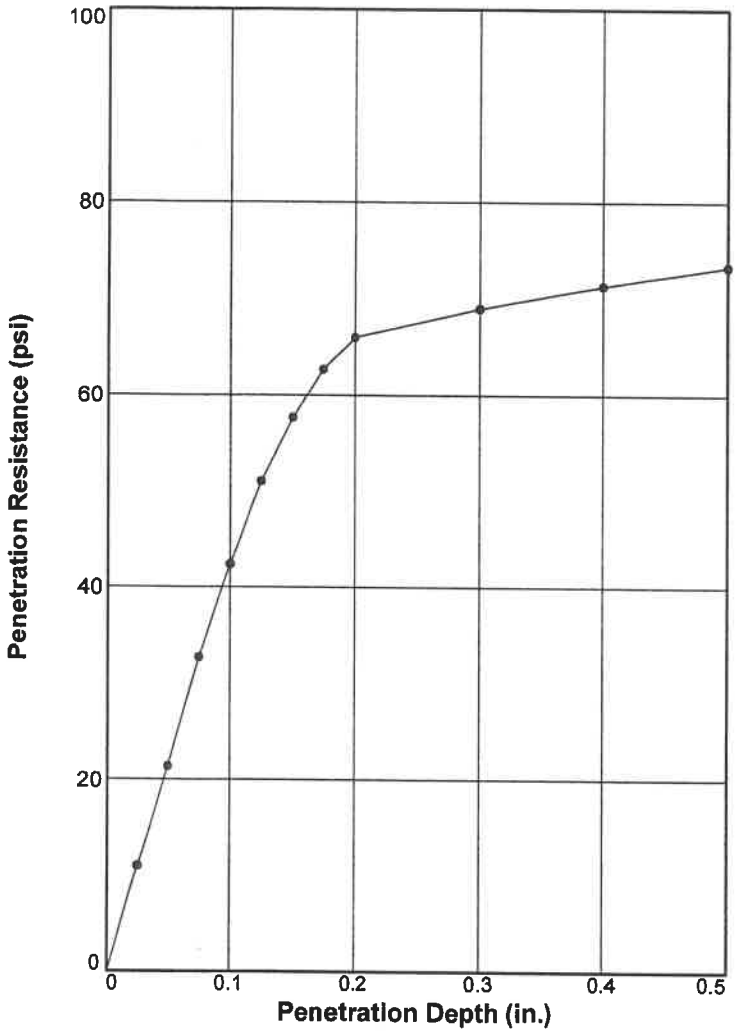
ANS CONSULTANTS, INC.

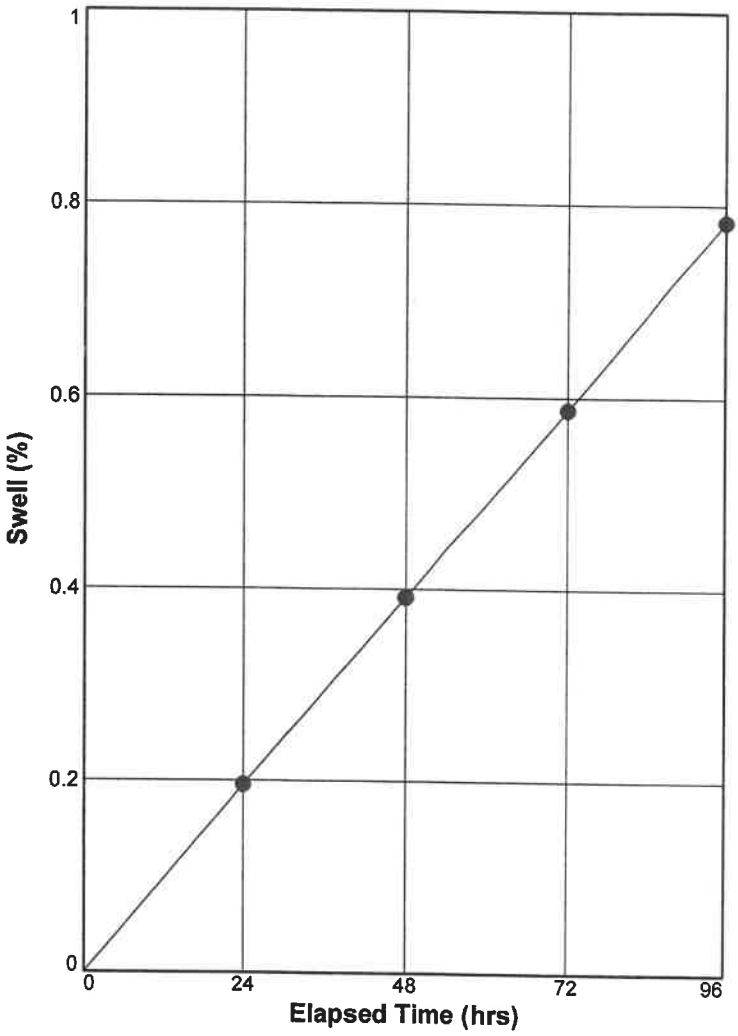
South Plainfield, New Jersey

Checked by:
Title:

Figure 8 F 2

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	89.4	85.7	15.4	88.7	85.1	23.4	4.2	4.4	0.000	10	0.8
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		104.3	15.4		

Project No: AOB-5632

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-SS-01, Bulk, 1'-4'

Sample Number: S-11 **Depth:** 1'-4'

Date:

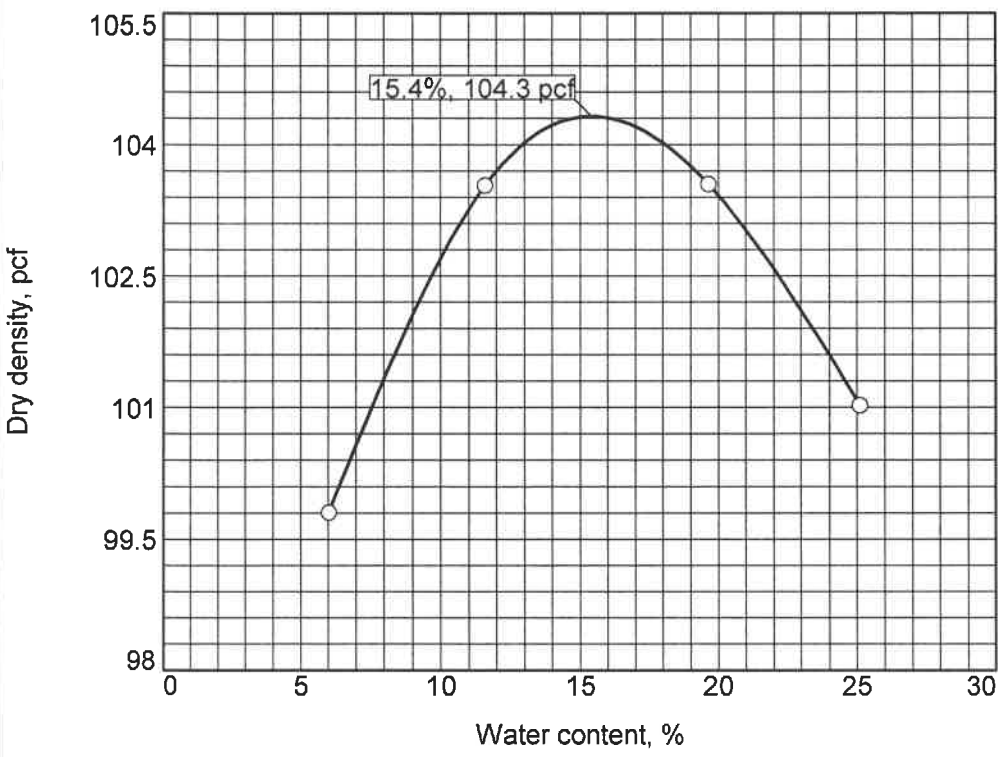
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 11 F 4

COMPACTION TEST REPORT



Curve No.
S-11

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.68	22.41	23.04	23.23		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	855.9	792.3		
WD + T #1	665.4	521.7	715.4	633.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.0	11.6	19.6	25.1		
DRY DENSITY	99.8	103.5	103.5	101.0		

TEST RESULTS

Maximum dry density = 104.3 pcf

Optimum moisture = 15.4 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

o **Location:** B-SS-01, Bulk, 1'-4' **Depth:** 1'-4' **Sample Number:** S-11

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 11 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

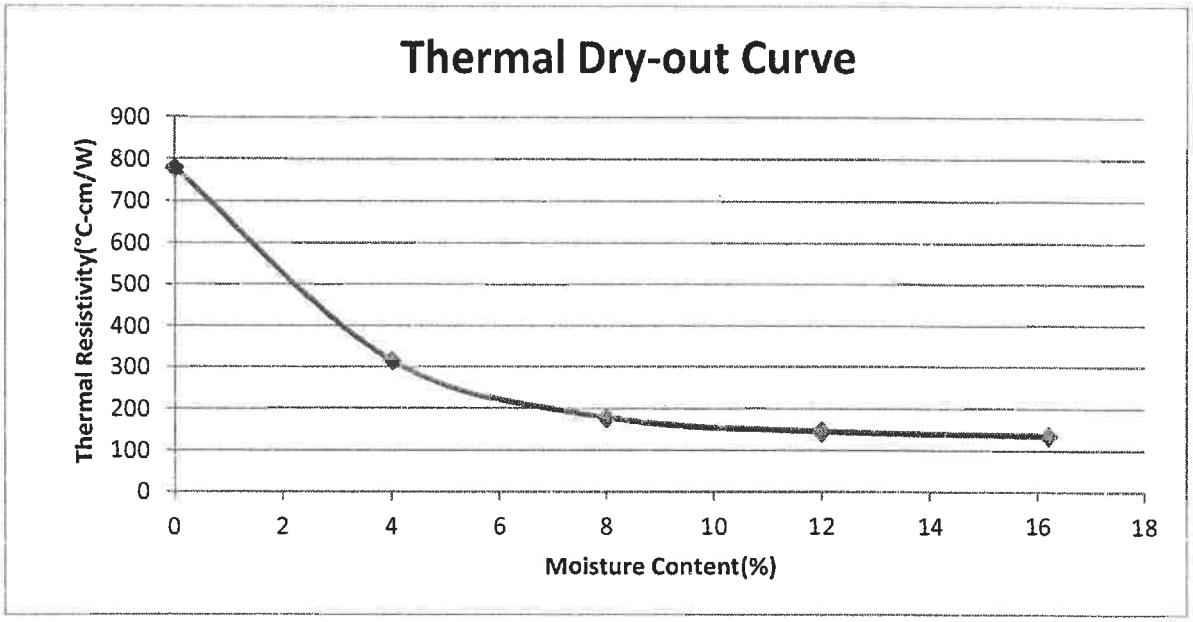
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-1

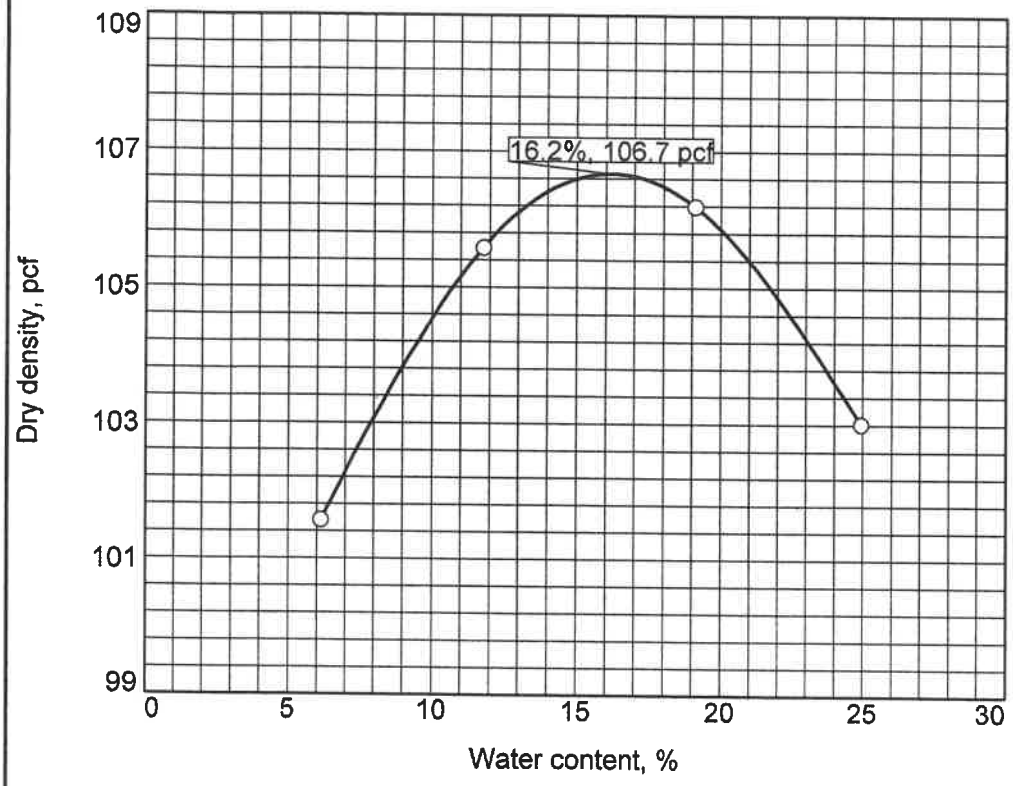
Test Data- Sample No. S-1 (TP-02, Bulk, 1'-2')

Standard Proctor Value: 106.7
Optimum Moisture Content: 16.2%
Remolded Dry Density: 90.695 (85%)
In-Situ Moisture Content: 3.9%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	26.2	779
4	25.8	315
8	25.3	178
12	24.9	145
16.2	24.8	135



COMPACTION TEST REPORT



Curve No.
S-1

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.83	22.60	23.23	23.40		
WM	13.75	13.75	13.75	13.75		
WW + T #1	819.1	628.0	736.8	868.1		
WD + T #1	771.7	561.8	618.6	694.8		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.1	11.8	19.1	24.9		
DRY DENSITY	101.6	105.6	106.2	103.0		

TEST RESULTS

Maximum dry density = 106.7 pcf

Optimum moisture = 16.2 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-02, Bulk, 1'-2' **Depth:** 1'-2' **Sample Number:** S-1

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 1 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

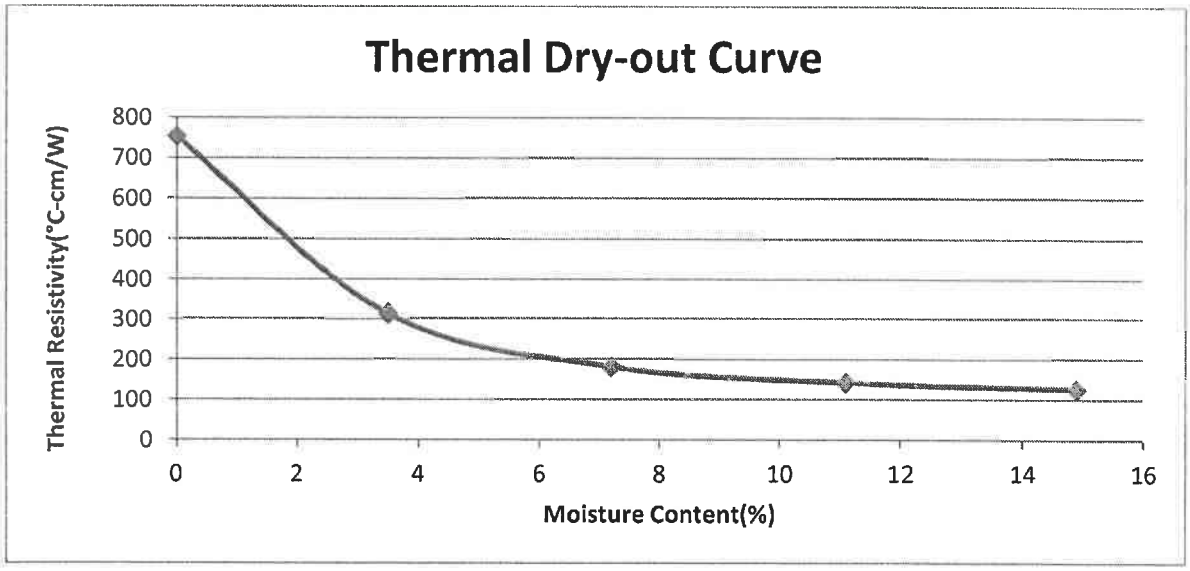
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-2

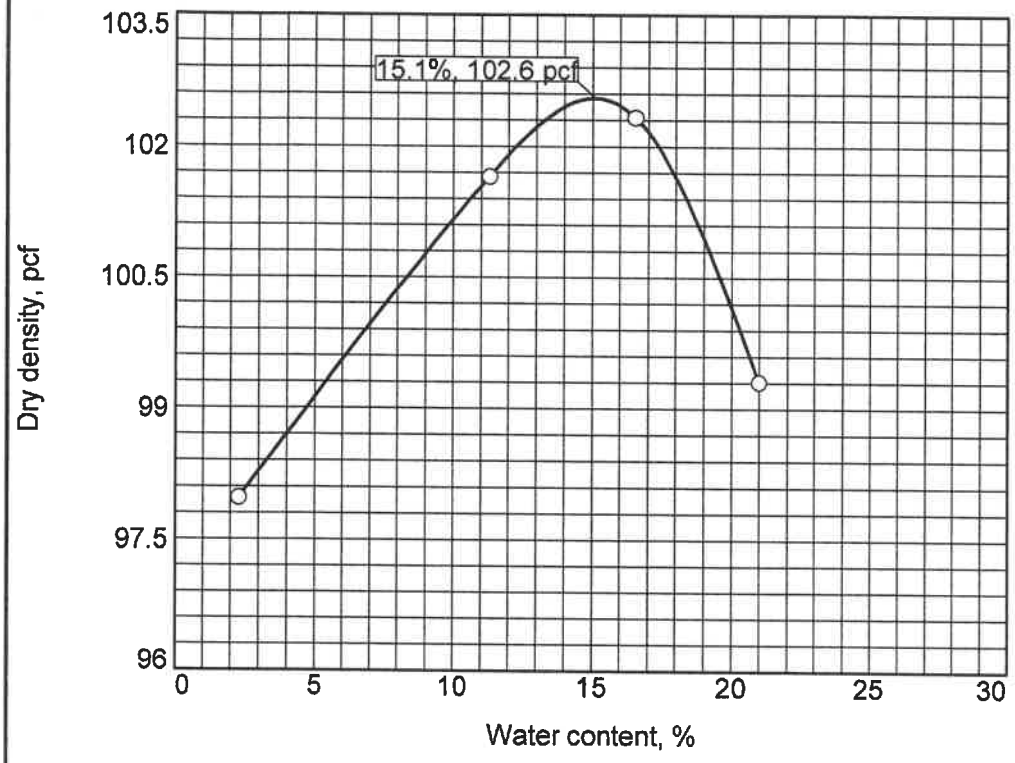
Test Data- Sample No. S-2 (TP-05, Bulk, 1'-2')

Standard Proctor Value: 102.6
Remolded Dry Density: 87.21 (85%)
Optimum Moisture Content: 14.9%
In-Situ Moisture Content: 4.1%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.3	754
3.5	24	314
7.2	23.9	181
11.1	23.7	142
14.9	23.6	126



COMPACTION TEST REPORT



Curve No.
S-2

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.26	22.23	22.69	22.76		
WM	13.75	13.75	13.75	13.75		
WW + T #1	693.6	918.5	869.6	763.8		
WD + T #1	678.0	825.2	746.1	631.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.3	11.3	16.6	21.0		
DRY DENSITY	98.0	101.7	102.3	99.3		

TEST RESULTS

Maximum dry density = 102.6 pcf

Optimum moisture = 15.1 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-05, Bulk, 1'-2' **Depth:** 1'-2' **Sample Number:** S-2

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 2 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

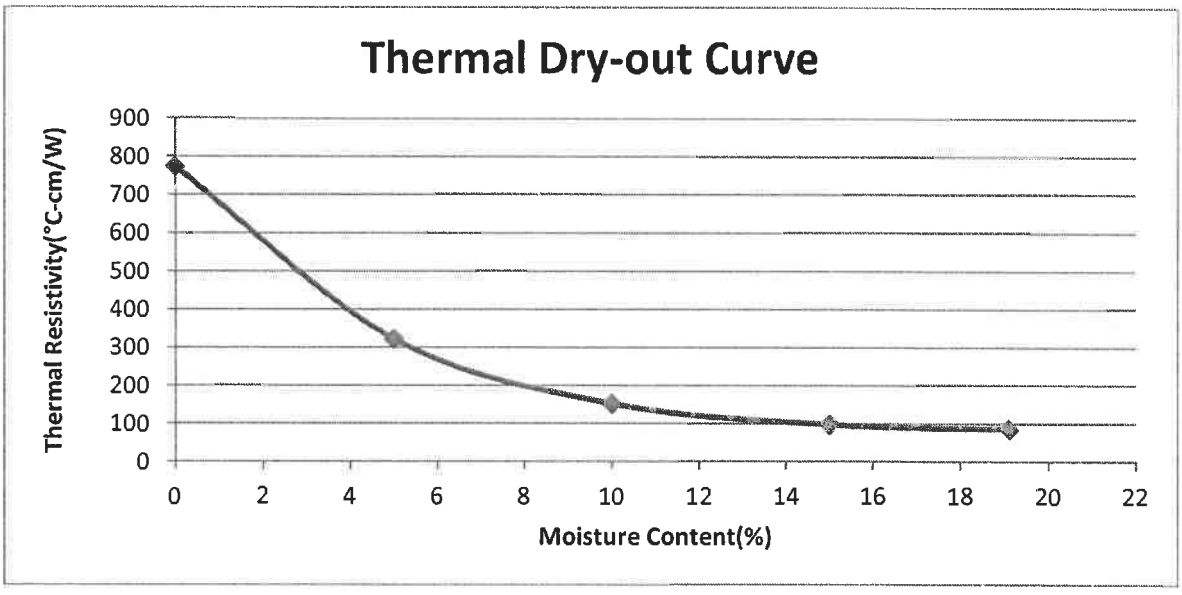
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-3

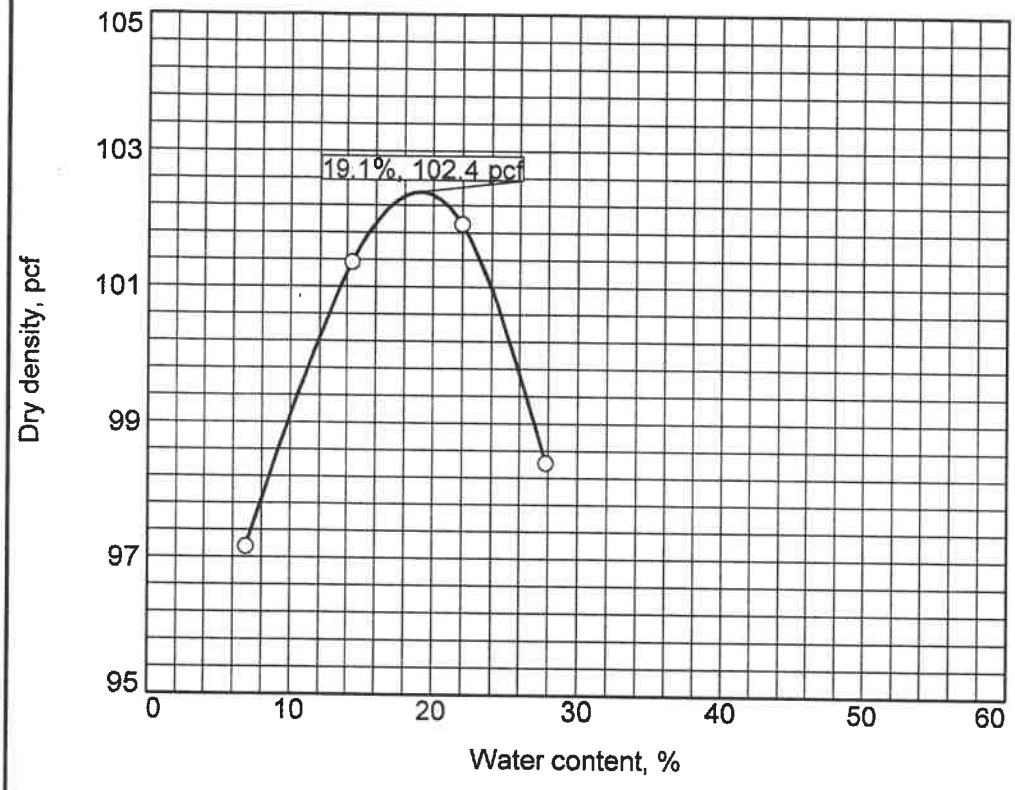
Test Data- Sample No. S-3 (TP-09, Bulk, 1'-2.5')

Standard Proctor Value: 102.4
Optimum Moisture Content: 19.1%
Remolded Dry Density: 87.04 (85%)
In-Situ Moisture Content: 6.17%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	26.3	773
5	26	322
10	25.7	152
15	25.3	98
19.1	25.1	86



COMPACTION TEST REPORT



Curve No.
S-3

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.54	22.44	23.07	23.18		
WM	13.75	13.75	13.75	13.75		
WW + T #1	708.6	655.1	877.4	872.9		
WD + T #1	662.8	572.8	719.3	682.9		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.9	14.4	22.0	27.8		
DRY DENSITY	97.2	101.4	101.9	98.4		

TEST RESULTS

Maximum dry density = 102.4 pcf

Optimum moisture = 19.1 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-09, Bulk, 1'-2.5' **Depth:** 1'-2.5' **Sample Number:** S-3

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 3 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

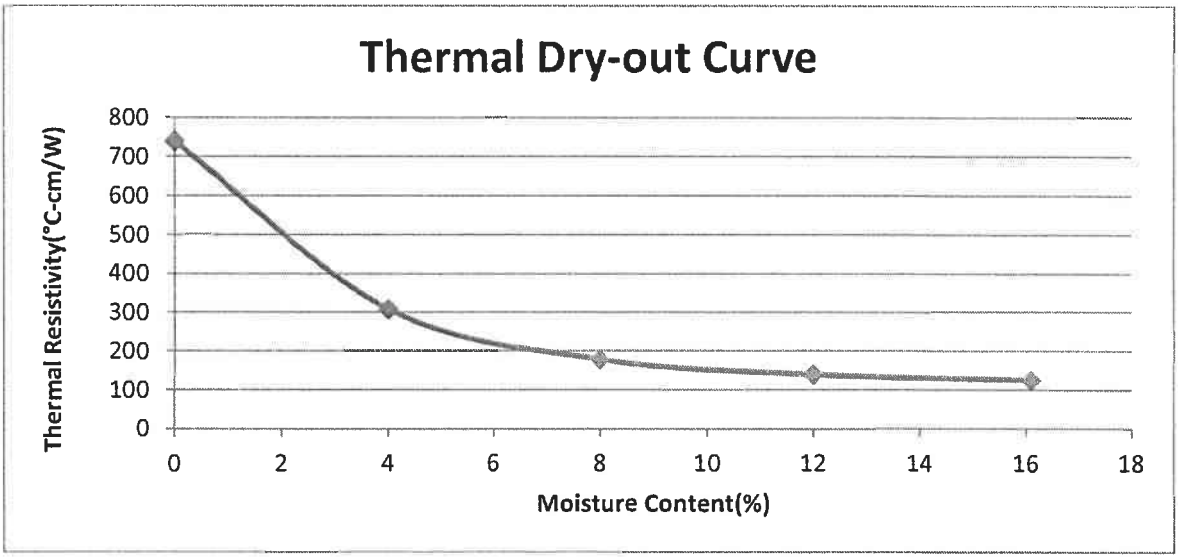
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-4

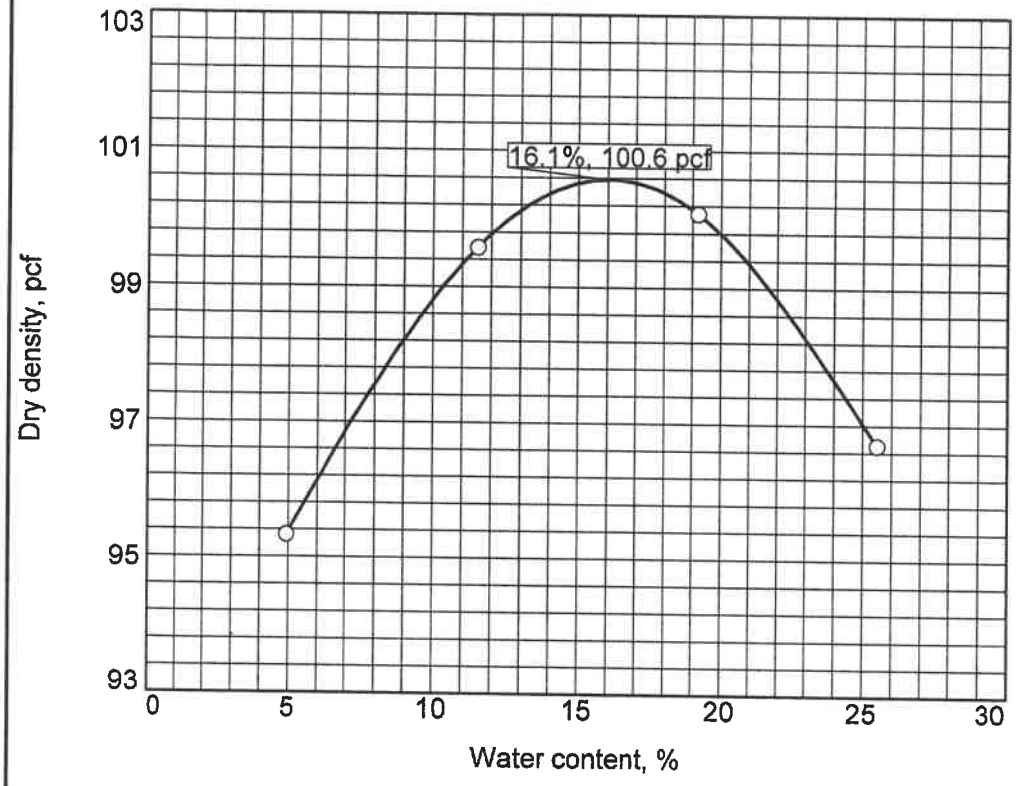
Test Data- Sample No. S-4 (TP-16, Bulk, 0.5'-2')

Standard Proctor Value: 100.6
Remolded Dry Density: 85.51 (85%)
Optimum Moisture Content: 16.1%
In-Situ Moisture Content: 4.03%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	25.1	740
4	24.7	308
8	24.2	178
12	24	139
16.1	23.8	125



COMPACTION TEST REPORT



Curve No.
S-4

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.25	22.08	22.69	22.85		
WM	13.75	13.75	13.75	13.75		
WW + T #1	706.0	599.5	857.6	810.2		
WD + T #1	672.8	537.5	719.5	645.6		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	4.9	11.5	19.2	25.5		
DRY DENSITY	95.3	99.6	100.1	96.7		

TEST RESULTS

Maximum dry density = 100.6 pcf

Optimum moisture = 16.1 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-16, Bulk, 0.5'-2' **Depth:** 0.5'-2' **Sample Number:** S-4

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 4 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

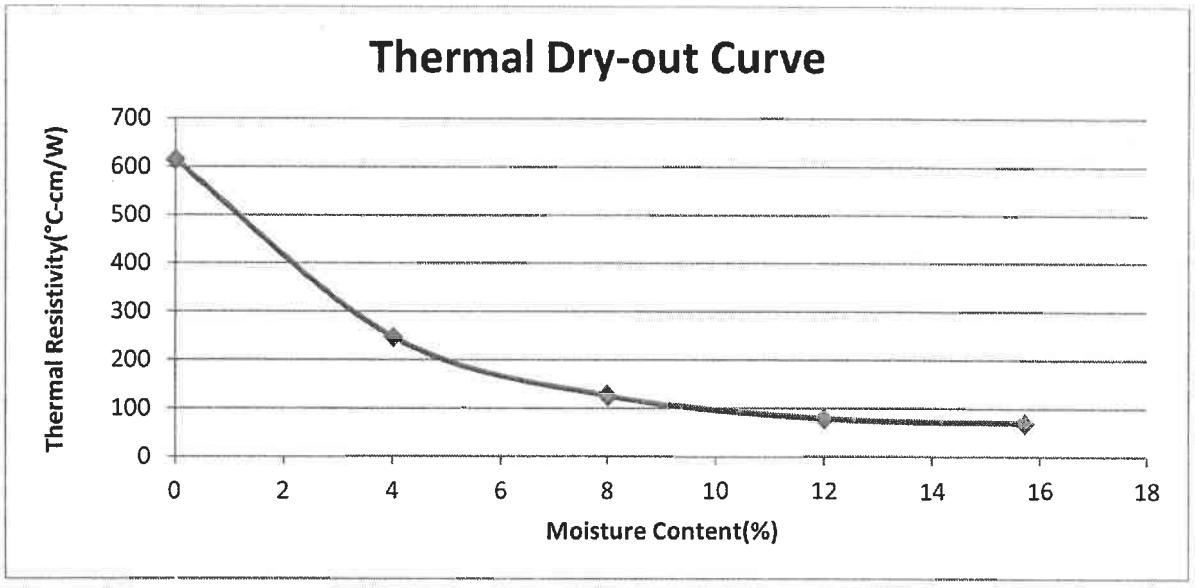
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-5

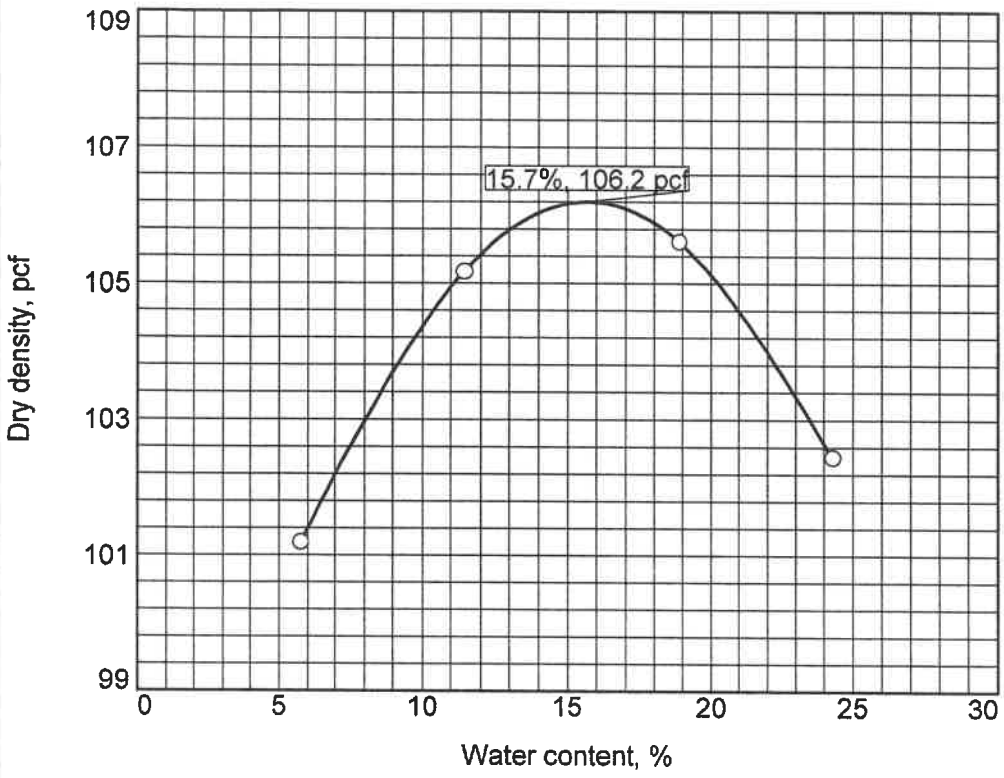
Test Data- Sample No. S-5 (TP-17, Bulk, 2'-4')

Standard Proctor Value: 106.7
Optimum Moisture Content: 15.7%
Remolded Dry Density: 90.695 (85%)
In-Situ Moisture Content: 4.07%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.8	615
4	24.3	247
8	24	126
12	23.8	79
15.7	23.7	70



COMPACTION TEST REPORT



Curve No.
S-5

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.77	22.54	23.16	23.30		
WM	13.75	13.75	13.75	13.75		
WW + T #1	766.9	625.5	740.8	854.3		
WD + T #1	725.1	561.2	623.2	687.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.5	18.9	24.3		
DRY DENSITY	101.2	105.2	105.6	102.5		

TEST RESULTS

Maximum dry density = 106.2 pcf

Optimum moisture = 15.7 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-17, Bulk, 2'-4' **Depth:** 2'-4' **Sample Number:** S-5

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 5 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

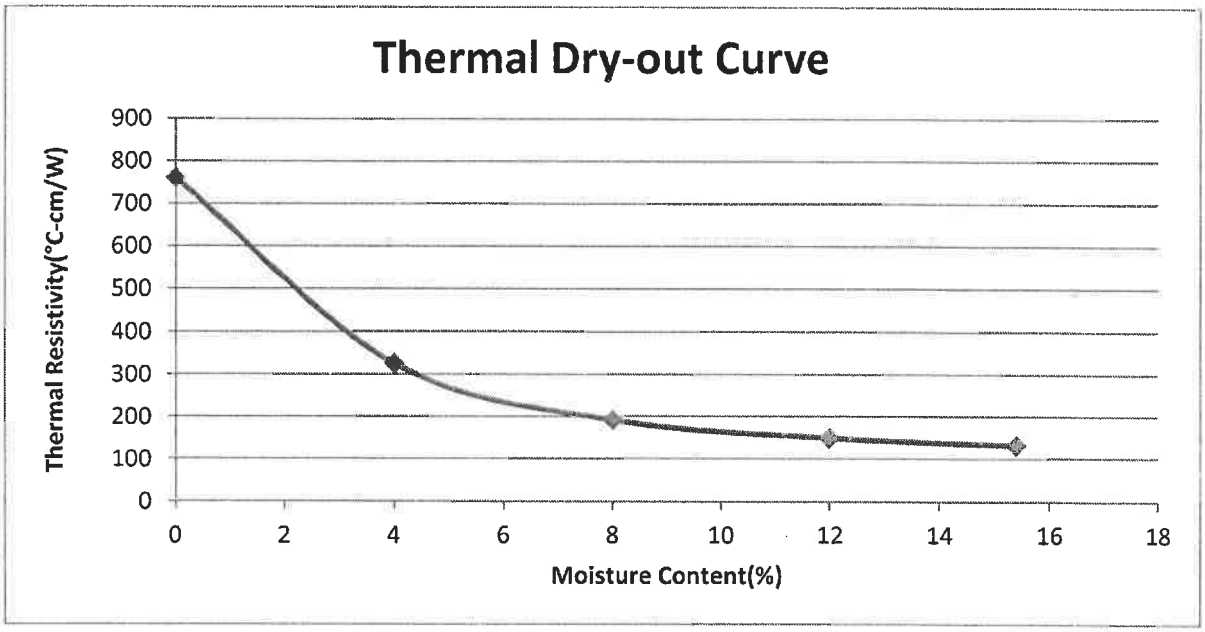
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-8

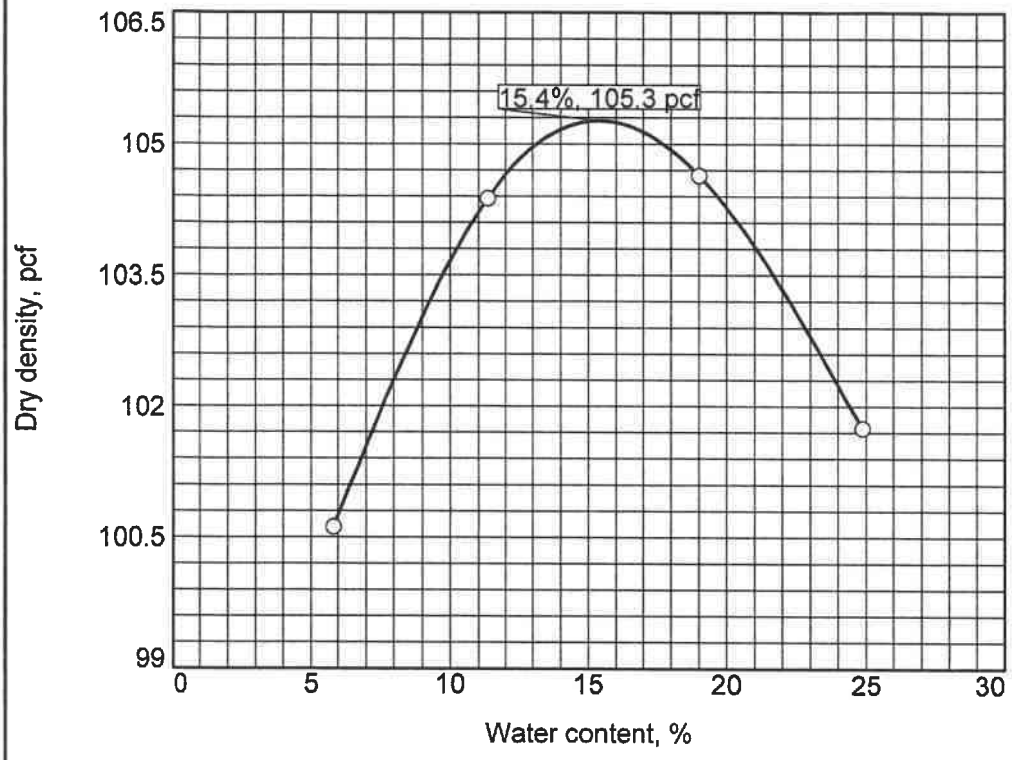
Test Data- Sample No. S-8 (B-23, Bulk, 1'-3')

Standard Proctor Value: 105.3
Remolded Dry Density: 89.505 (85%)
Optimum Moisture Content: 15.4%
In-Situ Moisture Content: 4.06 %

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	25	762
4	24.6	325
8	24.2	192
12	24	149
15.4	23.8	132



COMPACTION TEST REPORT



Curve No.
S-8

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.73	22.46	23.09	23.28		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	852.9	792.3		
WD + T #1	666.6	522.9	716.6	634.5		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.3	19.0	24.9		
DRY DENSITY	100.6	104.4	104.6	101.7		

TEST RESULTS

Maximum dry density = 105.3 pcf

Optimum moisture = 15.4 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** B-23, Bulk, 1'-3' **Depth:** 1'-3' **Sample Number:** S-8

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 8 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

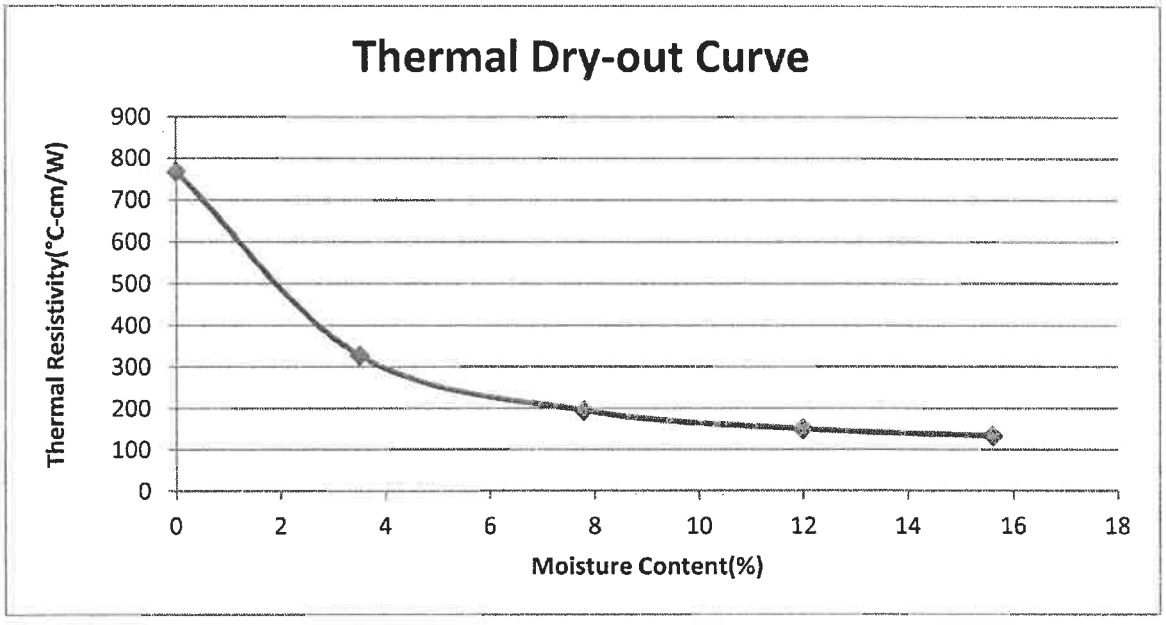
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-10

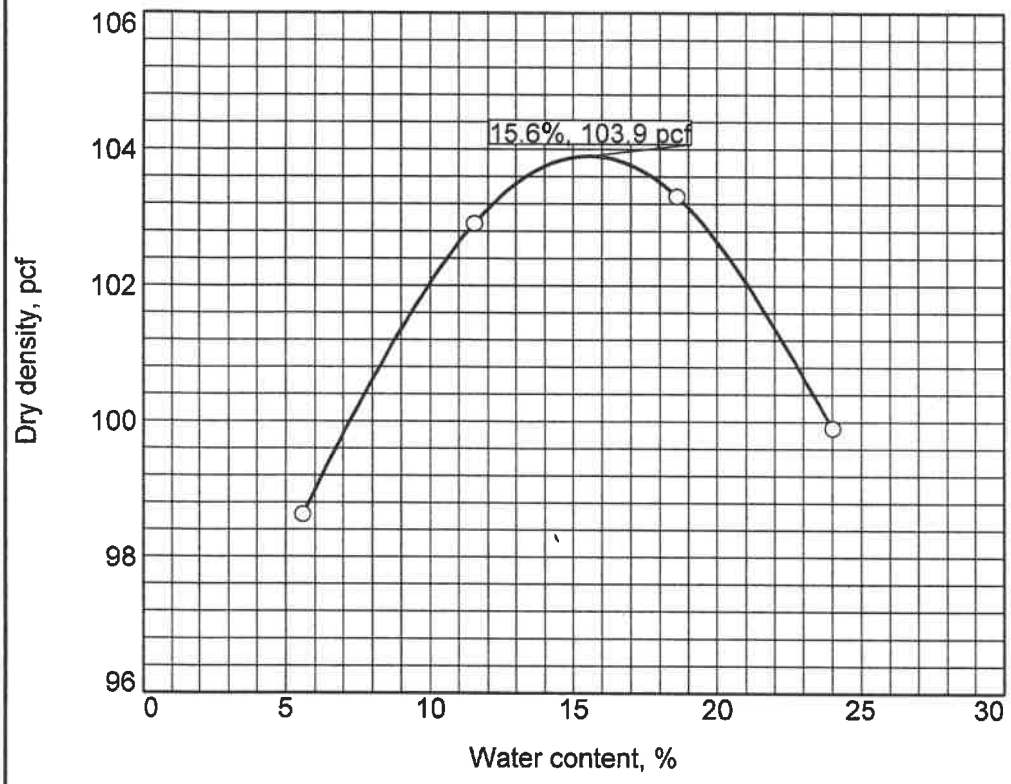
Test Data- Sample No. S-10 (TP-28, Bulk, 2'-4')

Standard Proctor Value: 103.9
Remolded Dry Density: 88.315 (85%)
Optimum Moisture Content: 15.6%
In-Situ Moisture Content: 4.76 %

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	25.2	768
3.5	25	328
7.8	24.6	194
12	24.2	150
15.6	24.1	133



COMPACTION TEST REPORT



Curve No.
S-10

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.
Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.56	22.36	22.94	23.04		
WM	13.75	13.75	13.75	13.75		
WW + T #1	774.9	662.9	902.1	781.5		
WD + T #1	734.0	594.3	760.6	630.2		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.6	11.5	18.6	24.0		
DRY DENSITY	98.6	102.9	103.3	99.9		

TEST RESULTS

Maximum dry density = 103.9 pcf

Optimum moisture = 15.6 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

○ **Location:** TP-28, Bulk, 2'-4' **Depth:** 2'-4 **Sample Number:** S-10

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 10 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

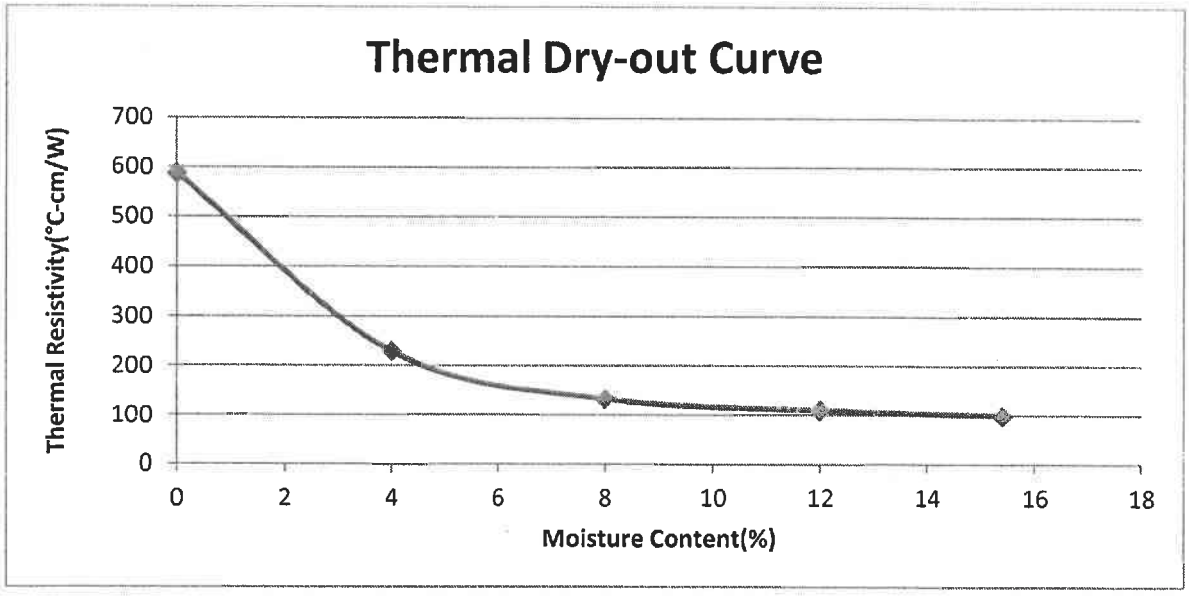
PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-11

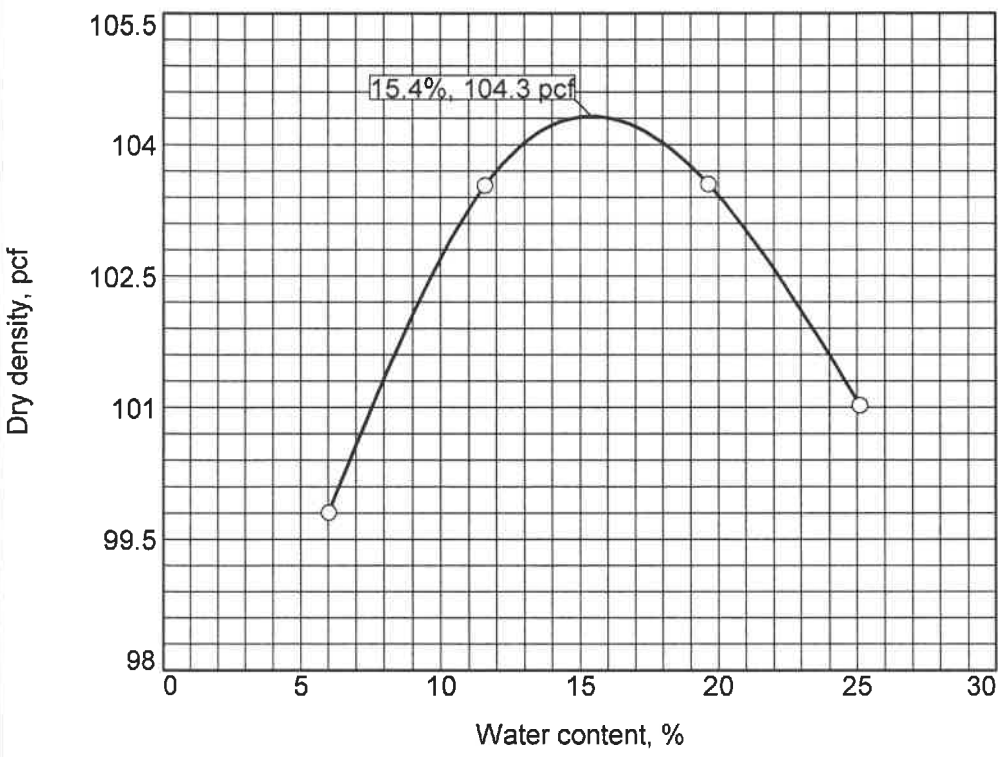
Test Data- Sample No. S-11 (B-SS-01, Bulk, 1'-4')

Standard Proctor Value: 104.8
Remolded Dry Density: 89.08 (85%)
Optimum Moisture Content: 15.4%
In-Situ Moisture Content: 4.81 %

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	26.5	588
4	26	228
8	25.3	132
12	24.9	109
15.4	24.6	99



COMPACTION TEST REPORT



Curve No.
S-11

Test Specification:
ASTM D 1557-12 Method C Modified

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/4 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	21.68	22.41	23.04	23.23		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	855.9	792.3		
WD + T #1	665.4	521.7	715.4	633.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.0	11.6	19.6	25.1		
DRY DENSITY	99.8	103.5	103.5	101.0		

TEST RESULTS

Maximum dry density = 104.3 pcf

Optimum moisture = 15.4 %

Material Description

Remarks:

Project No. AOB-5632 **Client:** ANS GEO Inc.
Project: CypressCreek-Ostrea Solar, Moxee, WA

o **Location:** B-SS-01, Bulk, 1'-4' **Depth:** 1'-4' **Sample Number:** S-11

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 11 F 2

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

CERTIFICATE OF TEST - CORROSION ANALYSIS

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite # A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-1, S-2, S-4 to S-8

TEST PERFORMED: 1) Standard Test Method for Water Soluble Sulfate in Soil AS PER ASTM C-1580
2) Standard Test Method for measuring pH of Soil for use in Corrosion Testing AS PER ASTM G51-18
3) Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil AS PER ASTM G-200
4) Standard Method for Test for Determining Water Soluble Chloride Ion AS PER AASHTO T-291
5) Standard Test Method for Measuring Soil Resistivity using two-Electrode AS PER ASTM G187-18

Sample No.	Sample ID	Sulfate (mg/Kg)	pH	ORP (mV)	Chloride (mg/Kg)	Resistivity (Ohm-cm)
S-1	TP-2, Bulk, 1'-2'	0	6.27	236	15	11,000
S-2	TP-5, Bulk, 1'-2'	15	6.44	215	25	9,000
S-4	TP-16, Bulk, 0.5'-2'	16	6.47	187	45	6,000
S-5	TP-17, Bulk, 2'-4'	27	5.1	186	40	8,500
S-6	TP-19, Bulk, 0.5'-2.5'	22	6.74	221	35	9,000
S-7	TP-22, Bulk, 1'-2'	20	6.52	203	55	10,000
S-8	B-23, Bulk, 1'-3'	11	6.72	211	30	9,000

CONSULTANTS, INC.
4405 South Clinton Avenue
South Plainfield, NJ 07080

Tel: (800) 545-ATUL
(908) 754-8383
Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified
www.ANSConsultants.net

CERTIFICATE OF TEST - CORROSION ANALYSIS

CLIENT: ANS Geo, Inc.
4405 South Clinton Avenue, Suite#A
South Plainfield, NJ 07080

DATE: 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar
Moxee, WA

REPORT NO: S-9, S-10, S-12 to S-16

TEST PERFORMED: 1) Standard Test Method for Water Soluble Sulfate in Soil AS PER ASTM C-1580
2) Standard Test Method for measuring pH of Soil for use in Corrosion Testing AS PER ASTM G51-18
3) Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil AS PER ASTM G-200
4) Standard Method for Test for Determining Water Soluble Chloride Ion AS PER AASHTO T-291
5) Standard Test Method for Measuring Soil Resistivity using two-Electrode AS PER ASTM G187-18

Sample No.	Sample ID	Sulfate (mg/Kg)	pH	ORP (mV)	Chloride (mg/Kg)	Resistivity (Ohm-cm)
S-9	TP-25, Bulk, 1'-2'	15	5.91	197	35	10,500
S-10	TP-28, Bulk, 2'-4'	18	5.72	195	60	13,000
S-12	B-1, Bulk, 1'-3'	14	6.38	193	30	9,000
S-13	B-7, Bulk, 1'-3'	17	6.59	190	90	8,000
S-14	B-10, Bulk, 1'-3'	9	6.76	183	50	6,000
S-15	B-13, Bulk, 1'-3'	6	6.88	177	25	7,000
S-16	B-18, Bulk, 1'-3'	14	6.76	172	35	7,000

Attachment F

Environmental Sampling Results

TP-04 & TP-11

ENVIRONMENTAL RESULTS

CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

Batch: 017005
Client: ANS Geo Inc
Account: 21800
Sampler:
PO Number:

--- Analytical Services Report ---

Report Date: 12/23/20

ANS Geo Inc

4475 S Clinton Ave #225
South Plainfield, NJ 07080

Laboratory Number: 20-C025782
Sample Identification: Ostrea Solar TP-11
Sample Comment: 1'-2'

Date Received: 12/ 7/20
Date Sampled: 12/ 3/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/				12/22/20	

Approved By Name: Andy Schut
Function: Lab Manager/Yakima
Signature:

CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

Batch: 017005
Client: ANS Geo Inc
Account: 21800
Sampler:
PO Number:

--- Analytical Services Report ---

Report Date: 12/23/20

ANS Geo Inc

4475 S Clinton Ave #225
South Plainfield, NJ 07080

Laboratory Number: 20-C025783
Sample Identification: Ostrea Solar TP-4
Sample Comment: 1'-2'

Date Received: 12/ 7/20
Date Sampled: 12/ 3/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/S				12/22/20	

Approved By Name: Andy Schut
Function: Lab Manager/Yakima
Signature:

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

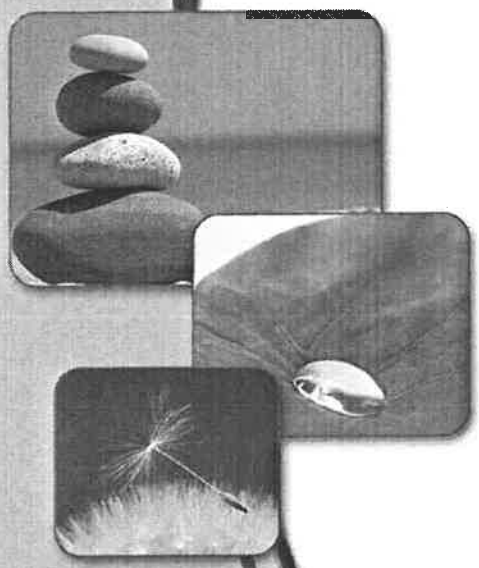
Laboratory Job ID: 580-99593-1
Client Project/Site: ANS Geo

For:
Cascade Analytical Inc
1008 W. Ahtanum Rd.
Union Gap, Washington 98903

Attn: Andy Schut

Authorized for release by:
12/22/2020 5:13:08 PM

Pauline Matlock, Project Manager
(253)922-2310
pauline.matlock@eurofinset.com



This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 580-99593-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-99593-1

Comments
No additional comments.

Receipt
The samples were received on 12/8/2020 2:44 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -0.2° C.

GC/MS VOA
Method 8260D: The method blank for preparation batch 345397 and analytical batch 345537 contained Naphthalene above the Method Detection Limit (MDL), but below the Reporting Limit (RL). Data has been qualified and reported.

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345397 and analytical batch 580-345537 recovered outside control limits for the following analytes: Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-345537 recovered above the upper control limit for Bromomethane, Chloroethane, Dichlorodifluoromethane, 1,1-Dichloroethene, Chloromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 580-345537/3).

Method 8260D: The associated CCVIS meets control criteria; 20.1% rounds to 20%. Data is reported. (CCVIS 580-346000/3)

Method 8260D: The laboratory control sample (LCS) for preparation batch 580-346011 and analytical batch 580-346000 recovered outside acceptance limits for m-Xylene & p-Xylene (LCS 78, LCSD 77, limit 80-132). There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported. Sample is ND.

Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-346011 and analytical batch 580-346000 recovered outside control limits for the following analytes: Methylene Chloride.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-346000 recovered outside acceptance criteria, low biased, for m-Xylene & p-Xylene. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method 8260D: Surrogate recovery for the following samples were outside control limits: 20-C025780 (580-99593-1), 20-C025781 (580-99593-2) and 20-C025782 (580-99593-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270E: The method blank for preparation batch 580-345599 and analytical batch 580-345700 contained 2-Methylnaphthalene, Phenanthrene, Anthracene and 1-Methylnaphthalene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method 8270E: The method blank for preparation batch 580-345599 contained Naphthalene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-345599 and analytical batch 580-345700 recovered outside control limits for the following analyte(s): 2,4-Dinitrophenol and 4-Chloroaniline. These have been identified as a poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed. Batch precision also exceeded control limits for 2,4-Dinitrophenol. These results have been

Job ID: 580-99593-1 (Continued)

Laboratory: Eurofins TestAmerica, Seattle (Continued)

qualified and reported.

Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: 2,4-Dinitrophenol. This analyte may have a %D >50%.

Method 8270E: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 580-345599 and analytical batch 580-345700: Benzo[g,h,i]perylene and 2,2'-oxybis[1-chloropropane]. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345700 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

Method 8270E: Surrogate recovery for the following sample was outside control limits: 20-C025780 (580-99593-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-345574 recovered above the upper control limit for Benzo[a]anthracene, Bis(2-ethylhexyl)phthalate, Butyl benzyl phthalate and Benzoic acid. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: 20-C025781 (580-99593-2), 20-C025782 (580-99593-3) and (CCVIS 580-345574/3).

Method 8270E: The following continuing calibration verification (CCV) standard associated with batch 580-345574 recovered outside acceptance criteria for %D for surrogate 2,4,6-Tribromophenol. Since all the other surrogates was within %D criteria; therefore, the data have been reported. (CCVIS 580-345574/3)

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-345574 recovered outside acceptance criteria, low biased, for 2,2'-oxybis[1-chloropropane]. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345574 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
Method 5035: The following samples were provided to the laboratory with a significantly different initial weight than that required by the reference method: 20-C025780 (580-99593-1), 20-C025781 (580-99593-2), 20-C025782 (580-99593-3) and 20-C025783 (580-99593-4). Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 10g. The amount provided was below this range.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample ID: 20-C025782
Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3
Matrix: Solid
Percent Solids: 94.8

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*+	2.2	0.54	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Chloromethane	ND		5.5	1.0	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Vinyl chloride	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Bromomethane	ND		1.1	0.23	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Chloroethane	ND		11	0.83	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Trichlorofluoromethane	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1-Dichloroethene	ND		5.5	1.2	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Methylene Chloride	ND		44	11	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
trans-1,2-Dichloroethene	ND		2.2	0.44	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1-Dichloroethane	ND		1.1	0.21	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
2,2-Dichloropropane	ND		5.5	0.36	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
cis-1,2-Dichloroethene	ND		3.3	0.66	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Bromochloromethane	ND		2.2	0.28	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Chloroform	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1,1-Trichloroethane	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Carbon tetrachloride	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1-Dichloropropene	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Benzene	ND		2.2	0.43	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2-Dichloroethane	ND		1.1	0.22	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Trichloroethene	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2-Dichloropropane	ND		2.2	0.44	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Dibromomethane	ND		1.1	0.19	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Bromodichloromethane	ND		1.1	0.20	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
cis-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Toluene	ND		11	1.4	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
trans-1,3-Dichloropropene	ND		11	0.66	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1,2-Trichloroethane	ND		2.2	0.28	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Tetrachloroethene	ND		2.2	0.44	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,3-Dichloropropane	ND		2.2	0.25	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Dibromochloromethane	ND		1.7	0.30	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2-Dibromoethane	ND		1.1	0.22	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Chlorobenzene	ND		2.2	0.28	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Ethylbenzene	ND		2.2	0.45	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1,1,2-Tetrachloroethane	ND		3.3	0.65	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,1,2,2-Tetrachloroethane	ND		4.4	0.99	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
m-Xylene & p-Xylene	ND		11	0.62	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
o-Xylene	ND		5.5	1.0	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Styrene	ND		3.3	0.82	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Bromoform	ND		5.5	0.93	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Isopropylbenzene	ND		2.2	0.51	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Bromobenzene	ND		11	1.1	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
N-Propylbenzene	ND		5.5	0.84	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2,3-Trichloropropane	ND		5.5	1.1	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
2-Chlorotoluene	ND		5.5	1.0	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,3,5-Trimethylbenzene	ND		5.5	0.89	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
4-Chlorotoluene	ND		5.5	1.1	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
t-Butylbenzene	ND		3.3	0.73	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2,4-Trimethylbenzene	ND		5.5	1.3	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
sec-Butylbenzene	ND		3.3	0.74	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1

Client Sample ID: 20-C025782
Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3
Matrix: Solid
Percent Solids: 94.8

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		5.5	1.2	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
4-Isopropyltoluene	ND		2.2	0.44	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,4-Dichlorobenzene	ND		5.5	1.1	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
n-Butylbenzene	ND		3.3	0.70	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2-Dichlorobenzene	ND		11	1.4	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2-Dibromo-3-Chloropropane	ND		11	1.8	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2,4-Trichlorobenzene	ND		2.2	0.46	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,2,3-Trichlorobenzene	ND		3.3	0.66	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Hexachlorobutadiene	ND		3.3	0.66	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Naphthalene	**6.7**	**J B**	11	2.0	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Methyl tert-butyl ether	ND		2.2	0.33	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*117*		*80 - 120*	*12/08/20 15:00*	*12/11/20 22:54*	*1*
4-Bromofluorobenzene (Surr)	*68*	*S1-*	*80 - 120*	*12/08/20 15:00*	*12/11/20 22:54*	*1*
Dibromofluoromethane (Surr)	*70*	*S1-*	*80 - 120*	*12/08/20 15:00*	*12/11/20 22:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*53*	*S1-*	*80 - 121*	*12/08/20 15:00*	*12/11/20 22:54*	*1*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		150	23	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Bis(2-chloroethyl)ether	ND		99	7.6	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Chlorophenol	ND		200	4.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
1,3-Dichlorobenzene	ND		50	4.8	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
1,4-Dichlorobenzene	ND		50	8.2	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzyl alcohol	ND		990	50	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
1,2-Dichlorobenzene	ND		50	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Methylphenol	ND		150	9.7	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
3 & 4 Methylphenol	ND		200	15	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
N-Nitrosodi-n-propylamine	ND		200	22	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Hexachloroethane	ND		150	4.3	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Nitrobenzene	ND		200	20	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Isophorone	ND		150	8.3	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Nitrophenol	ND		200	6.2	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4-Dimethylphenol	ND		200	60	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzoic acid	ND		4000	1200	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Bis(2-chloroethoxy)methane	ND		200	18	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4-Dichlorophenol	ND		200	60	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
1,2,4-Trichlorobenzene	ND		50	6.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Naphthalene	ND		25	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Chloroaniline	ND		1500	130	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Hexachlorobutadiene	ND		50	15	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Chloro-3-methylphenol	ND		150	33	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Methylnaphthalene	ND		50	8.7	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Hexachlorocyclopentadiene	ND		99	7.6	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4,6-Trichlorophenol	ND		150	13	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4,5-Trichlorophenol	ND		200	8.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Chloronaphthalene	ND		25	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2-Nitroaniline	ND		99	15	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Dimethyl phthalate	ND		150	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1

Client Sample ID: 20-C025782
Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3
Matrix: Solid
Percent Solids: 94.8

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		25	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,6-Dinitrotoluene	ND		150	15	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
3-Nitroaniline	ND		300	99	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Acenaphthene	ND		40	4.6	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4-Dinitrophenol	ND	*-	2000	580	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Nitrophenol	ND		2000	170	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Dibenzofuran	ND		150	5.9	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
2,4-Dinitrotoluene	ND		200	43	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Diethyl phthalate	ND		400	22	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Chlorophenyl phenyl ether	ND		200	6.3	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Fluorene	ND		25	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Nitroaniline	ND		150	50	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4,6-Dinitro-2-methylphenol	ND		990	99	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
N-Nitrosodiphenylamine	ND		60	7.9	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
4-Bromophenyl phenyl ether	ND		200	9.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Hexachlorobenzene	ND		50	15	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Pentachlorophenol	ND		400	63	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Phenanthrene	ND		60	5.8	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Anthracene	ND		60	16	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Di-n-butyl phthalate	ND		500	27	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Fluoranthene	ND		40	12	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Pyrene	ND		60	13	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Butyl benzyl phthalate	ND		200	51	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
3,3'-Dichlorobenzidine	ND		400	83	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzo[a]anthracene	ND		40	11	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Chrysene	ND		60	13	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Bis(2-ethylhexyl) phthalate	ND		600	70	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Di-n-octyl phthalate	ND		150	12	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzo[a]pyrene	ND		60	13	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Indeno[1,2,3-cd]pyrene	ND		40	12	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Dibenz(a,h)anthracene	ND		50	12	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzo[g,h,i]perylene	ND		60	18	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Carbazole	ND		150	7.2	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
1-Methylnaphthalene	ND		30	5.0	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzo[b]fluoranthene	ND		40	9.9	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
Benzo[k]fluoranthene	ND		60	14	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1
bis(chloroisopropyl) ether	ND	*-	200	6.1	ug/Kg	☼	12/11/20 15:17	12/15/20 19:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*92*		*47 - 119*	*12/11/20 15:17*	*12/15/20 19:25*	*1*
Phenol-d5 (Surr)	*74*		*59 - 120*	*12/11/20 15:17*	*12/15/20 19:25*	*1*
Nitrobenzene-d5 (Surr)	*96*		*54 - 120*	*12/11/20 15:17*	*12/15/20 19:25*	*1*
2-Fluorobiphenyl	*85*		*57 - 120*	*12/11/20 15:17*	*12/15/20 19:25*	*1*
2,4,6-Tribromophenol (Surr)	*103*		*52 - 115*	*12/11/20 15:17*	*12/15/20 19:25*	*1*
Terphenyl-d14 (Surr)	*115*		*73 - 125*	*12/11/20 15:17*	*12/15/20 19:25*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		11	5.2	mg/Kg	☼	12/10/20 09:15	12/10/20 13:19	1

Client Sample ID: 20-C025782

Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3

Matrix: Solid
Percent Solids: 94.8

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*50 - 150*	*12/10/20 09:15*	*12/10/20 13:19*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg	☼	12/21/20 08:35	12/21/20 23:15	1
Motor Oil (>C24-C36)	**31**	**J**	50	17	mg/Kg	☼	12/21/20 08:35	12/21/20 23:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*12/21/20 08:35*	*12/21/20 23:15*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.4**		0.41	0.039	mg/Kg	☼	12/17/20 12:22	12/18/20 15:58	10
Cadmium	**0.091**	**J**	0.65	0.063	mg/Kg	☼	12/17/20 12:22	12/18/20 15:58	10
Arsenic	**3.3**		0.41	0.081	mg/Kg	☼	12/17/20 12:22	12/18/20 15:58	10
Chromium	**15**		0.81	0.051	mg/Kg	☼	12/17/20 12:22	12/18/20 15:58	10

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.020**	**J**	0.026	0.0079	mg/Kg	☼	12/14/20 13:46	12/15/20 12:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**94.8**		0.1	0.1	%			12/09/20 15:39	1
Percent Moisture	**5.2**		0.1	0.1	%			12/09/20 15:39	1

Client Sample ID: 20-C025783
Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4
Matrix: Solid
Percent Solids: 95.2

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.3	0.56	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Chloromethane	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Vinyl chloride	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Bromomethane	ND		1.1	0.24	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Chloroethane	ND		11	0.86	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Trichlorofluoromethane	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1-Dichloroethene	ND		5.7	1.3	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Methylene Chloride	ND	*1	46	11	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
trans-1,2-Dichloroethene	ND		2.3	0.46	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1-Dichloroethane	ND		1.1	0.22	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
2,2-Dichloropropane	ND		5.7	0.38	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
cis-1,2-Dichloroethene	ND		3.4	0.69	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Bromochloromethane	ND		2.3	0.29	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Chloroform	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1,1-Trichloroethane	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Carbon tetrachloride	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1-Dichloropropene	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Benzene	ND		2.3	0.45	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2-Dichloroethane	ND		1.1	0.23	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Trichloroethene	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2-Dichloropropane	ND		2.3	0.46	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Dibromomethane	ND		1.1	0.19	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Bromodichloromethane	ND		1.1	0.21	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
cis-1,3-Dichloropropene	ND		1.1	0.23	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Toluene	ND		11	1.5	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
trans-1,3-Dichloropropene	ND		11	0.69	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1,2-Trichloroethane	ND		2.3	0.29	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Tetrachloroethene	ND		2.3	0.46	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,3-Dichloropropane	ND		2.3	0.26	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Dibromochloromethane	ND		1.7	0.31	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2-Dibromoethane	ND		1.1	0.23	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Chlorobenzene	ND		2.3	0.29	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Ethylbenzene	ND		2.3	0.47	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1,1,2-Tetrachloroethane	ND		3.4	0.67	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,1,2,2-Tetrachloroethane	ND		4.6	1.0	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
m-Xylene & p-Xylene	ND	*-	11	0.64	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
o-Xylene	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Styrene	ND		3.4	0.85	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Bromoform	ND		5.7	0.96	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Isopropylbenzene	ND		2.3	0.53	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Bromobenzene	ND		11	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
N-Propylbenzene	ND		5.7	0.87	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2,3-Trichloropropane	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
2-Chlorotoluene	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,3,5-Trimethylbenzene	ND		5.7	0.93	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
4-Chlorotoluene	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
t-Butylbenzene	ND		3.4	0.75	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2,4-Trimethylbenzene	ND		5.7	1.4	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
sec-Butylbenzene	ND		3.4	0.77	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1

Client Sample ID: 20-C025783
Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4
Matrix: Solid
Percent Solids: 95.2

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		5.7	1.3	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
4-Isopropyltoluene	ND		2.3	0.46	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,4-Dichlorobenzene	ND		5.7	1.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
n-Butylbenzene	ND		3.4	0.72	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2-Dichlorobenzene	ND		11	1.5	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2-Dibromo-3-Chloropropane	ND		11	1.8	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2,4-Trichlorobenzene	ND		2.3	0.48	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2,3-Trichlorobenzene	ND		3.4	0.69	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Hexachlorobutadiene	ND		3.4	0.69	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Naphthalene	ND		11	2.1	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
Methyl tert-butyl ether	ND		2.3	0.34	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*90*		*80 - 120*	*12/08/20 15:30*	*12/19/20 17:39*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*	*12/08/20 15:30*	*12/19/20 17:39*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*	*12/08/20 15:30*	*12/19/20 17:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 121*	*12/08/20 15:30*	*12/19/20 17:39*	*1*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		160	24	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Bis(2-chloroethyl)ether	ND		100	8.0	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Chlorophenol	ND		210	4.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
1,3-Dichlorobenzene	ND		52	5.0	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
1,4-Dichlorobenzene	ND		52	8.6	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzyl alcohol	ND		1000	52	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
1,2-Dichlorobenzene	ND		52	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Methylphenol	ND		160	10	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
3 & 4 Methylphenol	ND		210	16	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
N-Nitrosodi-n-propylamine	ND		210	23	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Hexachloroethane	ND		160	4.5	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Nitrobenzene	ND		210	21	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Isophorone	ND		160	8.7	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Nitrophenol	ND		210	6.5	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4-Dimethylphenol	ND	F2 F1	210	62	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzoic acid	ND	F1	4200	1300	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Bis(2-chloroethoxy)methane	ND		210	19	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4-Dichlorophenol	ND	F2	210	62	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
1,2,4-Trichlorobenzene	ND		52	6.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Naphthalene	ND		26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Chloroaniline	ND	F1 *-	1600	140	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Hexachlorobutadiene	ND		52	16	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Chloro-3-methylphenol	ND	F2	160	34	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Methylnaphthalene	ND		52	9.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Hexachlorocyclopentadiene	ND	F1	100	8.0	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4,6-Trichlorophenol	ND	F2	160	14	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4,5-Trichlorophenol	ND	F2	210	8.4	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Chloronaphthalene	ND		26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2-Nitroaniline	ND	F2	100	16	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Dimethyl phthalate	ND	F2	160	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1

Client Sample ID: 20-C025783
Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4
Matrix: Solid
Percent Solids: 95.2

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND	F2	26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,6-Dinitrotoluene	ND	F2	160	16	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
3-Nitroaniline	ND	F2	310	100	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Acenaphthene	ND	F2	42	4.8	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4-Dinitrophenol	ND	F1 *-	2100	610	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Nitrophenol	ND		2100	180	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Dibenzofuran	ND	F2	160	6.1	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
2,4-Dinitrotoluene	ND		210	45	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Diethyl phthalate	ND		420	23	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Chlorophenyl phenyl ether	ND	F2	210	6.6	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Fluorene	ND	F2	26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Nitroaniline	ND	F2	160	52	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4,6-Dinitro-2-methylphenol	ND	F2	1000	100	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
N-Nitrosodiphenylamine	ND	F2 F1	62	8.3	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
4-Bromophenyl phenyl ether	ND		210	9.5	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Hexachlorobenzene	ND		52	16	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Pentachlorophenol	ND		420	66	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Phenanthrene	ND		62	6.0	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Anthracene	ND		62	17	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Di-n-butyl phthalate	ND		520	28	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Fluoranthene	ND	F2	42	12	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Pyrene	ND		62	14	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Butyl benzyl phthalate	ND		210	53	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
3,3'-Dichlorobenzidine	ND	F1	420	87	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzo[a]anthracene	ND		42	11	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Chrysene	ND		62	14	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Bis(2-ethylhexyl) phthalate	ND		620	74	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Di-n-octyl phthalate	ND		160	12	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzo[a]pyrene	ND		62	14	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Indeno[1,2,3-cd]pyrene	ND		42	12	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Dibenz(a,h)anthracene	ND		52	12	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzo[g,h,i]perylene	ND	F1 *-	62	19	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Carbazole	ND		160	7.6	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
1-Methylnaphthalene	ND		31	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzo[b]fluoranthene	ND		42	10	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Benzo[k]fluoranthene	ND		62	15	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
bis(chloroisopropyl) ether	ND	F1 *+	210	6.4	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*84*		*47 - 119*	*12/15/20 11:55*	*12/16/20 16:40*	*1*
Phenol-d5 (Surr)	*83*		*59 - 120*	*12/15/20 11:55*	*12/16/20 16:40*	*1*
Nitrobenzene-d5 (Surr)	*94*		*54 - 120*	*12/15/20 11:55*	*12/16/20 16:40*	*1*
2-Fluorobiphenyl	*97*		*57 - 120*	*12/15/20 11:55*	*12/16/20 16:40*	*1*
2,4,6-Tribromophenol (Surr)	*70*		*52 - 115*	*12/15/20 11:55*	*12/16/20 16:40*	*1*
Terphenyl-d14 (Surr)	*94*		*73 - 125*	*12/15/20 11:55*	*12/16/20 16:40*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		14	6.3	mg/Kg	☼	12/10/20 09:15	12/10/20 13:43	1

Client Sample ID: 20-C025783

Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4

Matrix: Solid
Percent Solids: 95.2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*12/10/20 09:15*	*12/10/20 13:43*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg	☼	12/21/20 08:35	12/21/20 23:35	1
Motor Oil (>C24-C36)	**33**	**J**	50	17	mg/Kg	☼	12/21/20 08:35	12/21/20 23:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*12/21/20 08:35*	*12/21/20 23:35*	*1*

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**8.5**		0.42	0.041	mg/Kg	☼	12/17/20 12:22	12/18/20 15:54	10
Cadmium	**0.083**	**J**	0.68	0.065	mg/Kg	☼	12/17/20 12:22	12/18/20 15:54	10
Arsenic	**5.2**		0.42	0.085	mg/Kg	☼	12/17/20 12:22	12/18/20 15:54	10
Chromium	**16**		0.85	0.053	mg/Kg	☼	12/17/20 12:22	12/18/20 15:54	10

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.018**	**J**	0.021	0.0064	mg/Kg	☼	12/14/20 13:46	12/15/20 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**95.2**		0.1	0.1	%			12/09/20 15:39	1
Percent Moisture	**4.8**		0.1	0.1	%			12/09/20 15:39	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-345397/1-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloromethane	ND		5.0	0.93	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromomethane	ND		1.0	0.21	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroethane	ND		10	0.75	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethene	ND		5.0	1.1	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Methylene Chloride	ND		40	9.9	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
2,2-Dichloropropane	ND		5.0	0.33	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,2-Dichloroethene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromochloromethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroform	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloropropene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Benzene	ND		2.0	0.39	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloroethane	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Trichloroethene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloropropane	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromomethane	ND		1.0	0.17	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Toluene	ND		10	1.3	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,3-Dichloropropene	ND		10	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3-Dichloropropane	ND		2.0	0.23	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromochloromethane	ND		1.5	0.27	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chlorobenzene	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Ethylbenzene	ND		2.0	0.41	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1,2-Tetrachloroethane	ND		3.0	0.59	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
m-Xylene & p-Xylene	ND		10	0.56	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
o-Xylene	ND		5.0	0.92	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Styrene	ND		3.0	0.74	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromoform	ND		5.0	0.84	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Isopropylbenzene	ND		2.0	0.46	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromobenzene	ND		10	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
N-Propylbenzene	ND		5.0	0.76	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,3-Trichloropropane	ND		5.0	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
2-Chlorotoluene	ND		5.0	0.93	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3,5-Trimethylbenzene	ND		5.0	0.81	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
4-Chlorotoluene	ND		5.0	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
t-Butylbenzene	ND		3.0	0.66	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,4-Trimethylbenzene	ND		5.0	1.2	ug/Kg		12/11/20 16:40	12/11/20 20:46	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-345397/1-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		3.0	0.67	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3-Dichlorobenzene	ND		5.0	1.1	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
4-Isopropyltoluene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,4-Dichlorobenzene	ND		5.0	0.98	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
n-Butylbenzene	ND		3.0	0.63	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichlorobenzene	ND		10	1.3	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dibromo-3-Chloropropane	ND		10	1.6	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,3-Trichlorobenzene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Hexachlorobutadiene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Naphthalene	1.85	J	10	1.8	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	88		80 - 120	12/11/20 16:40	12/11/20 20:46	1
4-Bromofluorobenzene (Surr)	96		80 - 120	12/11/20 16:40	12/11/20 20:46	1
Dibromofluoromethane (Surr)	103		80 - 120	12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloroethane-d4 (Surr)	111		80 - 121	12/11/20 16:40	12/11/20 20:46	1

Lab Sample ID: LCS 580-345397/2-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	20.0	35.0	*+	ug/Kg		175	24 - 150
Chloromethane	20.0	27.8		ug/Kg		139	52 - 150
Vinyl chloride	20.0	24.3		ug/Kg		122	54 - 150
Bromomethane	20.0	26.6		ug/Kg		133	42 - 150
Chloroethane	20.0	24.0		ug/Kg		120	50 - 150
Trichlorofluoromethane	20.0	22.8		ug/Kg		114	71 - 150
1,1-Dichloroethene	20.0	25.4		ug/Kg		127	73 - 143
Methylene Chloride	20.0	22.9	J	ug/Kg		114	66 - 140
trans-1,2-Dichloroethene	20.0	21.6		ug/Kg		108	77 - 134
1,1-Dichloroethane	20.0	21.9		ug/Kg		110	78 - 135
2,2-Dichloropropane	20.0	22.0		ug/Kg		110	62 - 150
cis-1,2-Dichloroethene	20.0	22.2		ug/Kg		111	68 - 132
Bromochloromethane	20.0	23.0		ug/Kg		115	76 - 131
Chloroform	20.0	20.7		ug/Kg		103	74 - 133
1,1,1-Trichloroethane	20.0	21.3		ug/Kg		106	78 - 144
Carbon tetrachloride	20.0	22.4		ug/Kg		112	66 - 150
1,1-Dichloropropene	20.0	20.9		ug/Kg		104	76 - 140
Benzene	20.0	21.8		ug/Kg		109	79 - 135
1,2-Dichloroethane	20.0	22.4		ug/Kg		112	76 - 132
Trichloroethene	20.0	21.7		ug/Kg		109	80 - 134
1,2-Dichloropropane	20.0	22.0		ug/Kg		110	65 - 136
Dibromomethane	20.0	23.5		ug/Kg		118	72 - 130
Bromodichloromethane	20.0	20.3		ug/Kg		102	73 - 125
cis-1,3-Dichloropropene	20.0	18.5		ug/Kg		93	80 - 122

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-345397/2-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	20.0	18.2		ug/Kg		91	75 - 137
trans-1,3-Dichloropropene	20.0	18.3		ug/Kg		91	80 - 121
1,1,2-Trichloroethane	20.0	20.1		ug/Kg		101	80 - 123
Tetrachloroethene	20.0	17.3		ug/Kg		87	58 - 150
1,3-Dichloropropane	20.0	19.3		ug/Kg		96	75 - 120
Dibromochloromethane	20.0	18.8		ug/Kg		94	75 - 132
1,2-Dibromoethane	20.0	20.6		ug/Kg		103	77 - 123
Chlorobenzene	20.0	18.3		ug/Kg		91	80 - 131
Ethylbenzene	20.0	19.6		ug/Kg		98	80 - 135
1,1,1,2-Tetrachloroethane	20.0	18.4		ug/Kg		92	79 - 128
1,1,2,2-Tetrachloroethane	20.0	19.3		ug/Kg		97	77 - 127
m-Xylene & p-Xylene	20.0	17.1		ug/Kg		86	80 - 132
o-Xylene	20.0	19.1		ug/Kg		95	80 - 132
Styrene	20.0	18.4		ug/Kg		92	79 - 129
Bromoform	20.0	19.0		ug/Kg		95	71 - 146
Isopropylbenzene	20.0	18.9		ug/Kg		94	81 - 140
Bromobenzene	20.0	19.2		ug/Kg		96	78 - 126
N-Propylbenzene	20.0	17.8		ug/Kg		89	68 - 149
1,2,3-Trichloropropane	20.0	19.7		ug/Kg		98	77 - 127
2-Chlorotoluene	20.0	16.6		ug/Kg		83	77 - 134
1,3,5-Trimethylbenzene	20.0	17.8		ug/Kg		89	72 - 142
4-Chlorotoluene	20.0	16.8		ug/Kg		84	71 - 137
t-Butylbenzene	20.0	17.4		ug/Kg		87	72 - 144
1,2,4-Trimethylbenzene	20.0	17.8		ug/Kg		89	73 - 138
sec-Butylbenzene	20.0	18.0		ug/Kg		90	71 - 143
1,3-Dichlorobenzene	20.0	18.3		ug/Kg		91	78 - 132
4-Isopropyltoluene	20.0	17.8		ug/Kg		89	71 - 142
1,4-Dichlorobenzene	20.0	18.4		ug/Kg		92	77 - 123
n-Butylbenzene	20.0	16.8		ug/Kg		84	69 - 143
1,2-Dichlorobenzene	20.0	18.5		ug/Kg		93	78 - 126
1,2-Dibromo-3-Chloropropane	20.0	20.1		ug/Kg		100	75 - 129
1,2,4-Trichlorobenzene	20.0	20.0		ug/Kg		100	74 - 131
1,2,3-Trichlorobenzene	20.0	19.5		ug/Kg		97	68 - 136
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150
Naphthalene	20.0	21.5		ug/Kg		107	64 - 136
Methyl tert-butyl ether	20.0	24.0		ug/Kg		120	77 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 121*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-345397/3-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dichlorodifluoromethane	20.0	42.0	*+	ug/Kg		210	24 - 150	18	40
Chloromethane	20.0	28.9		ug/Kg		144	52 - 150	4	26
Vinyl chloride	20.0	27.8		ug/Kg		139	54 - 150	13	40
Bromomethane	20.0	27.0		ug/Kg		135	42 - 150	2	40
Chloroethane	20.0	25.4		ug/Kg		127	50 - 150	6	31
Trichlorofluoromethane	20.0	23.4		ug/Kg		117	71 - 150	3	36
1,1-Dichloroethene	20.0	25.8		ug/Kg		129	73 - 143	2	34
Methylene Chloride	20.0	24.7	J	ug/Kg		124	66 - 140	8	30
trans-1,2-Dichloroethene	20.0	21.2		ug/Kg		106	77 - 134	2	33
1,1-Dichloroethane	20.0	22.3		ug/Kg		112	78 - 135	2	31
2,2-Dichloropropane	20.0	22.7		ug/Kg		113	62 - 150	3	40
cis-1,2-Dichloroethene	20.0	22.2		ug/Kg		111	68 - 132	0	32
Bromochloromethane	20.0	23.6		ug/Kg		118	76 - 131	3	28
Chloroform	20.0	21.0		ug/Kg		105	74 - 133	1	36
1,1,1-Trichloroethane	20.0	21.9		ug/Kg		109	78 - 144	3	38
Carbon tetrachloride	20.0	22.7		ug/Kg		114	66 - 150	1	39
1,1-Dichloropropene	20.0	21.3		ug/Kg		106	76 - 140	2	38
Benzene	20.0	22.8		ug/Kg		114	79 - 135	4	31
1,2-Dichloroethane	20.0	23.2		ug/Kg		116	76 - 132	4	29
Trichloroethene	20.0	21.7		ug/Kg		108	80 - 134	0	40
1,2-Dichloropropane	20.0	23.4		ug/Kg		117	65 - 136	6	37
Dibromomethane	20.0	23.8		ug/Kg		119	72 - 130	1	34
Bromodichloromethane	20.0	20.8		ug/Kg		104	73 - 125	2	40
cis-1,3-Dichloropropene	20.0	19.1		ug/Kg		96	80 - 122	3	40
Toluene	20.0	19.0		ug/Kg		95	75 - 137	4	34
trans-1,3-Dichloropropene	20.0	19.0		ug/Kg		95	80 - 121	4	40
1,1,2-Trichloroethane	20.0	20.2		ug/Kg		101	80 - 123	1	39
Tetrachloroethene	20.0	17.5		ug/Kg		87	58 - 150	1	40
1,3-Dichloropropane	20.0	20.1		ug/Kg		101	75 - 120	4	37
Dibromochloromethane	20.0	19.1		ug/Kg		96	75 - 132	2	40
1,2-Dibromoethane	20.0	21.5		ug/Kg		107	77 - 123	4	37
Chlorobenzene	20.0	19.0		ug/Kg		95	80 - 131	4	40
Ethylbenzene	20.0	20.5		ug/Kg		103	80 - 135	5	37
1,1,1,2-Tetrachloroethane	20.0	18.9		ug/Kg		95	79 - 128	3	40
1,1,2,2-Tetrachloroethane	20.0	19.5		ug/Kg		97	77 - 127	1	40
m-Xylene & p-Xylene	20.0	17.6		ug/Kg		88	80 - 132	3	38
o-Xylene	20.0	20.0		ug/Kg		100	80 - 132	5	39
Styrene	20.0	19.0		ug/Kg		95	79 - 129	3	40
Bromoform	20.0	18.4		ug/Kg		92	71 - 146	3	40
Isopropylbenzene	20.0	19.2		ug/Kg		96	81 - 140	2	40
Bromobenzene	20.0	19.6		ug/Kg		98	78 - 126	2	40
N-Propylbenzene	20.0	18.6		ug/Kg		93	68 - 149	4	40
1,2,3-Trichloropropane	20.0	19.0		ug/Kg		95	77 - 127	3	40
2-Chlorotoluene	20.0	17.8		ug/Kg		89	77 - 134	7	40
1,3,5-Trimethylbenzene	20.0	18.4		ug/Kg		92	72 - 142	3	40
4-Chlorotoluene	20.0	17.3		ug/Kg		87	71 - 137	3	40
t-Butylbenzene	20.0	18.0		ug/Kg		90	72 - 144	3	40
1,2,4-Trimethylbenzene	20.0	18.7		ug/Kg		94	73 - 138	5	40

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-345397/3-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene	20.0	18.5		ug/Kg		93	71 - 143	3	40
1,3-Dichlorobenzene	20.0	19.2		ug/Kg		96	78 - 132	5	40
4-Isopropyltoluene	20.0	18.6		ug/Kg		93	71 - 142	5	40
1,4-Dichlorobenzene	20.0	19.3		ug/Kg		96	77 - 123	4	40
n-Butylbenzene	20.0	17.7		ug/Kg		88	69 - 143	6	40
1,2-Dichlorobenzene	20.0	19.4		ug/Kg		97	78 - 126	4	40
1,2-Dibromo-3-Chloropropane	20.0	19.0		ug/Kg		95	75 - 129	5	40
1,2,4-Trichlorobenzene	20.0	20.4		ug/Kg		102	74 - 131	2	40
1,2,3-Trichlorobenzene	20.0	19.3		ug/Kg		97	68 - 136	1	40
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150	0	36
Naphthalene	20.0	20.8		ug/Kg		104	64 - 136	3	40
Methyl tert-butyl ether	20.0	25.0		ug/Kg		125	77 - 132	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 121*

Lab Sample ID: MB 580-346011/1-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346011

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chloromethane	ND		5.0	0.93	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromomethane	ND		1.0	0.21	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chloroethane	ND		10	0.75	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloroethene	ND		5.0	1.1	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Methylene Chloride	ND		40	9.9	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
2,2-Dichloropropane	ND		5.0	0.33	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
cis-1,2-Dichloroethene	ND		3.0	0.60	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromochloromethane	ND		2.0	0.25	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chloroform	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloropropene	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Benzene	ND		2.0	0.39	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dichloroethane	ND		1.0	0.20	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Trichloroethene	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dichloropropane	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Dibromomethane	ND		1.0	0.17	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		12/19/20 15:29	12/19/20 16:47	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-346011/1-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346011

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		10	1.3	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
trans-1,3-Dichloropropene	ND		10	0.60	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,3-Dichloropropane	ND		2.0	0.23	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Dibromochloromethane	ND		1.5	0.27	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chlorobenzene	ND		2.0	0.25	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Ethylbenzene	ND		2.0	0.41	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1,1,2-Tetrachloroethane	ND		3.0	0.59	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
m-Xylene & p-Xylene	ND		10	0.56	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
o-Xylene	ND		5.0	0.92	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Styrene	ND		3.0	0.74	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromoform	ND		5.0	0.84	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Isopropylbenzene	ND		2.0	0.46	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromobenzene	ND		10	1.0	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
N-Propylbenzene	ND		5.0	0.76	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2,3-Trichloropropane	ND		5.0	1.0	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
2-Chlorotoluene	ND		5.0	0.93	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,3,5-Trimethylbenzene	ND		5.0	0.81	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
4-Chlorotoluene	ND		5.0	1.0	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
t-Butylbenzene	ND		3.0	0.66	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2,4-Trimethylbenzene	ND		5.0	1.2	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
sec-Butylbenzene	ND		3.0	0.67	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,3-Dichlorobenzene	ND		5.0	1.1	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
4-Isopropyltoluene	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,4-Dichlorobenzene	ND		5.0	0.98	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
n-Butylbenzene	ND		3.0	0.63	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dichlorobenzene	ND		10	1.3	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dibromo-3-Chloropropane	ND		10	1.6	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2,3-Trichlorobenzene	ND		3.0	0.60	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Hexachlorobutadiene	ND		3.0	0.60	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Naphthalene	ND		10	1.8	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*80 - 120*	*12/19/20 15:29*	*12/19/20 16:47*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*	*12/19/20 15:29*	*12/19/20 16:47*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*	*12/19/20 15:29*	*12/19/20 16:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 121*	*12/19/20 15:29*	*12/19/20 16:47*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-346011/2-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346011

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	20.0	25.3		ug/Kg		127	24 - 150
Chloromethane	20.0	23.6		ug/Kg		118	52 - 150
Vinyl chloride	20.0	21.0		ug/Kg		105	54 - 150
Bromomethane	20.0	20.1		ug/Kg		101	42 - 150
Chloroethane	20.0	24.0		ug/Kg		120	50 - 150
Trichlorofluoromethane	20.0	21.4		ug/Kg		107	71 - 150
1,1-Dichloroethene	20.0	23.0		ug/Kg		115	73 - 143
Methylene Chloride	20.0	14.9	J	ug/Kg		75	66 - 140
trans-1,2-Dichloroethene	20.0	19.1		ug/Kg		95	77 - 134
1,1-Dichloroethane	20.0	20.5		ug/Kg		103	78 - 135
2,2-Dichloropropane	20.0	20.1		ug/Kg		101	62 - 150
cis-1,2-Dichloroethene	20.0	20.0		ug/Kg		100	68 - 132
Bromochloromethane	20.0	20.8		ug/Kg		104	76 - 131
Chloroform	20.0	18.5		ug/Kg		93	74 - 133
1,1,1-Trichloroethane	20.0	20.0		ug/Kg		100	78 - 144
Carbon tetrachloride	20.0	21.3		ug/Kg		106	66 - 150
1,1-Dichloropropene	20.0	20.3		ug/Kg		102	76 - 140
Benzene	20.0	20.1		ug/Kg		100	79 - 135
1,2-Dichloroethane	20.0	19.4		ug/Kg		97	76 - 132
Trichloroethene	20.0	19.9		ug/Kg		99	80 - 134
1,2-Dichloropropane	20.0	19.9		ug/Kg		100	65 - 136
Dibromomethane	20.0	20.5		ug/Kg		103	72 - 130
Bromodichloromethane	20.0	18.3		ug/Kg		91	73 - 125
cis-1,3-Dichloropropene	20.0	16.3		ug/Kg		82	80 - 122
Toluene	20.0	17.3		ug/Kg		87	75 - 137
trans-1,3-Dichloropropene	20.0	16.5		ug/Kg		82	80 - 121
1,1,2-Trichloroethane	20.0	16.9		ug/Kg		84	80 - 123
Tetrachloroethene	20.0	16.8		ug/Kg		84	58 - 150
1,3-Dichloropropane	20.0	17.1		ug/Kg		86	75 - 120
Dibromochloromethane	20.0	16.4		ug/Kg		82	75 - 132
1,2-Dibromoethane	20.0	18.1		ug/Kg		91	77 - 123
Chlorobenzene	20.0	16.7		ug/Kg		84	80 - 131
Ethylbenzene	20.0	17.7		ug/Kg		88	80 - 135
1,1,1,2-Tetrachloroethane	20.0	16.4		ug/Kg		82	79 - 128
1,1,2,2-Tetrachloroethane	20.0	16.3		ug/Kg		81	77 - 127
m-Xylene & p-Xylene	20.0	15.6	*-	ug/Kg		78	80 - 132
o-Xylene	20.0	17.4		ug/Kg		87	80 - 132
Styrene	20.0	16.6		ug/Kg		83	79 - 129
Bromoform	20.0	15.5		ug/Kg		78	71 - 146
Isopropylbenzene	20.0	16.9		ug/Kg		85	81 - 140
Bromobenzene	20.0	16.3		ug/Kg		81	78 - 126
N-Propylbenzene	20.0	16.0		ug/Kg		80	68 - 149
1,2,3-Trichloropropane	20.0	16.1		ug/Kg		80	77 - 127
2-Chlorotoluene	20.0	15.3		ug/Kg		77	77 - 134
1,3,5-Trimethylbenzene	20.0	15.7		ug/Kg		78	72 - 142
4-Chlorotoluene	20.0	15.3		ug/Kg		77	71 - 137
t-Butylbenzene	20.0	15.4		ug/Kg		77	72 - 144
1,2,4-Trimethylbenzene	20.0	16.0		ug/Kg		80	73 - 138

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-346011/2-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346011

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
sec-Butylbenzene	20.0	15.6		ug/Kg		78	71 - 143
1,3-Dichlorobenzene	20.0	16.1		ug/Kg		81	78 - 132
4-Isopropyltoluene	20.0	15.4		ug/Kg		77	71 - 142
1,4-Dichlorobenzene	20.0	15.8		ug/Kg		79	77 - 123
n-Butylbenzene	20.0	14.4		ug/Kg		72	69 - 143
1,2-Dichlorobenzene	20.0	16.2		ug/Kg		81	78 - 126
1,2-Dibromo-3-Chloropropane	20.0	15.8		ug/Kg		79	75 - 129
1,2,4-Trichlorobenzene	20.0	16.9		ug/Kg		85	74 - 131
1,2,3-Trichlorobenzene	20.0	16.6		ug/Kg		83	68 - 136
Hexachlorobutadiene	20.0	14.5		ug/Kg		73	65 - 150
Naphthalene	20.0	18.1		ug/Kg		90	64 - 136
Methyl tert-butyl ether	20.0	21.0		ug/Kg		105	77 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*88*		*80 - 120*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 121*

Lab Sample ID: LCSD 580-346011/3-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 346011

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dichlorodifluoromethane	20.0	24.5		ug/Kg		122	24 - 150	4	40
Chloromethane	20.0	24.7		ug/Kg		123	52 - 150	5	26
Vinyl chloride	20.0	24.3		ug/Kg		121	54 - 150	15	40
Bromomethane	20.0	22.0		ug/Kg		110	42 - 150	9	40
Chloroethane	20.0	21.5		ug/Kg		107	50 - 150	11	31
Trichlorofluoromethane	20.0	19.5		ug/Kg		97	71 - 150	10	36
1,1-Dichloroethene	20.0	22.2		ug/Kg		111	73 - 143	4	34
Methylene Chloride	20.0	21.3	J *1	ug/Kg		106	66 - 140	35	30
trans-1,2-Dichloroethene	20.0	19.5		ug/Kg		98	77 - 134	2	33
1,1-Dichloroethane	20.0	21.2		ug/Kg		106	78 - 135	3	31
2,2-Dichloropropane	20.0	20.7		ug/Kg		104	62 - 150	3	40
cis-1,2-Dichloroethene	20.0	20.8		ug/Kg		104	68 - 132	4	32
Bromochloromethane	20.0	21.2		ug/Kg		106	76 - 131	2	28
Chloroform	20.0	19.4		ug/Kg		97	74 - 133	5	36
1,1,1-Trichloroethane	20.0	20.1		ug/Kg		101	78 - 144	1	38
Carbon tetrachloride	20.0	21.7		ug/Kg		109	66 - 150	2	39
1,1-Dichloropropene	20.0	20.1		ug/Kg		101	76 - 140	1	38
Benzene	20.0	20.5		ug/Kg		102	79 - 135	2	31
1,2-Dichloroethane	20.0	20.3		ug/Kg		101	76 - 132	5	29
Trichloroethene	20.0	19.5		ug/Kg		97	80 - 134	2	40
1,2-Dichloropropane	20.0	20.8		ug/Kg		104	65 - 136	4	37
Dibromomethane	20.0	21.1		ug/Kg		106	72 - 130	3	34
Bromodichloromethane	20.0	18.6		ug/Kg		93	73 - 125	2	40
cis-1,3-Dichloropropene	20.0	16.2		ug/Kg		81	80 - 122	1	40

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-346011/3-A
Matrix: Solid
Analysis Batch: 346000

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 346011

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	20.0	16.7		ug/Kg		83	75 - 137	4	34
trans-1,3-Dichloropropene	20.0	16.4		ug/Kg		82	80 - 121	0	40
1,1,2-Trichloroethane	20.0	17.3		ug/Kg		86	80 - 123	2	39
Tetrachloroethene	20.0	15.4		ug/Kg		77	58 - 150	8	40
1,3-Dichloropropane	20.0	17.7		ug/Kg		89	75 - 120	3	37
Dibromochloromethane	20.0	16.9		ug/Kg		85	75 - 132	4	40
1,2-Dibromoethane	20.0	18.0		ug/Kg		90	77 - 123	1	37
Chlorobenzene	20.0	16.7		ug/Kg		84	80 - 131	0	40
Ethylbenzene	20.0	18.0		ug/Kg		90	80 - 135	2	37
1,1,1,2-Tetrachloroethane	20.0	16.2		ug/Kg		81	79 - 128	1	40
1,1,2,2-Tetrachloroethane	20.0	17.1		ug/Kg		86	77 - 127	5	40
m-Xylene & p-Xylene	20.0	15.5	*-	ug/Kg		77	80 - 132	1	38
o-Xylene	20.0	17.0		ug/Kg		85	80 - 132	2	39
Styrene	20.0	16.6		ug/Kg		83	79 - 129	0	40
Bromoform	20.0	15.9		ug/Kg		79	71 - 146	2	40
Isopropylbenzene	20.0	17.1		ug/Kg		86	81 - 140	1	40
Bromobenzene	20.0	16.8		ug/Kg		84	78 - 126	3	40
N-Propylbenzene	20.0	16.6		ug/Kg		83	68 - 149	3	40
1,2,3-Trichloropropane	20.0	17.5		ug/Kg		88	77 - 127	9	40
2-Chlorotoluene	20.0	16.5		ug/Kg		82	77 - 134	7	40
1,3,5-Trimethylbenzene	20.0	16.4		ug/Kg		82	72 - 142	5	40
4-Chlorotoluene	20.0	16.0		ug/Kg		80	71 - 137	4	40
t-Butylbenzene	20.0	15.9		ug/Kg		80	72 - 144	3	40
1,2,4-Trimethylbenzene	20.0	16.6		ug/Kg		83	73 - 138	4	40
sec-Butylbenzene	20.0	16.7		ug/Kg		84	71 - 143	7	40
1,3-Dichlorobenzene	20.0	16.4		ug/Kg		82	78 - 132	2	40
4-Isopropyltoluene	20.0	16.5		ug/Kg		82	71 - 142	7	40
1,4-Dichlorobenzene	20.0	16.4		ug/Kg		82	77 - 123	4	40
n-Butylbenzene	20.0	15.4		ug/Kg		77	69 - 143	7	40
1,2-Dichlorobenzene	20.0	16.4		ug/Kg		82	78 - 126	1	40
1,2-Dibromo-3-Chloropropane	20.0	17.4		ug/Kg		87	75 - 129	10	40
1,2,4-Trichlorobenzene	20.0	17.6		ug/Kg		88	74 - 131	4	40
1,2,3-Trichlorobenzene	20.0	16.5		ug/Kg		82	68 - 136	0	40
Hexachlorobutadiene	20.0	15.3		ug/Kg		76	65 - 150	5	36
Naphthalene	20.0	17.6		ug/Kg		88	64 - 136	3	40
Methyl tert-butyl ether	20.0	21.4		ug/Kg		107	77 - 132	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 121*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-345599/1-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345599

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		150	23	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethyl)ether	ND		100	7.7	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Chlorophenol	ND		200	4.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,3-Dichlorobenzene	ND		50	4.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,4-Dichlorobenzene	ND		50	8.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzyl alcohol	ND		1000	50	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2-Dichlorobenzene	ND		50	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Methylphenol	ND		150	9.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3 & 4 Methylphenol	ND		200	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
N-Nitrosodi-n-propylamine	ND		200	22	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachloroethane	ND		150	4.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Nitrobenzene	ND		200	20	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Isophorone	ND		150	8.4	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Nitrophenol	ND		200	6.2	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dimethylphenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzoic acid	ND		4000	1200	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethoxy)methane	ND		200	18	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dichlorophenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2,4-Trichlorobenzene	ND		50	6.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Naphthalene	34.8		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloroaniline	ND		1500	130	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorobutadiene	ND		50	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloro-3-methylphenol	ND		150	33	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Methylnaphthalene	13.9	J	50	8.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorocyclopentadiene	ND		100	7.7	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4,6-Trichlorophenol	ND		150	13	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4,5-Trichlorophenol	ND		200	8.1	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Chloronaphthalene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Nitroaniline	ND		100	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Dimethyl phthalate	ND		150	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Acenaphthylene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,6-Dinitrotoluene	ND		150	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3-Nitroaniline	ND		300	100	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Acenaphthene	9.31	J	40	4.6	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dinitrophenol	ND		2000	590	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Nitrophenol	ND		2000	170	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Dibenzofuran	ND		150	5.9	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dinitrotoluene	ND		200	43	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Diethyl phthalate	ND		400	22	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chlorophenyl phenyl ether	ND		200	6.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Fluorene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Nitroaniline	ND		150	50	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4,6-Dinitro-2-methylphenol	ND		1000	100	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
N-Nitrosodiphenylamine	ND		60	8.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Bromophenyl phenyl ether	ND		200	9.1	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorobenzene	ND		50	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Pentachlorophenol	ND		400	63	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Phenanthrene	11.3	J	60	5.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-345599/1-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345599

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		60	16	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Di-n-butyl phthalate	ND		500	27	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Fluoranthene	ND		40	12	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Pyrene	ND		60	13	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Butyl benzyl phthalate	ND		200	51	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3,3'-Dichlorobenzidine	ND		400	84	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzo[a]anthracene	ND		40	11	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Chrysene	ND		60	13	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-ethylhexyl) phthalate	ND		600	71	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Di-n-octyl phthalate	ND		150	12	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzo[a]pyrene	ND		60	13	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Indeno[1,2,3-cd]pyrene	ND		40	12	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Dibenz(a,h)anthracene	ND		50	12	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzo[g,h,i]perylene	ND		60	18	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Carbazole	ND		150	7.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1-Methylnaphthalene	7.21	J	30	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzo[b]fluoranthene	ND		40	10	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzo[k]fluoranthene	ND		60	14	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
bis(chloroisopropyl) ether	ND		200	6.1	ug/Kg		12/15/20 11:55	12/16/20 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*88*		*47 - 119*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
Phenol-d5 (Surr)	*84*		*59 - 120*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
Nitrobenzene-d5 (Surr)	*97*		*54 - 120*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
2-Fluorobiphenyl	*106*		*57 - 120*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
2,4,6-Tribromophenol (Surr)	*53*		*52 - 115*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
Terphenyl-d14 (Surr)	*115*		*73 - 125*	*12/15/20 11:55*	*12/16/20 14:46*	*1*

Lab Sample ID: LCS 580-345599/2-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	1000	858		ug/Kg		86	59 - 120
Bis(2-chloroethyl)ether	1000	1020		ug/Kg		102	61 - 120
2-Chlorophenol	1000	889		ug/Kg		89	66 - 120
1,3-Dichlorobenzene	1000	881		ug/Kg		88	57 - 120
1,4-Dichlorobenzene	1000	852		ug/Kg		85	57 - 120
Benzyl alcohol	1000	968	J	ug/Kg		97	10 - 134
1,2-Dichlorobenzene	1000	856		ug/Kg		86	62 - 120
2-Methylphenol	1000	780		ug/Kg		78	53 - 120
3 & 4 Methylphenol	1000	807		ug/Kg		81	54 - 120
N-Nitrosodi-n-propylamine	1000	995		ug/Kg		100	56 - 138
Hexachloroethane	1000	881		ug/Kg		88	57 - 132
Nitrobenzene	1000	1020		ug/Kg		102	57 - 128
Isophorone	1000	1010		ug/Kg		101	61 - 128
2-Nitrophenol	1000	993		ug/Kg		99	49 - 123
2,4-Dimethylphenol	1000	747		ug/Kg		75	31 - 129

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-345599/2-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzoic acid	2000	ND		ug/Kg		22	10 - 120
Bis(2-chloroethoxy)methane	1000	975		ug/Kg		97	60 - 120
2,4-Dichlorophenol	1000	933		ug/Kg		93	63 - 120
1,2,4-Trichlorobenzene	1000	977		ug/Kg		98	66 - 120
Naphthalene	1000	954		ug/Kg		95	68 - 120
4-Chloroaniline	1000	ND	*-	ug/Kg		7	10 - 120
Hexachlorobutadiene	1000	924		ug/Kg		92	64 - 130
4-Chloro-3-methylphenol	1000	1170		ug/Kg		117	55 - 120
2-Methylnaphthalene	1000	945		ug/Kg		95	70 - 120
Hexachlorocyclopentadiene	1000	618		ug/Kg		62	53 - 131
2,4,6-Trichlorophenol	1000	989		ug/Kg		99	37 - 120
2,4,5-Trichlorophenol	1000	781		ug/Kg		78	41 - 120
2-Chloronaphthalene	1000	1100		ug/Kg		110	65 - 120
2-Nitroaniline	1000	1080		ug/Kg		108	54 - 126
Dimethyl phthalate	1000	1070		ug/Kg		107	71 - 120
Acenaphthylene	1000	1080		ug/Kg		108	63 - 120
2,6-Dinitrotoluene	1000	1060		ug/Kg		106	70 - 126
3-Nitroaniline	1000	465		ug/Kg		47	34 - 120
Acenaphthene	1000	1110		ug/Kg		111	64 - 120
2,4-Dinitrophenol	2000	ND	*-	ug/Kg		7	10 - 139
4-Nitrophenol	2000	1780	J	ug/Kg		89	10 - 140
Dibenzofuran	1000	1110		ug/Kg		111	68 - 120
2,4-Dinitrotoluene	1000	1040		ug/Kg		104	63 - 120
Diethyl phthalate	1000	1060		ug/Kg		106	66 - 135
4-Chlorophenyl phenyl ether	1000	1100		ug/Kg		110	70 - 120
Fluorene	1000	1060		ug/Kg		106	68 - 121
4-Nitroaniline	1000	1030		ug/Kg		103	36 - 141
4,6-Dinitro-2-methylphenol	2000	835	J	ug/Kg		42	13 - 141
N-Nitrosodiphenylamine	1000	961		ug/Kg		96	67 - 128
4-Bromophenyl phenyl ether	1000	1010		ug/Kg		101	65 - 127
Hexachlorobenzene	1000	905		ug/Kg		91	65 - 126
Pentachlorophenol	2000	854		ug/Kg		43	10 - 120
Phenanthrene	1000	922		ug/Kg		92	68 - 126
Anthracene	1000	944		ug/Kg		94	67 - 131
Di-n-butyl phthalate	1000	980		ug/Kg		98	66 - 150
Fluoranthene	1000	976		ug/Kg		98	69 - 133
Pyrene	1000	968		ug/Kg		97	68 - 141
Butyl benzyl phthalate	1000	997		ug/Kg		100	58 - 150
3,3'-Dichlorobenzidine	2000	1460		ug/Kg		73	49 - 148
Benzo[a]anthracene	1000	977		ug/Kg		98	60 - 135
Chrysene	1000	1010		ug/Kg		101	69 - 127
Bis(2-ethylhexyl) phthalate	1000	997		ug/Kg		100	45 - 150
Di-n-octyl phthalate	1000	1160		ug/Kg		116	53 - 150
Benzo[a]pyrene	1000	952		ug/Kg		95	62 - 129
Indeno[1,2,3-cd]pyrene	1000	525		ug/Kg		52	52 - 146
Dibenz(a,h)anthracene	1000	629		ug/Kg		63	59 - 139
Benzo[g,h,i]perylene	1000	488	*-	ug/Kg		49	64 - 146
Carbazole	1000	1130		ug/Kg		113	43 - 150
1-Methylnaphthalene	1000	982		ug/Kg		98	69 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-345599/2-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[b]fluoranthene	1000	1070		ug/Kg		107	58 - 136
Benzo[k]fluoranthene	1000	1090		ug/Kg		109	68 - 123
bis(chloroisopropyl) ether	1000	1240	*+	ug/Kg		124	55 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*91*		*47 - 119*
Phenol-d5 (Surr)	*89*		*59 - 120*
Nitrobenzene-d5 (Surr)	*105*		*54 - 120*
2-Fluorobiphenyl	*104*		*57 - 120*
2,4,6-Tribromophenol (Surr)	*82*		*52 - 115*
Terphenyl-d14 (Surr)	*92*		*73 - 125*

Lab Sample ID: 580-99593-4 MS
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: 20-C025783
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	ND		1050	917		ug/Kg	☼	88	59 - 120
Bis(2-chloroethyl)ether	ND		1050	1090		ug/Kg	☼	104	61 - 120
2-Chlorophenol	ND		1050	1010		ug/Kg	☼	96	66 - 120
1,3-Dichlorobenzene	ND		1050	946		ug/Kg	☼	90	57 - 120
1,4-Dichlorobenzene	ND		1050	952		ug/Kg	☼	91	57 - 120
Benzyl alcohol	ND		1050	1080		ug/Kg	☼	104	10 - 134
1,2-Dichlorobenzene	ND		1050	964		ug/Kg	☼	92	62 - 120
2-Methylphenol	ND		1050	882		ug/Kg	☼	84	53 - 120
3 & 4 Methylphenol	ND		1050	863		ug/Kg	☼	83	54 - 120
N-Nitrosodi-n-propylamine	ND		1050	1190		ug/Kg	☼	114	56 - 138
Hexachloroethane	ND		1050	938		ug/Kg	☼	90	57 - 132
Nitrobenzene	ND		1050	1130		ug/Kg	☼	108	57 - 128
Isophorone	ND		1050	1110		ug/Kg	☼	106	61 - 128
2-Nitrophenol	ND		1050	1020		ug/Kg	☼	98	49 - 123
2,4-Dimethylphenol	ND	F2 F1	1050	889		ug/Kg	☼	85	31 - 129
Benzoic acid	ND	F1	2090	ND	F1	ug/Kg	☼	0	10 - 120
Bis(2-chloroethoxy)methane	ND		1050	1060		ug/Kg	☼	101	60 - 120
2,4-Dichlorophenol	ND	F2	1050	1040		ug/Kg	☼	99	63 - 120
1,2,4-Trichlorobenzene	ND		1050	1040		ug/Kg	☼	99	66 - 120
Naphthalene	ND		1050	985		ug/Kg	☼	94	68 - 120
4-Chloroaniline	ND	F1 *-	1050	ND	F1	ug/Kg	☼	0	10 - 120
Hexachlorobutadiene	ND		1050	994		ug/Kg	☼	95	64 - 130
4-Chloro-3-methylphenol	ND	F2	1050	1230		ug/Kg	☼	118	55 - 120
2-Methylnaphthalene	ND		1050	1050		ug/Kg	☼	100	70 - 120
Hexachlorocyclopentadiene	ND	F1	1050	437	F1	ug/Kg	☼	42	53 - 131
2,4,6-Trichlorophenol	ND	F2	1050	1080		ug/Kg	☼	104	37 - 120
2,4,5-Trichlorophenol	ND	F2	1050	870		ug/Kg	☼	83	41 - 120
2-Chloronaphthalene	ND		1050	1120		ug/Kg	☼	107	65 - 120
2-Nitroaniline	ND	F2	1050	1110		ug/Kg	☼	106	54 - 126
Dimethyl phthalate	ND	F2	1050	1060		ug/Kg	☼	101	71 - 120
Acenaphthylene	ND	F2	1050	1090		ug/Kg	☼	104	63 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-4 MS
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: 20-C025783
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2,6-Dinitrotoluene	ND	F2	1050	1100		ug/Kg	☼	105	70 - 126
3-Nitroaniline	ND	F2	1050	600		ug/Kg	☼	57	34 - 120
Acenaphthene	ND	F2	1050	1110		ug/Kg	☼	106	64 - 120
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	☼	0	10 - 139
4-Nitrophenol	ND		2090	1870	J	ug/Kg	☼	90	10 - 140
Dibenzofuran	ND	F2	1050	1110		ug/Kg	☼	106	68 - 120
2,4-Dinitrotoluene	ND		1050	1040		ug/Kg	☼	100	63 - 120
Diethyl phthalate	ND		1050	1080		ug/Kg	☼	103	66 - 135
4-Chlorophenyl phenyl ether	ND	F2	1050	1120		ug/Kg	☼	107	70 - 120
Fluorene	ND	F2	1050	1070		ug/Kg	☼	103	68 - 121
4-Nitroaniline	ND	F2	1050	978		ug/Kg	☼	94	36 - 141
4,6-Dinitro-2-methylphenol	ND	F2	2090	292	J	ug/Kg	☼	14	13 - 141
N-Nitrosodiphenylamine	ND	F2 F1	1050	1070		ug/Kg	☼	102	67 - 128
4-Bromophenyl phenyl ether	ND		1050	1130		ug/Kg	☼	108	65 - 127
Hexachlorobenzene	ND		1050	1060		ug/Kg	☼	101	65 - 126
Pentachlorophenol	ND		2090	1410		ug/Kg	☼	67	10 - 120
Phenanthrene	ND		1050	1060		ug/Kg	☼	101	68 - 126
Anthracene	ND		1050	1070		ug/Kg	☼	102	67 - 131
Di-n-butyl phthalate	ND		1050	1160		ug/Kg	☼	111	66 - 150
Fluoranthene	ND	F2	1050	1140		ug/Kg	☼	109	69 - 133
Pyrene	ND		1050	1130		ug/Kg	☼	108	68 - 141
Butyl benzyl phthalate	ND		1050	1010		ug/Kg	☼	97	58 - 150
3,3'-Dichlorobenzidine	ND	F1	2090	1510		ug/Kg	☼	72	49 - 148
Benzo[a]anthracene	ND		1050	988		ug/Kg	☼	94	60 - 135
Chrysene	ND		1050	982		ug/Kg	☼	94	69 - 127
Bis(2-ethylhexyl) phthalate	ND		1050	1030		ug/Kg	☼	98	45 - 150
Di-n-octyl phthalate	ND		1050	1370		ug/Kg	☼	131	53 - 150
Benzo[a]pyrene	ND		1050	1090		ug/Kg	☼	104	62 - 129
Indeno[1,2,3-cd]pyrene	ND		1050	673		ug/Kg	☼	64	52 - 146
Dibenz(a,h)anthracene	ND		1050	706		ug/Kg	☼	67	59 - 139
Benzo[g,h,i]perylene	ND	F1 *-	1050	559	F1	ug/Kg	☼	53	64 - 146
Carbazole	ND		1050	1260		ug/Kg	☼	120	43 - 150
1-Methylnaphthalene	ND		1050	1070		ug/Kg	☼	102	69 - 120
Benzo[b]fluoranthene	ND		1050	1270		ug/Kg	☼	121	58 - 136
Benzo[k]fluoranthene	ND		1050	1160		ug/Kg	☼	110	68 - 123
bis(chloroisopropyl) ether	ND	F1 *+	1050	1600	F1	ug/Kg	☼	153	55 - 120

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*99*		*47 - 119*
Phenol-d5 (Surr)	*99*		*59 - 120*
Nitrobenzene-d5 (Surr)	*118*		*54 - 120*
2-Fluorobiphenyl	*110*		*57 - 120*
2,4,6-Tribromophenol (Surr)	*103*		*52 - 115*
Terphenyl-d14 (Surr)	*113*		*73 - 125*

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-4 MSD
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: 20-C025783
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	ND		1050	817		ug/Kg	☼	78	59 - 120	12	30
Bis(2-chloroethyl)ether	ND		1050	1080		ug/Kg	☼	103	61 - 120	1	30
2-Chlorophenol	ND		1050	904		ug/Kg	☼	86	66 - 120	11	32
1,3-Dichlorobenzene	ND		1050	906		ug/Kg	☼	87	57 - 120	4	29
1,4-Dichlorobenzene	ND		1050	897		ug/Kg	☼	86	57 - 120	6	35
Benzyl alcohol	ND		1050	977	J	ug/Kg	☼	93	10 - 134	10	40
1,2-Dichlorobenzene	ND		1050	885		ug/Kg	☼	85	62 - 120	9	30
2-Methylphenol	ND		1050	608		ug/Kg	☼	58	53 - 120	37	40
3 & 4 Methylphenol	ND		1050	659		ug/Kg	☼	63	54 - 120	27	36
N-Nitrosodi-n-propylamine	ND		1050	1120		ug/Kg	☼	107	56 - 138	6	35
Hexachloroethane	ND		1050	947		ug/Kg	☼	91	57 - 132	1	34
Nitrobenzene	ND		1050	1110		ug/Kg	☼	106	57 - 128	2	33
Isophorone	ND		1050	1050		ug/Kg	☼	100	61 - 128	6	31
2-Nitrophenol	ND		1050	882		ug/Kg	☼	84	49 - 123	15	30
2,4-Dimethylphenol	ND	F2 F1	1050	193	J F2 F1	ug/Kg	☼	18	31 - 129	129	40
Benzoic acid	ND	F1	2090	ND	F1	ug/Kg	☼	0	10 - 120	NC	40
Bis(2-chloroethoxy)methane	ND		1050	996		ug/Kg	☼	95	60 - 120	6	33
2,4-Dichlorophenol	ND	F2	1050	817	F2	ug/Kg	☼	78	63 - 120	24	19
1,2,4-Trichlorobenzene	ND		1050	918		ug/Kg	☼	88	66 - 120	12	18
Naphthalene	ND		1050	900		ug/Kg	☼	86	68 - 120	9	15
4-Chloroaniline	ND	F1 *-	1050	ND	F1	ug/Kg	☼	0	10 - 120	NC	40
Hexachlorobutadiene	ND		1050	850		ug/Kg	☼	81	64 - 130	16	19
4-Chloro-3-methylphenol	ND	F2	1050	898	F2	ug/Kg	☼	86	55 - 120	31	25
2-Methylnaphthalene	ND		1050	899		ug/Kg	☼	86	70 - 120	15	21
Hexachlorocyclopentadiene	ND	F1	1050	466	F1	ug/Kg	☼	45	53 - 131	6	21
2,4,6-Trichlorophenol	ND	F2	1050	849	F2	ug/Kg	☼	81	37 - 120	24	20
2,4,5-Trichlorophenol	ND	F2	1050	617	F2	ug/Kg	☼	59	41 - 120	34	23
2-Chloronaphthalene	ND		1050	911		ug/Kg	☼	87	65 - 120	20	21
2-Nitroaniline	ND	F2	1050	848	F2	ug/Kg	☼	81	54 - 126	27	16
Dimethyl phthalate	ND	F2	1050	839	F2	ug/Kg	☼	80	71 - 120	23	21
Acenaphthylene	ND	F2	1050	844	F2	ug/Kg	☼	81	63 - 120	26	18
2,6-Dinitrotoluene	ND	F2	1050	891	F2	ug/Kg	☼	85	70 - 126	21	18
3-Nitroaniline	ND	F2	1050	382	F2	ug/Kg	☼	37	34 - 120	44	25
Acenaphthene	ND	F2	1050	905	F2	ug/Kg	☼	87	64 - 120	20	19
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	☼	0	10 - 139	NC	40
4-Nitrophenol	ND		2090	1530	J	ug/Kg	☼	73	10 - 140	20	31
Dibenzofuran	ND	F2	1050	905	F2	ug/Kg	☼	87	68 - 120	20	18
2,4-Dinitrotoluene	ND		1050	826		ug/Kg	☼	79	63 - 120	23	23
Diethyl phthalate	ND		1050	865		ug/Kg	☼	83	66 - 135	22	22
4-Chlorophenyl phenyl ether	ND	F2	1050	871	F2	ug/Kg	☼	83	70 - 120	25	21
Fluorene	ND	F2	1050	854	F2	ug/Kg	☼	82	68 - 121	23	17
4-Nitroaniline	ND	F2	1050	616	F2	ug/Kg	☼	59	36 - 141	45	23
4,6-Dinitro-2-methylphenol	ND	F2	2090	477	J F2	ug/Kg	☼	23	13 - 141	48	40
N-Nitrosodiphenylamine	ND	F2 F1	1050	218	F2 F1	ug/Kg	☼	21	67 - 128	132	30
4-Bromophenyl phenyl ether	ND		1050	888		ug/Kg	☼	85	65 - 127	24	32
Hexachlorobenzene	ND		1050	853		ug/Kg	☼	82	65 - 126	21	32
Pentachlorophenol	ND		2090	1080		ug/Kg	☼	52	10 - 120	26	40
Phenanthrene	ND		1050	866		ug/Kg	☼	83	68 - 126	20	27

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-4 MSD
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: 20-C025783
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	ND		1050	863		ug/Kg	☼	83	67 - 131	21	28
Di-n-butyl phthalate	ND		1050	935		ug/Kg	☼	89	66 - 150	21	26
Fluoranthene	ND	F2	1050	896	F2	ug/Kg	☼	86	69 - 133	24	21
Pyrene	ND		1050	913		ug/Kg	☼	87	68 - 141	21	24
Butyl benzyl phthalate	ND		1050	996		ug/Kg	☼	95	58 - 150	1	27
3,3'-Dichlorobenzidine	ND	F1	2090	ND	F1	ug/Kg	☼	0	49 - 148	NC	40
Benzo[a]anthracene	ND		1050	953		ug/Kg	☼	91	60 - 135	4	21
Chrysene	ND		1050	969		ug/Kg	☼	93	69 - 127	1	27
Bis(2-ethylhexyl) phthalate	ND		1050	1000		ug/Kg	☼	96	45 - 150	3	25
Di-n-octyl phthalate	ND		1050	1340		ug/Kg	☼	128	53 - 150	3	18
Benzo[a]pyrene	ND		1050	939		ug/Kg	☼	90	62 - 129	14	27
Indeno[1,2,3-cd]pyrene	ND		1050	588		ug/Kg	☼	56	52 - 146	13	30
Dibenz(a,h)anthracene	ND		1050	662		ug/Kg	☼	63	59 - 139	6	29
Benzo[g,h,i]perylene	ND	F1 *-	1050	493	F1	ug/Kg	☼	47	64 - 146	13	26
Carbazole	ND		1050	1010		ug/Kg	☼	97	43 - 150	22	24
1-Methylnaphthalene	ND		1050	938		ug/Kg	☼	90	69 - 120	13	24
Benzo[b]fluoranthene	ND		1050	1160		ug/Kg	☼	111	58 - 136	9	25
Benzo[k]fluoranthene	ND		1050	1190		ug/Kg	☼	113	68 - 123	3	18
bis(chloroisopropyl) ether	ND	F1 *+	1050	1450	F1	ug/Kg	☼	138	55 - 120	10	33

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*85*		*47 - 119*
Phenol-d5 (Surr)	*84*		*59 - 120*
Nitrobenzene-d5 (Surr)	*97*		*54 - 120*
2-Fluorobiphenyl	*85*		*57 - 120*
2,4,6-Tribromophenol (Surr)	*67*		*52 - 115*
Terphenyl-d14 (Surr)	*85*		*73 - 125*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-345217/1-A
Matrix: Solid
Analysis Batch: 345300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345217

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0	2.3	mg/Kg		12/10/20 09:15	12/10/20 10:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*12/10/20 09:15*	*12/10/20 10:03*	*1*

Lab Sample ID: LCS 580-345217/2-A
Matrix: Solid
Analysis Batch: 345300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345217

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	37.3		mg/Kg		93	80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-345217/2-A
Matrix: Solid
Analysis Batch: 345300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345217

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		50 - 150

Lab Sample ID: LCSD 580-345217/3-A
Matrix: Solid
Analysis Batch: 345300

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345217

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	40.0	36.4		mg/Kg		91	80 - 120	3	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		50 - 150

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-346049/1-A
Matrix: Solid
Analysis Batch: 346129

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346049

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		12/21/20 08:35	12/21/20 19:54	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		12/21/20 08:35	12/21/20 19:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	12/21/20 08:35	12/21/20 19:54	1

Lab Sample ID: LCS 580-346049/2-A
Matrix: Solid
Analysis Batch: 346129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346049

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	458		mg/Kg		92	70 - 125
Motor Oil (>C24-C36)	500	445		mg/Kg		89	70 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	83		50 - 150

Lab Sample ID: LCSD 580-346049/3-A
Matrix: Solid
Analysis Batch: 346129

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 346049

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	486		mg/Kg		97	70 - 125	6	16
Motor Oil (>C24-C36)	500	479		mg/Kg		96	70 - 129	7	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	93		50 - 150

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-99765-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 346129 — **Prep Batch: 346049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2500	F1	1420	3180	F1	mg/Kg	☼	50	70 - 125
Motor Oil (>C24-C36)	4700	F1	1420	5920		mg/Kg	☼	84	70 - 129

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*78*		*50 - 150*

Lab Sample ID: 580-99765-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 346129 — **Prep Batch: 346049**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2500	F1	1430	3400	F1	mg/Kg	☼	65	70 - 125	7	16
Motor Oil (>C24-C36)	4700	F1	1430	6650	F1	mg/Kg	☼	135	70 - 129	12	16

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl	*85*		*50 - 150*

Lab Sample ID: 580-99593-1 DU — **Client Sample ID: 20-C025780**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 346129 — **Prep Batch: 346049**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	29	J	36.3	J	mg/Kg	☼	21	35

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl	*89*		*50 - 150*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-345820/21-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 345924 — **Prep Batch: 345820**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.50	0.048	mg/Kg		12/17/20 12:22	12/18/20 12:04	10
Cadmium	ND		0.80	0.077	mg/Kg		12/17/20 12:22	12/18/20 12:04	10
Arsenic	ND		0.50	0.10	mg/Kg		12/17/20 12:22	12/18/20 12:04	10
Chromium	ND		1.0	0.063	mg/Kg		12/17/20 12:22	12/18/20 12:04	10

Lab Sample ID: LCS 580-345820/22-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 345924 — **Prep Batch: 345820**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	51.9		mg/Kg		104	80 - 120
Cadmium	50.0	50.8		mg/Kg		102	80 - 120
Arsenic	50.0	51.4		mg/Kg		103	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-345820/22-A
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	50.0	52.4		mg/Kg		105	80 - 120

Lab Sample ID: LCSD 580-345820/23-A
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	52.4		mg/Kg		105	80 - 120	1	20
Cadmium	50.0	51.3		mg/Kg		103	80 - 120	1	20
Arsenic	50.0	52.1		mg/Kg		104	80 - 120	1	20
Chromium	50.0	52.9		mg/Kg		106	80 - 120	1	20

Lab Sample ID: 580-99593-1 MS
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	9.0		39.4	56.2		mg/Kg	☼	120	80 - 120
Cadmium	0.11	J	39.4	47.4		mg/Kg	☼	120	80 - 120
Arsenic	6.2		39.4	49.2		mg/Kg	☼	109	80 - 120
Chromium	26		39.4	68.1		mg/Kg	☼	107	80 - 120

Lab Sample ID: 580-99593-1 MSD
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	9.0		39.8	49.0		mg/Kg	☼	100	80 - 120	14	20
Cadmium	0.11	J	39.8	40.1		mg/Kg	☼	100	80 - 120	17	20
Arsenic	6.2		39.8	43.8		mg/Kg	☼	95	80 - 120	12	20
Chromium	26		39.8	62.2		mg/Kg	☼	91	80 - 120	9	20

Lab Sample ID: 580-99593-1 DU
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lead	9.0		8.90		mg/Kg	☼	1	20
Cadmium	0.11	J	0.111	J	mg/Kg	☼	5	20
Arsenic	6.2		5.86		mg/Kg	☼	5	20
Chromium	26		24.3		mg/Kg	☼	7	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 580-345513/22-A
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345513

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.030	0.0090	mg/Kg		12/14/20 13:46	12/15/20 11:53	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 580-345513/23-A
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345513

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.170		mg/Kg		102	80 - 120

Lab Sample ID: LCSD 580-345513/24-A
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345513

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.167	0.168		mg/Kg		101	80 - 120	1	20

Lab Sample ID: 580-99593-1 MS
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345513

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.022		0.120	0.157		mg/Kg	☼	113	80 - 120

Lab Sample ID: 580-99593-1 MSD
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345513

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.022		0.122	0.167		mg/Kg	☼	119	80 - 120	6	20

Lab Sample ID: 580-99593-1 DU
Matrix: Solid
Analysis Batch: 345714

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345513

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.022		0.0241		mg/Kg	☼	8	20

Method: 2540G - SM 2540G

Lab Sample ID: 580-99605-A-5 DU
Matrix: Solid
Analysis Batch: 345181

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	77.3		77.4		%		0.09	20
Percent Moisture	22.7		22.6		%		0.3	20

Client Sample ID: 20-C025782
Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	345181	12/09/20 15:39	S1S	TAL SEA

Client Sample ID: 20-C025782
Date Collected: 12/07/20 10:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-3
Matrix: Solid
Percent Solids: 94.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			345397	12/08/20 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260D		1	345537	12/11/20 22:54	CJB	TAL SEA
Total/NA	Prep	3546			345374	12/11/20 15:17	S1S	TAL SEA
Total/NA	Analysis	8270E		1	345574	12/15/20 19:25	W1T	TAL SEA
Total/NA	Prep	5035			345217	12/10/20 09:15	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	345300	12/10/20 13:19	CJ	TAL SEA
Total/NA	Prep	3546			346049	12/21/20 08:35	CCH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	346129	12/21/20 23:15	ADB	TAL SEA
Total/NA	Prep	3050B			345820	12/17/20 12:22	JCP	TAL SEA
Total/NA	Analysis	6020B		10	346045	12/18/20 15:58	FCW	TAL SEA
Total/NA	Prep	7471A			345513	12/14/20 13:46	JCP	TAL SEA
Total/NA	Analysis	7471A		1	345714	12/15/20 12:11	FCW	TAL SEA

Client Sample ID: 20-C025783
Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1	345181	12/09/20 15:39	S1S	TAL SEA

Client Sample ID: 20-C025783
Date Collected: 12/07/20 13:10
Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4
Matrix: Solid
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			346011	12/08/20 15:30	CJB	TAL SEA
Total/NA	Analysis	8260D		1	346000	12/19/20 17:39	CJB	TAL SEA
Total/NA	Prep	3546			345599	12/15/20 11:55	S1S	TAL SEA
Total/NA	Analysis	8270E		1	345700	12/16/20 16:40	W1T	TAL SEA
Total/NA	Prep	5035			345217	12/10/20 09:15	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	345300	12/10/20 13:43	CJ	TAL SEA
Total/NA	Prep	3546			346049	12/21/20 08:35	CCH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	346129	12/21/20 23:35	ADB	TAL SEA
Total/NA	Prep	3050B			345820	12/17/20 12:22	JCP	TAL SEA
Total/NA	Analysis	6020B		10	346045	12/18/20 15:54	FCW	TAL SEA
Total/NA	Prep	7471A			345513	12/14/20 13:46	JCP	TAL SEA
Total/NA	Analysis	7471A		1	345714	12/15/20 12:13	FCW	TAL SEA

Lab Chronicle

Client: Cascade Analytical Inc
Project/Site: ANS Geo

Job ID: 580-99593-1

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Cascade Analytical Inc
Project/Site: ANS Geo

Job ID: 580-99593-1

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C553	02-18-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids

Sample Summary

Client: Cascade Analytical Inc
Project/Site: ANS Geo

Job ID: 580-99593-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-99593-3	20-C025782	Solid	12/07/20 10:10	12/08/20 14:44	
580-99593-4	20-C025783	Solid	12/07/20 13:10	12/08/20 14:44	

Eurofins TestAmerica, Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record
Sample Origin: State of WA

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Andy Schut	Site Contact: Same	Date: 12/7/20	TALS Project #:
Eurofins Cascade Analytical, Union Gap	Email: andrewschut@eurofinsus.com	Lab Contact:	Carrier: UPS	COC No:
1008 W Ahtanum Rd Ste 2	Tel: 509-452-7707			____ of ____ COCs
Union Gap	Analysis Turnaround Time		Loc: 580 99593	[1] Sampler:
(509) 452-7707 Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			[1] Refer to note below.
(xxx) xxx-xxxx FAX	TAT if different from Below ____			For Lab Use Only:
Project Name: ANS Geo	☑ 2 weeks			Walk-in Client:
Site:	☐ 1 week			Lab Sampling:
P O # 017005	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8260 D SIM	8270 C SIM	NWTPH-Dx	NWTPH-Gx	MTCA-5 Metals	Sample Specific Notes:
20-C025782	12/7/20	10:10	G	s	4			x	x	x	x	x	
20-C025783	12/7/20	13:10	G	s	4			x	x	x	x	x	

580-99593 Chain of Custody

Therm ID: A1 Cor: -0.2 ° Unc: 0.7 °
Cooler Dsc: Styrofoam
Packing: bubble
Cust. Seal: Yes ✓ No ____
(Blue Ice) Wet, Dry, None
FedEx: ____
UPS: Grd
Lab Cour: ____
Other: ____

[1] I attest to the validity and authenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature: ____ Date ____

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: Drinking water samples for compliance with Oregon Health Authority. Please report to Oregon state.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No.: ____		
Relinquished by: James King	Company: Eurofins Cascade - UG	Date/Time: 12/7/20 16:30	Received by: Ian Blank	Company: TA-Sea	Date/Time: 12/8/20
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-004, Rev. 1.22, dated 12/3/2019

Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 580-99593-1

Login Number: 99593
List Number: 1
Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Eurofins TestAmerica, Seattle
5755 8th Street East

Tacoma, WA 98424-1317
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record
Sample Origin: State of WA

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Andy Schut	Site Contact: Same	Date: 12/7/20	TALS Project #:
Eurofins Cascade Analytical, Union Gap	Email: andrewschut@eurofinsus.com	Lab Contact:	Carrier: UPS	COC No:
1008 W Ahtanum Rd Ste 2	Tel: 509-452-7707			_____ of _____ COCs
Union Gap	**Analysis Turnaround Time**			[1] Sampler:
(509) 452-7707 Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			[1] Refer to note below.
(xxx) xxx-xxxx FAX	TAT if different from Below _____			**For Lab Use Only:**
Project Name: ANS Geo	☑ 2 weeks			Walk-in Client:
Site:	☐ 1 week			Lab Sampling:
P O # 017005	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	8260 D SIM	8270 C SIM	NWTPH-Dx	NWTPH-Gx	MTCA-5 Metals	Sample Specific Notes:
20-C025782	12/7/20	10:10	G	s	4			x	x	x	x	x	
20-C025783	12/7/20	13:10	G	s	4			x	x	x	x	x	

[1] I attest to the validity end euthenticity of this (these) sample(s). I am aware that tampering with or intentionally mislabeling the sample(s) location, date or time of collection may be considered fraud and subject to legal action (NAC445.0636)
Signature:_____ Date_____

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: Drinking water samples for compliance with Oregon Health Authority. Please report to Oregon state.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TP-19

ENVIRONMENTAL RESULTS

CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

(509) 662-1888
Fax: (509) 662-8183
3019 G. S. Center Road
Wenatchee, WA 98801

(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

Batch: 017069
Client: ANS Geo Inc
Account: 21800
Sampler:
PO Number:

--- Analytical Services Report ---

Report Date: 12/31/20

ANS Geo Inc
4475 S Clinton Ave #225
South Plainfield, NJ 07080

Laboratory Number: 20-C025910
Sample Identification: Ostrea Solar TP-19

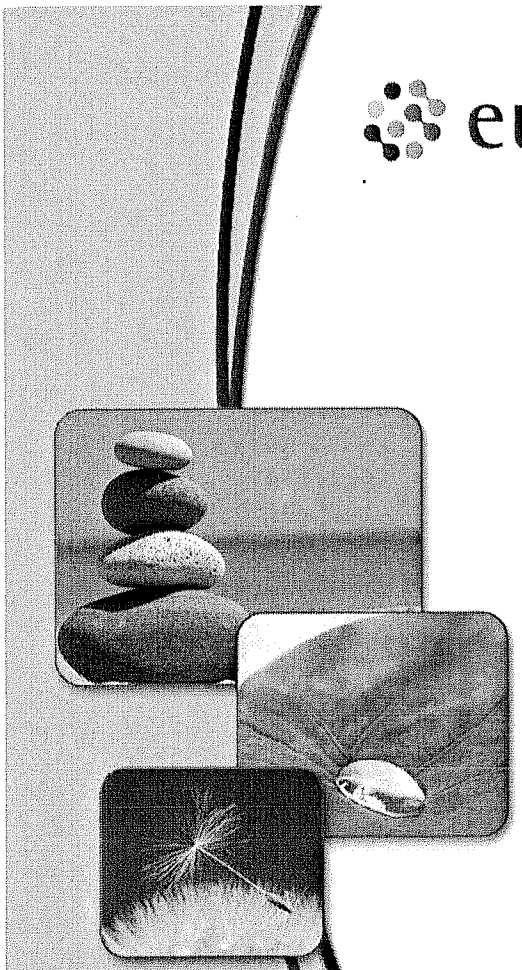
Date Received: 12/ 7/20
Date Sampled: 12/ 5/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL/S				12/31/20	

Approved By Name: Andy Schut
Function: Lab Manager/Yakima

Signature:

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.



eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-99649-1
Client Project/Site: ANS Geo

For:
Cascade Analytical Inc
1008 W. Ahtanum Rd.
Union Gap, Washington 98903

Attn: Andy Schut

Authorized for release by:
12/31/2020 10:00:35 AM

Pauline Matlock, Project Manager
(253)922-2310
pauline.matlock@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 580-99649-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-99649-1

Comments
No additional comments.

Receipt
The samples were received on 12/10/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

GC/MS VOA
Method 8260D: Naphthalene was detected in the method blank greater than the method detection limit but less than the reporting limit. The data have been qualified and reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-345537 recovered above the upper control limit for Bromomethane, Chloroethane, Dichlorodifluoromethane, 1,1-Dichloroethene, Chloromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 580-345537/3).

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345397 and analytical batch 580-345537 recovered outside control limits for the following analytes: Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: Surrogate recovery for the following samples were outside control limits: 20-C025910 (580-99649-1), 20-C025911 (580-99649-2) and 20-C025912 (580-99649-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270E: The method blank for preparation batch 580-345599 contained Naphthalene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 8270E: The method blank for preparation batch 580-345599 and analytical batch 580-345700 contained 2-Methylnaphthalene, Phenanthrene, Anthracene and 1-Methylnaphthalene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345700 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: 2,4-Dinitrophenol. This analyte may have a %D >50%. (CCVIS 580-3457001/3)

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-345599 and analytical batch 580-346684 recovered outside control limits for the following analyte(s): 3,3'-Dichlorobenzidine. 3,3'-Dichlorobenzidine has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345599 and analytical batch 580-346684 recovered outside control limits for the following analytes: Bis(chloroisopropyl)ether. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-346684

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated

Client: Cascade Analytical Inc
Project/Site: ANS Geo

Job ID: 580-99649-1

Client Sample ID: 20-C025910
Date Collected: 12/09/20 15:00
Date Received: 12/10/20 10:00

Lab Sample ID: 580-99649-1
Matrix: Solid
Percent Solids: 95.7

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*+	2.2	0.54	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Chloromethane	ND		5.5	1.0	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Vinyl chloride	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Bromomethane	ND		1.1	0.23	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Chloroethane	ND		11	0.82	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Trichlorofluoromethane	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1-Dichloroethene	ND		5.5	1.2	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Methylene Chloride	ND		44	11	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
trans-1,2-Dichloroethene	ND		2.2	0.44	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1-Dichloroethane	ND		1.1	0.21	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
2,2-Dichloropropane	ND		5.5	0.36	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
cis-1,2-Dichloroethene	ND		3.3	0.66	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Bromochloromethane	ND		2.2	0.27	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Chloroform	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1,1-Trichloroethane	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Carbon tetrachloride	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1-Dichloropropene	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Benzene	ND		2.2	0.43	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,2-Dichloroethane	ND		1.1	0.22	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Trichloroethene	ND		2.2	0.33	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,2-Dichloropropane	ND		2.2	0.44	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Dibromomethane	ND		1.1	0.19	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Bromodichloromethane	ND		1.1	0.20	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
cis-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Toluene	ND		11	1.4	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
trans-1,3-Dichloropropene	ND		11	0.66	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1,2-Trichloroethane	ND		2.2	0.27	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Tetrachloroethene	ND		2.2	0.44	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,3-Dichloropropane	ND		2.2	0.25	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Dibromochloromethane	ND		1.6	0.30	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,2-Dibromoethane	ND		1.1	0.22	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Chlorobenzene	ND		2.2	0.27	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Ethylbenzene	ND		2.2	0.45	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1,1,2-Tetrachloroethane	ND		3.3	0.65	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,1,2,2-Tetrachloroethane	ND		4.4	0.99	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
m-Xylene & p-Xylene	ND		11	0.61	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
o-Xylene	ND		5.5	1.0	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Styrene	ND		3.3	0.81	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Bromoform	ND		5.5	0.92	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Isopropylbenzene	ND		2.2	0.50	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
Bromobenzene	ND		11	1.1	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
N-Propylbenzene	ND		5.5	0.83	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,2,3-Trichloropropane	ND		5.5	1.1	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
2-Chlorotoluene	ND		5.5	1.0	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,3,5-Trimethylbenzene	ND		5.5	0.89	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
4-Chlorotoluene	ND		5.5	1.1	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
t-Butylbenzene	ND		3.3	0.72	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
1,2,4-Trimethylbenzene	ND		5.5	1.3	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1
sec-Butylbenzene	ND		3.3	0.73	ug/Kg	☼	12/10/20 11:00	12/11/20 23:47	1

Client Sample ID: 20-C025910
Date Collected: 12/09/20 15:00
Date Received: 12/10/20 10:00

Lab Sample ID: 580-99649-1
Matrix: Solid
Percent Solids: 95.7

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
2,6-Dinitrotoluene	ND		160	16	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
3-Nitroaniline	ND		310	100	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Acenaphthene	ND		42	4.8	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
2,4-Dinitrophenol	ND		2100	610	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
4-Nitrophenol	ND		2100	180	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Dibenzofuran	ND		160	6.1	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
2,4-Dinitrotoluene	ND		210	45	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Diethyl phthalate	ND		420	23	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
4-Chlorophenyl phenyl ether	ND		210	6.5	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Fluorene	ND		26	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
4-Nitroaniline	ND		160	52	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
4,6-Dinitro-2-methylphenol	ND		1000	100	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
N-Nitrosodiphenylamine	ND		62	8.3	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
4-Bromophenyl phenyl ether	ND		210	9.4	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Hexachlorobenzene	ND		52	16	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Pentachlorophenol	ND		420	65	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Phenanthrene	ND		62	6.0	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Anthracene	ND		62	17	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Di-n-butyl phthalate	ND		520	28	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Fluoranthene	ND		42	12	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Pyrene	ND		62	13	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Butyl benzyl phthalate	ND		210	53	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
3,3'-Dichlorobenzidine	ND	*-	420	87	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Benzo[a]anthracene	ND		42	11	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Chrysene	ND		62	13	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Bis(2-ethylhexyl) phthalate	ND		620	74	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Di-n-octyl phthalate	ND		160	12	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Benzo[a]pyrene	ND		62	13	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Indeno[1,2,3-cd]pyrene	ND		42	12	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Dibenz(a,h)anthracene	ND		52	12	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Benzo[g,h,i]perylene	ND		62	19	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Carbazole	ND		160	7.6	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
1-Methylnaphthalene	ND		31	5.2	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Benzo[b]fluoranthene	ND		42	10	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
Benzo[k]fluoranthene	ND		62	15	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1
bis(chloroisopropyl) ether	ND	*+	210	6.3	ug/Kg	☼	12/15/20 11:55	12/16/20 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*77*		*47 - 119*	*12/15/20 11:55*	*12/16/20 15:31*	*1*
Phenol-d5 (Surr)	*78*		*59 - 120*	*12/15/20 11:55*	*12/16/20 15:31*	*1*
Nitrobenzene-d5 (Surr)	*91*		*54 - 120*	*12/15/20 11:55*	*12/16/20 15:31*	*1*
2-Fluorobiphenyl	*86*		*57 - 120*	*12/15/20 11:55*	*12/16/20 15:31*	*1*
2,4,6-Tribromophenol (Surr)	*47*	*S1-*	*52 - 115*	*12/15/20 11:55*	*12/16/20 15:31*	*1*
Terphenyl-d14 (Surr)	*90*		*73 - 125*	*12/15/20 11:55*	*12/16/20 15:31*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		51	13	mg/Kg	☼	12/21/20 08:35	12/21/20 23:55	1
Motor Oil (>C24-C36)	**36**	**J**	51	18	mg/Kg	☼	12/21/20 08:35	12/21/20 23:55	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-345397/1-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloromethane	ND		5.0	0.93	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromomethane	ND		1.0	0.21	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroethane	ND		10	0.75	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethene	ND		5.0	1.1	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Methylene Chloride	ND		40	9.9	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
2,2-Dichloropropane	ND		5.0	0.33	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,2-Dichloroethene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromochloromethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroform	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloropropene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Benzene	ND		2.0	0.39	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloroethane	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Trichloroethene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloropropane	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromomethane	ND		1.0	0.17	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Toluene	ND		10	1.3	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,3-Dichloropropene	ND		10	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,2-Trichloroethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3-Dichloropropane	ND		2.0	0.23	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromochloromethane	ND		1.5	0.27	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dibromoethane	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chlorobenzene	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Ethylbenzene	ND		2.0	0.41	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1,2-Tetrachloroethane	ND		3.0	0.59	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,2,2-Tetrachloroethane	ND		4.0	0.90	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
m-Xylene & p-Xylene	ND		10	0.56	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
o-Xylene	ND		5.0	0.92	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Styrene	ND		3.0	0.74	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromoform	ND		5.0	0.84	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Isopropylbenzene	ND		2.0	0.46	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromobenzene	ND		10	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
N-Propylbenzene	ND		5.0	0.76	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,3-Trichloropropane	ND		5.0	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
2-Chlorotoluene	ND		5.0	0.93	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3,5-Trimethylbenzene	ND		5.0	0.81	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
4-Chlorotoluene	ND		5.0	1.0	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
t-Butylbenzene	ND		3.0	0.66	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,4-Trimethylbenzene	ND		5.0	1.2	ug/Kg		12/11/20 16:40	12/11/20 20:46	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-345397/2-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	20.0	18.2		ug/Kg		91	75 - 137
trans-1,3-Dichloropropene	20.0	18.3		ug/Kg		91	80 - 121
1,1,2-Trichloroethane	20.0	20.1		ug/Kg		101	80 - 123
Tetrachloroethene	20.0	17.3		ug/Kg		87	58 - 150
1,3-Dichloropropane	20.0	19.3		ug/Kg		96	75 - 120
Dibromochloromethane	20.0	18.8		ug/Kg		94	75 - 132
1,2-Dibromoethane	20.0	20.6		ug/Kg		103	77 - 123
Chlorobenzene	20.0	18.3		ug/Kg		91	80 - 131
Ethylbenzene	20.0	19.6		ug/Kg		98	80 - 135
1,1,1,2-Tetrachloroethane	20.0	18.4		ug/Kg		92	79 - 128
1,1,2,2-Tetrachloroethane	20.0	19.3		ug/Kg		97	77 - 127
m-Xylene & p-Xylene	20.0	17.1		ug/Kg		86	80 - 132
o-Xylene	20.0	19.1		ug/Kg		95	80 - 132
Styrene	20.0	18.4		ug/Kg		92	79 - 129
Bromoform	20.0	19.0		ug/Kg		95	71 - 146
Isopropylbenzene	20.0	18.9		ug/Kg		94	81 - 140
Bromobenzene	20.0	19.2		ug/Kg		96	78 - 126
N-Propylbenzene	20.0	17.8		ug/Kg		89	68 - 149
1,2,3-Trichloropropane	20.0	19.7		ug/Kg		98	77 - 127
2-Chlorotoluene	20.0	16.6		ug/Kg		83	77 - 134
1,3,5-Trimethylbenzene	20.0	17.8		ug/Kg		89	72 - 142
4-Chlorotoluene	20.0	16.8		ug/Kg		84	71 - 137
t-Butylbenzene	20.0	17.4		ug/Kg		87	72 - 144
1,2,4-Trimethylbenzene	20.0	17.8		ug/Kg		89	73 - 138
sec-Butylbenzene	20.0	18.0		ug/Kg		90	71 - 143
1,3-Dichlorobenzene	20.0	18.3		ug/Kg		91	78 - 132
4-Isopropyltoluene	20.0	17.8		ug/Kg		89	71 - 142
1,4-Dichlorobenzene	20.0	18.4		ug/Kg		92	77 - 123
n-Butylbenzene	20.0	16.8		ug/Kg		84	69 - 143
1,2-Dichlorobenzene	20.0	18.5		ug/Kg		93	78 - 126
1,2-Dibromo-3-Chloropropane	20.0	20.1		ug/Kg		100	75 - 129
1,2,4-Trichlorobenzene	20.0	20.0		ug/Kg		100	74 - 131
1,2,3-Trichlorobenzene	20.0	19.5		ug/Kg		97	68 - 136
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150
Naphthalene	20.0	21.5		ug/Kg		107	64 - 136
Methyl tert-butyl ether	20.0	24.0		ug/Kg		120	77 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 121*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-345397/3-A
Matrix: Solid
Analysis Batch: 345537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345397

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene	20.0	18.5		ug/Kg		93	71 - 143	3	40
1,3-Dichlorobenzene	20.0	19.2		ug/Kg		96	78 - 132	5	40
4-Isopropyltoluene	20.0	18.6		ug/Kg		93	71 - 142	5	40
1,4-Dichlorobenzene	20.0	19.3		ug/Kg		96	77 - 123	4	40
n-Butylbenzene	20.0	17.7		ug/Kg		88	69 - 143	6	40
1,2-Dichlorobenzene	20.0	19.4		ug/Kg		97	78 - 126	4	40
1,2-Dibromo-3-Chloropropane	20.0	19.0		ug/Kg		95	75 - 129	5	40
1,2,4-Trichlorobenzene	20.0	20.4		ug/Kg		102	74 - 131	2	40
1,2,3-Trichlorobenzene	20.0	19.3		ug/Kg		97	68 - 136	1	40
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150	0	36
Naphthalene	20.0	20.8		ug/Kg		104	64 - 136	3	40
Methyl tert-butyl ether	20.0	25.0		ug/Kg		125	77 - 132	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 121*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-345599/1-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345599

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		150	23	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethyl)ether	ND		100	7.7	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Chlorophenol	ND		200	4.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,3-Dichlorobenzene	ND		50	4.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,4-Dichlorobenzene	ND		50	8.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzyl alcohol	ND		1000	50	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2-Dichlorobenzene	ND		50	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Methylphenol	ND		150	9.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3 & 4 Methylphenol	ND		200	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
N-Nitrosodi-n-propylamine	ND		200	22	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachloroethane	ND		150	4.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Nitrobenzene	ND		200	20	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Isophorone	ND		150	8.4	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Nitrophenol	ND		200	6.2	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dimethylphenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzoic acid	ND		4000	1200	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethoxy)methane	ND		200	18	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dichlorophenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2,4-Trichlorobenzene	ND		50	6.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Naphthalene	34.8		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloroaniline	ND		1500	130	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorobutadiene	ND		50	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloro-3-methylphenol	ND		150	33	ug/Kg		12/15/20 11:55	12/16/20 14:46	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-345599/1-A
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345599

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	*97*		*54 - 120*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
2-Fluorobiphenyl	*106*		*57 - 120*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
2,4,6-Tribromophenol (Surr)	*53*		*52 - 115*	*12/15/20 11:55*	*12/16/20 14:46*	*1*
Terphenyl-d14 (Surr)	*115*		*73 - 125*	*12/15/20 11:55*	*12/16/20 14:46*	*1*

Lab Sample ID: LCS 580-345599/2-A
Matrix: Solid
Analysis Batch: 346684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	1000	935		ug/Kg		94	59 - 120
Bis(2-chloroethyl)ether	1000	1180		ug/Kg		118	61 - 120
2-Chlorophenol	1000	985		ug/Kg		99	66 - 120
1,3-Dichlorobenzene	1000	1010		ug/Kg		101	57 - 120
1,4-Dichlorobenzene	1000	1010		ug/Kg		101	57 - 120
Benzyl alcohol	1000	417	J	ug/Kg		42	10 - 134
1,2-Dichlorobenzene	1000	1000		ug/Kg		100	62 - 120
2-Methylphenol	1000	800		ug/Kg		80	53 - 120
3 & 4 Methylphenol	1000	838		ug/Kg		84	54 - 120
N-Nitrosodi-n-propylamine	1000	1180		ug/Kg		118	56 - 138
Hexachloroethane	1000	1110		ug/Kg		111	57 - 132
Nitrobenzene	1000	1260		ug/Kg		126	57 - 128
Isophorone	1000	1200		ug/Kg		120	61 - 128
2-Nitrophenol	1000	996		ug/Kg		100	49 - 123
2,4-Dimethylphenol	1000	450		ug/Kg		45	31 - 129
Benzoic acid	2000	ND		ug/Kg		18	10 - 120
Bis(2-chloroethoxy)methane	1000	1180		ug/Kg		118	60 - 120
2,4-Dichlorophenol	1000	922		ug/Kg		92	63 - 120
1,2,4-Trichlorobenzene	1000	1060		ug/Kg		106	66 - 120
Naphthalene	1000	1030		ug/Kg		103	68 - 120
4-Chloroaniline	1000	136	J	ug/Kg		14	10 - 120
Hexachlorobutadiene	1000	1090		ug/Kg		109	64 - 130
4-Chloro-3-methylphenol	1000	727		ug/Kg		73	55 - 120
2-Methylnaphthalene	1000	1050		ug/Kg		105	70 - 120
Hexachlorocyclopentadiene	1000	889		ug/Kg		89	53 - 131
2,4,6-Trichlorophenol	1000	911		ug/Kg		91	37 - 120
2,4,5-Trichlorophenol	1000	645		ug/Kg		64	41 - 120
2-Chloronaphthalene	1000	1010		ug/Kg		101	65 - 120
2-Nitroaniline	1000	999		ug/Kg		100	54 - 126
Dimethyl phthalate	1000	1050		ug/Kg		105	71 - 120
Acenaphthylene	1000	1010		ug/Kg		101	63 - 120
2,6-Dinitrotoluene	1000	1080		ug/Kg		108	70 - 126
3-Nitroaniline	1000	425		ug/Kg		43	34 - 120
Acenaphthene	1000	1080		ug/Kg		108	64 - 120
2,4-Dinitrophenol	2000	1280	J	ug/Kg		64	10 - 139
4-Nitrophenol	2000	716	J	ug/Kg		36	10 - 140
Dibenzofuran	1000	1080		ug/Kg		108	68 - 120
2,4-Dinitrotoluene	1000	1050		ug/Kg		105	63 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-A-4-C MS
Matrix: Solid
Analysis Batch: 345700

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 345599

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzyl alcohol	ND		1050	1080		ug/Kg	☼	104	10 - 134
1,2-Dichlorobenzene	ND		1050	964		ug/Kg	☼	92	62 - 120
2-Methylphenol	ND		1050	882		ug/Kg	☼	84	53 - 120
3 & 4 Methylphenol	ND		1050	863		ug/Kg	☼	83	54 - 120
N-Nitrosodi-n-propylamine	ND		1050	1190		ug/Kg	☼	114	56 - 138
Hexachloroethane	ND		1050	938		ug/Kg	☼	90	57 - 132
Nitrobenzene	ND		1050	1130		ug/Kg	☼	108	57 - 128
Isophorone	ND		1050	1110		ug/Kg	☼	106	61 - 128
2-Nitrophenol	ND		1050	1020		ug/Kg	☼	98	49 - 123
2,4-Dimethylphenol	ND	F2 F1	1050	889		ug/Kg	☼	85	31 - 129
Benzoic acid	ND	F1	2090	ND	F1	ug/Kg	☼	0	10 - 120
Bis(2-chloroethoxy)methane	ND		1050	1060		ug/Kg	☼	101	60 - 120
2,4-Dichlorophenol	ND	F2	1050	1040		ug/Kg	☼	99	63 - 120
1,2,4-Trichlorobenzene	ND		1050	1040		ug/Kg	☼	99	66 - 120
Naphthalene	ND		1050	985		ug/Kg	☼	94	68 - 120
4-Chloroaniline	ND	F1 *-	1050	ND	F1	ug/Kg	☼	0	10 - 120
Hexachlorobutadiene	ND		1050	994		ug/Kg	☼	95	64 - 130
4-Chloro-3-methylphenol	ND	F2	1050	1230		ug/Kg	☼	118	55 - 120
2-Methylnaphthalene	ND		1050	1050		ug/Kg	☼	100	70 - 120
Hexachlorocyclopentadiene	ND	F1	1050	437	F1	ug/Kg	☼	42	53 - 131
2,4,6-Trichlorophenol	ND	F2	1050	1080		ug/Kg	☼	104	37 - 120
2,4,5-Trichlorophenol	ND	F2	1050	870		ug/Kg	☼	83	41 - 120
2-Chloronaphthalene	ND		1050	1120		ug/Kg	☼	107	65 - 120
2-Nitroaniline	ND	F2	1050	1110		ug/Kg	☼	106	54 - 126
Dimethyl phthalate	ND	F2	1050	1060		ug/Kg	☼	101	71 - 120
Acenaphthylene	ND	F2	1050	1090		ug/Kg	☼	104	63 - 120
2,6-Dinitrotoluene	ND	F2	1050	1100		ug/Kg	☼	105	70 - 126
3-Nitroaniline	ND	F2	1050	600		ug/Kg	☼	57	34 - 120
Acenaphthene	ND	F2	1050	1110		ug/Kg	☼	106	64 - 120
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	☼	0	10 - 139
4-Nitrophenol	ND		2090	1870	J	ug/Kg	☼	90	10 - 140
Dibenzofuran	ND	F2	1050	1110		ug/Kg	☼	106	68 - 120
2,4-Dinitrotoluene	ND		1050	1040		ug/Kg	☼	100	63 - 120
Diethyl phthalate	ND		1050	1080		ug/Kg	☼	103	66 - 135
4-Chlorophenyl phenyl ether	ND	F2	1050	1120		ug/Kg	☼	107	70 - 120
Fluorene	ND	F2	1050	1070		ug/Kg	☼	103	68 - 121
4-Nitroaniline	ND	F2	1050	978		ug/Kg	☼	94	36 - 141
4,6-Dinitro-2-methylphenol	ND	F2	2090	292	J	ug/Kg	☼	14	13 - 141
N-Nitrosodiphenylamine	ND	F2 F1	1050	1070		ug/Kg	☼	102	67 - 128
4-Bromophenyl phenyl ether	ND		1050	1130		ug/Kg	☼	108	65 - 127
Hexachlorobenzene	ND		1050	1060		ug/Kg	☼	101	65 - 126
Pentachlorophenol	ND		2090	1410		ug/Kg	☼	67	10 - 120
Phenanthrene	ND		1050	1060		ug/Kg	☼	101	68 - 126
Anthracene	ND		1050	1070		ug/Kg	☼	102	67 - 131
Di-n-butyl phthalate	ND		1050	1160		ug/Kg	☼	111	66 - 150
Fluoranthene	ND	F2	1050	1140		ug/Kg	☼	109	69 - 133
Pyrene	ND		1050	1130		ug/Kg	☼	108	68 - 141
Butyl benzyl phthalate	ND		1050	1010		ug/Kg	☼	97	58 - 150
3,3'-Dichlorobenzidine	ND	F1	2090	1510		ug/Kg	☼	72	49 - 148

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-A-4-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 345700 — **Prep Batch: 345599**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachlorobutadiene	ND		1050	850		ug/Kg	☼	81	64 - 130	16	19
4-Chloro-3-methylphenol	ND	F2	1050	898	F2	ug/Kg	☼	86	55 - 120	31	25
2-Methylnaphthalene	ND		1050	899		ug/Kg	☼	86	70 - 120	15	21
Hexachlorocyclopentadiene	ND	F1	1050	466	F1	ug/Kg	☼	45	53 - 131	6	21
2,4,6-Trichlorophenol	ND	F2	1050	849	F2	ug/Kg	☼	81	37 - 120	24	20
2,4,5-Trichlorophenol	ND	F2	1050	617	F2	ug/Kg	☼	59	41 - 120	34	23
2-Chloronaphthalene	ND		1050	911		ug/Kg	☼	87	65 - 120	20	21
2-Nitroaniline	ND	F2	1050	848	F2	ug/Kg	☼	81	54 - 126	27	16
Dimethyl phthalate	ND	F2	1050	839	F2	ug/Kg	☼	80	71 - 120	23	21
Acenaphthylene	ND	F2	1050	844	F2	ug/Kg	☼	81	63 - 120	26	18
2,6-Dinitrotoluene	ND	F2	1050	891	F2	ug/Kg	☼	85	70 - 126	21	18
3-Nitroaniline	ND	F2	1050	382	F2	ug/Kg	☼	37	34 - 120	44	25
Acenaphthene	ND	F2	1050	905	F2	ug/Kg	☼	87	64 - 120	20	19
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	☼	0	10 - 139	NC	40
4-Nitrophenol	ND		2090	1530	J	ug/Kg	☼	73	10 - 140	20	31
Dibenzofuran	ND	F2	1050	905	F2	ug/Kg	☼	87	68 - 120	20	18
2,4-Dinitrotoluene	ND		1050	826		ug/Kg	☼	79	63 - 120	23	23
Diethyl phthalate	ND		1050	865		ug/Kg	☼	83	66 - 135	22	22
4-Chlorophenyl phenyl ether	ND	F2	1050	871	F2	ug/Kg	☼	83	70 - 120	25	21
Fluorene	ND	F2	1050	854	F2	ug/Kg	☼	82	68 - 121	23	17
4-Nitroaniline	ND	F2	1050	616	F2	ug/Kg	☼	59	36 - 141	45	23
4,6-Dinitro-2-methylphenol	ND	F2	2090	477	J F2	ug/Kg	☼	23	13 - 141	48	40
N-Nitrosodiphenylamine	ND	F2 F1	1050	218	F2 F1	ug/Kg	☼	21	67 - 128	132	30
4-Bromophenyl phenyl ether	ND		1050	888		ug/Kg	☼	85	65 - 127	24	32
Hexachlorobenzene	ND		1050	853		ug/Kg	☼	82	65 - 126	21	32
Pentachlorophenol	ND		2090	1080		ug/Kg	☼	52	10 - 120	26	40
Phenanthrene	ND		1050	866		ug/Kg	☼	83	68 - 126	20	27
Anthracene	ND		1050	863		ug/Kg	☼	83	67 - 131	21	28
Di-n-butyl phthalate	ND		1050	935		ug/Kg	☼	89	66 - 150	21	26
Fluoranthene	ND	F2	1050	896	F2	ug/Kg	☼	86	69 - 133	24	21
Pyrene	ND		1050	913		ug/Kg	☼	87	68 - 141	21	24
Butyl benzyl phthalate	ND		1050	996		ug/Kg	☼	95	58 - 150	1	27
3,3'-Dichlorobenzidine	ND	F1	2090	ND	F1	ug/Kg	☼	0	49 - 148	NC	40
Benzo[a]anthracene	ND		1050	953		ug/Kg	☼	91	60 - 135	4	21
Chrysene	ND		1050	969		ug/Kg	☼	93	69 - 127	1	27
Bis(2-ethylhexyl) phthalate	ND		1050	1000		ug/Kg	☼	96	45 - 150	3	25
Di-n-octyl phthalate	ND		1050	1340		ug/Kg	☼	128	53 - 150	3	18
Benzo[a]pyrene	ND		1050	939		ug/Kg	☼	90	62 - 129	14	27
Indeno[1,2,3-cd]pyrene	ND		1050	588		ug/Kg	☼	56	52 - 146	13	30
Dibenz(a,h)anthracene	ND		1050	662		ug/Kg	☼	63	59 - 139	6	29
Benzo[g,h,i]perylene	ND	F1 *-	1050	493	F1	ug/Kg	☼	47	64 - 146	13	26
Carbazole	ND		1050	1010		ug/Kg	☼	97	43 - 150	22	24
1-Methylnaphthalene	ND		1050	938		ug/Kg	☼	90	69 - 120	13	24
Benzo[b]fluoranthene	ND		1050	1160		ug/Kg	☼	111	58 - 136	9	25
Benzo[k]fluoranthene	ND		1050	1190		ug/Kg	☼	113	68 - 123	3	18
bis(chloroisopropyl) ether	ND	F1 *+	1050	1450	F1	ug/Kg	☼	138	55 - 120	10	33

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-346259/1-A
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346259

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		150	5.9	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
2,4-Dinitrotoluene	ND		200	43	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Diethyl phthalate	ND		400	22	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Chlorophenyl phenyl ether	ND		200	6.3	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Fluorene	ND		25	5.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Nitroaniline	ND		150	50	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4,6-Dinitro-2-methylphenol	ND		1000	100	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
N-Nitrosodiphenylamine	ND		60	8.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Bromophenyl phenyl ether	ND		200	9.1	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Hexachlorobenzene	ND		50	15	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Pentachlorophenol	ND		400	63	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Phenanthrene	ND		60	5.8	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Anthracene	ND		60	16	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Di-n-butyl phthalate	ND		500	27	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Fluoranthene	ND		40	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Pyrene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Butyl benzyl phthalate	ND		200	51	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
3,3'-Dichlorobenzidine	ND		400	84	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[a]anthracene	ND		40	11	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Chrysene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Bis(2-ethylhexyl) phthalate	ND		600	71	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Di-n-octyl phthalate	ND		150	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[a]pyrene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Indeno[1,2,3-cd]pyrene	ND		40	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Dibenz(a,h)anthracene	ND		50	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[g,h,i]perylene	ND		60	18	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Carbazole	ND		150	7.3	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
1-Methylnaphthalene	ND		30	5.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[b]fluoranthene	ND		40	10	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[k]fluoranthene	ND		60	14	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
bis(chloroisopropyl) ether	ND		200	6.1	ug/Kg		12/22/20 18:55	12/23/20 16:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*90*		*47 - 119*	*12/22/20 18:55*	*12/23/20 16:07*	*1*
Phenol-d5 (Surr)	*83*		*59 - 120*	*12/22/20 18:55*	*12/23/20 16:07*	*1*
Nitrobenzene-d5 (Surr)	*96*		*54 - 120*	*12/22/20 18:55*	*12/23/20 16:07*	*1*
2-Fluorobiphenyl	*123*	*S1+*	*57 - 120*	*12/22/20 18:55*	*12/23/20 16:07*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*52 - 115*	*12/22/20 18:55*	*12/23/20 16:07*	*1*
Terphenyl-d14 (Surr)	*123*		*73 - 125*	*12/22/20 18:55*	*12/23/20 16:07*	*1*

Lab Sample ID: LCS 580-346259/2-A
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	1000	869		ug/Kg		87	59 - 120
Bis(2-chloroethyl)ether	1000	1080		ug/Kg		108	61 - 120
2-Chlorophenol	1000	986		ug/Kg		99	66 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-346259/2-A
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Butyl benzyl phthalate	1000	939		ug/Kg		94	58 - 150
3,3'-Dichlorobenzidine	2000	1200		ug/Kg		60	49 - 148
Benzo[a]anthracene	1000	983		ug/Kg		98	60 - 135
Chrysene	1000	1060		ug/Kg		106	69 - 127
Bis(2-ethylhexyl) phthalate	1000	925		ug/Kg		92	45 - 150
Di-n-octyl phthalate	1000	1010		ug/Kg		101	53 - 150
Benzo[a]pyrene	1000	1070		ug/Kg		107	62 - 129
Indeno[1,2,3-cd]pyrene	1000	890		ug/Kg		89	52 - 146
Dibenz(a,h)anthracene	1000	1010		ug/Kg		101	59 - 139
Benzo[g,h,i]perylene	1000	998		ug/Kg		100	64 - 146
Carbazole	1000	1240		ug/Kg		124	43 - 150
1-Methylnaphthalene	1000	1020		ug/Kg		102	69 - 120
Benzo[b]fluoranthene	1000	1160		ug/Kg		116	58 - 136
Benzo[k]fluoranthene	1000	1040		ug/Kg		104	68 - 123
bis(chloroisopropyl) ether	1000	750		ug/Kg		75	55 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*99*		*47 - 119*
Phenol-d5 (Surr)	*95*		*59 - 120*
Nitrobenzene-d5 (Surr)	*99*		*54 - 120*
2-Fluorobiphenyl	*107*		*57 - 120*
2,4,6-Tribromophenol (Surr)	*92*		*52 - 115*
Terphenyl-d14 (Surr)	*112*		*73 - 125*

Lab Sample ID: 580-99649-2 MS
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: 20-C025911
Prep Type: Total/NA
Prep Batch: 346259

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	ND		1140	954		ug/Kg	☼	84	59 - 120
Bis(2-chloroethyl)ether	ND		1140	1300		ug/Kg	☼	114	61 - 120
2-Chlorophenol	ND		1140	1040	J	ug/Kg	☼	91	66 - 120
1,3-Dichlorobenzene	ND		1140	1150		ug/Kg	☼	101	57 - 120
1,4-Dichlorobenzene	ND		1140	1120		ug/Kg	☼	98	57 - 120
Benzyl alcohol	ND	F1	1140	ND	F1	ug/Kg	☼	0	10 - 134
1,2-Dichlorobenzene	ND		1140	1120		ug/Kg	☼	98	62 - 120
2-Methylphenol	ND		1140	988		ug/Kg	☼	87	53 - 120
3 & 4 Methylphenol	ND		1140	865	J	ug/Kg	☼	76	54 - 120
N-Nitrosodi-n-propylamine	ND		1140	1190		ug/Kg	☼	105	56 - 138
Hexachloroethane	ND		1140	1140		ug/Kg	☼	100	57 - 132
Nitrobenzene	ND		1140	1230		ug/Kg	☼	108	57 - 128
Isophorone	ND		1140	1190		ug/Kg	☼	104	61 - 128
2-Nitrophenol	ND		1140	1220		ug/Kg	☼	107	49 - 123
2,4-Dimethylphenol	ND		1140	788	J	ug/Kg	☼	69	31 - 129
Benzoic acid	ND		2280	ND		ug/Kg	☼	NC	10 - 120
Bis(2-chloroethoxy)methane	ND		1140	1120		ug/Kg	☼	99	60 - 120
2,4-Dichlorophenol	ND	F2	1140	1090	J	ug/Kg	☼	96	63 - 120
1,2,4-Trichlorobenzene	ND		1140	1270		ug/Kg	☼	112	66 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99649-2 MS
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: 20-C025911
Prep Type: Total/NA
Prep Batch: 346259

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*87*		*47 - 119*
Phenol-d5 (Surr)	*87*		*59 - 120*
Nitrobenzene-d5 (Surr)	*102*		*54 - 120*
2-Fluorobiphenyl	*98*		*57 - 120*
2,4,6-Tribromophenol (Surr)	*72*		*52 - 115*
Terphenyl-d14 (Surr)	*101*		*73 - 125*

Lab Sample ID: 580-99649-2 MSD
Matrix: Solid
Analysis Batch: 346294

Client Sample ID: 20-C025911
Prep Type: Total/NA
Prep Batch: 346259

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	ND		1110	893		ug/Kg	☼	81	59 - 120	7	30
Bis(2-chloroethyl)ether	ND		1110	1160		ug/Kg	☼	105	61 - 120	11	30
2-Chlorophenol	ND		1110	1000	J	ug/Kg	☼	90	66 - 120	4	32
1,3-Dichlorobenzene	ND		1110	1030		ug/Kg	☼	93	57 - 120	11	29
1,4-Dichlorobenzene	ND		1110	992		ug/Kg	☼	90	57 - 120	12	35
Benzyl alcohol	ND	F1	1110	ND	F1	ug/Kg	☼	0	10 - 134	NC	40
1,2-Dichlorobenzene	ND		1110	1040		ug/Kg	☼	94	62 - 120	7	30
2-Methylphenol	ND		1110	881		ug/Kg	☼	80	53 - 120	11	40
3 & 4 Methylphenol	ND		1110	854	J	ug/Kg	☼	77	54 - 120	1	36
N-Nitrosodi-n-propylamine	ND		1110	987	J	ug/Kg	☼	89	56 - 138	19	35
Hexachloroethane	ND		1110	1030		ug/Kg	☼	93	57 - 132	10	34
Nitrobenzene	ND		1110	1110		ug/Kg	☼	100	57 - 128	10	33
Isophorone	ND		1110	1080		ug/Kg	☼	98	61 - 128	9	31
2-Nitrophenol	ND		1110	1070	J	ug/Kg	☼	97	49 - 123	13	30
2,4-Dimethylphenol	ND		1110	733	J	ug/Kg	☼	66	31 - 129	7	40
Benzoic acid	ND		2210	ND		ug/Kg	☼	NC	10 - 120	NC	40
Bis(2-chloroethoxy)methane	ND		1110	1010	J	ug/Kg	☼	92	60 - 120	10	33
2,4-Dichlorophenol	ND	F2	1110	793	J F2	ug/Kg	☼	72	63 - 120	32	19
1,2,4-Trichlorobenzene	ND		1110	1130		ug/Kg	☼	102	66 - 120	12	18
Naphthalene	ND		1110	1070		ug/Kg	☼	96	68 - 120	11	15
4-Chloroaniline	ND	F1 *-	1110	ND	F1	ug/Kg	☼	0	10 - 120	NC	40
Hexachlorobutadiene	ND		1110	1200		ug/Kg	☼	108	64 - 130	10	19
4-Chloro-3-methylphenol	ND	F1 F2	1110	1260	F2	ug/Kg	☼	114	55 - 120	35	25
2-Methylnaphthalene	ND		1110	1050		ug/Kg	☼	95	70 - 120	12	21
Hexachlorocyclopentadiene	ND	F1 F2	1110	368	J F1 F2	ug/Kg	☼	33	53 - 131	29	21
2,4,6-Trichlorophenol	ND		1110	993		ug/Kg	☼	90	37 - 120	1	20
2,4,5-Trichlorophenol	ND		1110	1070	J	ug/Kg	☼	97	41 - 120	1	23
2-Chloronaphthalene	ND		1110	984		ug/Kg	☼	89	65 - 120	15	21
2-Nitroaniline	ND		1110	1060		ug/Kg	☼	96	54 - 126	6	16
Dimethyl phthalate	ND		1110	916		ug/Kg	☼	83	71 - 120	16	21
Acenaphthylene	ND		1110	1120		ug/Kg	☼	101	63 - 120	9	18
2,6-Dinitrotoluene	ND		1110	1160		ug/Kg	☼	104	70 - 126	7	18
3-Nitroaniline	ND	F1 *-	1110	ND	F1	ug/Kg	☼	0	34 - 120	NC	25
Acenaphthene	ND		1110	1090		ug/Kg	☼	98	64 - 120	13	19
2,4-Dinitrophenol	ND		2210	ND		ug/Kg	☼	NC	10 - 139	NC	40
4-Nitrophenol	ND		2210	1060	J	ug/Kg	☼	48	10 - 140	2	31

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-345756/1-A
Matrix: Solid
Analysis Batch: 345856

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345756

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		50 - 150	12/16/20 15:22	12/16/20 16:10	1

Lab Sample ID: LCS 580-345756/2-A
Matrix: Solid
Analysis Batch: 345856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	37.9		mg/Kg		95	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		50 - 150

Lab Sample ID: LCSD 580-345756/3-A
Matrix: Solid
Analysis Batch: 345856

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345756

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	40.0	37.6		mg/Kg		94	80 - 120	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		50 - 150

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-346049/1-A
Matrix: Solid
Analysis Batch: 346129

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346049

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		50	12	mg/Kg		12/21/20 08:35	12/21/20 19:54	1
Motor Oil (>C24-C36)	ND		50	18	mg/Kg		12/21/20 08:35	12/21/20 19:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	12/21/20 08:35	12/21/20 19:54	1

Lab Sample ID: LCS 580-346049/2-A
Matrix: Solid
Analysis Batch: 346129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346049

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	458		mg/Kg		92	70 - 125
Motor Oil (>C24-C36)	500	445		mg/Kg		89	70 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	83		50 - 150

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 580-345820/21-A
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345820

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.10	mg/Kg		12/17/20 12:22	12/18/20 12:04	10
Chromium	ND		1.0	0.063	mg/Kg		12/17/20 12:22	12/18/20 12:04	10

Lab Sample ID: LCS 580-345820/22-A
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	51.9		mg/Kg		104	80 - 120
Cadmium	50.0	50.8		mg/Kg		102	80 - 120
Arsenic	50.0	51.4		mg/Kg		103	80 - 120
Chromium	50.0	52.4		mg/Kg		105	80 - 120

Lab Sample ID: LCSD 580-345820/23-A
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	52.4		mg/Kg		105	80 - 120	1	20
Cadmium	50.0	51.3		mg/Kg		103	80 - 120	1	20
Arsenic	50.0	52.1		mg/Kg		104	80 - 120	1	20
Chromium	50.0	52.9		mg/Kg		106	80 - 120	1	20

Lab Sample ID: 580-99593-A-1-H MS
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	9.0		39.4	56.2		mg/Kg	☼	120	80 - 120
Cadmium	0.11	J	39.4	47.4		mg/Kg	☼	120	80 - 120
Arsenic	6.2		39.4	49.2		mg/Kg	☼	109	80 - 120
Chromium	26		39.4	68.1		mg/Kg	☼	107	80 - 120

Lab Sample ID: 580-99593-A-1-I MSD
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	9.0		39.8	49.0		mg/Kg	☼	100	80 - 120	14	20
Cadmium	0.11	J	39.8	40.1		mg/Kg	☼	100	80 - 120	17	20
Arsenic	6.2		39.8	43.8		mg/Kg	☼	95	80 - 120	12	20
Chromium	26		39.8	62.2		mg/Kg	☼	91	80 - 120	9	20

Lab Sample ID: 580-99593-A-1-G DU
Matrix: Solid
Analysis Batch: 345924

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 345820

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lead	9.0		8.90		mg/Kg	☼	1	20
Cadmium	0.11	J	0.111	J	mg/Kg	☼	5	20

Method: 2540G - SM 2540G

Lab Sample ID: 580-99717-A-5 DU
Matrix: Solid
Analysis Batch: 345512

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	89.2		89.5		%		0.3	20
Percent Moisture	10.8		10.5		%		3	20

Sample Summary

Client: Cascade Analytical Inc
Project/Site: ANS Geo

Job ID: 580-99649-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-99649-1	20-C025910	Solid	12/09/20 15:00	12/10/20 10:00	

Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 580-99649-1

Login Number: 99649
List Number: 1
Creator: Vallelunga, Diana L

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

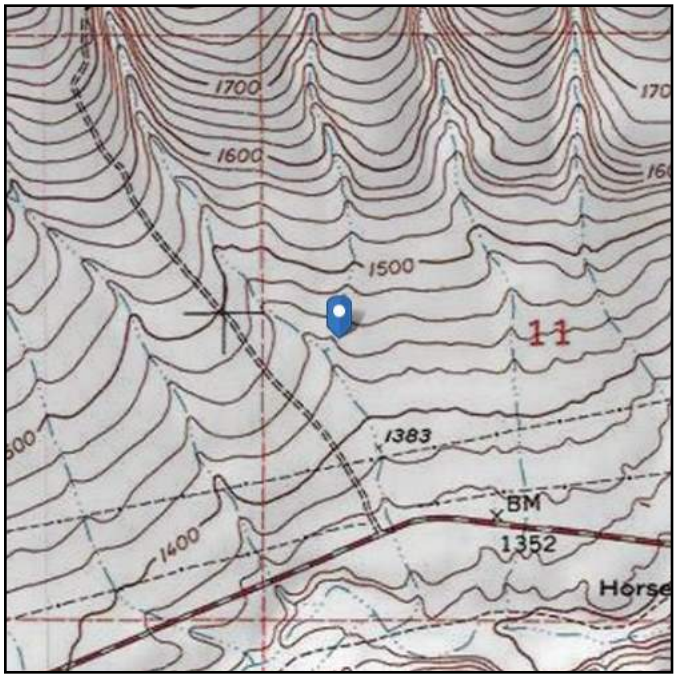
Attachment G

Seismic Support Data

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	1446.91 ft (NAVD 88)
Risk Category:	II	**Latitude:**	46.540793
Soil Class:	C - Very Dense Soil and Soft Rock	**Longitude:**	-119.91346



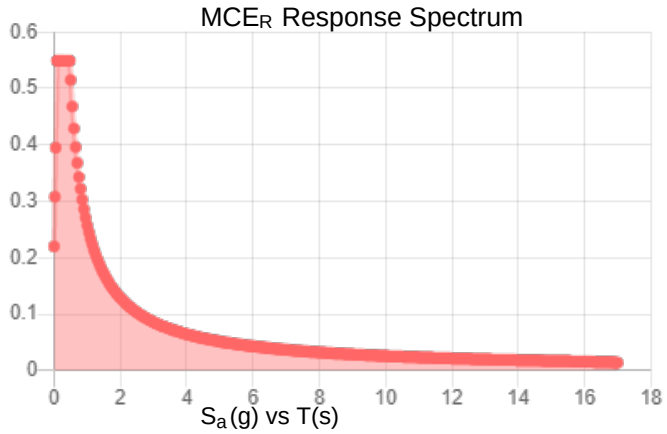
Seismic

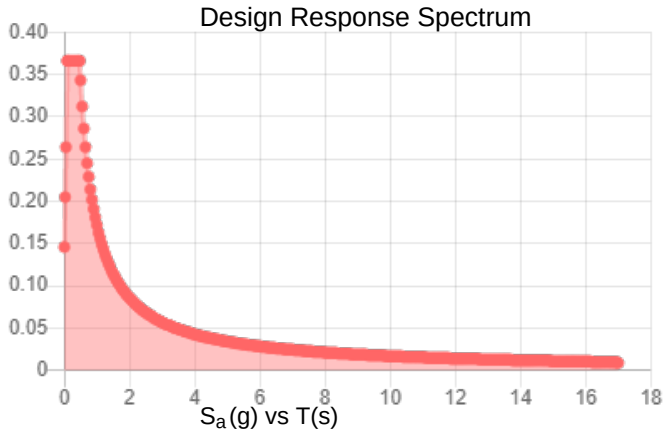
Site Soil Class: C - Very Dense Soil and Soft Rock

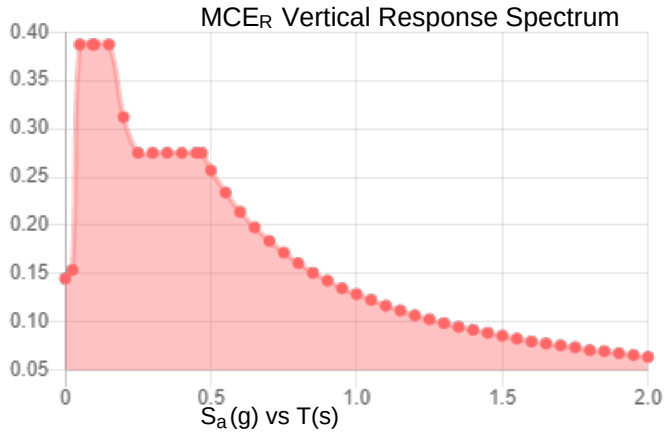
Results:

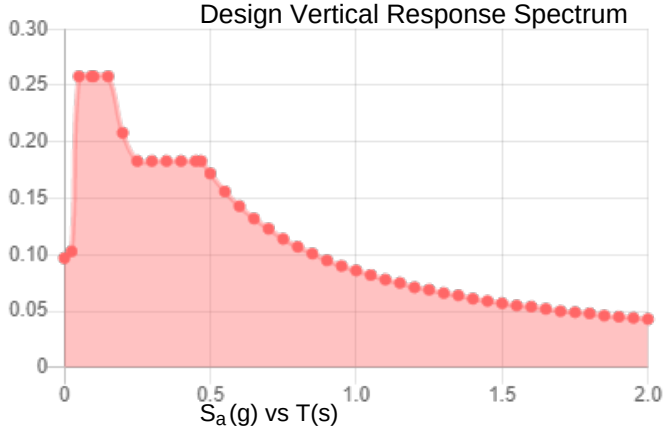
S_S :	0.422	S_{D1} :	0.172
S_1 :	0.172	T_L :	16
F_a :	1.3	PGA :	0.189
F_v :	1.5	PGA_M :	0.229
S_{MS} :	0.549	F_{PGA} :	1.211
S_{M1} :	0.257	I_e :	1
S_{DS} :	0.366	C_v :	0.882

Seismic Design Category C









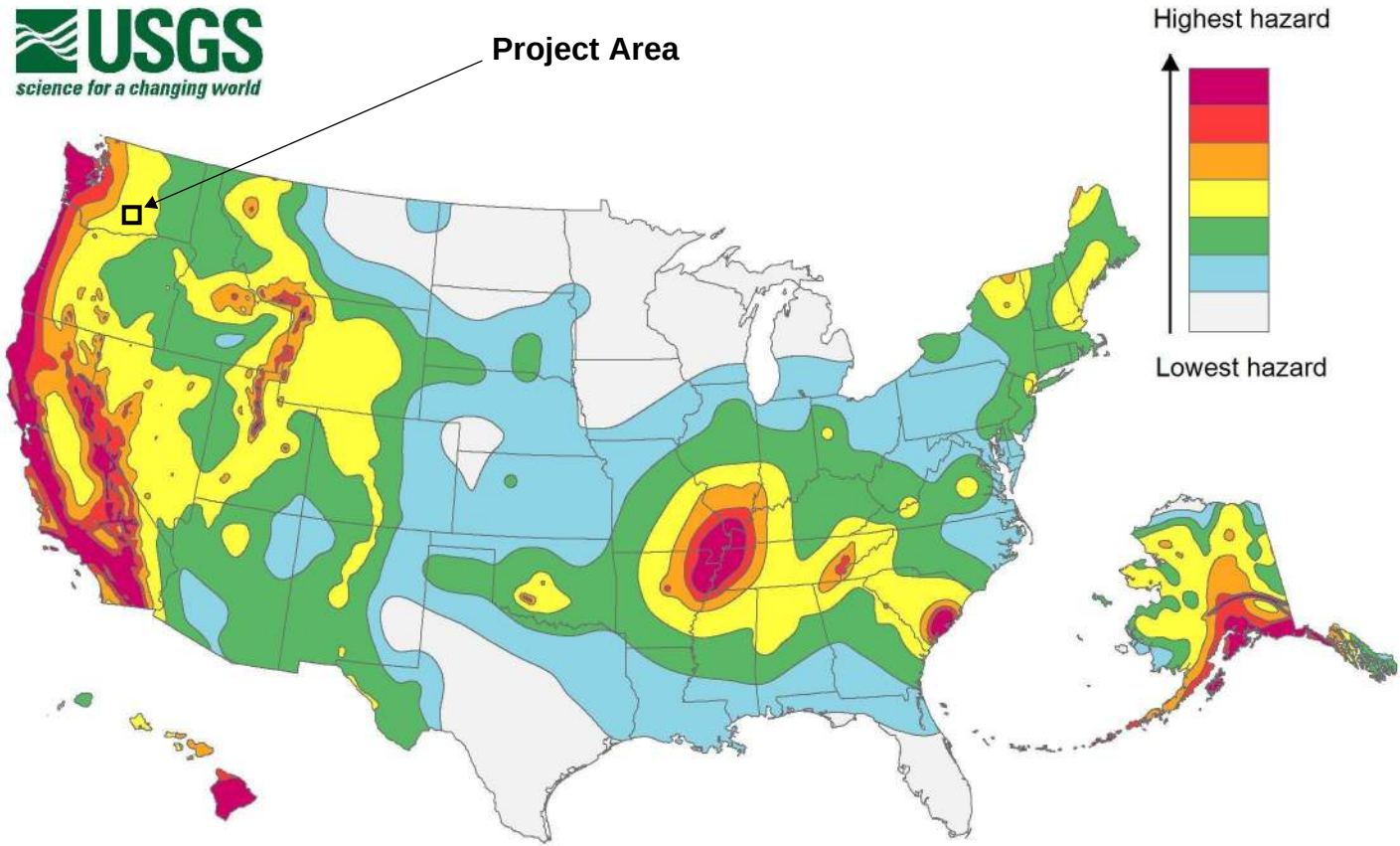
Data Accessed: Wed Jan 13 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.


USGS
science for a changing world
Project Area
Highest hazard
Lowest hazard