Attachment K. Geotechnical Engineering Report

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Geotechnical Report

Carriger Solar Project

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Vatsal Shah, PE, Ph.D
Washington PE No. 20114988

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Attachments

1 Introduction

ANS Geo, Inc. is pleased to provide this Geotechnical Report (Report) to Cypress Creek Renewables (CCR) to summarize the results of our geotechnical field investigations, completed in two phases within January of 2021 and January of 2022, in support of the proposed Carriger Solar project located in Goldendale, 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, test pit excavations, pile load testing, and laboratory soil material and corrosion testing.

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

2 Methodology

2.1 Test Pile Installation

ANS Geo conducted pre-drilling of test pile locations followed by installation and testing of W6x9 steel sections "piles" at a total of 29 accessible locations across the proposed solar array area(s). Fifteen locations were completed between January 19 and 26, 2021, and an additional 14 completed between January 31 and February 1, 2022. Given the anticipated presence of shallow bedrock and/or boulders throughout the project area, most test locations were pre-drilled using an air hammer drilling technique. Drilled holes were of six-inch diameter and were advanced through overburden soil and underlying bedrock, where encountered, to approximately 6 to 7 feet below grade. Upon completion, each hole was temporarily covered with plywood until test piles were installed.

ANS Geo notes that the project site was saturated and *extremely* soft at the time of both of our investigation programs, and as such, our exploration locations were shifted to accessible locations around the perimeter of agricultural fields.

Upon completion of the pre-drilling work, W6x9 steel sections ("piles") were installed to between 6 and 7 feet below ground surface (BGS), where feasible, through each pre-drilled hole via direct push to significant resistance, then driven to their targeted depths using a GAYK HRE 4000 Pile Driver. The installation and load testing program was overseen and logged by an ANS Geo geotechnical representative under the direction of a Professional Engineer licensed in the State of Washington.

2.2 Uplift Load Testing

Once driven to the targeted embedment depth, an uplift load test was performed on each test pile in accordance with the ASTM D3689 (uplift) test method. The tension load was generally applied through the hydraulic force from the arm of a JCB telescoping forklift (or, "lull"). As the site was heavily saturated and soft at the time of our testing programs, the lull was unable to access several locations, at which a John Deere 310L EP backhoe's arm was utilized to apply the uplift force.

Uplift loads were generally applied in regular, 500 to 1,000-pound increments up to a maximum uplift load of at least 10,000 pounds, where applicable (significantly less when pulling with the backhoe), to determine the load, if reached, which resulted in one-half inch of deflection.

2.3 Lateral Load Testing

A lateral load test was performed at each test location, following each uplift load test, in accordance with ASTM D3966 (lateral) test method. Horizontal loads were applied at approximately three (3) feet above grade on each pile with the pulling force of the GAYK Pile Driver or lull, where accessible. Each test load was similarly applied in one-minute, 500-pound increments up to 4,000 pounds, where feasible. Once achieved, the load was immediately released and reloaded up to a maximum lateral deflection, measured at four (4) inches above

grade, of approximately one-inch, if not already achieved. Locations of the pile load tests are depicted in the Investigation Location Plan, provided as **Attachment A**.

Results of the pile load testing program are summarized within **Section 5**.

2.4 Test Pits

Following completion of load testing, a test pit was excavated immediately adjacent to each test pile, with the exception of the PLT-04 location, to identify the subsurface conditions. At the time of our round of test pits, access to the PLT-04 location proved too soft to re-mobilize equipment. Each test pit was excavated using an excavator down to refusal on cobbles, boulders, and/or bedrock. While test pits were open, a majority of the tested piles were excavated, with the exception of PLT-04, 07, 12, and 13 which were cut two (2) feet below existing grade. All scrap material was disposed of off-site.

All test pits 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 B**. Upon completion, each test pit excavation was backfilled with native soil cuttings, bucket-tamped, and driven over several times with the backhoe to minimize any post-excavation settlement.

2.5 Electrical Resistivity Testing

As part of the second phase of our field investigation program, ANS Geo performed field Electrical Resistivity Tomography (ERT) testing throughout the site's southern parcels. Testing was conducted at nine (9) locations within the depicted "usable" array areas. In-situ soil resistivity measurements were obtained by utilizing the Wenner 4-Pin Method in accordance with ASTM G57 and IEEE Standard 81. Two (2) mutually perpendicular traverses were collected at each location utilizing electrode "a"-spacings of 5, 10, 15, 20, 25, and 50 feet. Test results are presented as **Attachment C**.

3 Geology and Subsurface Conditions

ANS Geo conducted a brief, desktop review of surficial and bedrock geology maps and reports made available by the Washington Department of Natural Resources as well as the USDA Natural Resources Conservation Service prior to conducting our investigation. The available mapping indicates that the site lies within surficial silt loam deposits containing varying amounts of gravel and cobbles underlain by shallow, generally unweathered basalt bedrock. The mapped soil and rock formations are consistent with the findings of our field investigation.

Within our investigation program, ANS Geo observed the following generalized subsurface conditions (Table 1) within the explored locations. It should be noted that the provided profile is a highly generalized representation of site conditions. Test Pit Logs, included as **Attachment B**, should be referenced for detailed, location-specific information.

Table 1 – Generalized Subsurface Profile

Average Depth (feet)	Material	Description
0' – 1'	Topsoil	Topsoil was encountered within all test pits extending between four (4) and 24 inches below grade.
1' – 3'	Silt (ML)	Silt was generally encountered underlying the topsoil stratum within the test pit excavations. The soil generally contained varying amounts of clay, gravel, and sand with occasional cobble inclusions.
3' – 5'	Silt with Cobbles and Boulders (ML)	The silt layer, in most locations, transitioned to a stiffer horizon containing frequent cobbles and boulders which proved difficult within the test pit excavations. The increased prevalence of granular material resulted in a generally cohesionless composition throughout this horizon.
5' +	Bedrock	The John Deere 310L EP and CAT 310 excavators met refusal on rock material prior to the planned termination depth in all test pits between 2.3 and 9.8 feet below grade on cobbles, boulders, and/or weathered basalt bedrock. ANS Geo notes that the average depth to refusal within the "northern" area (Locations 1 through 15) was approximately 5.7 feet, whereas this average value within the "southern" area (Locations 16 through 29) was approximately 4.1 feet.

Seepage was observed in test pit TP-02 at a depth of approximately 5.9 feet below grade, near the bedrock interface, which likely represents trapped/perched water conditions. It should be noted that groundwater conditions are ephemeral and may fluctuate due to seasonal and climate conditions.

4 Laboratory Results

4.1 Soil Index Testing

Representative soil samples were collected from three (3) locations within our test pit explorations and submitted to ANS's accredited materials testing laboratory for Atterberg Limits testing in accordance with ASTM D4318. A summary of the test results is provided within Table 2.

Table 2 – Soil Index Testing Summary

Test Pit ID	Sample ID	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	% Moisture
TP-07	G-1	2.5 - 3.5	25.9	18.5	7.4	18.4
TP-09	G-1	2.5 - 3.5	22.6	16.0	6.6	13.3
TP-13	G-1	3 - 4	24.5	17.9	6.6	19.8

4.2 Thermal Resistivity Testing

ANS Geo collected bulk samples from four (4) locations throughout the site's southern parcels from three (3) to five (5) feet below grade for laboratory testing of thermal resistivity. Soils were collected in a five-gallon bucket and delivered to ANS's 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 D.**

Table 3 – Thermal Resistivity Testing Summary

Location ID	Material Type	Thermal Resistivity Values at Various Moisture Contents					In-Situ 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-18 (3' depth)	Silt with cobbles	0.0	3.0	6.1	9.1	12.1	16.7	95.0
		329	**265**	**161**	**122**	**90**		
TP-19 (5' depth)	Silt with cobbles	0.0	3.7	7.3	11.0	14.6	10.1	92.9
		356	**239**	**218**	**146**	**130**		
TP-24 (4' depth)	Silt with cobbles	0.0	5.7	11.3	17.0	22.6	10.6	79.6
		285	**142**	**94**	**85**	**82**		
TP-29 (3' depth)	Silt with cobbles	0.0	3.0	6.1	9.1	12.1	16.3	92.5
		291	**220**	**151**	**110**	**96**		

4.3 Corrosivity Testing

ANS Geo collected additional samples from one (1) to five (5) feet below grade within 13 test pit locations for corrosivity testing. The results of the testing, also completed by ANS, have been summarized within Table 4. All as-received laboratory results are detailed within **Attachment D**.

Table 4 – Corrosivity Testing Summary

Test Pit ID	pH	Sulfate (mg/kg)	Chloride (mg/kg)	Soil Box (Calculated Resistivity) (Ω/cm)	Redox Potential (average) (mV)
TP-02	6.43	7	35	15,000	135
TP-04	6.36	14	60	17,000	139
TP-05	7.06	27	65	6,000	132
TP-07	6.18	17	85	19,000	151
TP-16	6.98	6	0.3	13,000	153
TP-18	6.78	7	0.2	14,000	149
TP-19	6.81	4	0.2	18,000	145
TP-20	6.82	8	0.2	10,000	137
TP-21	6.88	10	0.2	8,000	137
TP-22	6.69	11	0.2	22,000	139
TP-26	7.14	18	1.3	6,000	129
TP-28	6.52	5	0.2	25,000	143
TP-29	7.07	4	0.3	29,000	155

4.4 California Bearing Ratio Testing

ANS Geo collected an additional sample from one (1) to two (2) feet below grade at two (2) locations within the site's southern parcels for testing of California Bearing Ratio (CBR) in accordance with ASTM D1883 at approximately 90 percent of its Standard Proctor Density (ASTM D698). The results of the testing are summarized within Table 5 and detailed within **Attachment D**.

Table 5 – California Bearing Ratio Summary

Location ID	CBR Ratio (%)
TP-23	4.4
TP-28	4.6

5 Pile Load Testing Results

Table 6 presents the summarized results of the pile load testing program at each test location. Complete Load Testing Logs are provided as **Attachment E** and should be referenced for detailed information.

Table 6 – Pile Load Testing Summary

Load Test ID	Pile Section	Embedment Depth (ft.)	Average Pile Installation Rate (sec/ft)	Approx. **Uplift** Load at 0.5-inch Deflection (lbs)	Approx. **Lateral** Load at 0.5-inch Deflection (lbs)
PLT-01	W6x9	7.0	1.4	> 8,300	2,000
PLT-02	W6x9	7.0	0.9	> 2,100	2,000
PLT-03	W6x9	7.0	3.9	> 10,200	1,000
PLT-04	W6x9	7.0	1.9	> 10,100	2,300
PLT-05	W6x9	7.0	2.8	> 10,200	3,200
PLT-06	W6x9	7.0	2.6	> 10,000	1,700
PLT-07	W6x9	7.0	2.0	> 2,000	3,000
PLT-08	W6x9	7.0	2.1	> 10,000	1,600
PLT-09	W6x9	6.5	6.0	> 10,000	1,100
PLT-10	W6x9	7.0	1.6	> 3,100	1,900
PLT-11	W6x9	7.0	2.3	> 2,800	2,300
PLT-12	W6x9	7.0	4.4	11,500	3,100
PLT-13	W6x9	7.0	2.2	> 10,500	900
PLT-14	W6x9	6.5	4.7	> 10,100	2,400
PLT-15	W6x9	7.0	1.3	> 2,800	2,400
PLT-16	W6x9	7.0	4.0	> 12,000	1,450
PLT-17	W6x9	6.0	0.9	4,800	900
PLT-18	W6x9	7.0	3.1	> 12,000	3,450
PLT-19	W6x9	6.0	1.9	> 12,000	1,400
PLT-20	W6x9	6.0	1.4	> 12,000	1,150
PLT-21	W6x9	7.0	1.8	> 12,000	2,100
PLT-22*	W6x9	4.0	31.1	3,300	400
PLT-23*	W6x9	3.0	40.0	1,700	550
PLT-24*	W6x9	7.0	28.5	> 12,000	2,950
PLT-25	W6x9	7.0	4.0	> 13,000	1,300
PLT-26	W6x9	7.0	5.5	> 12,000	2,900
PLT-27	W6x9	7.0	3.9	> 12,900	1,700
PLT-28*	W6x9	4.5	50.0	9,600	1,100
PLT-29	W6x9	8.0	3.0	> 12,000	650

* ANS Geo notes that pile installations at locations PLT-22, 23, 24, and 28 were attempted conventionally, and not within pre-drilled holes.

6 Seismic Site Classification

From our experience working on similar projects in the region, and our understanding of the subsurface conditions at the site, it is anticipated that the Seismic Site Classification for the project site will be, at least, Site Class C. If a Site Class C classification is confirmed, the following seismic parameters will apply.

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= 0.432 g
- 1 second spectral response acceleration, S_1= 0.197 g
- Maximum spectral acceleration for short periods, S_{MS}= 0.562 g
- Maximum spectral acceleration for a 1-second period, S_{M1}= 0.295 g
- 5% damped design spectral acceleration at short periods, S_{DS}= 0.374 g
- 5% damped design spectral acceleration at 1-second period, S_{D1}= 0.197 g

6.1 Preliminary Seismic Evaluation

The designated seismic site class is anticipated based on observations recorded within our limited investigation program. Seismic support data is provided as **Attachment F**. 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 mild to moderate risk of significant seismic activity which may impact the proposed solar facility.

7 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.

7.1 Corrosion Considerations

Given limited testing results measuring the soil pH level, sulfate and chloride concentrations, resistivity, and redox potential summarized in **Section 4.3** (Table 4), in consideration with the soil and moisture conditions observed, the in-situ soil conditions generally indicate that soils are "mildly corrosive" to "moderately corrosive". Therefore, it is anticipated that hot dipped galvanized steel with a minimum zinc coating thickness in accordance with ASTM A123 should be specified to provide allowance for corrosion loss. For structural steel shapes, a minimum zinc coating thickness typically ranges from 3-mil to 4-mil depending on the steel section size as specified by ASTM A123. For example, a W6x9 shall contain a minimum zinc coating grade of 85 micrometers, or a 3.3-mil thick coating.

Steel section loss in piles decreases the structural load carrying capacity of the member as well as increases the member deflections. Therefore, it is recommended that the final structural design considers the useful life of galvanized (zinc) coating, followed by the anticipated loss of steel due to corrosion to ensure the structural integrity is maintained throughout the service life. Thicker pile sections, increased zinc coating thickness, or other corrosion protection measures may be necessary to accommodate any reduction in structural capacity. For example, it is possible that a W6x12 pile with a standard zinc coating thickness could corrode to W6x9-equivalent section throughout the service life depending on the corrosion-related soil properties.

It is recommended that a separate, site-specific corrosion evaluation report be developed by ANS Geo, or others, to interpret the soil corrosivity test results and estimate the rate of corrosion for zinc and bare steel resulting from exposure to the surrounding environment. This detailed corrosion evaluation may be provided to the Owner and/or foundation engineer to incorporate the test results into the design and selection of pile foundations, or other buried steel across the site.

7.2 Frost Considerations

Within Klickitat County, Washington, frost depth is mapped to exist at approximately 12 inches below grade. As such, ANS Geo recommends that all structural foundations be founded at least 12 inches (1 foot) below

grade or deeper to ensure adequate protection from frost conditions which may jeopardize the integrity of subgrade soils and associated substructure. Given the shallow frost depth, adfreeze stresses/frost heave against piles may be neglected as it is expected that significant water pressure and/or ice lenses will not be able to build up within this limited range.

7.3 Recommended Soil (LPILE) Parameters for Pile Design

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 Foundation Post Parameters (pre-drilled)

Depth	Material Model	Effective Unit Weight	Internal Friction Angle	Cohesion	Soil Modulus (k)	Soil Strain (E_{50})	Allowable End Bearing	Allowable Side Resistance
0' – 1'	Topsoil / Soft Clay	95 lb/ft^3	---	20 lb/ft^2	---	0.030	---	---
1' – 3'	Mod. Stiff Clay w/o Free Water	105 lb/ft^3	---	250 lb/ft^2	50 lb/in^3	0.020	---	75 lb/ft^2
3' – 5'	Sand (Reese)	110 lb/ft^3	32°	---	100 lb/in^3	---	2,500 lb/ft^2	150 lb/ft^2
5' +	Sand (Reese)	135 lb/ft^3	44°	---	1,000 lb/in^3	---	5,000 lb/ft^2	600 lb/ft^2

ANS Geo recommends that any side resistance within the upper foot be neglected due to anticipated surficial disturbance and frost considerations. These allowable capacities and resistances provided are based on a serviceability limit of one-inch of maximum deflection/settlement. ANS Geo notes that these parameters have been established based on our engineering judgment considering foundation post locations are pre-drilled using a ~85% diameter bit (diameter of drill bit compared to the diagonal dimension of the intended pile). A detailed investigation program, including verification load testing, should be performed to confirm these values prior to construction.

It should also be noted that these parameters are developed based on the completed testing within accessible locations, largely positioned around the perimeter of agricultural fields. It is likely that lower capacities may be observed within the interior "softer" portions of the project site, and as such, ANS Geo strongly recommends that these locations are explored prior to final design.

Pile load testing results and subsurface observations were evaluated by ANS Geo using LPILE software to provide refined soil parameters. It is imperative that additional load testing and detailed structural calculations be performed to confirm these recommendations. Parameters recommended herein are considered preliminary and are presented for planning purposes only.

7.4 Recommended Soil Parameters for Shallow Foundation Design

For foundations other than posts for solar panels (ie. substation elements, inverter slabs, transformers, etc.), ANS Geo recommends the design parameters depicted in Table 8.

Table 8 – Recommended Soil Parameters (non-post foundations)

Depth	Material	Effective Unit Weight	Internal Friction Angle	Cohesion	Allowable Bearing Capacity
0' – 1'	Topsoil	95 lb/ft^3	0°	20 lb/ft^2	0 lb/ft^2
1' – 3'	Silt	105 lb/ft^3	0°	500 lb/ft^2	1,000 lb/ft^2
3' – 5'	Silt with Cobbles & Boulders	110 lb/ft^3	32°	0 lb/ft^2	2,000 lb/ft^2
5' +	Weathered Rock	135 lb/ft^3	36°	0 lb/ft^2	4,000 lb/ft^2

8 Construction Recommendations

8.1 Excavation

Based on the encountered subsurface conditions and anticipated foundation configurations, some excavations, such as installation of cabling, 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 to be "Type B" material and should be sloped no steeper than 1H:1V (horizontal to vertical). 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.

With respect to installation of cabling and other shallow, below-grade elements of the project, it should be anticipated that cobbles and boulders may be encountered during excavations and earthwork activities. In addition to cobbles and boulders, shallow bedrock should also be anticipated. It is our preliminary opinion that any shallow bedrock encountered during cable installation via trenching or ploughing, generally limited to three or four feet in depth, may be removeable using conventional excavation, ripping, or line drilling techniques. This preliminary evaluation should be confirmed through additional investigations, such as rock core sampling and strength testing or geophysical testing prior to construction to determine if blasting is required. ANS Geo notes that pre-drilling for post locations to clear cobbles, boulders, and potentially bedrock should also be anticipated and is further discussed in **Section 8.6**.

8.2 Dewatering

ANS Geo noted the presence of water as shallow as 5.9 feet below grade within one of the test pits at the time of our investigation, and as such, dewatering of excavations is not expected. Notwithstanding, the contractor should be prepared to manage any infiltrated stormwater, perched water, or groundwater 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.

8.3 Subgrade Preparation

Prior to the installation of shallow concrete foundations, ANS Geo recommends overexcavating the subgrade by at least six (6) 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 9. 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 (10 total inches beneath proposed foundation depth) prior to placement of the geotextile separation fabric.

Table 9 – 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.

8.4 Backfilling & Re-use of Native Soils

ANS Geo notes that native fine-grained soils (silts and clays) 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 8.3** and Table 9.

8.5 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* 10 inches of crushed stone as specified within Table 10.

Table 10 – 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.

It should be noted that very soft ground conditions were observed at the time of our investigation programs, and laboratory CBR results (**Section 4.4**) may not be indicative of such conditions. Additional stabilization obtained through placement of geotextile reinforcement fabric (such as Tensar TX160 or similar) or chemical treatment of the subgrade including introduction of lime or cement may be required in soft areas including tilled and/or "forked" agricultural fields. 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).

8.6 Pile Driveability

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 7 to 10 feet below grade. It is ANS Geo's professional opinion that the parameters provided in **Section 7.3** may be used to preliminarily size the proposed piles, however, we recommend verification load testing by the EPC prior to construction using final design loads, the intended pile profile, and the planned pile depth. We recommend that piles be allowed a minimum 72-hour "set-up" time between installation and testing during verification load testing to maximize skin friction.

ANS Geo notes that shallow (less than 7 feet) refusal, likely on bedrock, was encountered at 86% of (25 of 29) locations within our testing program. This percentage is not intended as a recommendation or confirmation of the portion of the site or number of piles may require pre-drilling but, rather, a factual representation of the test pit refusals encountered at the project site.

From our observations during our preliminary load test program, it was noted that the few piles installed conventionally yielded low capacities in both the uplift and lateral directions. As such, ANS Geo recommends that the contractor plan to 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.

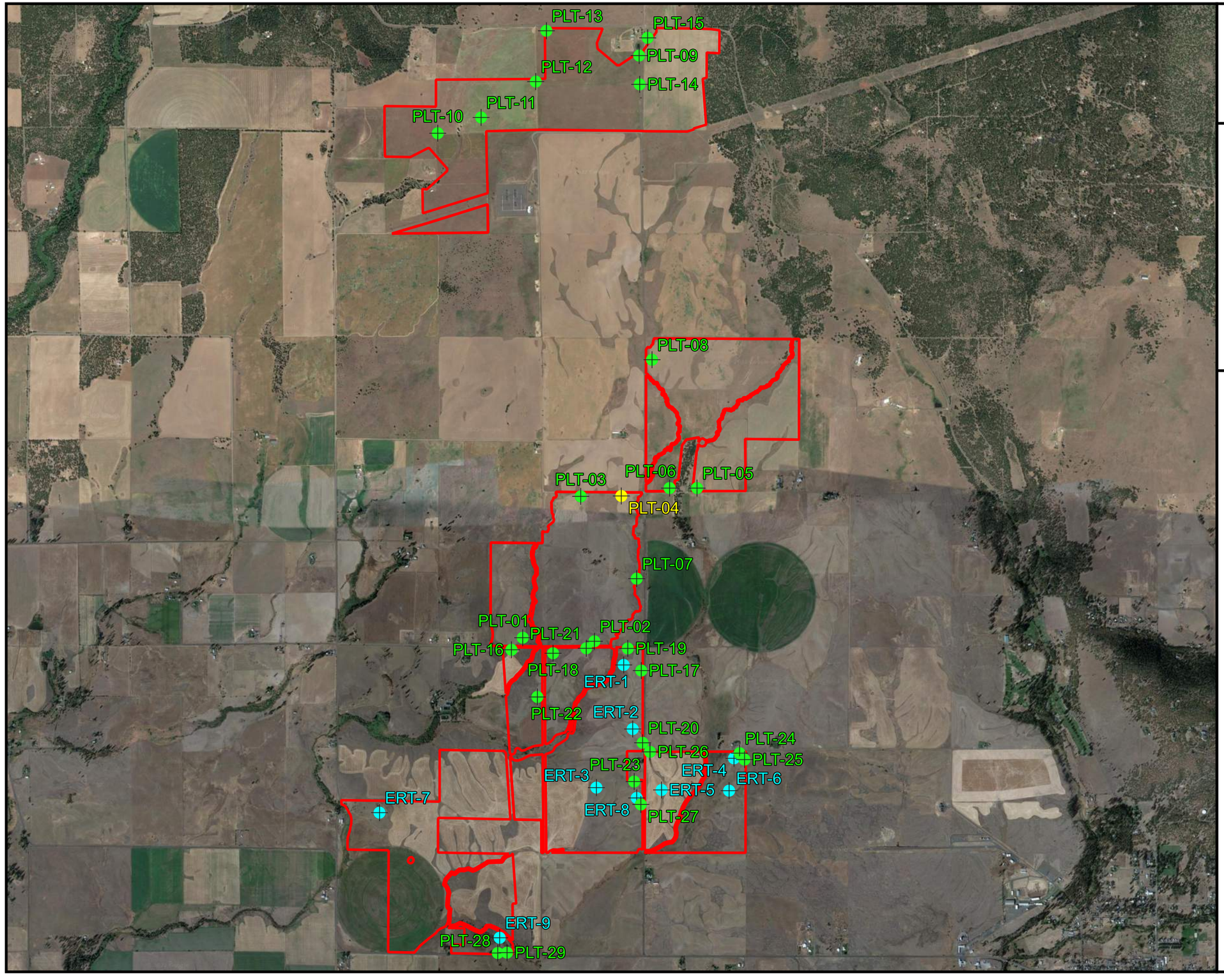
9 Limitations

ANS Geo notes that the findings and recommendations presented within this Geotechnical Report are based on our investigation program conducted in January of 2021 and January of 2022 and our engineering judgment. 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. If actual site subsurface conditions differ from the inferred conditions on which ANS Geo has based our confirmation-dependent recommendations, ANS Geo will need to modify our confirmation-dependent recommendations to develop final recommendations.

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.

Attachment A

Location Plan



ANS GEO

Client:

CYPRESS CREEK RENEWABLES

INVESTIGATION LOCATION PLAN

CYPRESS CREEK RENEWABLES
CARRIGER SOLAR PROJECT
GOLDENDALE, WASHINGTON

Legend

- Project Boundary
- Pile Load Test and Test Pit Location
- Pile Load Test Location Only
- Electrical Resistivity Test Location

0 2,500 5,000 ft

Absolute Scale: 1 inch = 2,500 feet
Scale at 11" x 17" AS SHOWN

Prepared by: Kyle Hansen
Date: February 28, 2022
Drawing Number: ILP-1 Rev.0

Attachment B

Test Pit Logs

TEST PIT PHOTO LOG

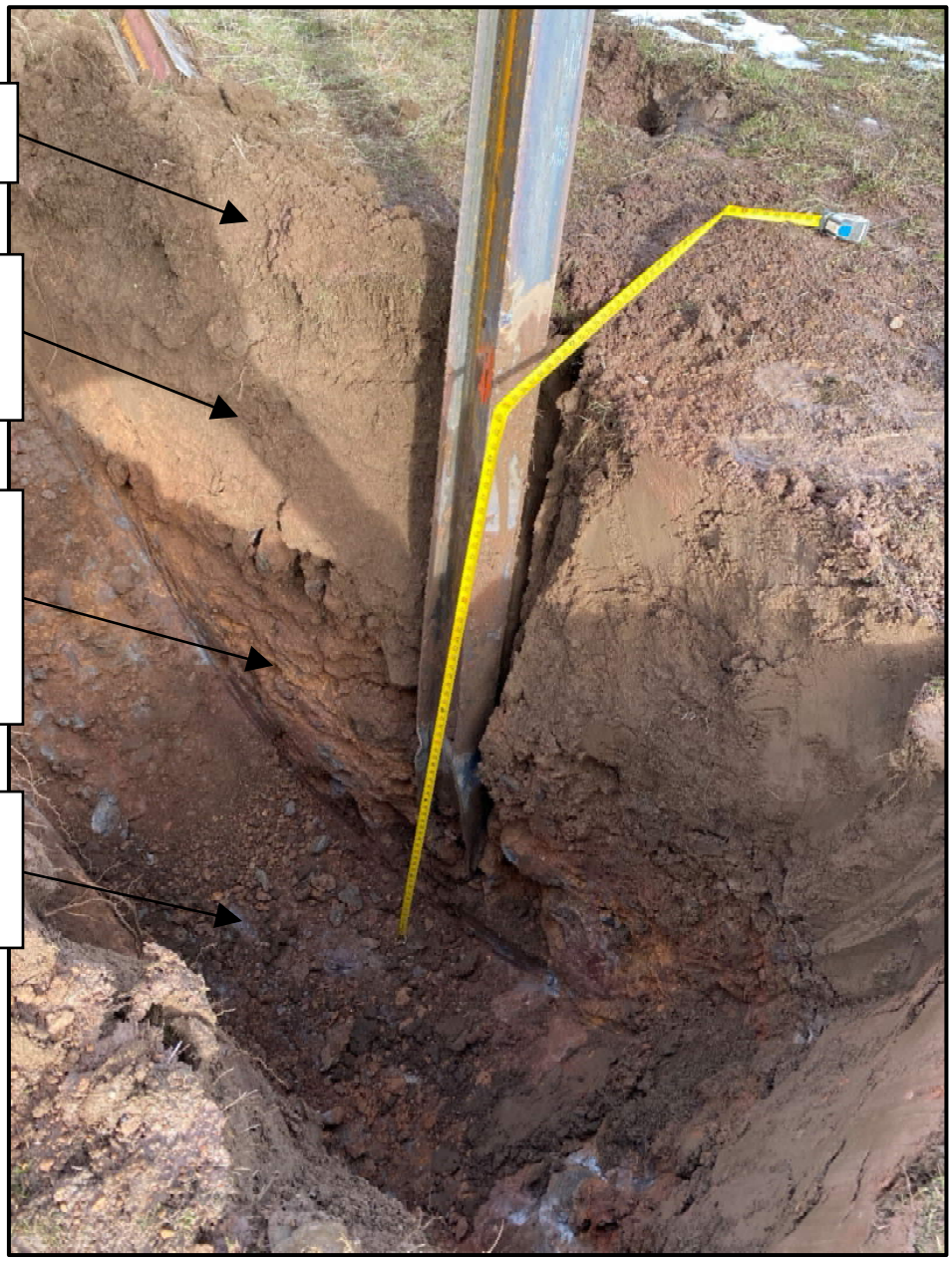
Project Name	Carriger Solar	**Test Pit ID**	TP-01
Site Location	Goldendale, Washington	**Date**	01/25/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 35°F
Final Test Pit Depth	64 inches (5.3 feet)	**Time Opened**	1:55 PM
Groundwater Depth	Not Encountered	**Time Closed**	2:25 PM

0-10”
Topsoil

10-39”
Reddish brown SILT, some coarse to fine sand, moist (ML)

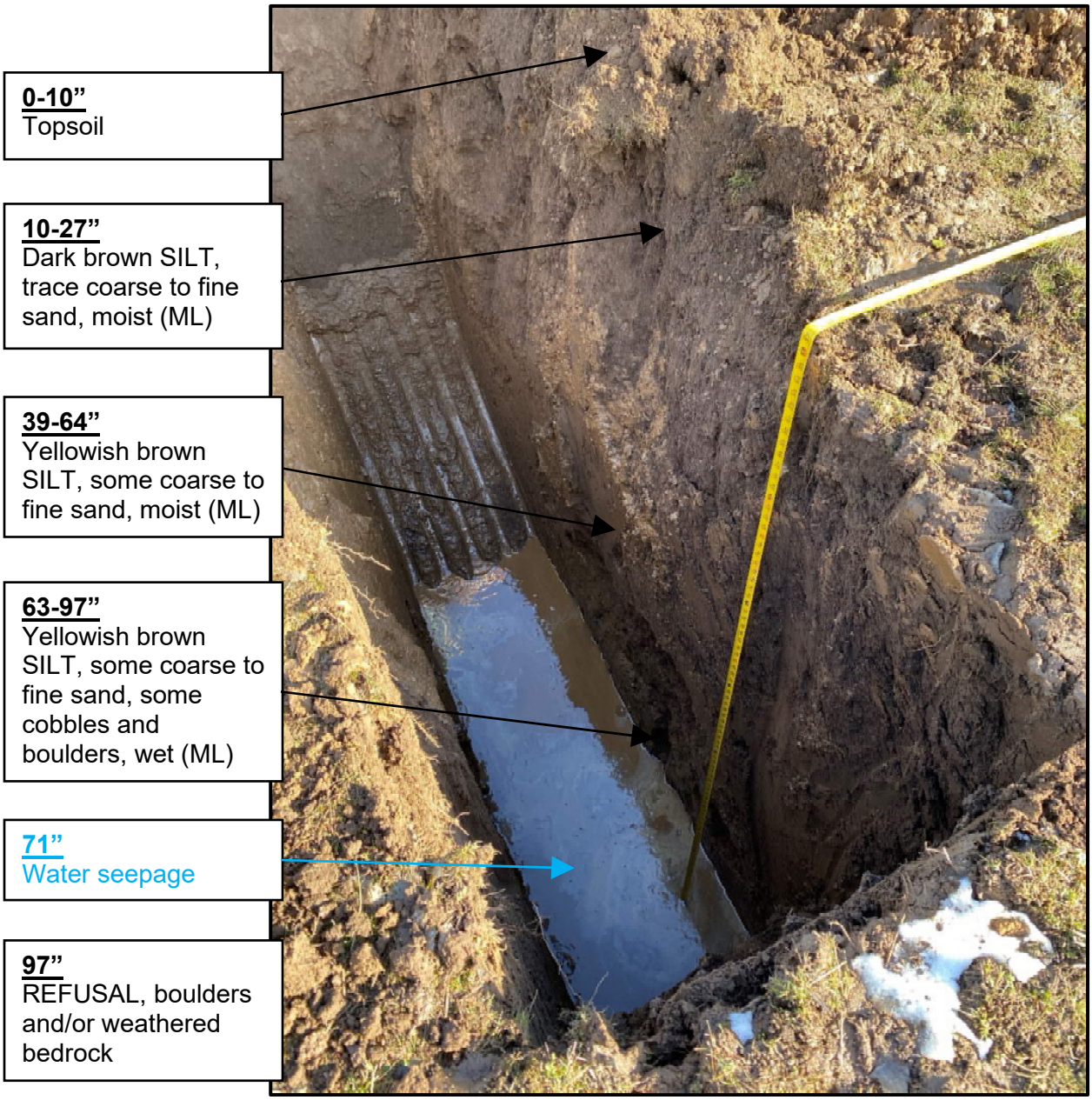
39-64”
Reddish brown SILT, some coarse to fine sand, some cobbles and boulders, moist (ML)

64”
REFUSAL, boulders and/or weathered bedrock



TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-02
Site Location	Goldendale, Washington	**Date**	01/25/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 33°F
Final Test Pit Depth	97 inches (8.1 feet)	**Time Opened**	1:30 PM
Groundwater Depth	71 inches (5.9 feet)	**Time Closed**	1:50 PM



TEST PIT PHOTO LOG

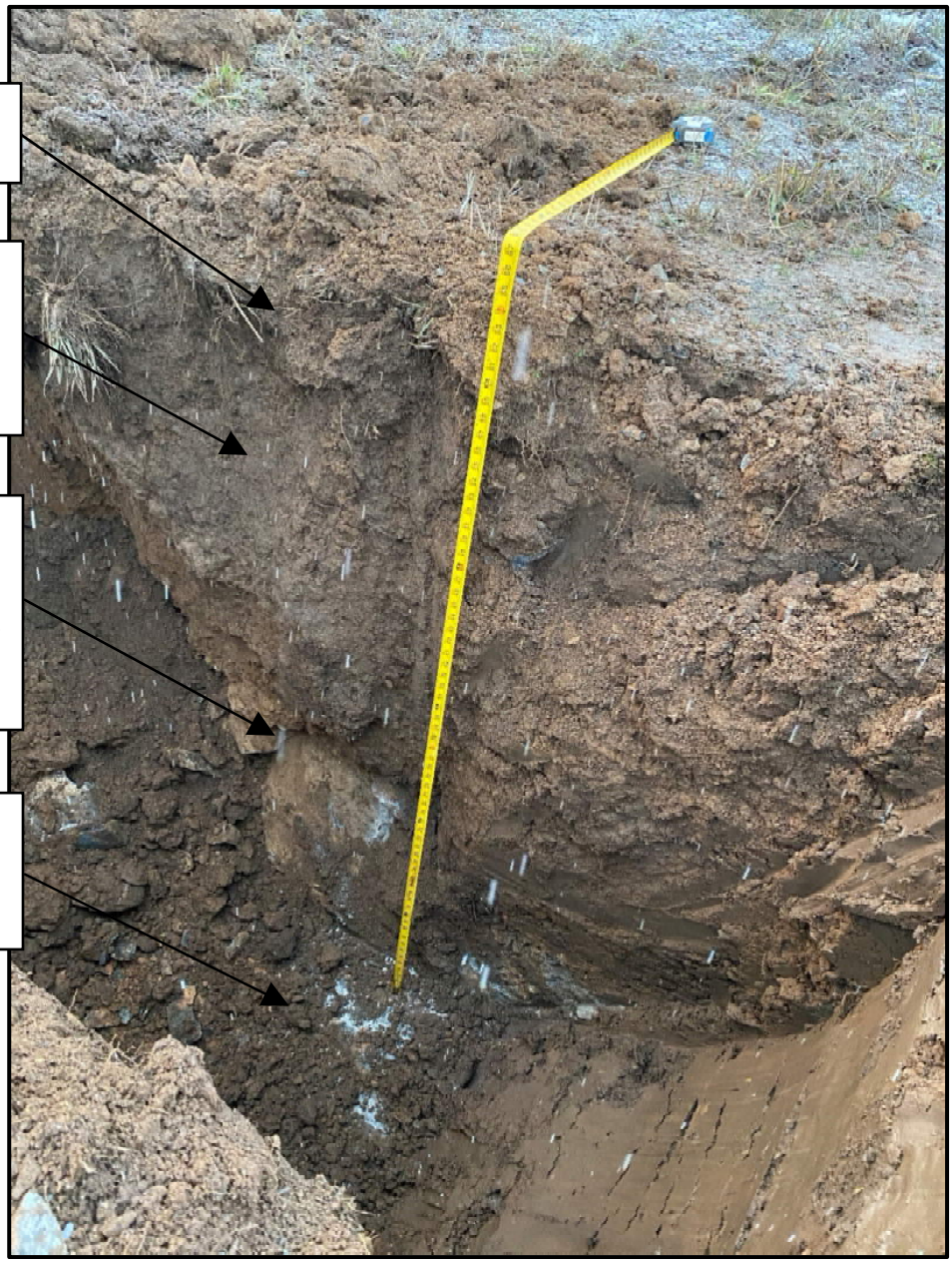
Project Name	Carriger Solar	**Test Pit ID**	TP-03
Site Location	Goldendale, Washington	**Date**	01/24/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Light Snow / 31°F
Final Test Pit Depth	67 inches (5.6 feet)	**Time Opened**	4:20 PM
Groundwater Depth	Not Encountered	**Time Closed**	4:40 PM

0-12”
Topsoil

10-33”
Reddish brown SILT, little clay, little coarse to fine sand, moist (ML)

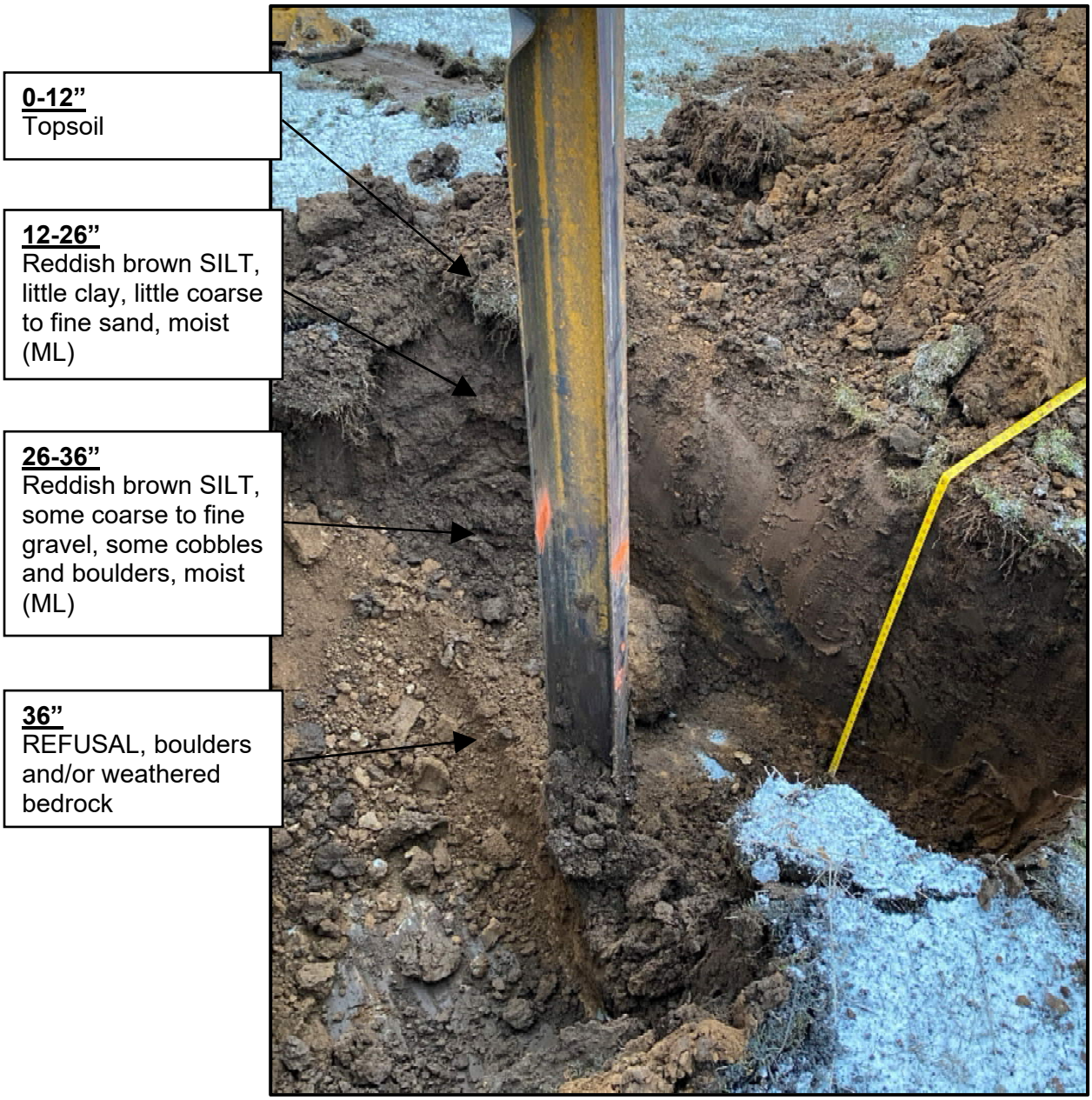
33-67”
Reddish brown SILT, some coarse to fine gravel, some cobbles and boulders, moist (ML)

64”
REFUSAL, boulders and/or weathered bedrock



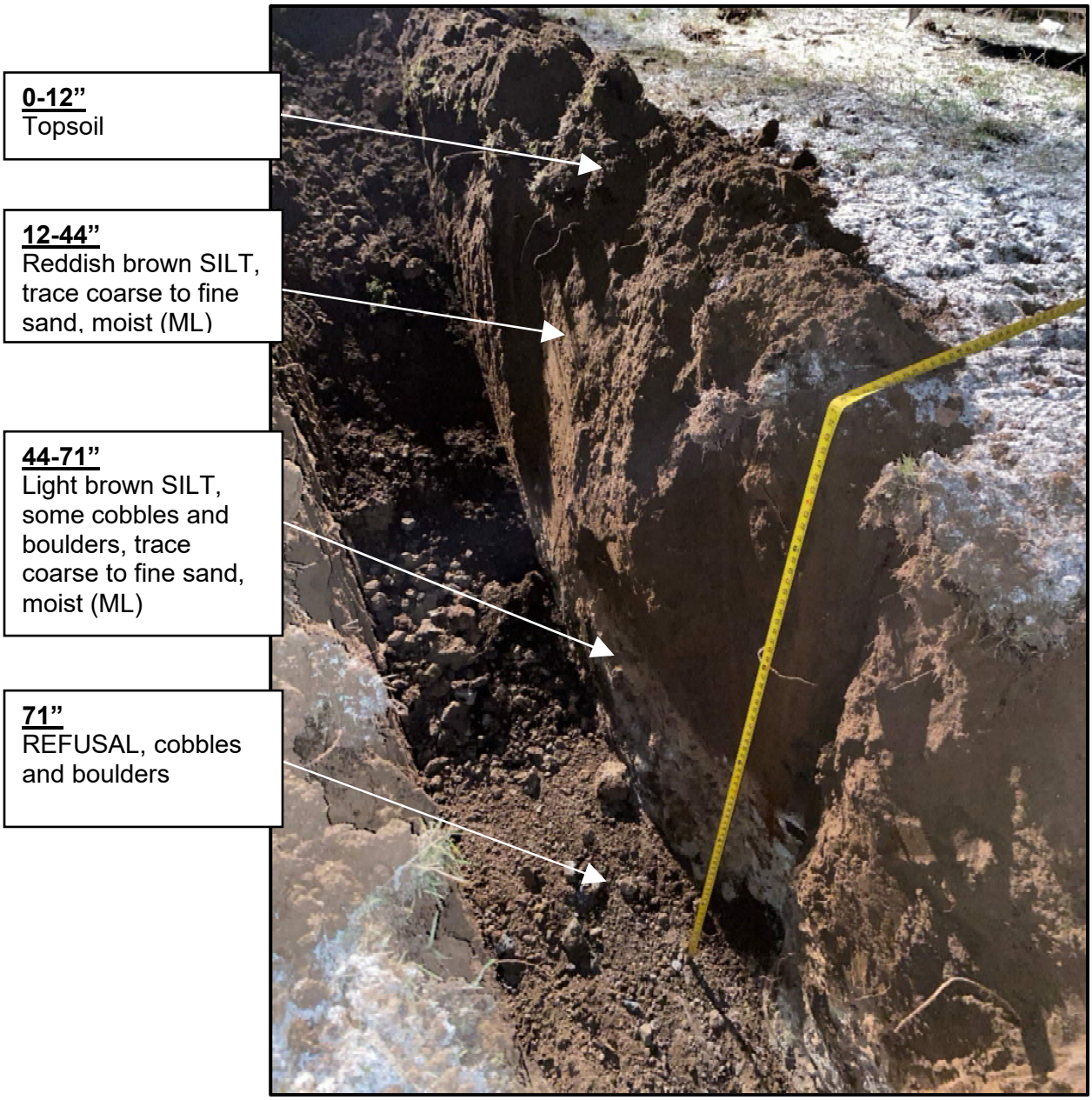
TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-05
Site Location	Goldendale, Washington	**Date**	01/26/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Overcast / 28°F
Final Test Pit Depth	36 inches (3.0 feet)	**Time Opened**	7:40 AM
Groundwater Depth	Not Encountered	**Time Closed**	8:00 AM



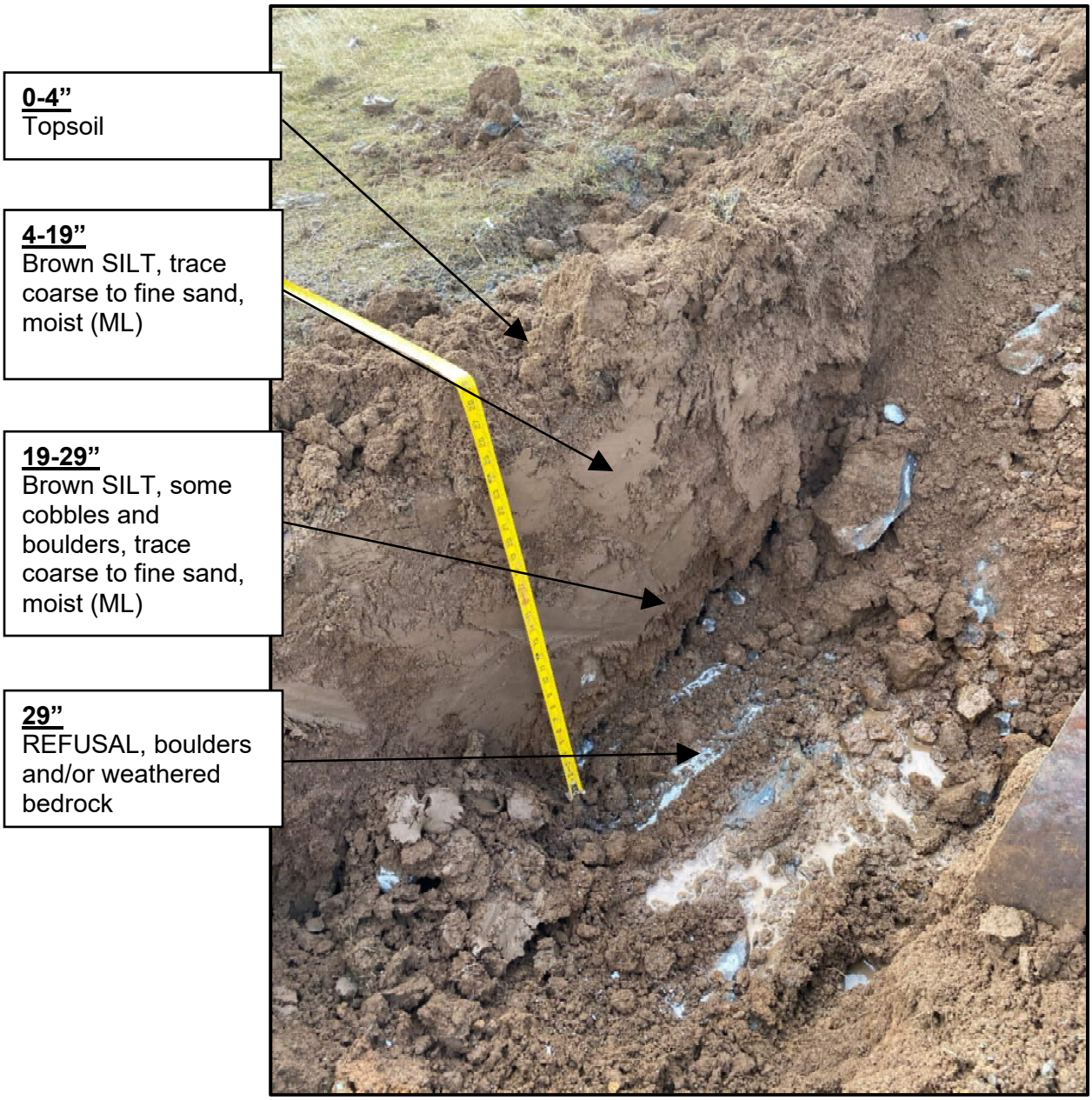
TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-06
Site Location	Goldendale, Washington	**Date**	01/26/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Overcast / 27°F
Final Test Pit Depth	71 inches (5.9 feet)	**Time Opened**	6:25 PM
Groundwater Depth	Not Encountered	**Time Closed**	6:55 PM



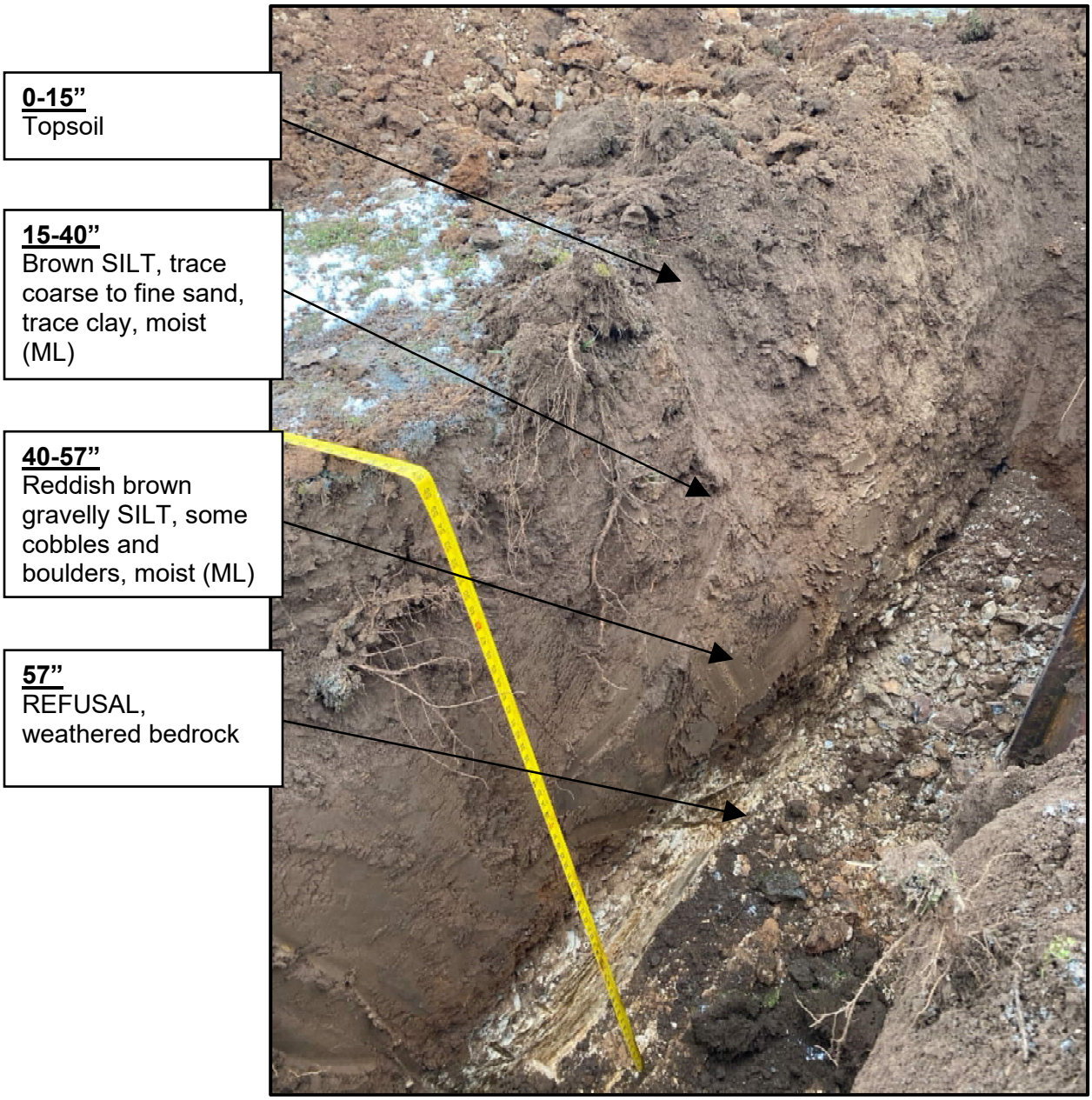
TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-07
Site Location	Goldendale, Washington	**Date**	01/25/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 31°F
Final Test Pit Depth	29 inches (2.4 feet)	**Time Opened**	12:49 PM
Groundwater Depth	Not Encountered	**Time Closed**	1:12 PM



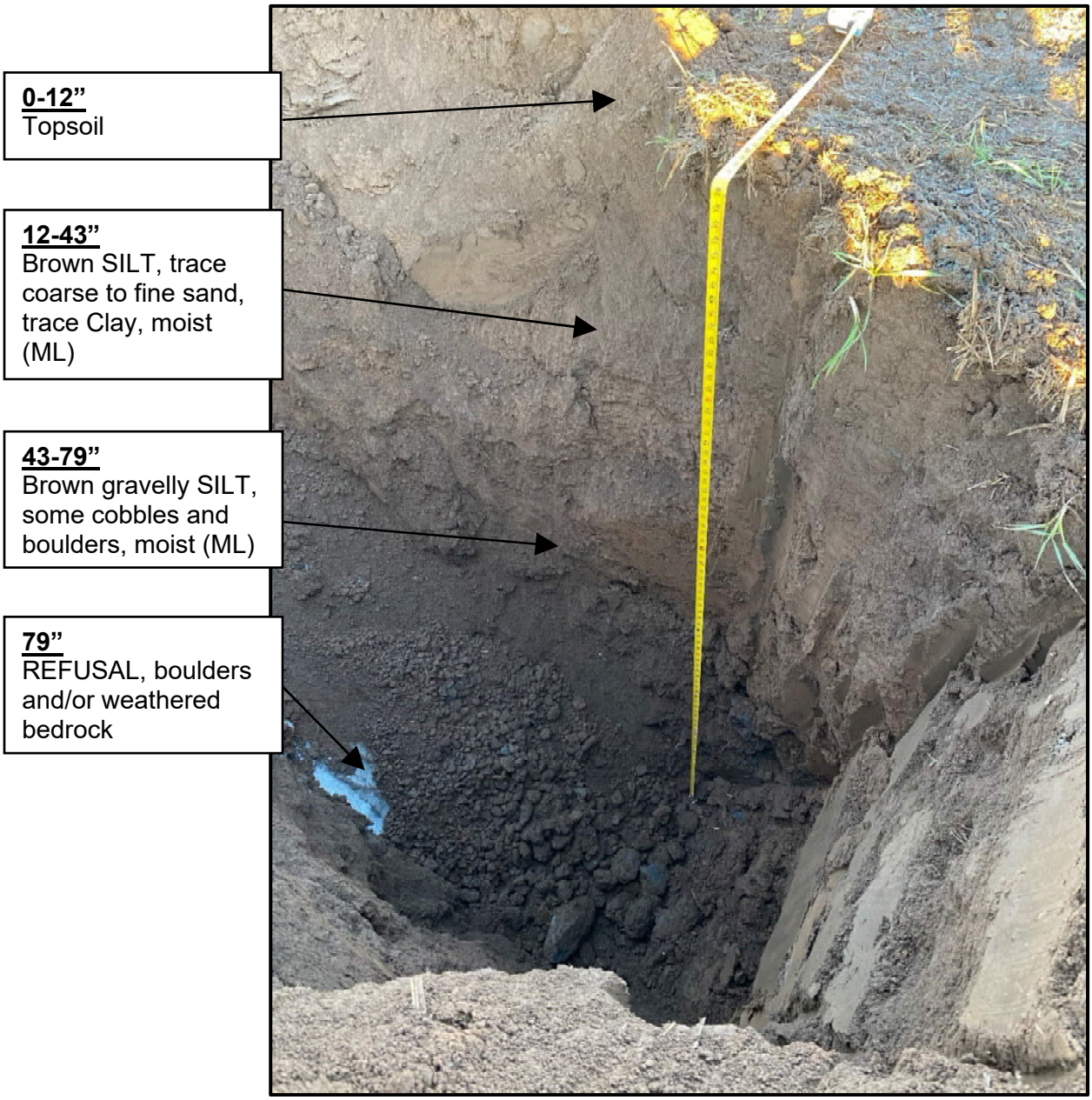
TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-08
Site Location	Goldendale, Washington	**Date**	01/24/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Light Snow / 33°F
Final Test Pit Depth	57 inches (4.8 feet)	**Time Opened**	3:05 PM
Groundwater Depth	Not Encountered	**Time Closed**	3:30 PM



TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-09
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 35°F
Final Test Pit Depth	79 inches (6.6 feet)	**Time Opened**	4:10 PM
Groundwater Depth	Not Encountered	**Time Closed**	4:35 PM



TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-10
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 27°F
Final Test Pit Depth	117 inches (9.8 feet)	**Time Opened**	9:30 AM
Groundwater Depth	Not Encountered	**Time Closed**	9:55 AM

TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-11
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 31°F
Final Test Pit Depth	48 inches (4.0 feet)	**Time Opened**	11:10 AM
Groundwater Depth	Not Encountered	**Time Closed**	11:50 AM

0-10”
Topsoil

10-48”
Brown SILT, some cobbles and boulders, trace clay, moist (ML)

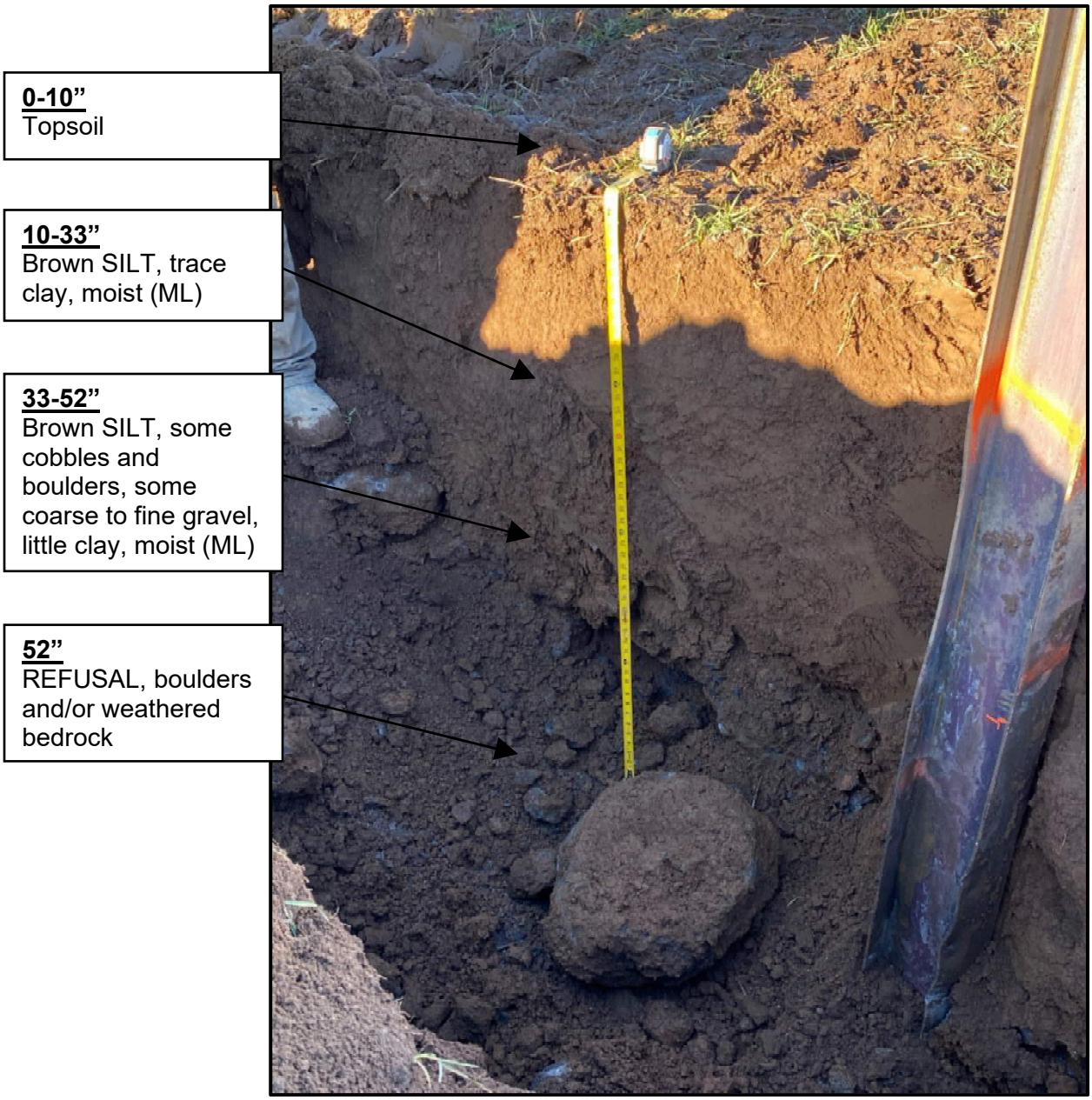
48”
REFUSAL, weathered bedrock

TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-12
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Cloudy / 34°F
Final Test Pit Depth	60 inches (5 feet)	**Time Opened**	1:15 PM
Groundwater Depth	Not Encountered	**Time Closed**	1:50 PM

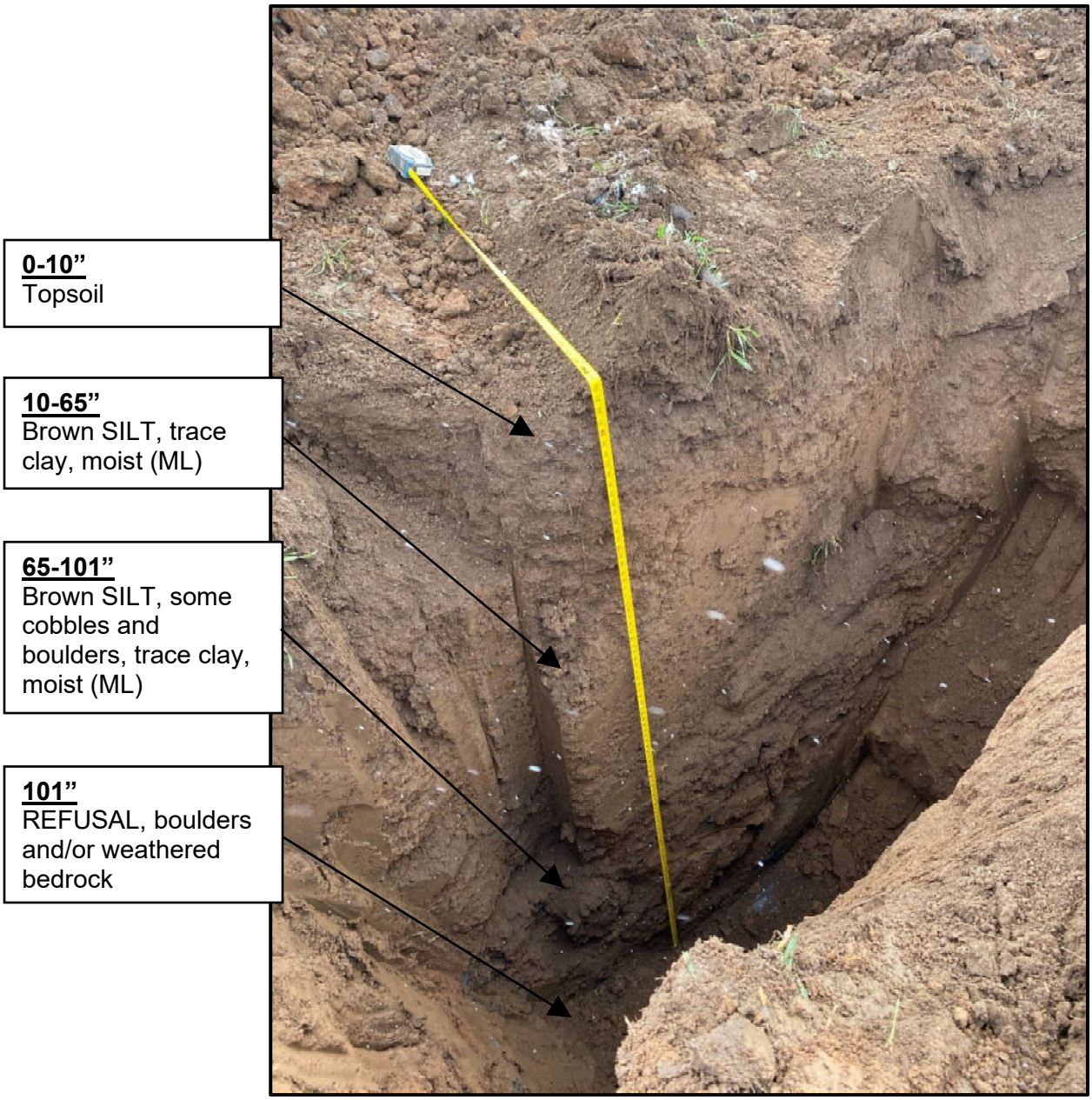
TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-13
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Sunny / 33°F
Final Test Pit Depth	52 inches (4.3 feet)	**Time Opened**	2:40 PM
Groundwater Depth	Not Encountered	**Time Closed**	3:00 PM



TEST PIT PHOTO LOG

Project Name	Carriger Solar	**Test Pit ID**	TP-14
Site Location	Goldendale, Washington	**Date**	01/23/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Light Snow / 30°F
Final Test Pit Depth	101 inches (8.4 feet)	**Time Opened**	2:15 PM
Groundwater Depth	Not Encountered	**Time Closed**	2:35 PM



TEST PIT PHOTO LOG

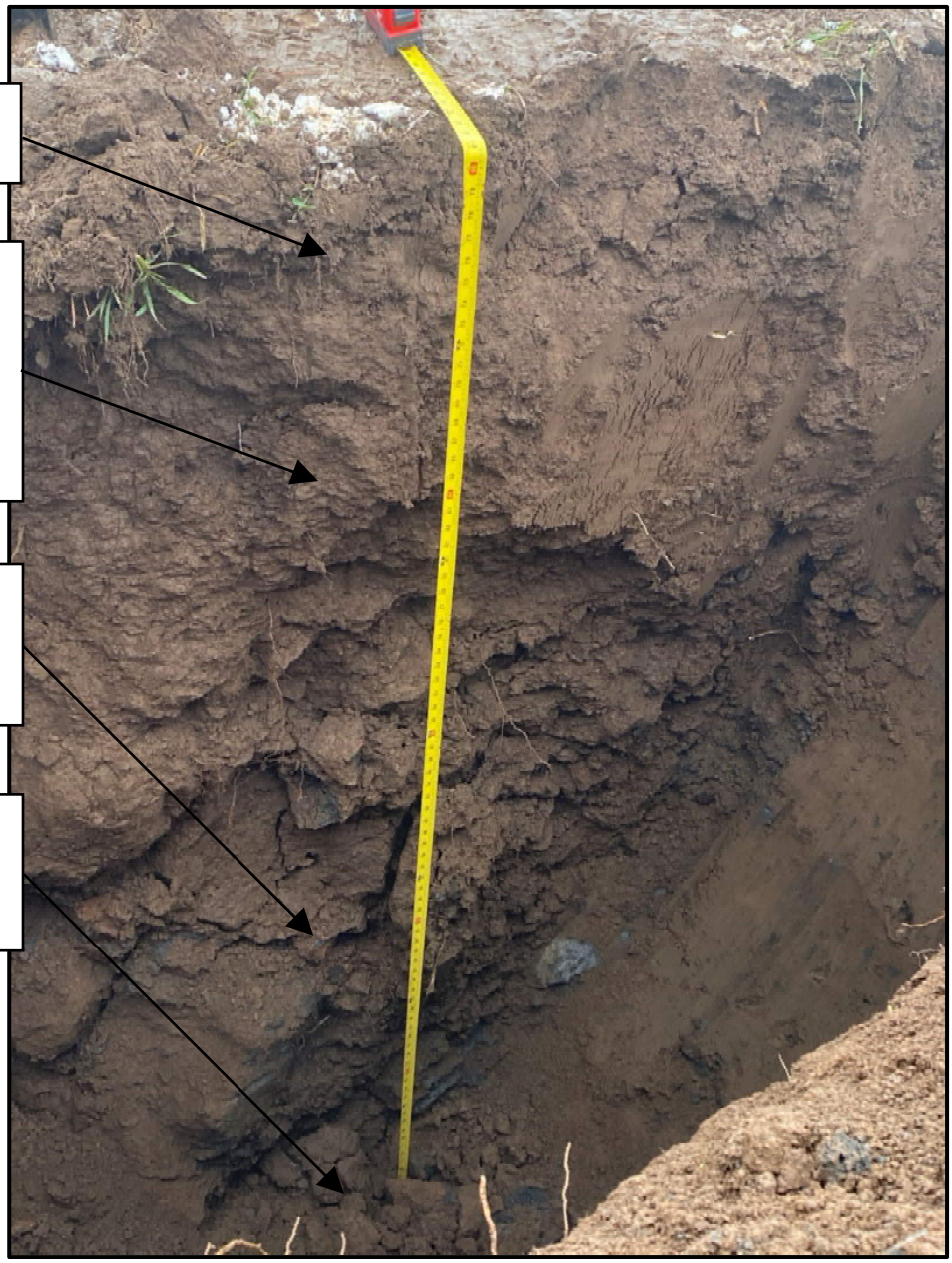
Project Name	Carriger Solar	**Test Pit ID**	TP-15
Site Location	Goldendale, Washington	**Date**	01/22/2021
Contractor	Heliovaas	**ANS Geo Representative**	Michael Nahas
Equipment Used	John Deere 310L EP	**Weather/Temp**	Light Snow / 23°F
Final Test Pit Depth	84 inches (7.0 feet)	**Time Opened**	9:15 AM
Groundwater Depth	Not Encountered	**Time Closed**	9:45 AM

0-10”
Topsoil

10-57”
Grayish brown SILT, little cobbles and boulders, trace coarse to fine sand, trace clay, moist (ML)

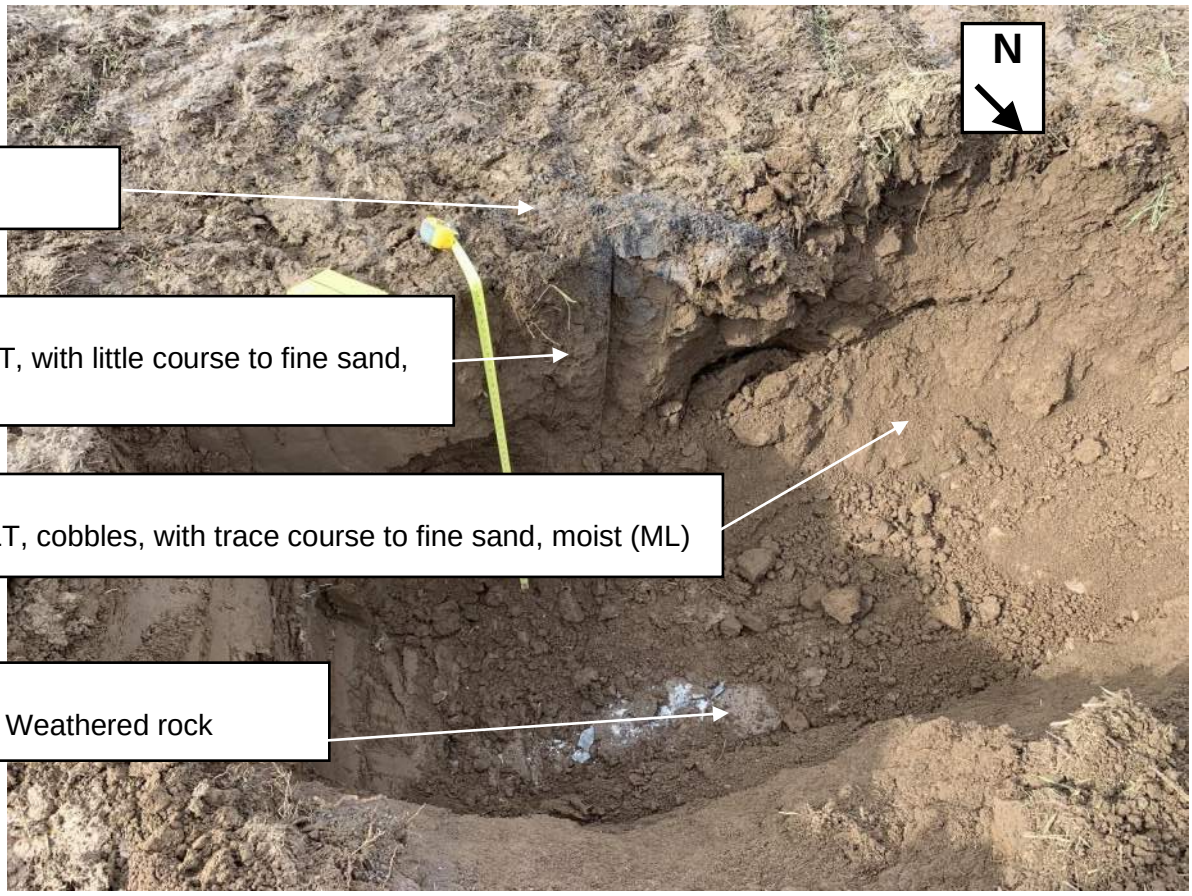
57-84”
Grayish brown SILT, some cobbles and boulders, moist (ML)

84”
REFUSAL, weathered bedrock



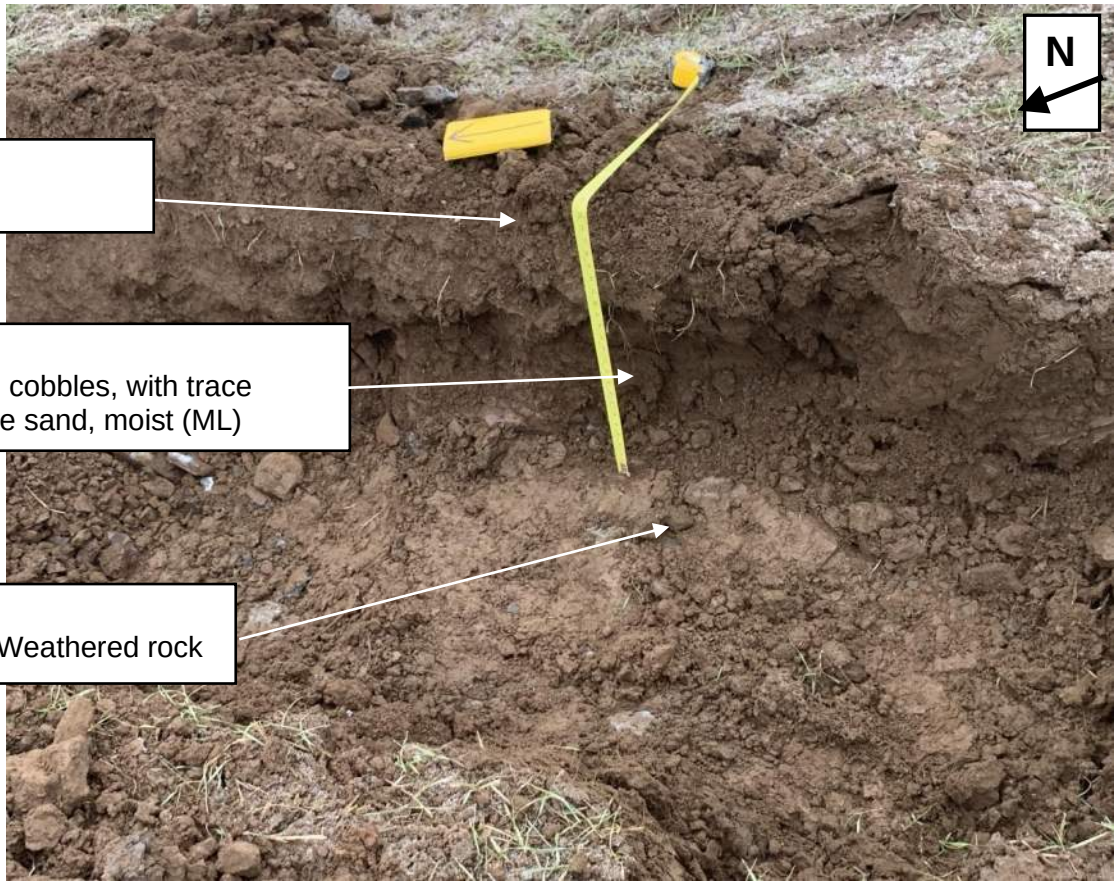
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-16
Site Location	Goldendale, WA	**Date**	02/3/2022
Test Pit Contractor	Heliovaass	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy /38 degrees F
Final Test Pit Depth (feet)	48 Inches	**Time Opened**	10:30 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	10:45 am



TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-17
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/32 degrees F
Final Test Pit Depth (feet)	27 Inches	**Time Opened**	7:35 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	7:50 am



TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-18
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/30 Degrees F
Final Test Pit Depth (feet)	31 Inches	**Time Opened**	11:30 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	11:55 am

0-6”
Topsoil

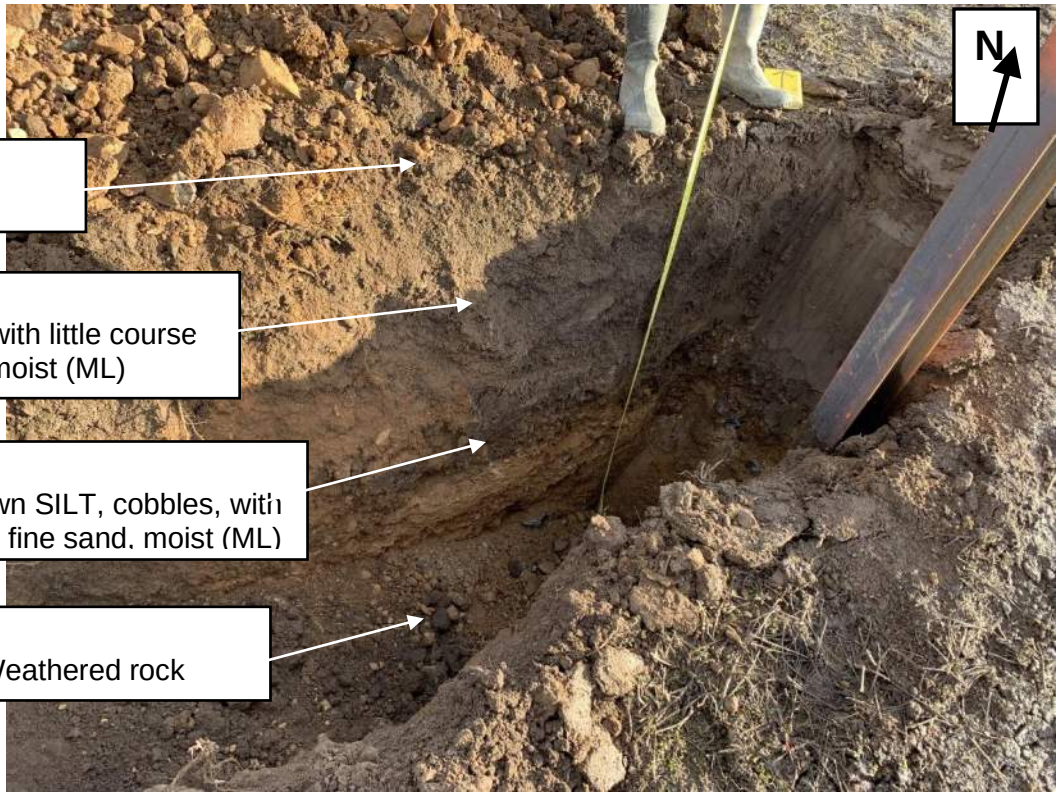
6-20”
Brown SILT, with little course to fine sand, moist (ML)

20-31”
Brown SILT, cobbles, with trace course to fine sand, moist (ML)

31”
REFUSAL, Weathered rock

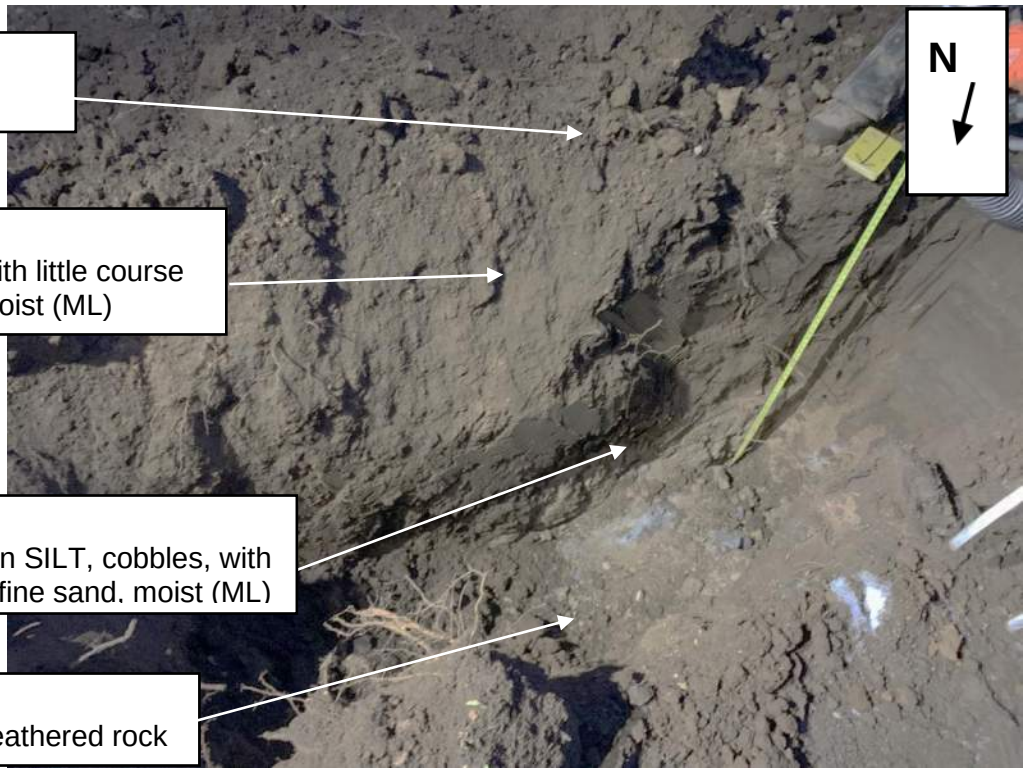
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-19
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/32 Degrees F
Final Test Pit Depth (feet)	70 Inches	**Time Opened**	2:20 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	2:40 pm



TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-20
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/30 Degrees F
Final Test Pit Depth (feet)	59 Inches	**Time Opened**	9:45 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	10:00 am



0-12”
Topsoil

12-42”
Brown SILT, with little course to fine sand, moist (ML)

42-59 ”
Reddish Brown SILT, cobbles, with little course to fine sand, moist (ML)

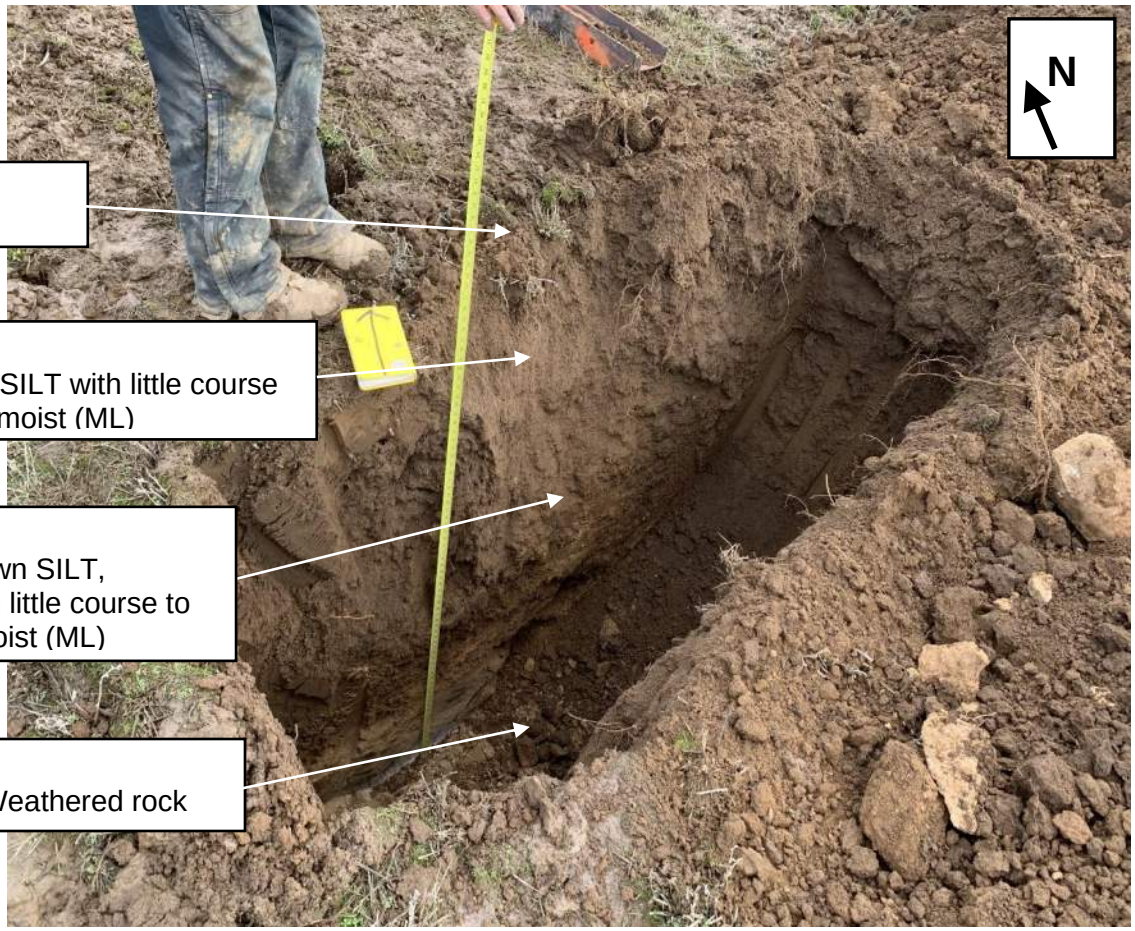
59”
REFUSAL, Weathered rock

TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-21
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/30 Degrees F
Final Test Pit Depth (feet)	36 Inches	**Time Opened**	9:30 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	9:55 am

TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-22
Site Location	Goldendale, WA	**Date**	02/03/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/35 Degrees F
Final Test Pit Depth (feet)	66 Inches	**Time Opened**	12:25 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	12:50 pm

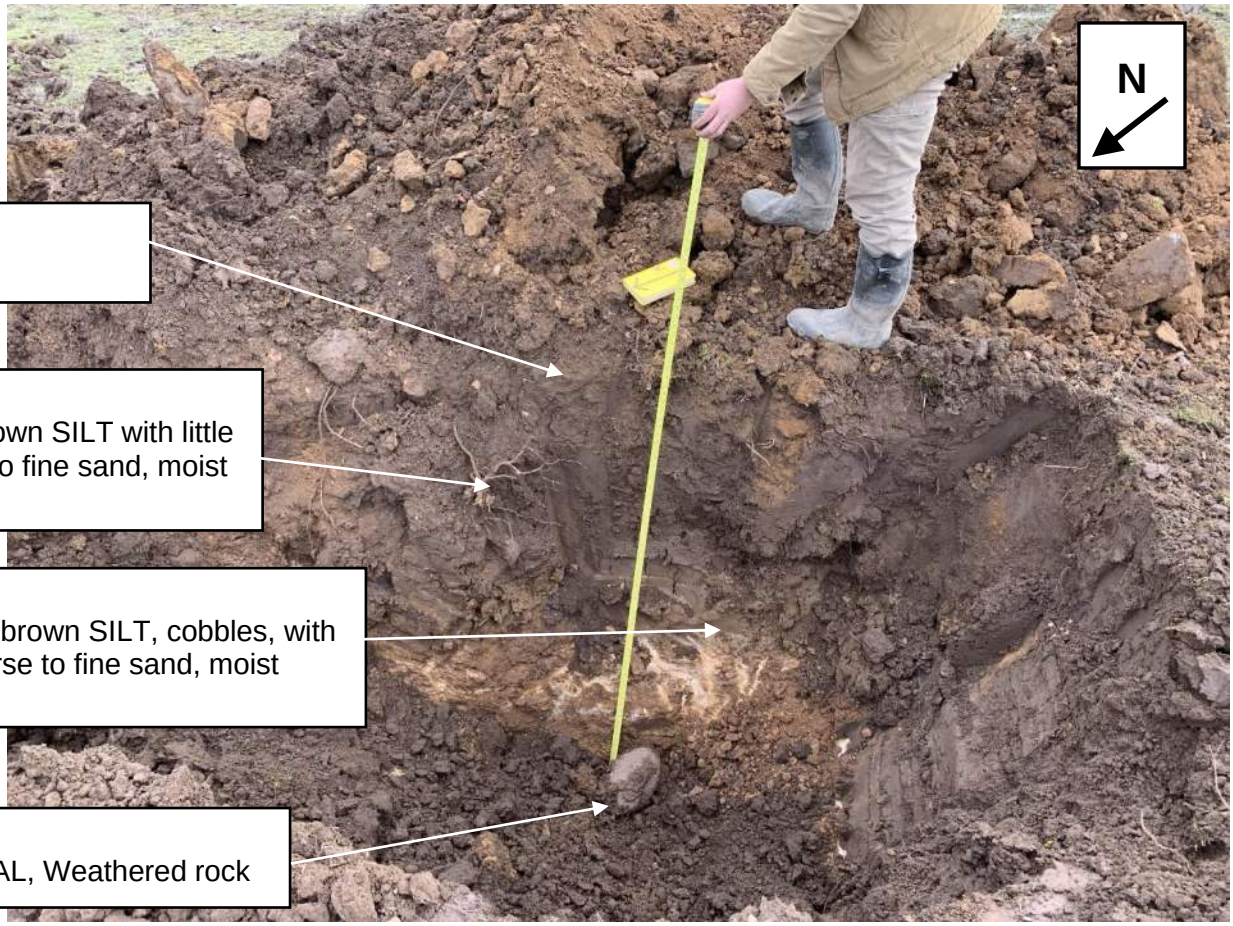


TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-23
Site Location	Goldendale, WA	**Date**	02/02/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/30 Degrees F
Final Test Pit Depth (feet)	50 Inches	**Time Opened**	4:15 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	4:35 pm

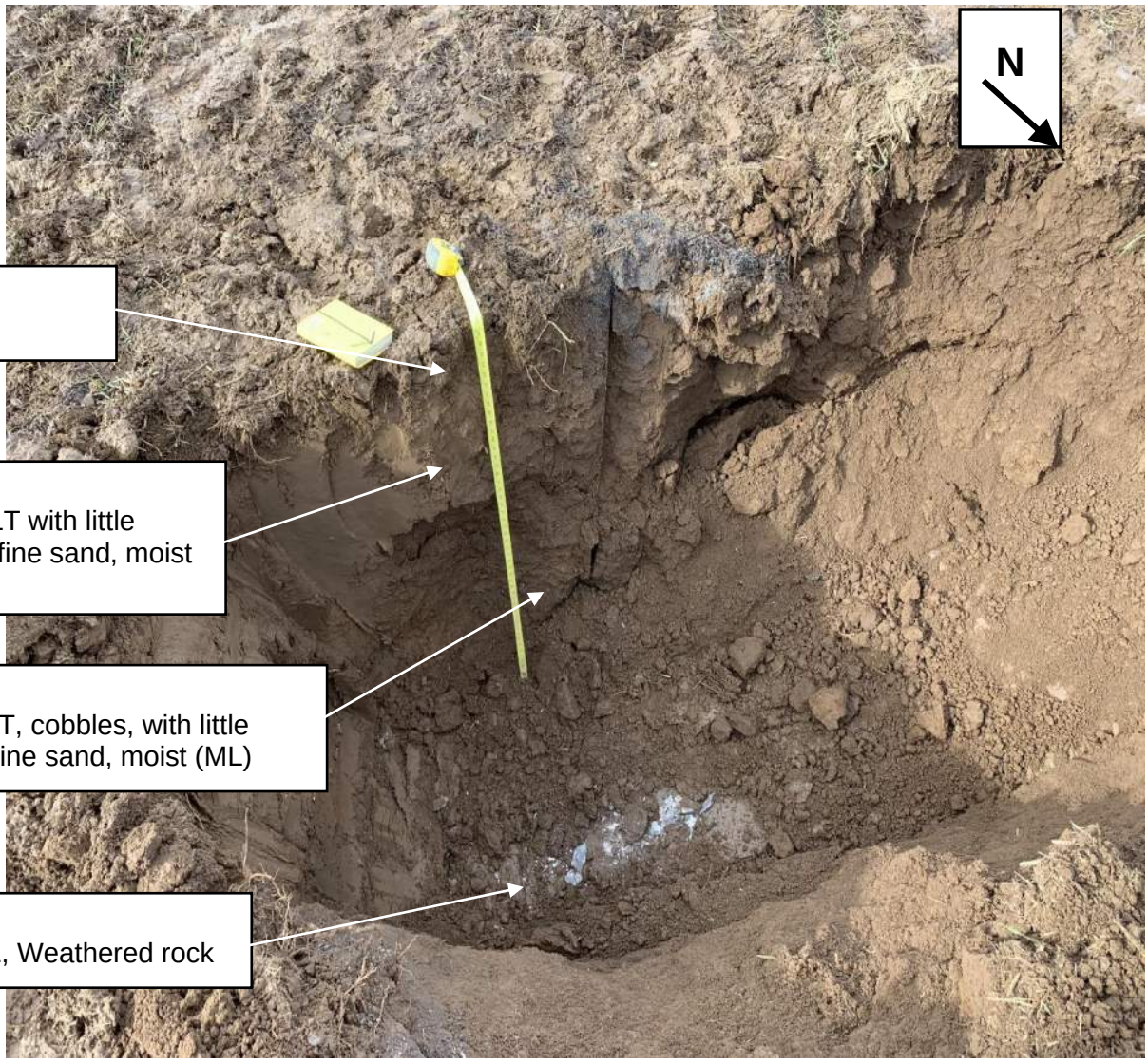
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-24
Site Location	Goldendale, WA	**Date**	02/02/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/30 Degrees F
Final Test Pit Depth (feet)	55 Inches	**Time Opened**	12:00 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	12:45 pm



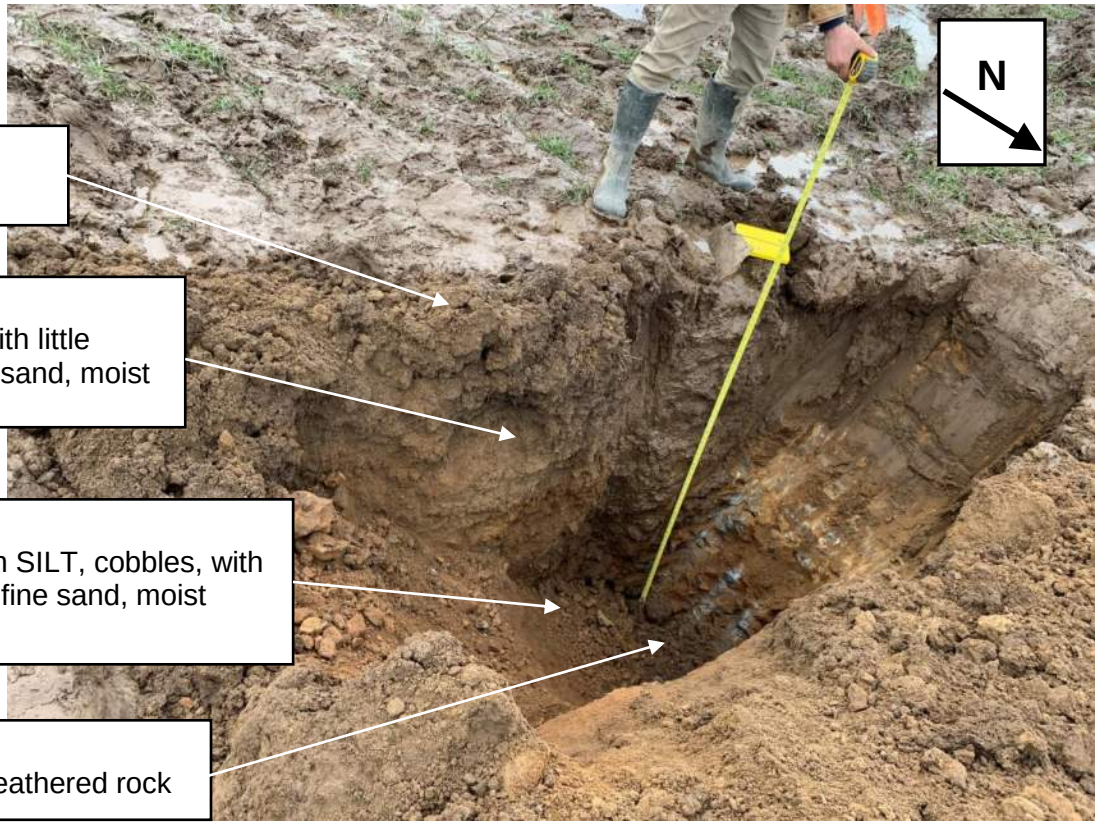
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-25
Site Location	Goldendale, WA	**Date**	02/02/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/31 Degrees F
Final Test Pit Depth (feet)	48 Inches	**Time Opened**	11:25 am
Groundwater Depth (feet)	Not Encountered	**Time Closed**	11:45 am



TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-26
Site Location	Goldendale, WA	**Date**	02/02/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Cloudy/30 Degrees F
Final Test Pit Depth (feet)	56 Inches	**Time Opened**	2:30 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	3:00 pm



0-12”
Topsoil

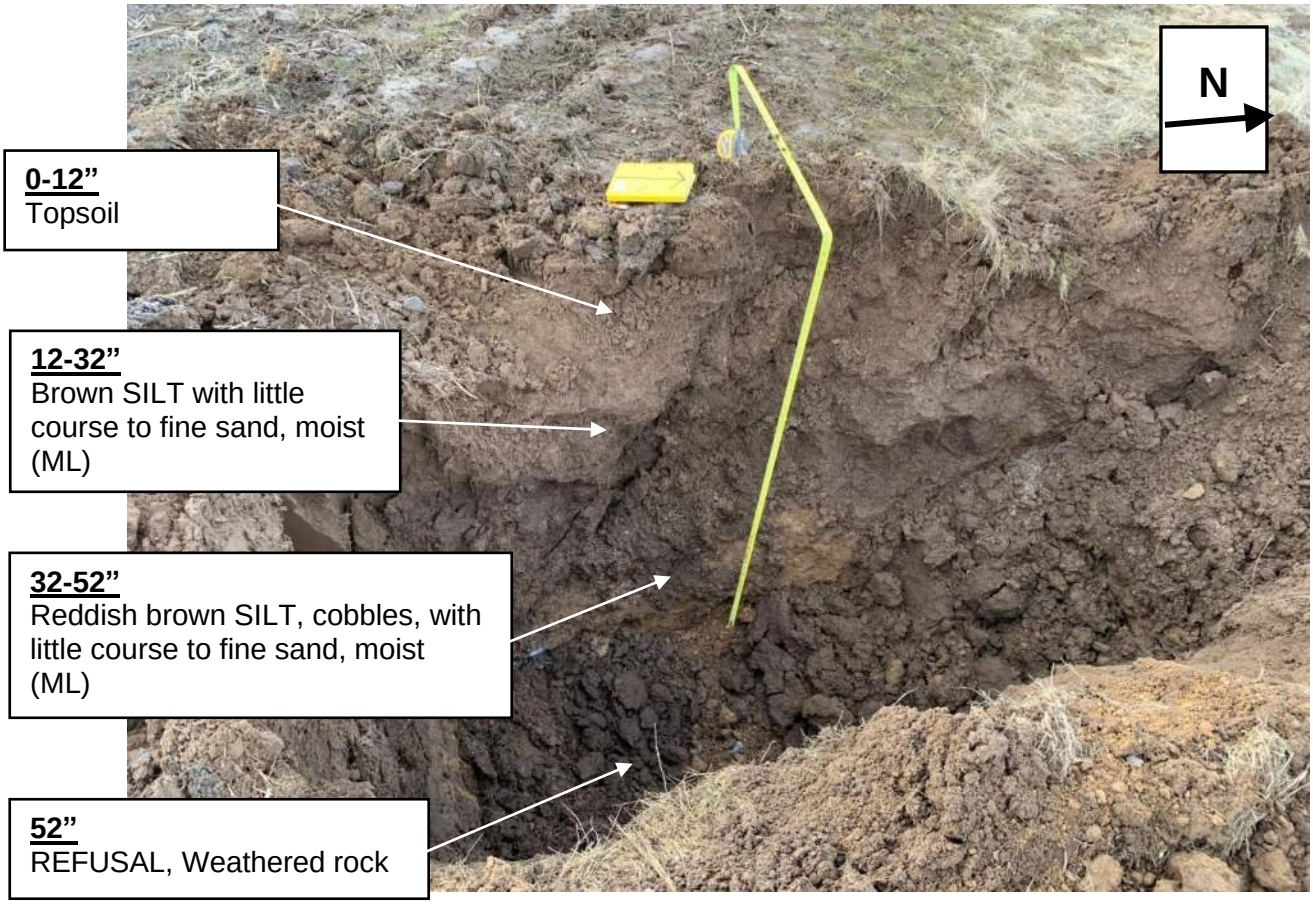
12-32”
Brown SILT with little course to fine sand, moist (ML)

32-56”
Reddish brown SILT, cobbles, with little course to fine sand, moist (ML)

56”
REFUSAL, Weathered rock

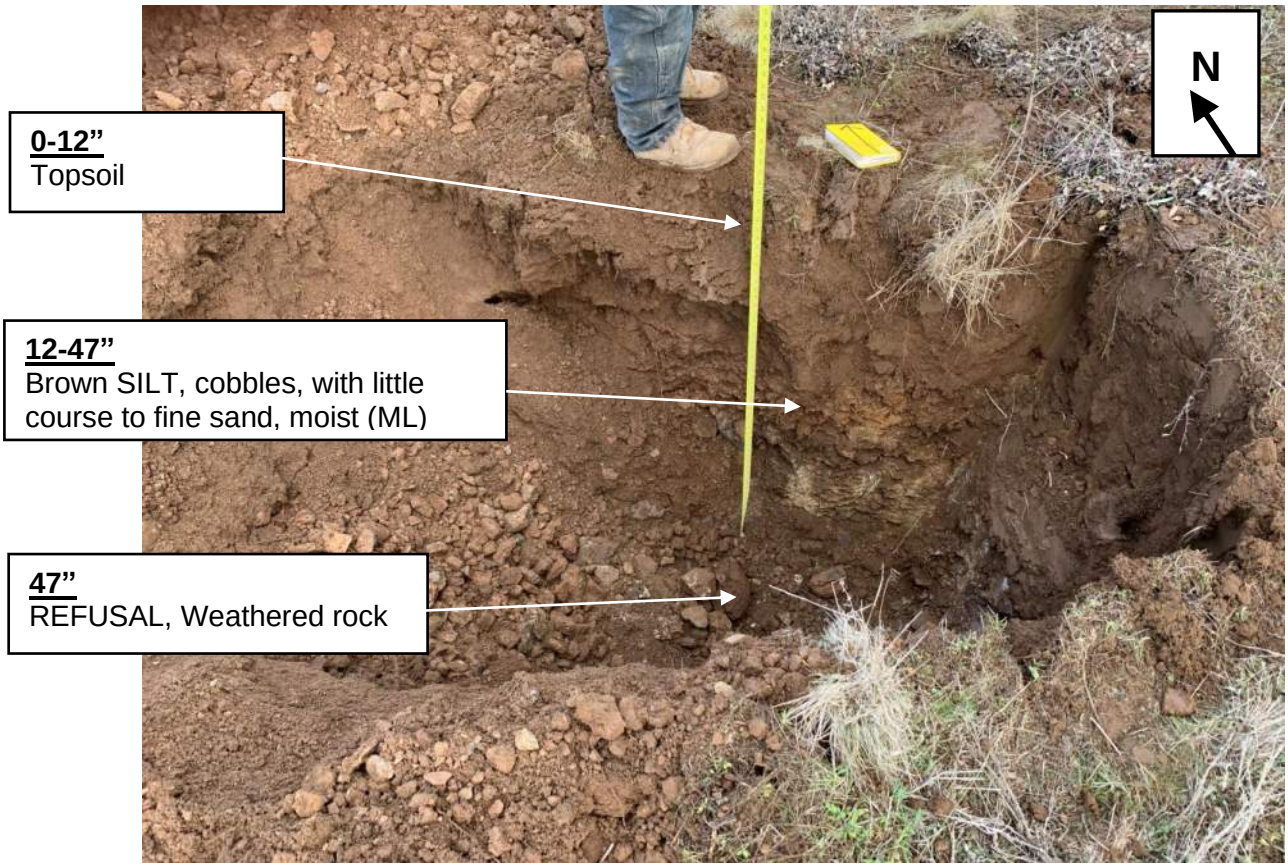
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-27
Site Location	Goldendale, WA	**Date**	02/02/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/30 Degrees F
Final Test Pit Depth (feet)	52 Inches	**Time Opened**	3:20 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	3:50 pm



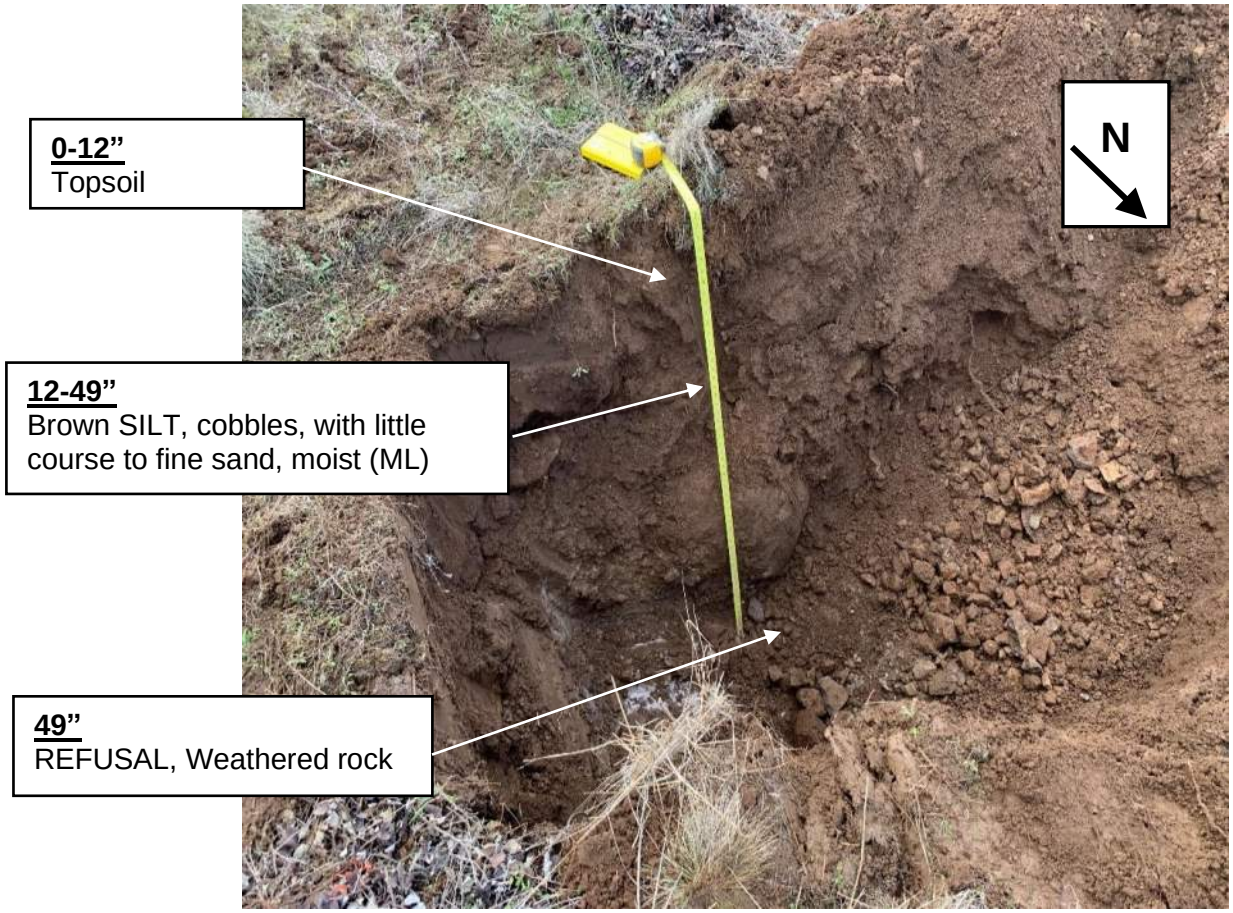
TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-28
Site Location	Goldendale, WA	**Date**	02/04/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/35 Degrees F
Final Test Pit Depth (feet)	47 Inches	**Time Opened**	12:45 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	1:25 pm



TEST PIT PHOTO LOG

Project Name	Carriger	**Test Pit ID**	TP-29
Site Location	Goldendale, WA	**Date**	02/04/2022
Test Pit Contractor	Heliovaas	**ANS Geo Representative**	Maalik McClain
Equipment Used	CAT 310	**Weather/Temp**	Sunny/35 Degrees F
Final Test Pit Depth (feet)	49 Inches	**Time Opened**	1:35 pm
Groundwater Depth (feet)	Not Encountered	**Time Closed**	1:55 pm



Attachment C

Electrical Resistivity Testing Results

Soil Resistivity Results

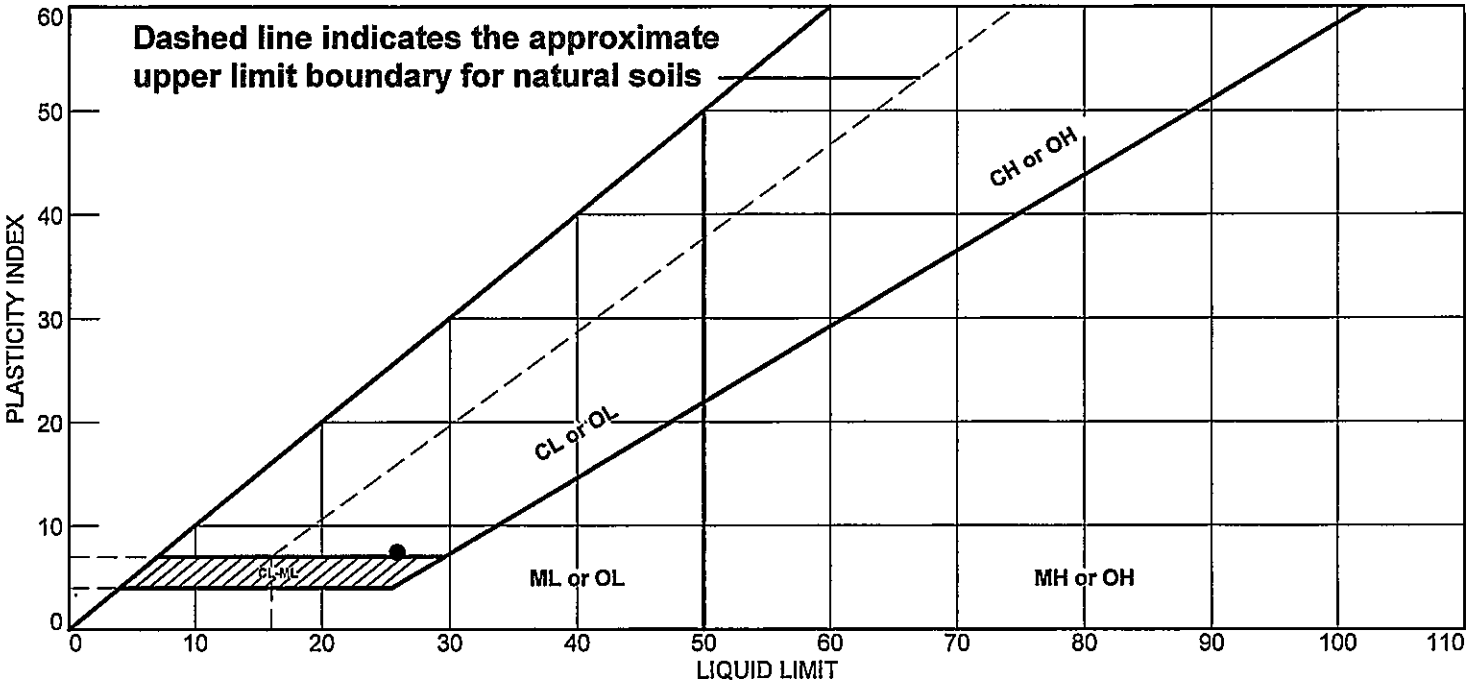
Client:	Cypress Creek	Date:	01/29/22 - 02/04/2022
Project Name:	Carriger	Weather:	Cloudy, wet
Project Location:	Goldendale, WA	Temperature:	30°F-40°F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

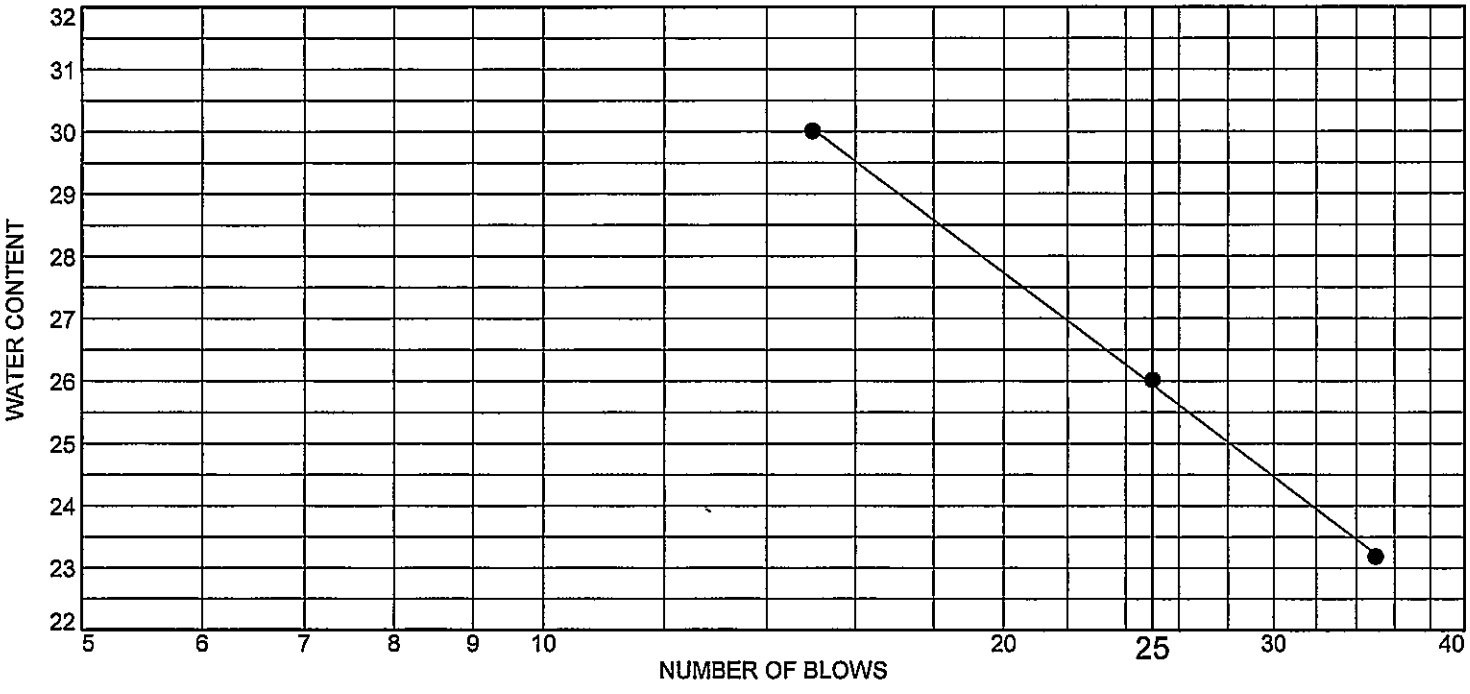
Array		Data	Array spacing (ft)					
			5	10	15	20	25	50
ERT-01	N-S	Measured Resistance (Ω)	6.778	4.1132	3.251	2.3761	2.561	2.875
		Apparent Resistivity (Ω-m)	64.86	79.13	107.66	113.75	122.59	275.30
	E-W	Measured Resistance (Ω)	5.124	3.524	3.1276	3.135	3.067	2.03
		Apparent Resistivity (Ω-m)	49.07	67.48	94.12	120.06	146.82	194.40
ERT-02	N-S	Measured Resistance (Ω)	12.85	8.284	7.512	5.931	4.354	3.494
		Apparent Resistivity (Ω-m)	118.81	137.98	178.98	211.56	263.47	291.51
	E-W	Measured Resistance (Ω)	11.68	7.512	6.508	6.084	4.571	3.225
		Apparent Resistivity (Ω-m)	111.83	143.87	186.96	233.02	291.30	308.76
ERT-03	N-S	Measured Resistance (Ω)	4.45	2.229	1.731	1.312	1.113	0.0784
		Apparent Resistivity (Ω-m)	42.61	42.70	49.74	50.23	54.86	75.41
	E-W	Measured Resistance (Ω)	3.968	2.271	1.692	1.491	1.406	0.09073
		Apparent Resistivity (Ω-m)	37.98	43.49	48.62	57.12	67.30	86.87
ERT-04	N-S	Measured Resistance (Ω)	3.091	1.793	1.214	1.014	0.9071	0.6085
		Apparent Resistivity (Ω-m)	29.60	32.61	34.87	38.83	50.41	62.09
	E-W	Measured Resistance (Ω)	3.408	1.793	1.519	1.042	0.915	0.685
		Apparent Resistivity (Ω-m)	32.64	35.69	35.63	39.93	49.62	87.11
ERT-05	N-S	Measured Resistance (Ω)	3.663	3.283	3.103	2.772	2.65	2.347
		Apparent Resistivity (Ω-m)	35.05	62.88	89.12	106.10	126.86	224.70
	E-W	Measured Resistance (Ω)	4.564	2.835	2.631	2.455	2.293	1.849
		Apparent Resistivity (Ω-m)	43.71	54.28	68.12	94.03	109.76	177.03
ERT-06	N-S	Measured Resistance (Ω)	3.281	2.174	1.56	1.329	1.125	0.984
		Apparent Resistivity (Ω-m)	30.88	35.48	38.98	40.97	51.82	65.75
	E-W	Measured Resistance (Ω)	3.106	2.174	1.571	1.224	1.031	0.935
		Apparent Resistivity (Ω-m)	33.35	37.09	39.44	48.49	56.17	70.62
ERT-07	N-S	Measured Resistance (Ω)	3.215	2.967	2.518	1.794	1.175	1.011
		Apparent Resistivity (Ω-m)	29.66	56.81	72.33	68.73	85.92	96.83
	E-W	Measured Resistance (Ω)	29.5	13.5	8.275	5.325	4.19	2.405
		Apparent Resistivity (Ω-m)	379.17	258.53	237.71	203.94	200.59	97.57
ERT-08	N-S	Measured Resistance (Ω)	5.947	3.341	4.977	2.237	1.951	1.159
		Apparent Resistivity (Ω-m)	56.94	63.98	142.98	85.65	93.39	111.01
	E-W	Measured Resistance (Ω)	5.315	3.4552	2.376	2.339	2.002	1.102
		Apparent Resistivity (Ω-m)	50.90	66.11	68.24	89.58	96.07	105.52
ERT-09	N-S	Measured Resistance (Ω)	19.52	8.233	6.073	3.822	2.702	1.221
		Apparent Resistivity (Ω-m)	186.87	157.67	174.44	146.40	129.36	116.92
	E-W	Measured Resistance (Ω)	22.68	8.993	4.084	2.677	2.074	0.0981
		Apparent Resistivity (Ω-m)	217.17	172.21	117.32	102.53	99.27	93.94
		Site Average (Ω)	**8.45**	**4.58**	**3.54**	**2.69**	**2.23**	**1.46**
		Site Average (Ω-m)	**86.17**	**86.00**	**99.18**	**102.83**	**116.42**	**141.19**

Attachment D

Laboratory Results

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		25.9	18.5	7.4			

Project No. AOH-5632 **Client:** ANS GEO, Inc.

Project: Cypress Creek Carriger, Goldendale, Wa

Location: TP-7a, G-1
Sample Number: S-2 **Depth:** 2.5'-3.5'

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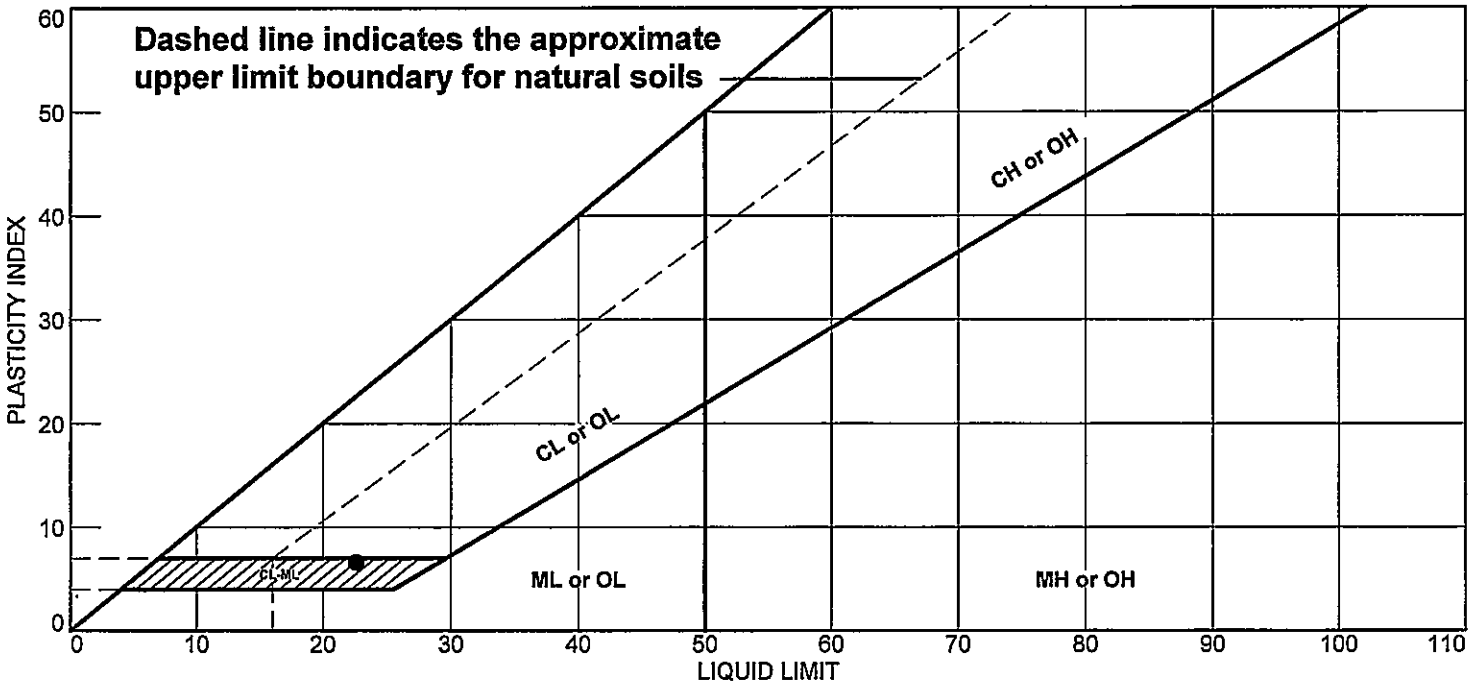
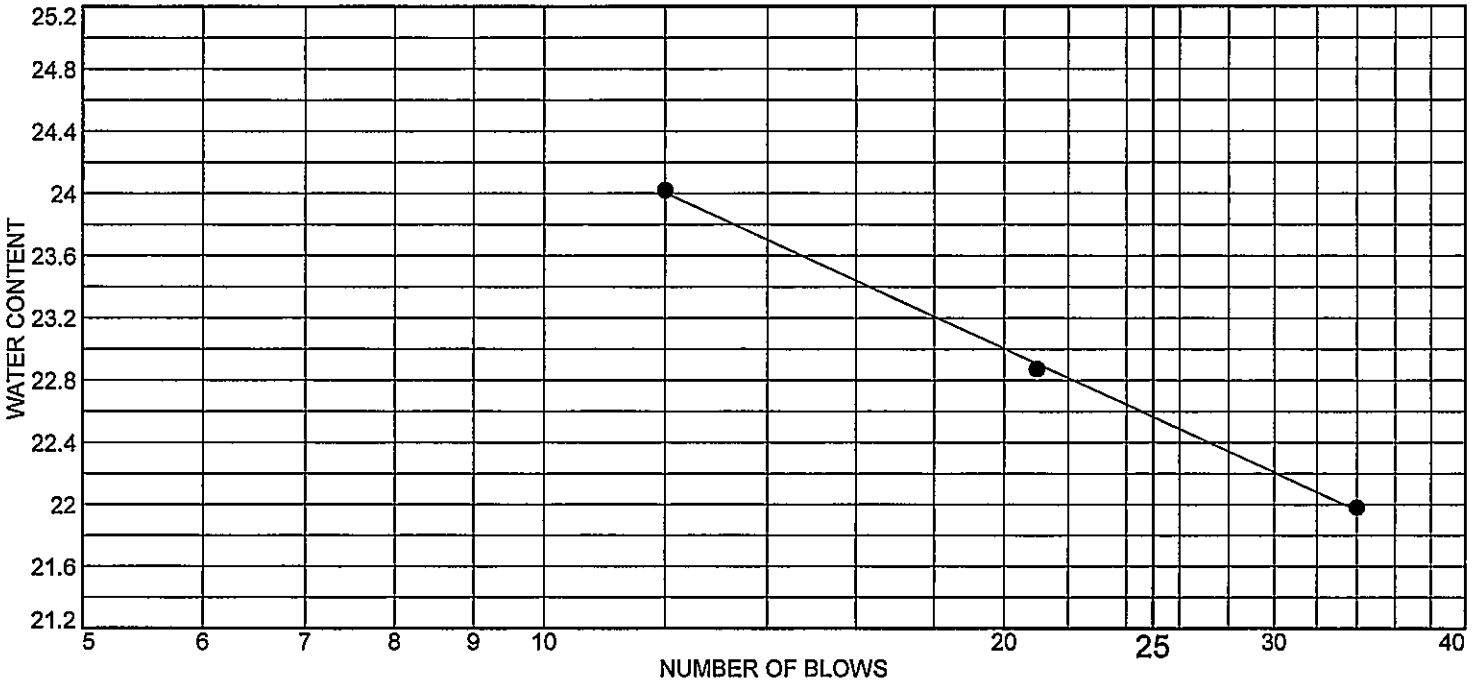
Remarks:
● In-Situ %MC=18.4

Figure 2 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		22.6	16.0	6.6			

Project No. AOH-5632 **Client:** ANS GEO, Inc.

Project: Cypress Creek Carriger, Goldendale, Wa

Location: TP-9 (Pile 9)
Sample Number: S-1 **Depth:** 2.5'-3.5'

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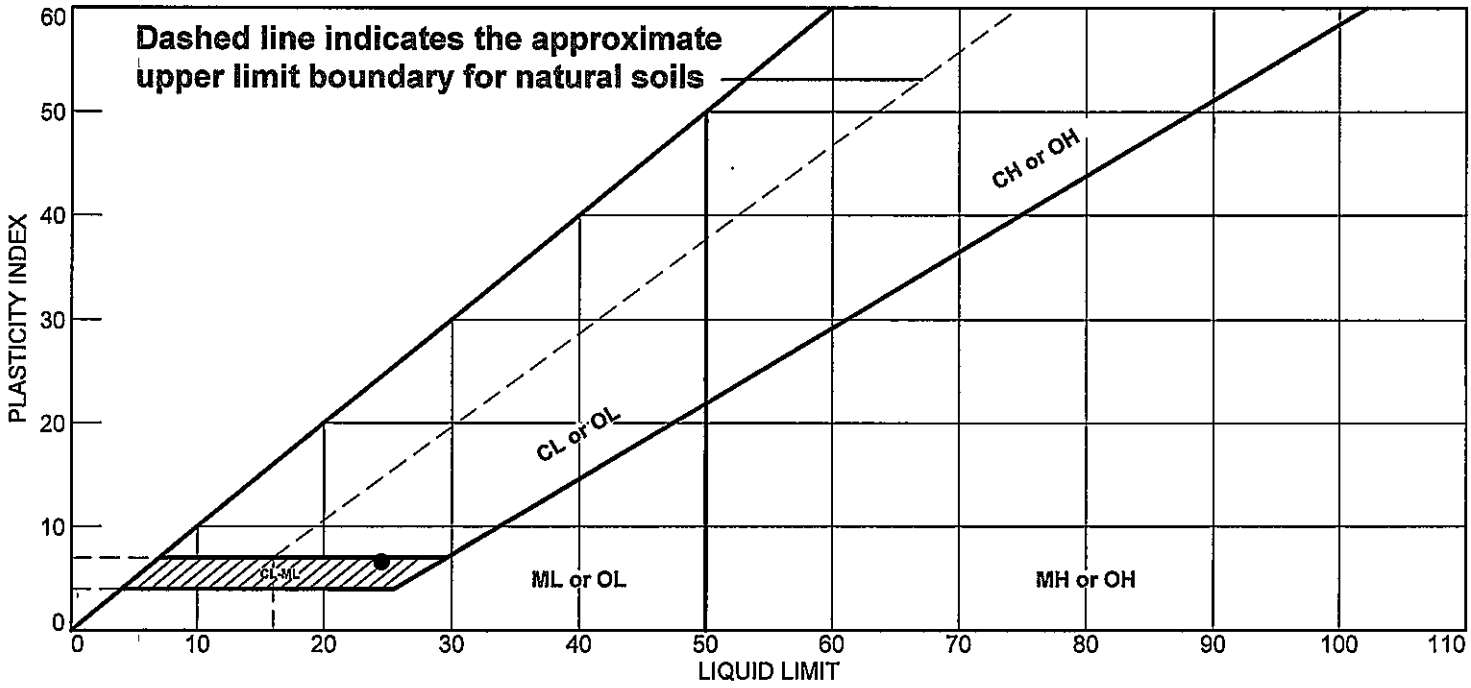
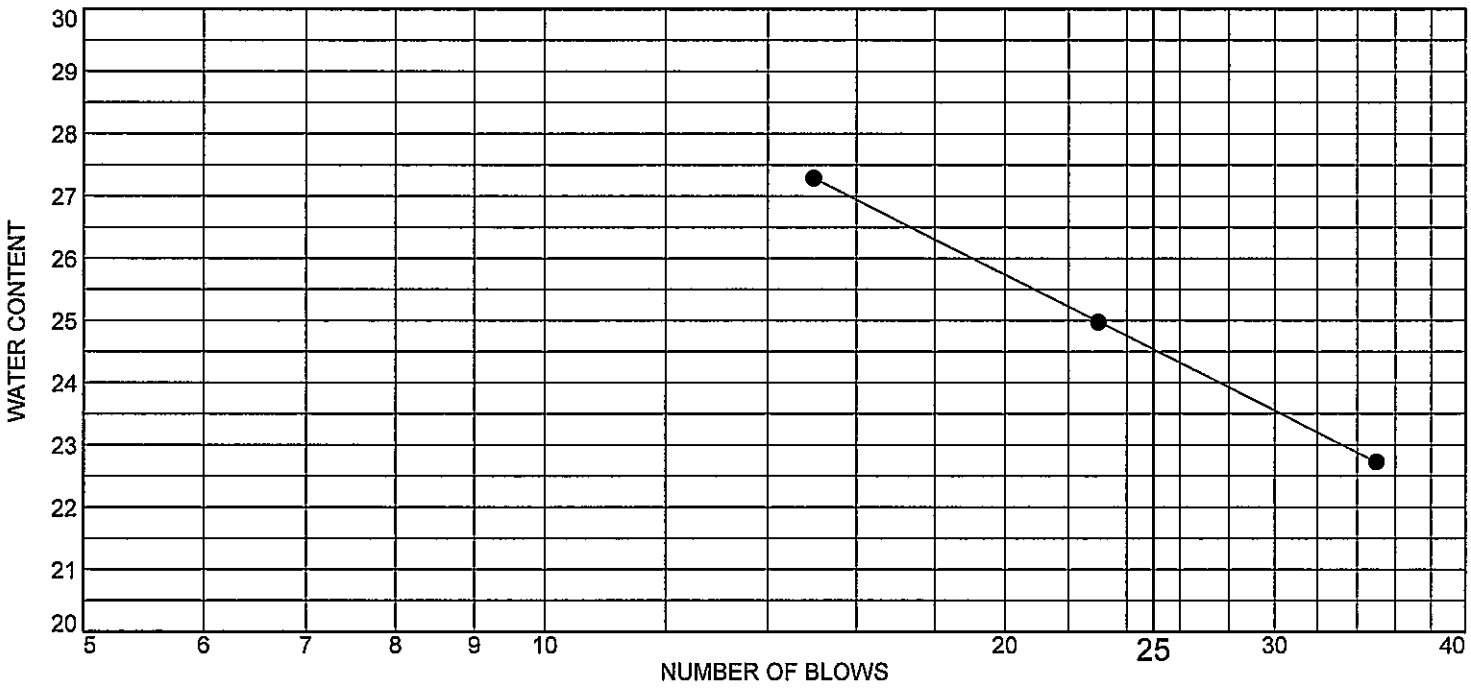
Remarks:
● In-Situ %MC=13.3

Figure 1 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		24.5	17.9	6.6			

Project No. AOH-5632 **Client:** ANS GEO, Inc.

Project: Cypress Creek Carriger, Goldendale, Wa

Location: TP-13, G-1
Sample Number: S-3 **Depth:** 3'-4'

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Remarks:
● In-Situ 5MC=19.8

Figure 3 F 3

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

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

DATE: 02/16/2022

Kind Attn: Dr. Vatsal A. Shah. PE. Ph. D, D.GE

FILE NO: ARJ-5632

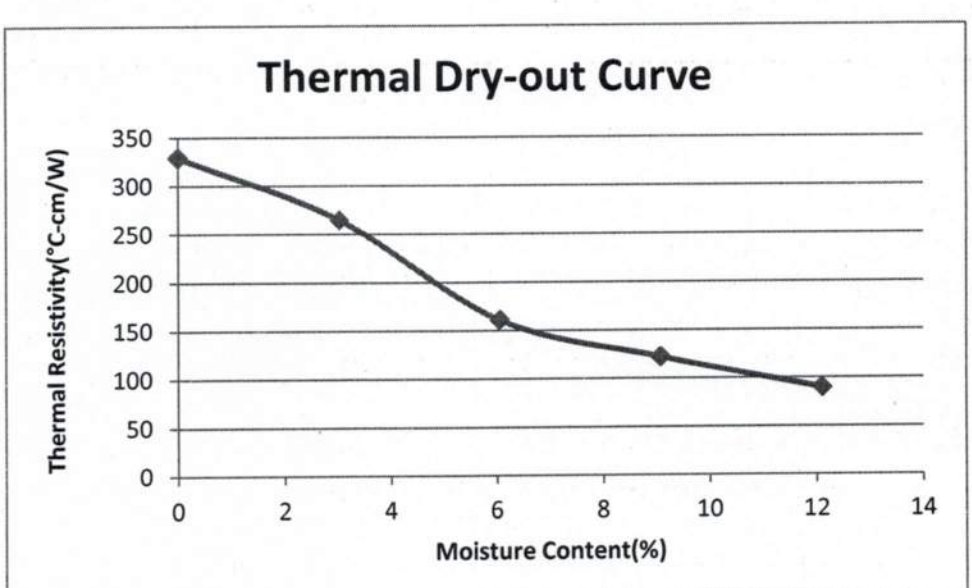
PROJECT: Cypress Creek – Carriger Solar Project
Goldendale, Washington

REPORT NO: S - 3

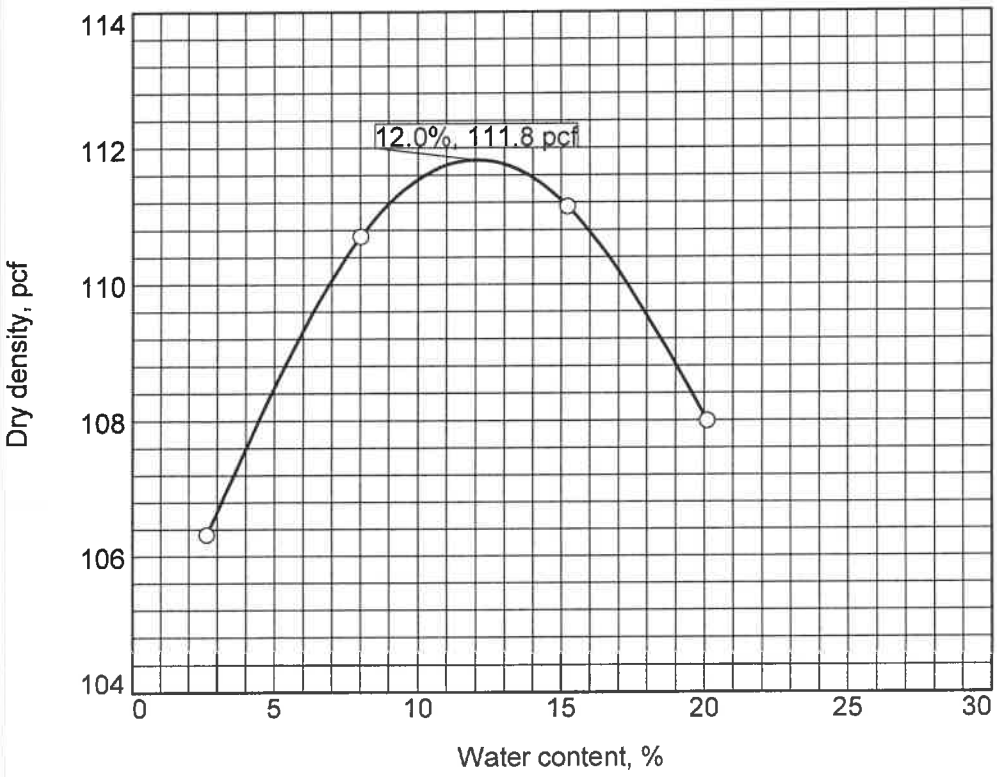
Test Data- Sample No. TP - 18 (G-1, Th, 3')

Standard Proctor Value: 111.8
Optimum Moisture Content: 12.1%
Remolded Dry Density: 95.03 (85%)
In-Situ Moisture Content: 16.67%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.6	329
3.0	24.4	265
6.1	22.9	161
9.1	22.2	122
12.1	21.8	90



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	21.93	22.72	23.35	23.48		
WM	13.75	13.75	13.75	13.75		
WW + T #1	743.3	725.9	881.9	742.5		
WD + T #1	724.2	672.0	765.4	618.2		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.6	8.0	15.2	20.1		
DRY DENSITY	106.3	110.7	111.1	108.0		

TEST RESULTS

Maximum dry density = 111.8 pcf

Optimum moisture = 12.0 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-18, G-1 **Depth:** 3' **Sample Number:** S-3

Checked by:
Title:

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South Plainfield, New Jersey

Figure 3 F 2

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

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

DATE: 02/16/2022

Kind Attn: Dr. Vatsal A. Shah. PE. Ph. D, D.GE

FILE NO: ARJ-5632

PROJECT: Cypress Creek – Carriger Solar Project
Goldendale, Washington

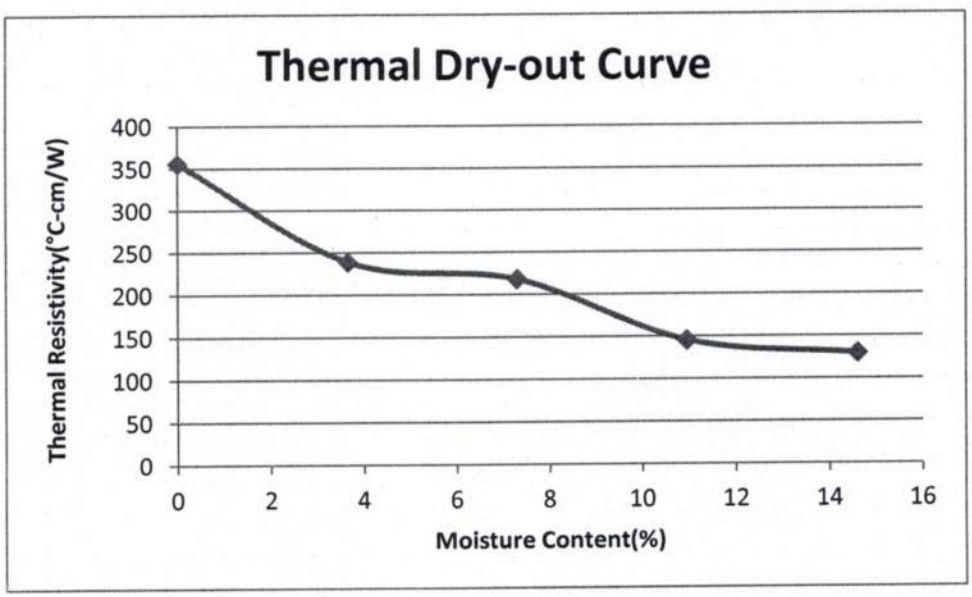
REPORT NO: S - 4

Test Data- Sample No. TP - 19 (G – 1, Th, 5')

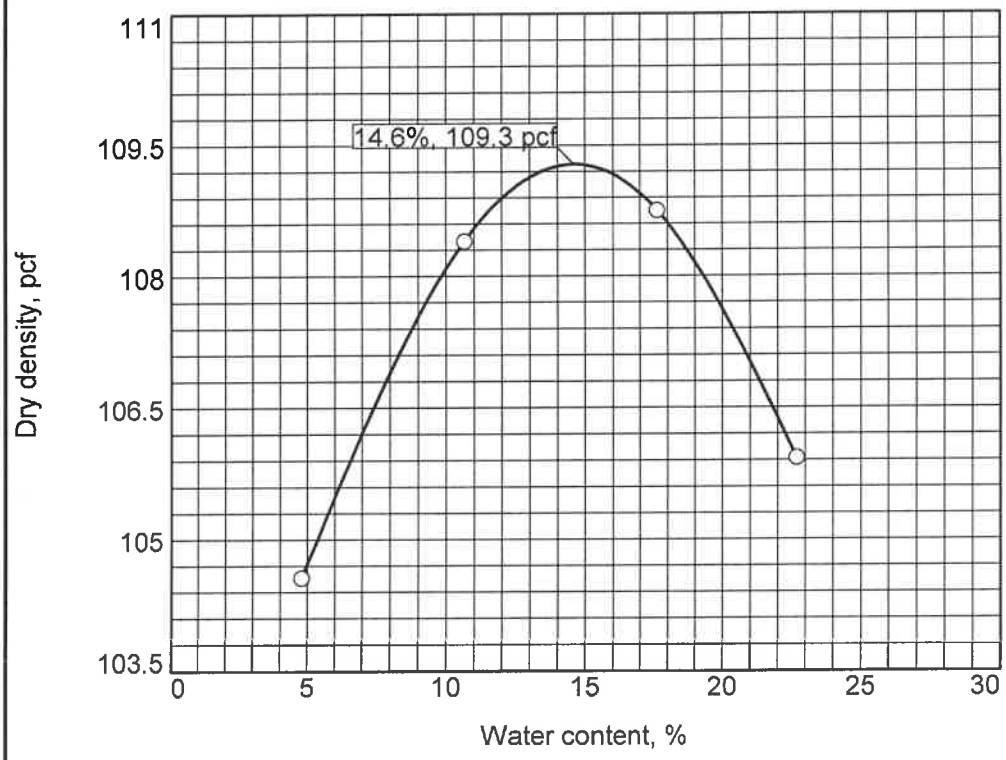
Standard Proctor Value: 109.3
Remolded Dry Density: 92.91 (85%)

Optimum Moisture Content: 14.6%
In-Situ Moisture Content: 10.11%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.1	356
3.7	23.7	239
7.3	23.1	218
11.0	22.4	146
14.6	22.1	130



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	21.97	22.74	23.34	23.49		
WM	13.75	13.75	13.75	13.75		
WW + T #1	818.5	757.1	750.4	761.9		
WD + T #1	781.1	684.2	638.0	621.0		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	4.8	10.7	17.6	22.7		
DRY DENSITY	104.6	108.4	108.8	105.9		

TEST RESULTS

Maximum dry density = 109.3 pcf

Optimum moisture = 14.6 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-19, G-1 **Depth:** 5' **Sample Number:** S-4

Checked by:
Title:

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Figure 4 F 2

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

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

DATE: 02/16/2022

Kind Attn: Dr. Vatsal A. Shah. PE. Ph. D, D.GE

FILE NO: ARJ-5632

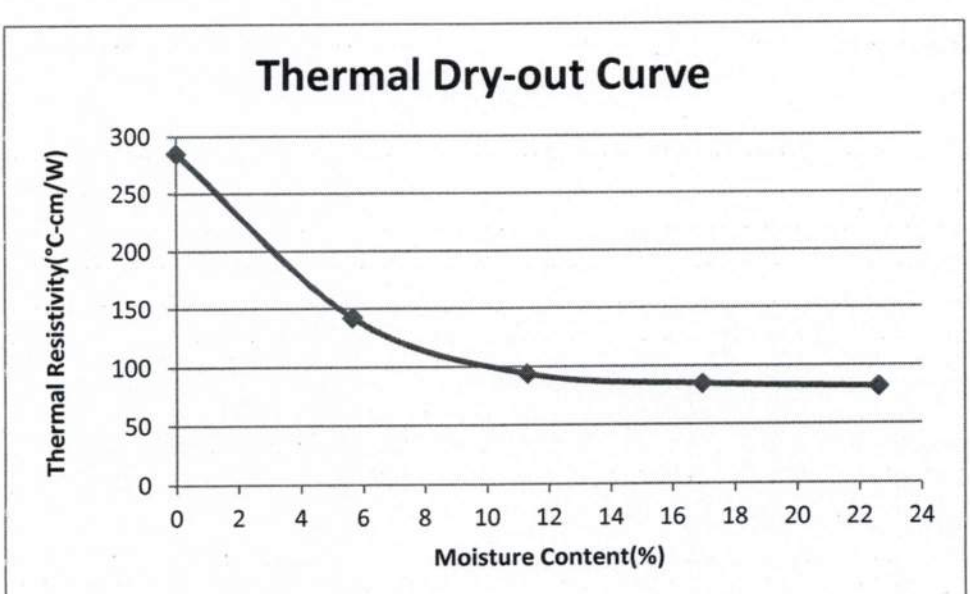
PROJECT: Cypress Creek – Carriger Solar Project
Goldendale, Washington

REPORT NO: S - 5

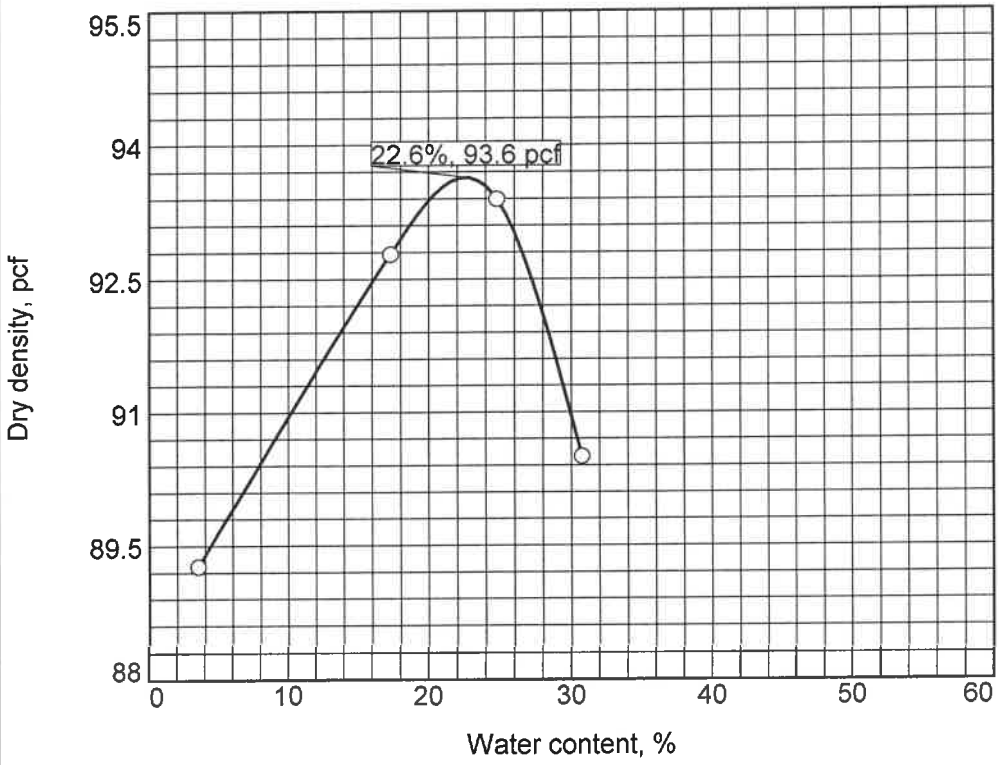
Test Data- Sample No. TP - 24 (G – 1, Th, 4')

Standard Proctor Value: 93.6 Optimum Moisture Content: 22.6%
Remolded Dry Density: 79.56 (85%) In-Situ Moisture Content: 10.62%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	23.4	285
5.7	23.2	142
11.3	22.9	94
17.0	22.8	85
22.6	22.8	82



COMPACTION TEST REPORT



Curve No.
S-5

Test Specification:
ASTM D 698-12 Method B Standard

Preparation Method _____
Hammer Wt. 5.5 lb.
Hammer Drop 12 in.
Number of Layers three
Blows per Layer 25
Mold Size 0.03333 cu. ft.
Test Performed on Material Passing 3/8 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/8 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	12.50	13.05	13.31	13.37		
WM	9.43	9.43	9.43	9.43		
WW + T #1	613.6	790.2	895.6	818.5		
WD + T #1	592.9	673.7	717.7	626.0		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.5	17.3	24.8	30.8		
DRY DENSITY	89.3	92.8	93.4	90.5		

TEST RESULTS

Maximum dry density = 93.6 pcf

Optimum moisture = 22.6 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-24, G-1 **Depth:** 4' **Sample Number:** S-5

Checked by:
Title:

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Figure 5 F 2

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

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

DATE: 02/16/2022

Kind Attn: Dr. Vatsal A. Shah. PE. Ph. D, D.GE

FILE NO: ARJ- 5632

PROJECT: Cypress Creek – Carriger Solar Project
Goldendale, Washington

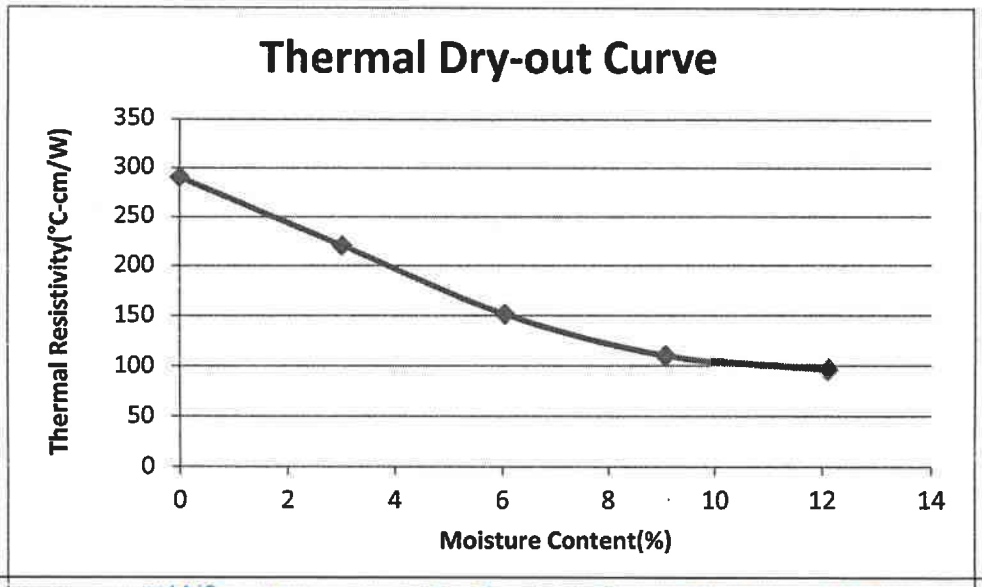
REPORT NO: S - 6

Test Data- Sample No. TP - 29 (G – 1, Th, 3')

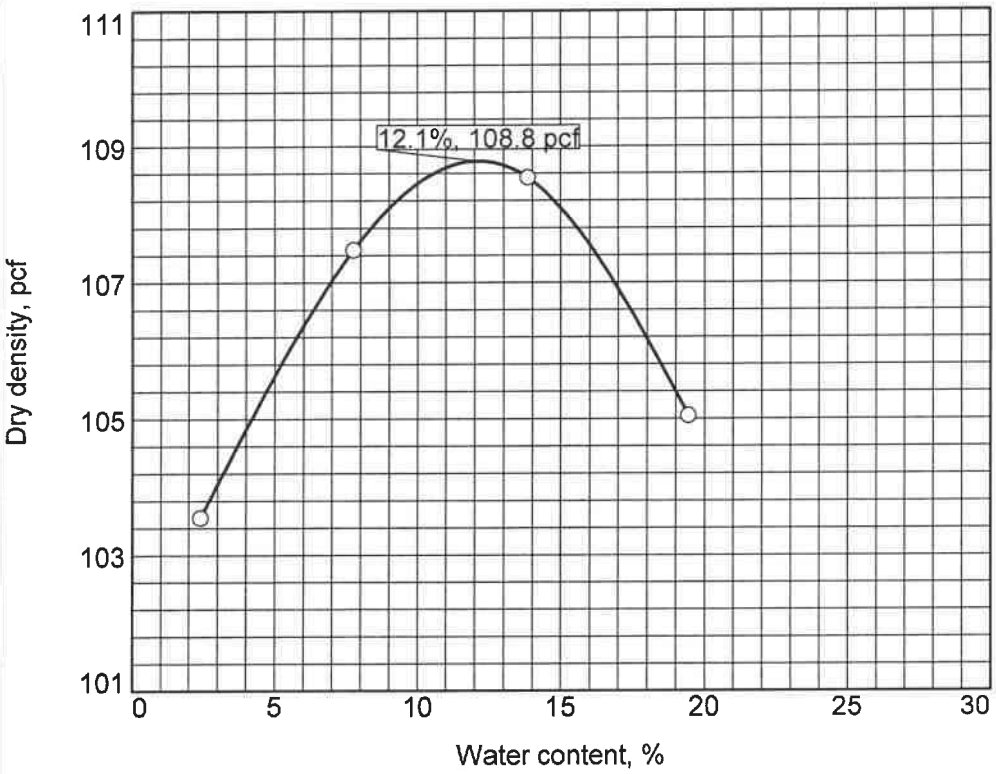
Standard Proctor Value: 108.8
Remolded Dry Density: 92.48 (85%)

Optimum Moisture Content: 12.1%
In-Situ Moisture Content: 16.29%

Moisture Contents (%)	Initial Soil Temperature (℃)	Thermal Resistivity (℃-cm/W)
0	27.0	291
3.0	26.6	220
6.1	24.9	151
9.1	23.9	110
12.1	23.4	96



COMPACTION TEST REPORT



Curve No.
S-6

Test Specification:
ASTM D 698-12 Method B Standard

Preparation Method _____
Hammer Wt. 5.5 lb.
Hammer Drop 12 in.
Number of Layers three
Blows per Layer 25
Mold Size 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/8 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	12.96	13.29	13.54	13.61		
WM	9.43	9.43	9.43	9.43		
WW + T #1	644.0	795.9	790.8	869.5		
WD + T #1	628.9	738.6	694.7	728.0		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.4	7.8	13.8	19.4		
DRY DENSITY	103.6	107.5	108.5	105.0		

TEST RESULTS

Maximum dry density = 108.8 pcf

Optimum moisture = 12.1 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-29, G-1 **Depth:** 3' **Sample Number:** S-6

Checked by:
Title:

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South Plainfield, New Jersey

Figure 6 F 2

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CERTIFICATE OF TEST - CORROSION ANALYSIS

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

DATE: 2/16/2021

FILE NO: AOH-5632

PROJECT: Cypress Creek - Carriger
Goldendale, WA

REPORT NO: S-4 to S-7

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-4	TP-2, Corr, 2'-3'	7	6.43	+135	35	15,000
S-5	TP-4, Corr, 2'-3'	14	6.36	+139	60	17,000
S-6	TP-5, Corr, 2'-3'	27	7.06	+132	65	6,000
S-7	TP-7b, Corr, 2'-3'	17	6.18	+151	85	19,000

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CERTIFICATE OF TEST - CORROSION ANALYSIS

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

DATE: 02-16-2022

Kind Attn: Mr. Eric Pauli, PE

FILE NO: ARJ-5632

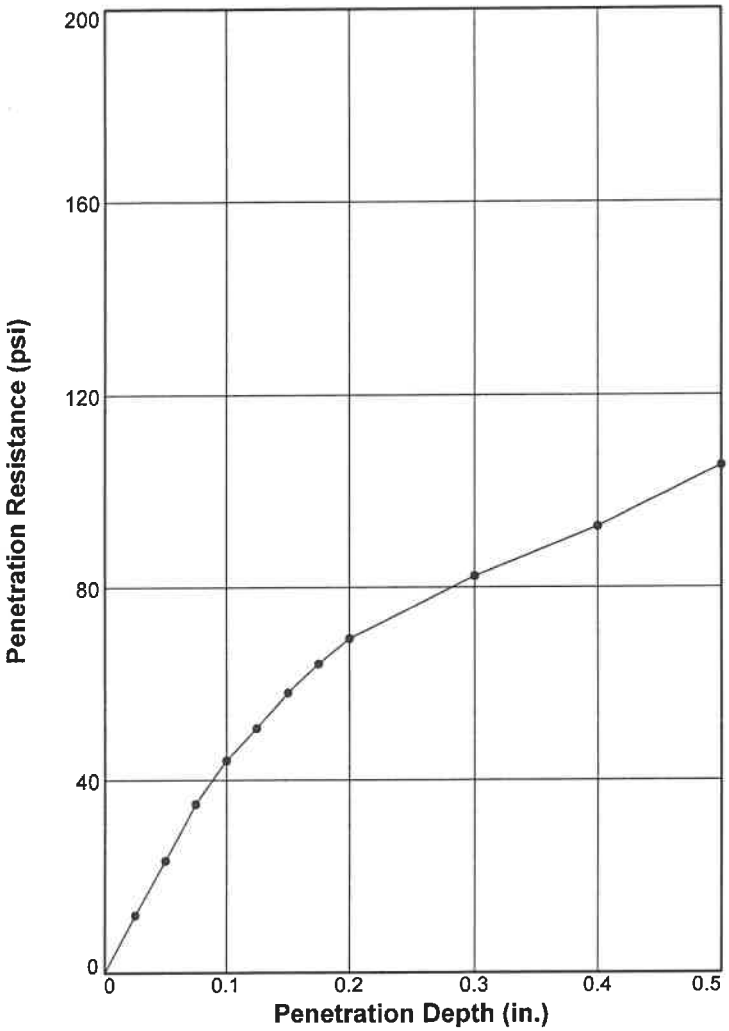
PROJECT: Cypress Creek – Carriger Solar Project
Goldendale, Washington.

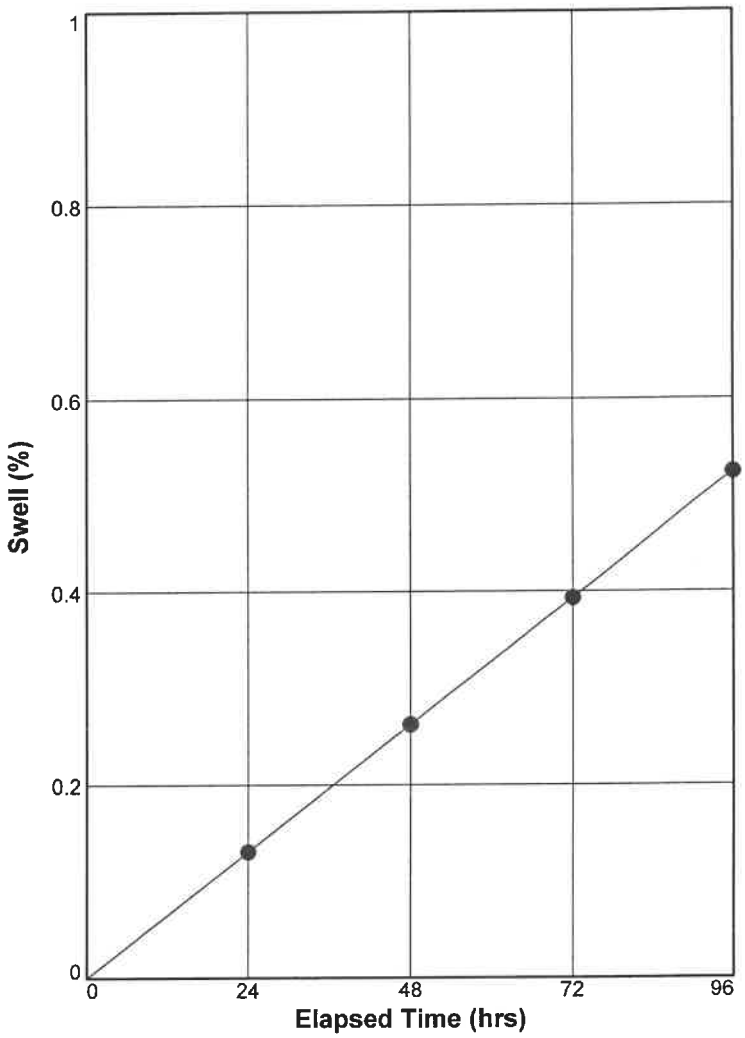
REPORT NO: S-7 – S-15

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-7	TP-16, Corr, 2'	6	6.98	153	0.3	13,000
S-8	TP-18, Corr, 2'	7	6.78	149	0.2	14,000
S-9	TP-19, Corr, 5'	4	6.81	145	0.2	18,000
S-10	TP-20, Corr, 5'	8	6.82	137	0.2	10,000
S-11	TP-21, Corr, 3'	10	6.88	137	0.2	8,000
S-12	TP-22, Corr, 2'	11	6.69	139	0.2	22,000
S-13	TP-26, Corr, 4'	18	7.14	129	1.3	6,000
S-14	TP-28, Corr, 4'	5	6.52	143	0.2	25,000
S-15	TP-29, Corr, 1'	4	7.07	155	0.3	29,000

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 ○	102.8	90.4	12.0	102.3	89.9	21.0	4.4	4.6	0.000	10	0.5
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		113.7	12.0		

Project No: ARJ-5632

Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

Location: TP-23, G-1

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

Date:

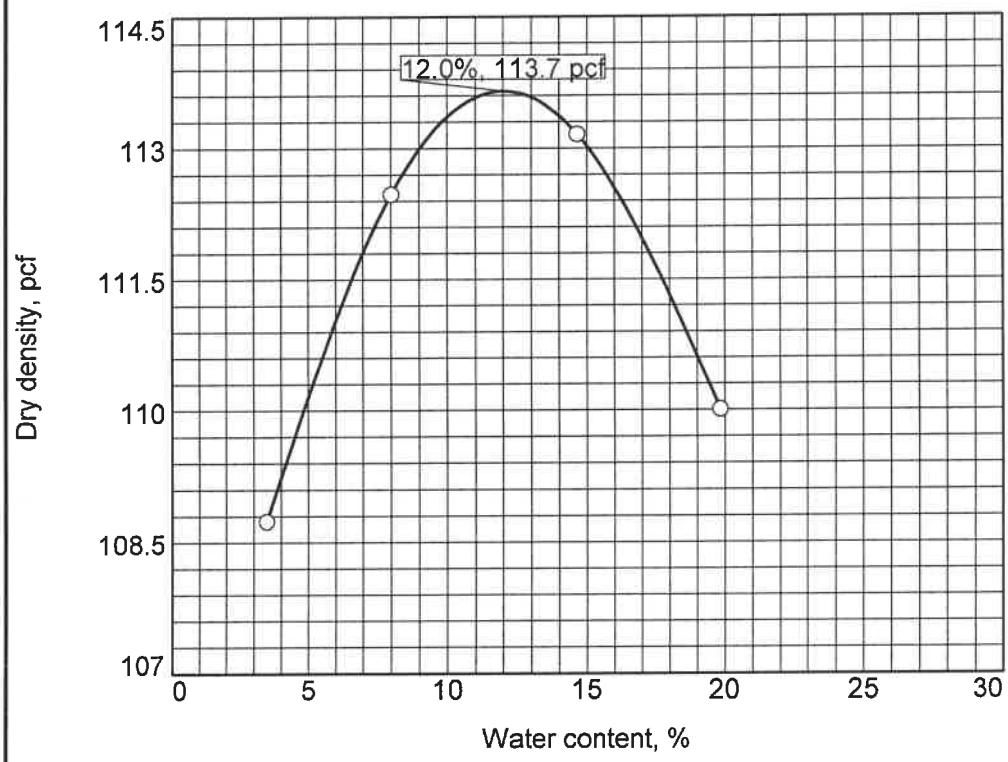
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 1 F 4___

COMPACTION TEST REPORT



Curve No.
S-1

Test Specification:
ASTM D 698-12 Method B Standard

Preparation Method _____
Hammer Wt. 5.5 lb.
Hammer Drop 12 in.
Number of Layers three
Blows per Layer 25
Mold Size 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/8 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	13.18	13.47	13.75	13.82		
WM	9.43	9.43	9.43	9.43		
WW + T #1	696.9	795.9	722.9	895.1		
WD + T #1	673.5	736.9	630.5	746.9		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.5	8.0	14.7	19.8		
DRY DENSITY	108.7	112.5	113.2	110.0		

TEST RESULTS

Maximum dry density = 113.7 pcf

Optimum moisture = 12.0 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-23, G-1 **Depth:** 1' **Sample Number:** S-1

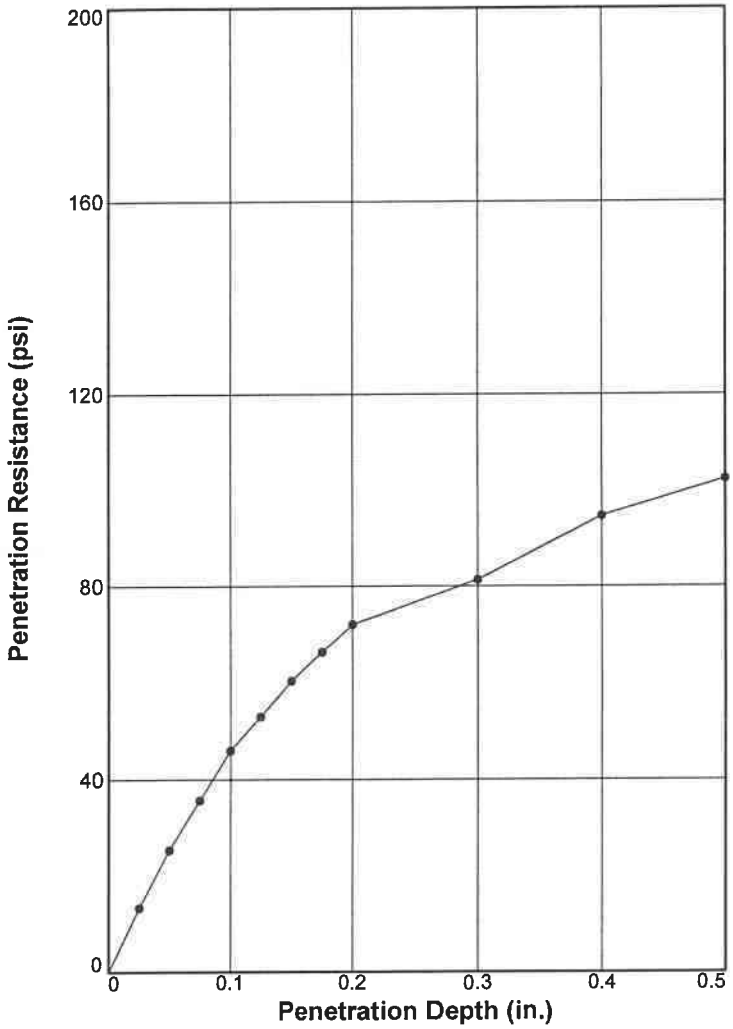
Checked by:
Title:

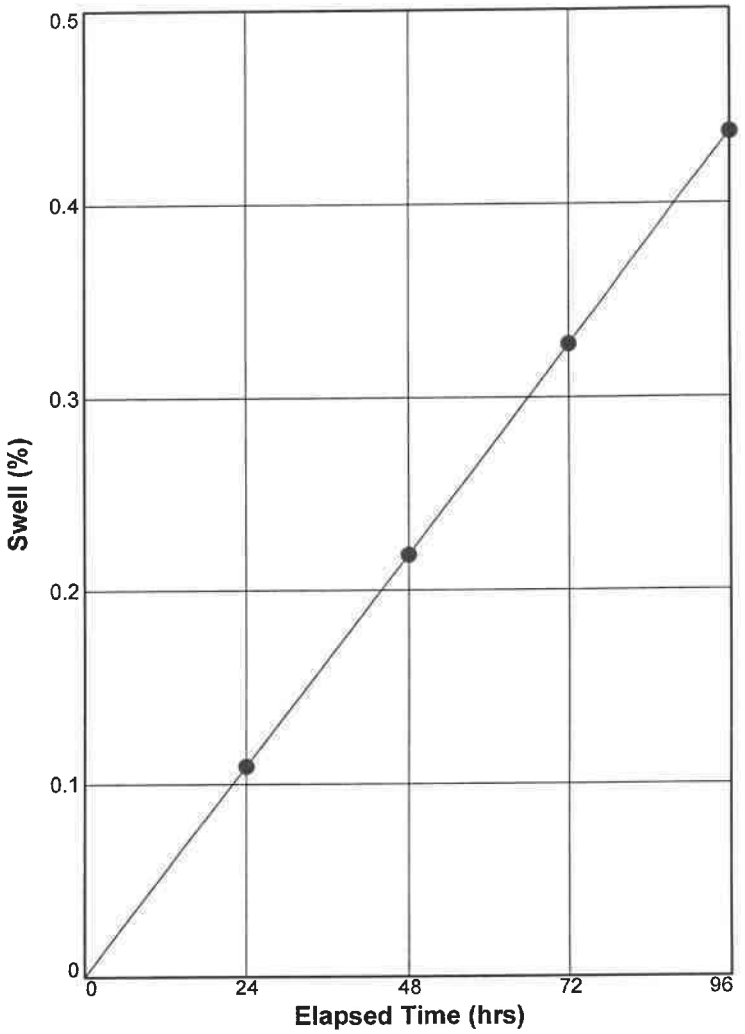
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Figure 1 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 ○	103.4	90.3	12.3	102.9	89.9	20.8	4.6	4.8	0.000	10	0.4
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		114.5	12.3		

Project No: ARJ-5632

Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

Location: TP-28,G-1

Sample Number: S-2 **Depth:** 2'

Date:

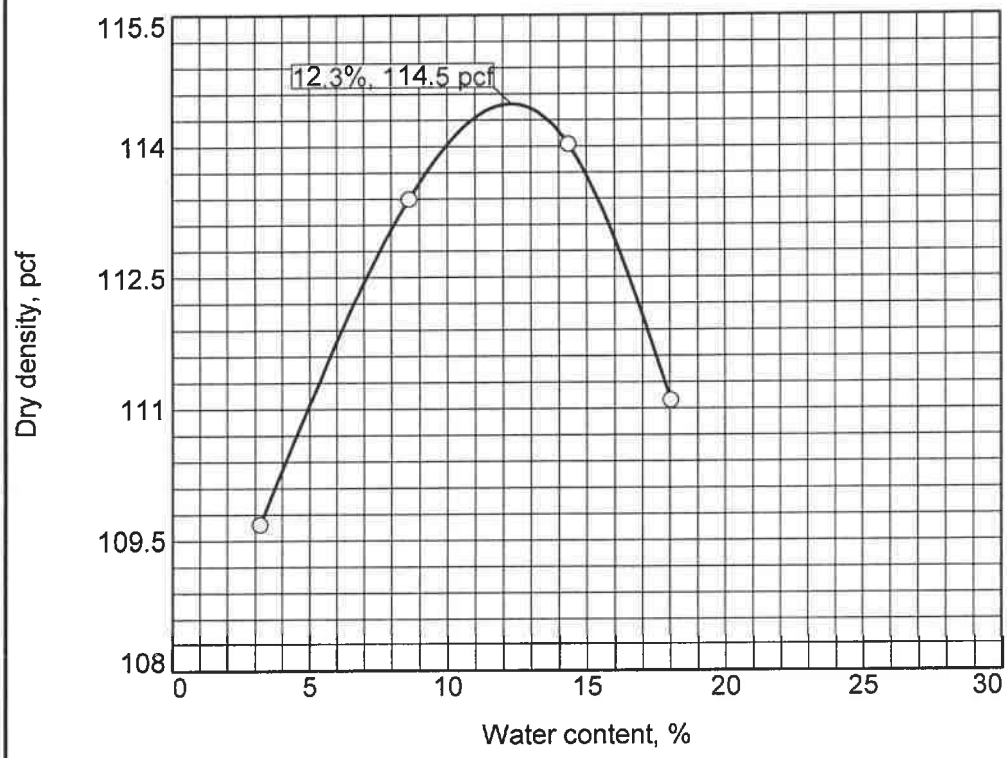
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 2 F 4

COMPACTION TEST REPORT



Curve No.
S-2

Test Specification:
ASTM D 698-12 Method B Standard

Preparation Method _____
Hammer Wt. 5.5 lb.
Hammer Drop 12 in.
Number of Layers three
Blows per Layer 25
Mold Size 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) _____
%>3/8 in. _____ **%<No.200** _____
USCS _____ **AASHTO** _____
Date Sampled _____
Date Tested _____
Tested By _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	13.20	13.53	13.77	13.80		
WM	9.43	9.43	9.43	9.43		
WW + T #1	768.1	678.3	813.7	814.2		
WD + T #1	744.4	624.4	711.6	689.8		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.2	8.6	14.3	18.0		
DRY DENSITY	109.7	113.4	114.0	111.1		

TEST RESULTS

Maximum dry density = 114.5 pcf

Optimum moisture = 12.3 %

Material Description

Remarks:

Project No. ARJ-5632 **Client:** ANS GEO, Inc.
Project: Cypress Creek- Carriger Solar Project, Goldendale, Washington

○ **Location:** TP-28,G-1 **Depth:** 2' **Sample Number:** S-2

Checked by:
Title:

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Figure 2 F 2

Attachment E

Pile Load Testing Logs

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-01
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/22/21; 11:36 am	Pile Drive Time (sec):	10.13
Date/Time Tested:	1/25/21; 10:18 am	Installation Rate (ft/sec):	0.6910
Coordinates:	45.846917°, -120.886733°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	300	0.0015	0.0010	0.0013
1	500	540	0.0020	0.0015	0.0018
1	1000	1080	0.0015	0.0050	0.0033
1	1500	1620	0.0040	0.0060	0.0050
1	2000	1940	0.0010	0.0120	0.0065
1	1500	1520	0.0020	0.0105	0.0063
1	1000	980	0.0050	0.0065	0.0058
1	500	480	0.0080	0.0030	0.0055
1	250	240	0.0095	0.0025	0.0060
1	0	0	0.0100	0.0050	0.0075
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	8,380	0.0420	0.0215	0.0318
1	0	0	0.0165	0.0065	0.0115

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	700	0.1815	0.1715	0.1765
1	1000	1040	0.2490	0.2485	0.2488
1	1500	1540	0.3565	0.3765	0.3665
1	0	0	0.0540	0.0110	0.0325
1	500	540	0.1730	0.1750	0.1740
1	1000	1020	0.2825	0.2845	0.2835
1	1500	1520	0.3645	0.3845	0.3745
1	2000	2040	0.4695	0.5235	0.4965
1	2500	2540	0.5740	0.6620	0.6180
1	0	0	0.0610	0.0160	0.0385
1	2500	2580	0.6005	0.6970	0.6488
1	3000	3040	0.6920	0.8180	0.7550
1	3500	3520	0.8020	0.9630	0.8825
1	4000	4000	0.9080	1.1020	1.0050
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	4000	0.9080	1.1020	1.0050
	Target Load				
1	10000	---	---	---	---
1	0	0	0.057	0.0425	0.0498

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-02
Deflection Gauge Height (in):	7	Direction:	NE-SW
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/22/21; 11:06 am	Pile Drive Time (sec):	6.21
Date/Time Tested:	1/25/21; 9:05 am	Installation Rate (ft/sec):	1.1272
Coordinates:	45.846667°, -120.879472°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	300	0.0045	0.0065	0.0055
1	500	640	0.0085	0.0085	0.0085
1	1000	1080	0.0120	0.0090	0.0105
1	1500	1480	0.0140	0.0105	0.0123
1	2000	2060	0.0195	0.0145	0.0170
1	1500	1500	0.0200	0.0175	0.0188
1	1000	1060	0.0195	0.0225	0.0210
1	500	---	---	---	#DIV/0!
1	250	280	0.0140	0.0210	0.0175
1	0	0	0.0120	0.0200	0.0160
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	---	---	---	---

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	540	0.0500	0.0645	0.0573
1	1000	1040	0.1260	0.1620	0.1440
1	1500	1540	0.2345	0.2875	0.2610
1	0	0	0.0270	0.0050	0.0160
1	500	560	0.1275	0.1655	0.1465
1	1000	1040	0.2010	0.2525	0.2268
1	1500	1560	0.2855	0.3470	0.3163
1	2000	2000	0.4400	0.5170	0.4785
1	2500	2560	0.7230	0.8175	0.7703
1	0	0	0.1770	0.1700	0.1735
1	2500	2540	0.8680	0.9630	0.9155
1	3000	2780	1.1020	1.1140	1.1080
1	3500	---	---	---	---
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	2780	1.1020	1.1140	1.1080
	Target Load				
1	10000	2780	1.1020	1.1140	1.1080
1	0	0	0.3350	0.3380	0.3365

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-03
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 9:00 am	Pile Drive Time (sec):	27.24
Date/Time Tested:	1/24/2021; 1:03 pm	Installation Rate (ft/sec):	0.2570
Coordinates:	45.856889°, -120.880861°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	---	---	---	---
1	500	660	0.0020	0.0075	0.0048
1	1000	---	---	---	---
1	1500	1480	0.0105	0.0210	0.0158
1	2000	2120	0.0150	0.0270	0.0210
1	1500	---	---	---	---
1	1000	1200	0.0070	0.0145	0.0108
1	500	540	0.0045	0.0105	0.0075
1	250	180	0.0010	0.0045	0.0028
1	0	0	0.0020	0.0030	0.0025
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,260	0.0435	0.0410	0.0423
1	0	0	0.0035	0.0035	0.0035

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	540	0.2105	0.1670	0.1888
1	1000	1040	0.5175	0.4100	0.4638
1	1500	1500	0.8545	0.6515	0.7530
1	0	0	0.0575	0.0805	0.0690
1	500	520	0.3315	0.1970	0.2643
1	1000	1020	0.6160	0.4385	0.5273
1	1500	1540	0.8825	0.6730	0.7778
1	2000	1980	1.1770	0.9715	1.0743
1	2500	---	---	---	---
1	0	---	---	---	---
1	2500	---	---	---	---
1	3000	---	---	---	---
1	3500	---	---	---	---
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	0	0.0650	0.1140	0.0895

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-04
Deflection Gauge Height (in):	7	Direction:	N-S
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 10:15 am	Pile Drive Time (sec):	13.56
Date/Time Tested:	1/24/2021; 3:55 pm	Installation Rate (ft/sec):	0.5162
Coordinates:	45.856917°, -120.876750°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	240	0.0065	0.0055	0.0060
1	500	500	0.0110	0.0090	0.0100
1	1000	1020	0.0170	0.0140	0.0155
1	1500	1580	0.0215	0.0185	0.0200
1	2000	2020	0.0250	0.0210	0.0230
1	1500	1440	0.0220	0.0180	0.0200
1	1000	940	0.0175	0.0140	0.0158
1	500	420	0.0105	0.0085	0.0095
1	250	180	0.0065	0.0045	0.0055
1	0	0	0.0020	0.0010	0.0015
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,140	0.0410	0.0400	0.0405
1	0	0	0.0020	0.0010	0.0015

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	520	0.0855	0.0655	0.0755
1	1000	1040	0.2010	0.1665	0.1838
1	1500	1520	0.3090	0.2725	0.2908
1	0	0	0.0055	0.0065	0.0060
1	500	560	0.1115	0.0890	0.1003
1	1000	1260	0.2615	0.2275	0.2445
1	1500	1560	0.3160	0.2895	0.3028
1	2000	2040	0.4235	0.4065	0.4150
1	2500	2500	0.5345	0.5400	0.5373
1	0	0	0.0105	0.0605	0.0355
1	2500	2600	0.5700	0.5790	0.5745
1	3000	3040	0.6710	0.7120	0.6915
1	3500	3520	0.8000	0.8735	0.8368
1	4000	4020	0.9300	1.0886	1.0093
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	4020	0.9300	1.0886	1.0093
	Target Load				
1	10000	4020	0.9300	1.0886	1.0093
1	0	0	0.1085	0.2510	0.1798

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-05
Deflection Gauge Height (in):	7	Direction:	NE-SW
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 11:30 am	Pile Drive Time (sec):	21.63
Date/Time Tested:	1/24/2021; 4:45 pm	Installation Rate (ft/sec):	0.3236
Coordinates:	45.857472°, -120.869083°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	---	---	---	---
1	500	580	0.0045	0.0035	0.0040
1	1000	960	0.0060	0.0050	0.0055
1	1500	---	---	---	---
1	2000	1980	0.0085	0.0060	0.0073
1	1500	1580	0.0070	0.0055	0.0063
1	1000	1000	0.0065	0.0045	0.0055
1	500	460	0.0065	0.0025	0.0045
1	250	240	0.0050	0.0020	0.0035
1	0	0	0.0025	0.0055	0.0040
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,200	0.0120	0.0100	0.0110
1	0	0	0.0035	0.0060	0.0048

LATERAL TEST

Lateral Load Height Above Grade (ft):	3	Deflection Gauge Height (in):	4		
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	540	0.0565	0.0310	0.0438
1	1000	1080	0.1355	0.0985	0.1170
1	1500	1540	0.2100	0.1710	0.1905
1	0	0	0.0225	0.0120	0.0173
1	500	480	0.0570	0.0345	0.0458
1	1000	1020	0.1545	0.1120	0.1333
1	1500	1540	0.2245	0.1715	0.1980
1	2000	2020	0.3010	0.2520	0.2765
1	2500	2560	0.4115	0.3400	0.3758
1	0	0	0.0120	0.0040	0.0080
1	2500	2480	0.4210	0.3325	0.3768
1	3000	3120	0.5050	0.4430	0.4740
1	3500	3720	0.6160	0.5565	0.5863
1	4000	4040	0.6735	0.6165	0.6450
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	4980	1.0300	0.9795	1.0048
	Target Load				
1	10000	---	---	---	---
1	0	0	0.2940	0.2550	0.2745

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-06
Deflection Gauge Height (in):	7	Direction:	N-S
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 1:00 pm	Pile Drive Time (sec):	18.2
Date/Time Tested:	1/24/21; 10:50 am	Installation Rate (ft/sec):	0.3846
Coordinates:	45.857472°, -120.871861°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250				#DIV/0!
1	500	520	0.0070	0.0120	0.0095
1	1000	1020	0.0125	0.0215	0.0170
1	1500	1520	0.0180	0.0240	0.0210
1	2000	2040	0.0240	0.0320	0.0280
1	1500	1560	0.0185	0.0280	0.0233
1	1000	980	0.0145	0.0200	0.0173
1	500	520	0.0120	0.0160	0.0140
1	250	220	0.0080	0.0012	0.0046
1	0	0	0.0020	0.0025	0.0023
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,040	0.0460	0.0520	0.0490
1	0	0	0.0045	0.0045	0.0045

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	580	0.0910	0.0990	0.0950
1	1000	1140	0.3025	0.3355	0.3190
1	1500	1500	0.4055	0.4315	0.4185
1	0	0	0.0030	0.0490	0.0260
1	500	540	0.0900	0.1010	0.0955
1	1000	960	0.2255	0.2780	0.2518
1	1500	1660	0.4620	0.5030	0.4825
1	2000	2060	0.6065	0.6085	0.6075
1	2500	2540	0.7540	0.7235	0.7388
1	0	0	0.0090	0.0550	0.0320
1	2500	2540	0.7675	0.7570	0.7623
1	3000	3060	0.8815	0.8425	0.8620
1	3500	3520	1.0040	0.9180	0.9610
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	3780	1.0855	0.9680	1.0268
	Target Load				
1	10000	---	---	---	---
1	0	0	0.0160	0.0620	0.0390

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-07
Deflection Gauge Height (in):	7	Direction:	NE-SW
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/22/21; 3:15 pm	Pile Drive Time (sec):	14.3
Date/Time Tested:	1/24/21; 11:50 am	Installation Rate (ft/sec):	0.4895
Coordinates:	45.851083°, -120.875194°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	---	---	---	---
1	500	440	0.0010	0.0065	0.0038
1	1000	1180	0.0010	0.0120	0.0065
1	1500	1480	0.0045	0.0070	0.0058
1	2000	2000	0.0045	0.0055	0.0050
1	1500	1400	0.0040	0.0050	0.0045
1	1000	900	0.0045	0.0045	0.0045
1	500	500	0.0035	0.0060	0.0048
1	250	260	0.0010	0.0060	0.0035
1	0	0	0.0030	0.0015	0.0023
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	0	0.0030	0.0025	0.0028

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	---	---	---	---
1	1000	1020	0.1180	0.1870	0.1525
1	1500	1520	0.1870	0.2635	0.2253
1	0	0	0.0020	0.0185	0.0103
1	500	860	0.1050	0.1920	0.1485
1	1000	1020	0.1205	0.2110	0.1658
1	1500	1500	0.1920	0.2780	0.2350
1	2000	2020	0.2650	0.3480	0.3065
1	2500	2500	0.3555	0.4325	0.3940
1	0	0	0.0305	0.0325	0.0315
1	2500	2520	0.3920	0.4600	0.4260
1	3000	3020	0.4660	0.5260	0.4960
1	3500	3500	0.5470	0.5935	0.5703
1	4000	4020	0.6659	0.6525	0.6592
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	0	0.1065	0.0660	0.0863

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-08
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 2:15 pm	Pile Drive Time (sec):	14.81
Date/Time Tested:	1/24/21; 9:20 am	Installation Rate (ft/sec):	0.4727
Coordinates:	45.866528°, -120.873639°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	260	0.0015	0.0015	0.0015
1	500	680	0.0035	0.0030	0.0033
1	1000	1080	0.0055	0.0040	0.0048
1	1500	1600	0.0085	0.0040	0.0063
1	2000	2100	0.0120	0.0045	0.0083
1	1500	1360	0.0085	0.0040	0.0063
1	1000	980	0.0065	0.0035	0.0050
1	500	580	0.0045	0.0025	0.0035
1	250	280	0.0030	0.0020	0.0025
1	0	0	0.0005	0.0005	0.0005
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,000	0.0530	0.0290	0.0410
1	0	0	0.0190	0.0110	0.0150

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	520	0.1200	0.1510	0.1355
1	1000	1020	0.2805	0.3205	0.3005
1	1500	1540	0.4200	0.4795	0.4498
1	0	0	0.0165	0.0225	0.0195
1	500	480	0.1250	0.1580	0.1415
1	1000	1220	0.3470	0.3980	0.3725
1	1500	1520	0.4215	0.4850	0.4533
1	2000	2060	0.5720	0.6400	0.6060
1	2500	2580	0.7130	0.7930	0.7530
1	0	0	0.0275	0.0320	0.0298
1	2500	2640	0.7440	0.8325	0.7883
1	3000	3060	0.8355	0.9315	0.8835
1	3500	3560	0.9750	1.0695	1.0223
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	0	0.0320	0.0280	0.0300

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-09
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	6.5
Date/Time Installed:	1/22/21; 12:05 pm	Pile Drive Time (sec):	39.13
Date/Time Tested:	1/23/21; 3:25 pm	Installation Rate (ft/sec):	0.1661
Coordinates:	45.887972°, -120.874944°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	300	0.0005	0.0010	0.0008
1	500	540	0.0010	0.0015	0.0013
1	1000	980	0.0015	0.0020	0.0018
1	1500	1490	0.0035	0.0025	0.0030
1	2000	2060	0.0065	0.0035	0.0050
1	1500	1480	0.0055	0.0030	0.0043
1	1000	1040	0.0030	0.0040	0.0035
1	500	580	0.0025	0.0040	0.0033
1	250	240	0.0020	0.0035	0.0028
1	0	0	0.0025	0.0030	0.0028
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,000	0.0620	0.0120	0.0370
1	0	0	0.0290	0.0160	0.0225

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	520	0.2100	0.1450	0.1775
1	1000	1040	0.5270	0.3305	0.4288
1	1500	1540	0.6825	0.4530	0.5678
1	0	0	0.0615	0.0555	0.0585
1	500	560	0.3745	0.3030	0.3388
1	1000	1040	0.5635	0.4055	0.4845
1	1500	1520	0.6885	0.4855	0.5870
1	2000	2040	0.8150	0.5950	0.7050
1	2500	2520	0.9500	0.7290	0.8395
1	0	0	0.0485	0.1005	0.0745
1	2500	2620	1.0010	0.8010	0.9010
1	3000	3040	1.1150	0.8920	1.0035
1	3500	---	---	---	---
1	4000	---	---	---	---
1	0	0	0.1175	0.0970	0.1073
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	3040	1.1150	0.8920	1.0035
	Target Load				
1	10000	---	---	---	---
1	0	0	0.1175	0.0970	0.1073

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-10
Deflection Gauge Height (in):	7	Direction:	NE-SW
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/23/21; 8:15am	Pile Drive Time (sec):	11.08
Date/Time Tested:	1/23/21; 8:45am	Installation Rate (ft/sec):	0.6318
Coordinates:	45.882500°, -120.895333°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	240	0.0015	0.0021	0.0018
1	500	520	0.0070	0.0050	0.0060
1	1000	1140	0.0180	0.0041	0.0110
1	1500	1540	0.0280	0.0069	0.0175
1	2000	1960	0.0380	0.0140	0.0260
1	1500	1520	0.0360	0.0165	0.0262
1	1000	1040	0.0340	0.0210	0.0275
1	500	480	0.0250	0.0280	0.0265
1	250	280	0.0220	0.0341	0.0281
1	0	0	0.0155	0.0406	0.0281
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load	---	---	---	
1	10000	3,060	0.1130	0.0850	0.0990
1	0	0	0.0685	0.0992	0.0838

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	580	0.2694	0.1300	0.1997
1	1000	1040	0.3377	0.1725	0.2551
1	1500	1540	0.4170	0.2375	0.3273
1	0	0	0.15010	0.08000	0.1151
1	500	660	0.33055	0.16750	0.2490
1	1000	1080	0.39520	0.21250	0.3039
1	1500	1540	0.46890	0.27700	0.3730
1	2000	2040	0.59845	0.41750	0.5080
1	2500	2640	0.79100	0.66950	0.7303
1	0	0	0.25700	0.17750	0.2173
1	2500	---	---	---	---
1	3000	3200	1.07400	1.09550	1.0848
1	3500	---	---	---	---
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	3200	1.07400	1.09550	1.0848
	Target Load				
1	10000	---	---	---	---
1	0	0	0.5415	0.6450	0.5933

NOTES:

No rock encountered during pile installation.

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-11
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/23/21; 9:15 am	Pile Drive Time (sec):	16.05
Date/Time Tested:	1/23/21; 9:45 am	Installation Rate (ft/sec):	0.4361
Coordinates:	45.883611°, -120.890944°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	260	0.0085	0.0029	0.0057
1	500	520	0.0210	0.0052	0.0131
1	1000	1160	0.0335	0.0018	0.0176
1	1500	1560	0.0400	0.0041	0.0220
1	2000	2180	0.0405	0.0017	0.0211
1	1500	1460	0.0375	0.0041	0.0208
1	1000	1060	0.0335	0.0011	0.0173
1	500	520	0.0270	0.0196	0.0233
1	250	240	0.0230	0.0252	0.0241
1	0	0	0.0165	0.0331	0.0248
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	2,820	0.0660	0.0102	0.0381
1	0	0		0.0372	0.0372

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	520	0.1207	0.1295	0.1251
1	1000	1040	0.1956	0.2695	0.2326
1	1500	1520	0.2672	0.3610	0.3141
1	0	0	0.0228	0.0430	0.0329
1	500	540	0.1851	0.1870	0.1861
1	1000	1020	0.2405	0.2935	0.2670
1	1500	1540	0.3035	0.3795	0.3415
1	2000	2060	0.3801	0.4820	0.4311
1	2500	2540	0.4812	0.6135	0.5474
1	0	0	0.0235	0.0730	0.0483
1	2500	2760	0.5567	0.6930	0.6249
1	3000	3060	0.6120	0.7790	0.6955
1	3500	---	---	---	---
1	4000	4280	0.8350	1.2860	1.0605
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	4280	0.8350	1.2860	1.0605
	Target Load				
1	10000	---	---	---	---
1	0	0	0.0270	0.2560	0.1415

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-12
Deflection Gauge Height (in):	7	Direction:	N-S
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/23/21; 10:45 am	Pile Drive Time (sec):	30.98
Date/Time Tested:	1/23/21; 11:15 am	Installation Rate (ft/sec):	0.2260
Coordinates:	45.886139°, -120.885417°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	---	---	---	---
1	500	540	0.0130	0.0210	0.0170
1	1000	1040	0.0170	0.0289	0.0230
1	1500	1520	0.0230	0.0345	0.0288
1	2000	2060	0.0265	0.0395	0.0330
1	1500	1500	0.0305	0.0459	0.0382
1	1000	1060	0.0345	0.0510	0.0428
1	500	480	0.0385	0.0556	0.0471
1	250	220	0.0420	0.0612	0.0516
1	0	0	0.0460	0.0641	0.0551
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	12,050	0.1100	0.9380	0.5240
1	0	0	0.0865	0.1027	0.0946

LATERAL TEST

Lateral Load Height Above Grade (ft):	3	Deflection Gauge Height (in):	4		
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	600	0.0275	0.1360	0.0818
1	1000	1040	0.0642	0.2070	0.1356
1	1500	1540	0.1130	0.2715	0.1923
1	0	0	0.0270	0.0090	0.0180
1	500	540	0.0536	0.1605	0.1071
1	1000	1240	0.1170	0.2730	0.1950
1	1500	1520	0.1464	0.3140	0.2302
1	2000	2040	0.2010	0.3815	0.2913
1	2500	2520	0.2712	0.4650	0.3681
1	0	0	0.0720	0.0545	0.0633
1	2500	2580	0.3122	0.5070	0.4096
1	3000	3020	0.3746	0.5790	0.4768
1	3500	3620	0.4587	0.7010	0.5799
1	4000	4020	0.4587	0.8160	0.6374
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	6400	0.5890	1.0700	0.8295
1	0	---	---	---	---

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-13
Deflection Gauge Height (in):	7	Direction:	
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/22/21; 1:30 pm	Pile Drive Time (sec):	15.23
Date/Time Tested:	1/22/21; 2:00 pm	Installation Rate (ft/sec):	0.4596
Coordinates:	45.889722°, -120.884333°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	240	0.0030	0.0060	0.0045
1	500	620	0.0060	0.0120	0.0090
1	1000	1040	0.0080	0.0170	0.0125
1	1500	1580	0.0115	0.0240	0.0178
1	2000	2020	0.0125	0.0290	0.0208
1	1500	1480	0.0075	0.0270	0.0173
1	1000	1000	0.0045	0.0245	0.0145
1	500	580	---	0.0205	0.0205
1	250	260	0.0040	0.0175	0.0108
1	0	0	0.0115	0.0105	0.0110
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,500	0.0520	0.0860	0.0690
1	0	0	0.0145	0.0155	0.0150

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	---	---	---	---
1	1000	940	0.5950	0.2810	0.4380
1	1500	1540	0.8400	0.4900	0.6650
1	0	0	0.0400	0.0020	0.0210
1	500	640	0.5050	0.1700	0.3375
1	1000	1060	0.7100	0.3510	0.5305
1	1500	1540	0.8745	0.5045	0.6895
1	2000	2100	1.1490	0.7165	0.9328
1	2500	2560	1.3175	0.8325	1.0750
1	0	0	0.0630	0.0060	0.0345
1	2500	---	---	---	---
1	3000	---	---	---	---
1	3500	---	---	---	---
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	---	---	---	---
1	0	---	---	---	---

NOTES:

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-14
Deflection Gauge Height (in):	7	Direction:	E-W
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	6.5
Date/Time Installed:	1/21/2021; 3:15 pm	Pile Drive Time (sec):	30.25
Date/Time Tested:	1/24/2021; 7:45 am	Installation Rate (ft/sec):	0.2149
Coordinates:	45.885944°, -120.874889°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	280	0.0050	0.0020	0.0035
1	500	640	0.0110	0.0040	0.0075
1	1000	1120	0.0150	0.0010	0.0080
1	1500	---	---	---	---
1	2000	2300	0.0320	0.0075	0.0198
1	1500	1380	0.0245	0.0035	0.0140
1	1000	960	0.0215	0.0045	0.0130
1	500	540	0.0155	0.0090	0.0123
1	250	240	0.0105	0.0120	0.0113
1	0	0	0.0085	0.0155	0.0120
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	10,100	0.1885	0.0375	0.1130
1	0	0	0.0760	---	0.0760

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	560	0.0210	0.1140	0.0675
1	1000	1060	0.0645	0.2105	0.1375
1	1500	1540	0.1490	0.3235	0.2363
1	0	0	0.0405	0.0245	0.0325
1	500	540	0.0785	0.1845	0.1315
1	1000	1020	0.1175	0.2740	0.1958
1	1500	1520	0.1675	0.3400	0.2538
1	2000	2000	0.2610	0.4420	0.3515
1	2500	2540	0.4395	0.6010	0.5203
1	0	0	0.1355	0.0870	0.1113
1	2500	2500	0.5240	0.6835	0.6038
1	3000	3040	0.6955	0.8260	0.7608
1	3500	3520	0.9050	0.9855	0.9453
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	3580	0.9770	1.0400	1.0085
	Target Load				
1	10000	---	---	---	---
1	0	0	0.1750	0.0105	0.0928

NOTES:

Obstruction (likely boulder) encountered during pile installation resulting in slight batter.

ANS GEO

Project:	Carriger Solar	Pile #:	PLT-15
Deflection Gauge Height (in):	7	Direction:	S - N
Predrill? (Y/N):	Yes (7 ft)	Embedment Depth (ft):	7
Date/Time Installed:	1/21/2021; 4:15 pm	Pile Drive Time (sec):	8.85
Date/Time Tested:	1/22/21; 7:50 am	Installation Rate (ft/sec):	0.7910
Coordinates:	45.888999°, -120.873541°	Pile Size:	W6x9x15

TENSILE TEST

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	250	240	0.00650	0.00180	0.0042
1	500	480	0.02000	0.00935	0.0147
1	1000	980	0.07450	0.03865	0.0566
1	1500	1480	0.11050	0.06005	0.0853
1	2000	2040	0.16050	0.09085	0.1257
1	1500	1240	0.15900	0.10010	0.1296
1	1000	1080	0.15700	0.10105	0.1290
1	500	560	0.14100	0.10470	0.1229
1	250	280	0.12900	0.10510	0.1171
1	0	0	0.09600	0.09790	0.0970
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	---	---	---	---
	Target Load				
1	10000	2720	0.26000	0.16100	0.2105
1	0	0	0.16550	0.16285	0.1642

LATERAL TEST

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	520	0.10025	0.06130	0.0808
1	1000	1040	0.17430	0.12830	0.1513
1	1500	1540	0.25790	0.21545	0.2367
1	0	0	0.07825	0.06420	0.0712
1	500	540	0.16140	0.12000	0.1407
1	1000	1060	0.22230	0.17705	0.1997
1	1500	1520	0.27950	0.23035	0.2549
1	2000	2020	0.38030	0.32455	0.3524
1	2500	2500	0.52020	0.47420	0.4972
1	0	0	0.14200	0.11905	0.1305
1	2500	2540	0.63605	0.57700	0.6065
1	3000	3020	0.74015	0.69125	0.7157
1	3500	3520	1.00620	0.98735	0.9968
1	4000	---	---	---	---
1	0	---	---	---	---
	Target Deflection (in.)				
1	0.25	---	---	---	---
1	0.5	---	---	---	---
1	1	3580	1.04855	1.03510	1.0418
	Target Load				
1	10000	---	---	---	---
1	0	0	0.32105	0.29530	0.3082

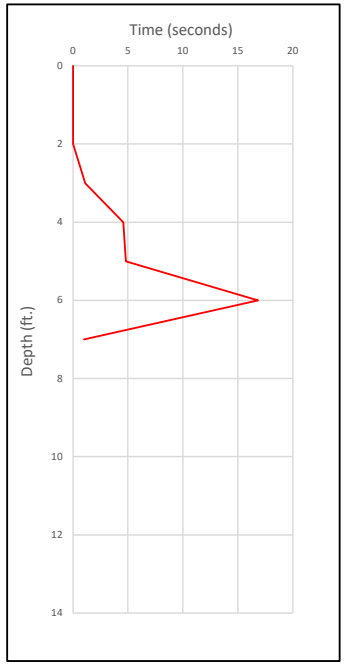
NOTES:

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-16
Date/Time Installed:	2/1/22 10:58 AM	Date/Time Tested:	2/3/22 10:12 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	28.32
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	4.045714286

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	1.1
4	4.59
5	4.8
6	16.82
7	1.01
8	
9	
10	
11	
12	
Total Time (s) =	28.3200



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0035		0.0035
1	3,000	3,000	0.0065		0.0065
1	4,000	4,000	0.0075		0.0075
1	5,000	5,000	0.0175		0.0175
1	6,000	6,000	0.0195		0.0195
1	7,000	7,000	0.0190		0.0190
1	8,000	8,000	0.0190		0.0190
1	9,000	8,900	0.0200		0.0200
1	10,000	10,000	0.0225		0.0225
Unload					
1	0	0	0.0020		0.0020
Reload					
1	Max.	12,000	0.0300		0.0300
Unload					
1	0	0	0.0015		0.0015

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.1310		0.1310
1	1,000	1,000	0.3425		0.3425
1	1,500	1,540	0.4935		0.4935
1	0	0	0.1075		0.1075
1	500	500	0.2440		0.2440
1	1,000	1,000	0.3735		0.3735
1	1,500	1,500	0.5080		0.5080
1	2,000	2,000	0.7675		0.7675
1	2,500	2,600	1.0010		1.0010
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0	0	0.2855		0.2855
1	Max.				
Unload					
1	0				

Field Notes

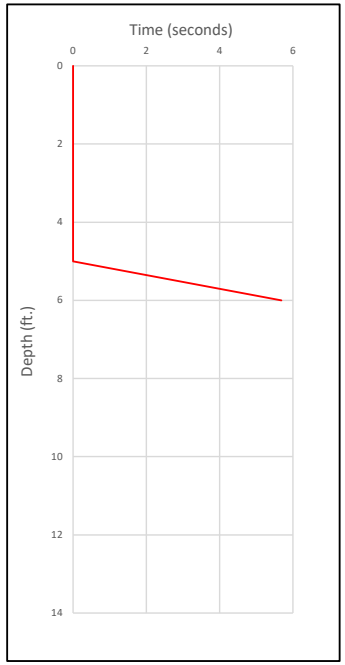
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-17
Date/Time Installed:	1/31/22 8:30 AM	Date/Time Tested:	2/3/22 7:19 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	6	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	5.69
Pushed to Depth (ft.):	5	Embedment Depth (ft.):	6.0	Avg. Installation Rate (sec/ft)	0.948333333

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	0
5	0
6	5.69
7	
8	
9	
10	
11	
12	
Total Time (s) =	5.6900



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0045		0.0045
1	3,000	3,100	0.0115		0.0115
1	4,000	4,000	0.0152		0.0152
1	5,000	4,800	1.0110		1.0110
1	6,000				
1	7,000				
1	8,000				
1	9,000				
1	10,000				
Unload					
1	0	0	0.9439		0.9439
Reload					
1	Max.				
Unload					
1	0				

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	520	0.2540		0.2540
1	1,000	1,120	0.5430		0.5430
1	1,500	1,700	0.7860		0.7860
1	0	0	0.0600		0.0600
1	500	500	0.2640		0.2640
1	1,000	980	0.5455		0.5455
1	1,500	1,500	0.8335		0.8335
1	2,000	2,000	0.9255		0.9255
1	2,500	2,200	1.0255		1.0255
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0				
Reload					
1	Max.				
Unload					
1	0	0	0.0548		0.0548

Field Notes

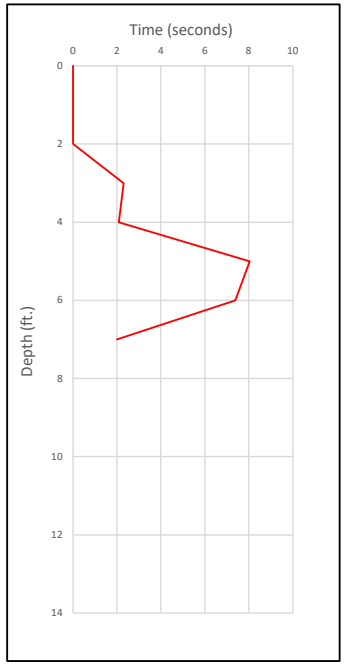
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-18
Date/Time Installed:	2/1/22 11:35 AM	Date/Time Tested:	2/3/22 11:15 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	21.82
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	3.117142857

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	2.31
4	2.08
5	8.04
6	7.39
7	2
8	
9	
10	
11	
12	
Total Time (s) =	21.8200



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,580	0.0060		0.0060
1	3,000	3,000	0.0080		0.0080
1	4,000	4,000	0.0085		0.0085
1	5,000	5,200	0.0100		0.0100
1	6,000	6,000	0.0100		0.0100
1	7,000	7,000	0.0180		0.0180
1	8,000	8,000	0.0190		0.0190
1	9,000	9,000	0.0200		0.0200
1	10,000	10,000	0.0200		0.0200
Unload					
1	0	0	0.0010		0.0010
Reload					
1	Max.	12,000	0.0025		0.0025
Unload					
1	0	0	-0.0065		-0.0065

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	600	0.0720		0.0720
1	1,000	1,000	0.1305		0.1305
1	1,500	1,500	0.2000		0.2000
1	0	0	0.0165		0.0165
1	500	500	0.0705		0.0705
1	1,000	1,000	0.1380		0.1380
1	1,500	1,500	0.2015		0.2015
1	2,000	2,000	0.2750		0.2750
1	2,500	2,500	0.3450		0.3450
1	0	0	0.0270		0.0270
1	2,500	2,500	0.3695		0.3695
1	3,000	3,000	0.4250		0.4250
1	3,500	3,500	0.5050		0.5050
1	4,000	4,000	0.6490		0.6490
Unload					
1	0	0	0.1420		0.1420
Reload					
1	Max.	4,600	1.0185		1.0185
Unload					
1	0	0	0.4250		0.4250

Field Notes

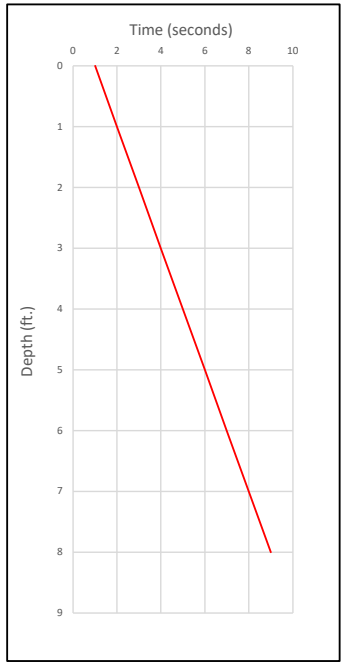
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-19
Date/Time Installed:	1/31/22 8:45 AM	Date/Time Tested:	2/3/22 8:05 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	11.16
Pushed to Depth (ft.):	4	Embedment Depth (ft.):	6.0	Avg. Installation Rate (sec/ft)	1.86

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	0
5	1.2
6	2.07
7	7.89
8	
9	
10	
11	
12	
Total Time (s) =	11.1600



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,700	0.0060		0.0060
1	3,000	3,000	0.0080		0.0080
1	4,000	4,000	0.0105		0.0105
1	5,000	5,000	0.0125		0.0125
1	6,000	6,000	0.0155		0.0155
1	7,000	7,000	0.0160		0.0160
1	8,000	7,980	0.0160		0.0160
1	9,000	9,060	0.0185		0.0185
1	10,000	10,000	0.0215		0.0215
Unload					
1	0	0	0.0030		0.0030
Reload					
1	Max.	12,000	0.0275		0.0275
Unload					
1	0	0	0.0060		0.0060

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.1864		0.1864
1	1,000	1,000	0.3475		0.3475
1	1,500	1,500	0.5105		0.5105
1	0	0	0.0655		0.0655
1	500	500	0.2175		0.2175
1	1,000	1,020	0.3676		0.3676
1	1,500	1,500	0.5095		0.5095
1	2,000	2,000	0.6660		0.6660
1	2,500	2,500	0.8015		0.8015
1	0	0	0.0915		0.0915
1	2,500	2,540	0.8415		0.8415
1	3,000	3,060	1.0015		1.0015
1	3,500				
1	4,000				
Unload					
1	0	0	0.1385		0.1385
Reload					
1	Max.				
Unload					
1	0				

Field Notes

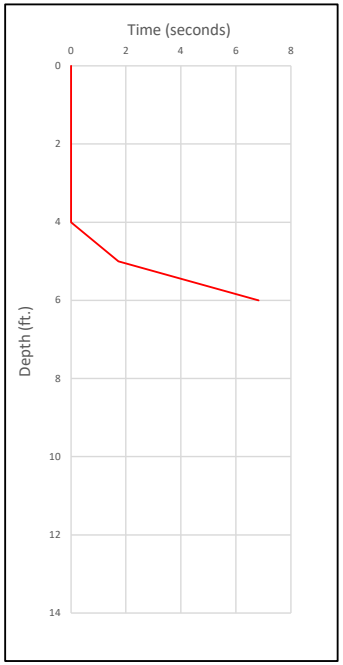
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-20
Date/Time Installed:	1/31/22 8:45 AM	Date/Time Tested:	2/2/22 4:43 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	6	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	8.55
Pushed to Depth (ft.):	4	Embedment Depth (ft.):	6.0	Avg. Installation Rate (sec/ft)	1.43

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	0
5	1.73
6	6.82
7	
8	
9	
10	
11	
12	
Total Time (s) =	8.55



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0070		0.0070
1	3,000	3,000	0.0100		0.0100
1	4,000	4,000	0.0105		0.0105
1	5,000	5,000	0.0160		0.0160
1	6,000	6,500	0.0165		0.0165
1	7,000	7,000	0.0195		0.0195
1	8,000	8,400	0.0420		0.0420
1	9,000	9,000	0.0435		0.0435
1	10,000	10,000	0.0440		0.0440
Unload					
1	0	0	0.0090		0.0090
Reload					
1	Max.	12,000	0.0615		0.0615
Unload					
1	0	0	0.0140		0.0140

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.1500		0.1500
1	1,000	1,000	0.2650		0.2650
1	1,500	1,520	1.0120		1.0120
1	0				
1	500				
1	1,000				
1	1,500				
1	2,000				
1	2,500				
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0				
Reload					
1	Max.				
Unload					
1	0				

Field Notes

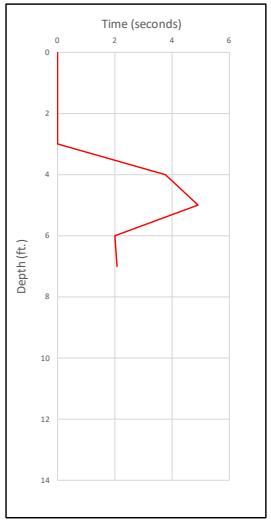
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-21
Date/Time Installed:	2/1/21 12:03 PM	Date/Time Tested:	2/3/22 9:15 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	12.76
Pushed to Depth (ft.):	3	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	1.82

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	3.77
5	4.91
6	2
7	2.08
8	
9	
10	
11	
12	
Total Time (s) =	12.76



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0050		0.0050
1	3,000	3,000	0.0075		0.0075
1	4,000	4,000	0.0085		0.0085
1	5,000	5,000	0.0100		0.0100
1	6,000	6,000	0.0110		0.0110
1	7,000	7,000	0.0120		0.0120
1	8,000	8,000	0.0175		0.0175
1	9,000	9,000	0.0180		0.0180
1	10,000	10,000	0.0235		0.0235
Unload					
1	0	0	0.0110		0.0110
Reload					
1	Max.	12,000	0.0250		0.0250
Unload					
1	0	0	0.0135		0.0135

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.1035		0.1035
1	1,000	1,000	0.2150		0.2150
1	1,500	1,500	0.3325		0.3325
1	0	0	0.0035		0.0035
1	500	500	0.1200		0.1200
1	1,000	1,000	0.2250		0.2250
1	1,500	1,500	0.3420		0.3420
1	2,000	2,000	0.4540		0.4540
1	2,500	2,500	0.5855		0.5855
1	0	0	0.0345		0.0345
1	2,500	2,500	0.5915		0.5915
1	3,000	3,000	0.7295		0.7295
1	3,500	3,500	0.9450		0.9450
1	4,000	3,600	1.0085		1.0085
Unload					
1	0	0	0.2270		0.2270
Reload					
1	Max.				
Unload					
1	0				

Field Notes

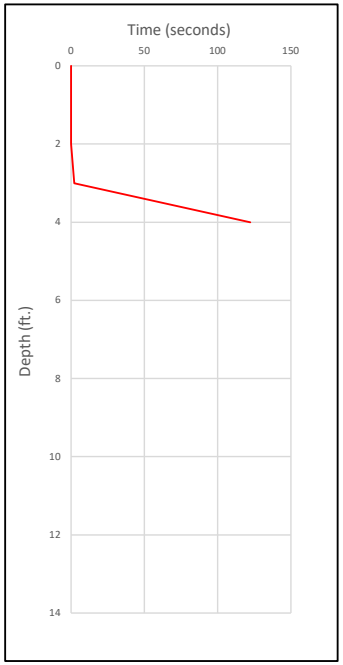
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-22
Date/Time Installed:	2/1/22 12:48 PM	Date/Time Tested:	2/3/22 12:15 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	N/A	Pre-Drill Diameter (in):	N/A	Total Drive Time (sec):	124.48
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	4.0	Avg. Installation Rate (sec/ft)	31.12

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	2.24
4	122.24
5	
6	
7	
8	
9	
10	
11	
12	
Total Time (s) =	124.48



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0755		0.0755
1	3,000	3,000	0.3325		0.3325
1	4,000	3,700	1.0224		1.0224
1	5,000				
1	6,000				
1	7,000				
1	8,000				
1	9,000				
1	10,000				
Unload					
1	0	0			
Reload					
1	Max.				
Unload					
1	0	0	0.0722		0.0722

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.6105		0.6105
1	1,000	1,000	0.9340		0.9340
1	1,500	1,200	1.0195		1.0195
1	0				
1	500				
1	1,000				
1	1,500				
1	2,000				
1	2,500				
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0	0	0.7065		0.7065
Reload					
1	Max.				
Unload					
1	0				

Field Notes

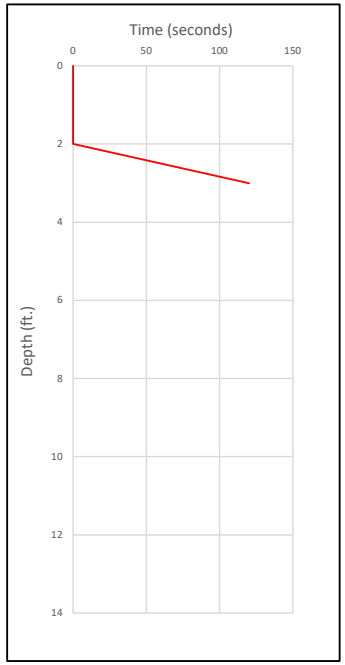
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-23
Date/Time Installed:	1/28/21 12:48 PM	Date/Time Tested:	2/2/22 4:02 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	N/A	Pre-Drill Diameter (in):	N/A	Total Drive Time (sec):	120
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	3.0	Avg. Installation Rate (sec/ft)	40

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	120
4	
5	
6	
7	
8	
9	
10	
11	
12	
Total Time (s) =	120.0000



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.4010		0.4010
1	3,000	2,400	1.0300		1.0300
1	4,000				
1	5,000				
1	6,000				
1	7,000				
1	8,000				
1	9,000				
1	10,000				
Unload					
1	0	0	0.8715		0.8715
Reload					
1	Max.				
Unload					
1	0				

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	520	0.4000		0.4000
1	1,000	720	1.1220		1.1220
1	1,500				
1	0				
1	500				
1	1,000				
1	1,500				
1	2,000				
1	2,500				
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0	0	0.5295		0.5295
Reload					
1	Max.				
Unload					
1	0				

Field Notes

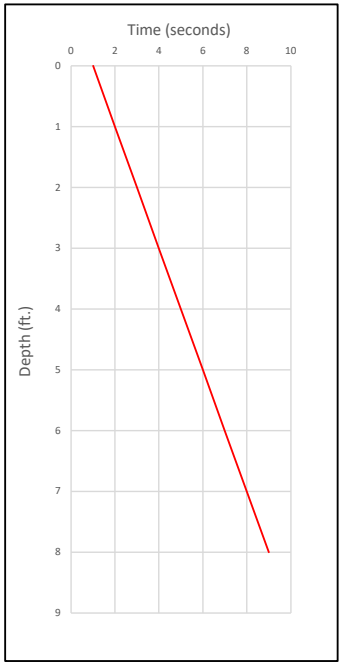
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-24
Date/Time Installed:	1/31/22 11:28 AM	Date/Time Tested:	2/2/22 11:35 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	N/A	Pre-Drill Diameter (in):	N/A	Total Drive Time (sec):	199.42
Pushed to Depth (ft.):	3	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	28.49

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	33.87
5	66.19
6	32.76
7	66.6
8	
9	
10	
11	
12	
Total Time (s) =	199.42



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	1,500	1,500	-0.0130	0.0175	0.0023
1	3,000	3,000	-0.0150	0.0260	0.0055
1	4,000	4,300	-0.0180	0.0300	0.0060
1	5,000	5,200	-0.0115	0.0305	0.0095
1	6,000	6,000	-0.0035	0.0280	0.0123
1	7,000	7,100	0.0050	0.0260	0.0155
1	8,000	8,000	0.0010	0.0250	0.0130
1	9,000	9,000	0.0025	0.0240	0.0133
1	10,000	10,700	0.0100	0.0180	0.0140
Unload					
1	0	0	0.0120	-0.0090	0.0015
Reload					
1	Max.	12,000	0.0185	0.0120	0.0153
Unload					
1	0	0	0.0025	0.0060	0.0043

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	620	0.1395	0.0895	0.1145
1	1,000	1,000	0.2645	0.1135	0.1890
1	1,500	1,500	0.4570	0.1345	0.2958
1	0	0	0.0840	-0.0175	0.0333
1	500	620	0.1016	0.0345	0.0681
1	1,000	1,120	0.1100	0.0760	0.0930
1	1,500	1,500	0.1630	0.0695	0.1163
1	2,000	2,000	0.3325	0.0900	0.2113
1	2,500	2,580	0.5880	0.1145	0.3513
1	0	0	0.2045	0.0940	0.1493
1	2,500	2,500	0.7420	0.0250	0.3835
1	3,000	3,000	0.9180	0.0915	0.5048
1	3,500	3,500	1.2145	0.0785	0.6465
1	4,000	4,000	1.6625	0.0660	0.8643
Unload					
1	0	0	0.1985	-0.2365	-0.0190
Reload					
1	Max.	4,500	1.9640	0.0996	1.0318
Unload					
1	0	0	0.6635	-0.3280	0.1678

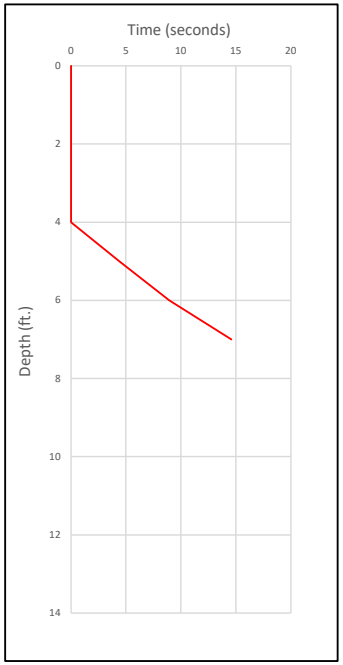
Field Notes

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-25
Date/Time Installed:	1/31/22 11:05 AM	Date/Time Tested:	2/2/22 8:35 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	27.94
Pushed to Depth (ft.):	4	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	3.991428571

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	0
5	4.41
6	8.94
7	14.59
8	
9	
10	
11	
12	
Total Time (s) =	27.9400



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	1,500	1,500	-0.0085	-0.0150	-0.0118
1	3,000	2,980	-0.0290	0.0490	0.0100
1	4,000	4,000	-0.0295	0.0605	0.0155
1	5,000	5,000	-0.0330	0.0775	0.0223
1	6,000	6,250	-0.0475	0.1040	0.0283
1	7,000	7,000	-0.0510	0.1090	0.0290
1	8,000	8,000	-0.0545	0.1190	0.0323
1	9,000	9,000	-0.0720	0.1360	0.0320
1	10,000	10,000	-0.0810	0.1555	0.0373
Unload					
1	0	0	-0.0030	0.0145	0.0058
Reload					
1	Max.	13,000	-0.0625	0.1735	0.0555
Unload					
1	0	0	0.0060	0.0245	0.0153

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000	0.0000	0.0000
1	500	580	0.1945	0.1640	0.1793
1	1,000	1,080	0.3400	0.1640	0.2520
1	1,500	1,480	0.4670	0.5970	0.5320
1	0	0	0.0130	0.1310	0.0720
1	500	500	0.1075	0.1980	0.1528
1	1,000	1,000	0.2880	0.2040	0.2460
1	1,500	1,500	0.4235	0.7550	0.5893
1	2,000	2,000	0.6360	0.8670	0.7515
1	2,500	2,500	0.8273	0.9975	0.9124
1	0	0	0.1175	0.1180	0.1178
1	2,500	2,500	0.9415	1.0450	0.9933
1	3,000	2,680	1.0340	1.0945	1.0643
1	3,500				
1	4,000				
Unload					
1	0	0	0.2075	0.0730	0.1403
Reload					
1	Max.				
Unload					
1	0				

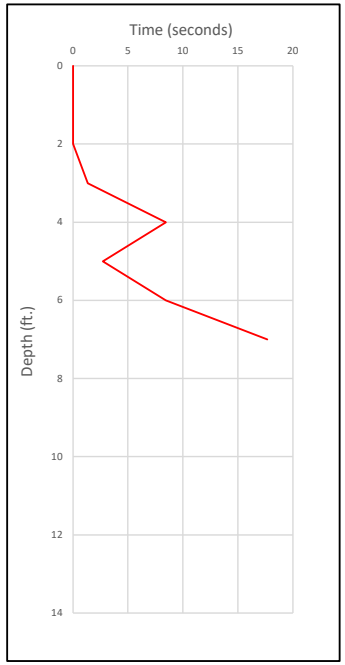
Field Notes

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-26
Date/Time Installed:	1/31/22 10:15AM	Date/Time Tested:	2/2/22 1:55 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	38.67
Pushed to Depth (ft.):	4	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	5.524285714

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	1.36
4	8.46
5	2.71
6	8.46
7	17.68
8	
9	
10	
11	
12	
Total Time (s) =	38.6700



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,580	0.0035		0.0035
1	3,000	3,100	0.0065		0.0065
1	4,000	4,080	0.0115		0.0115
1	5,000	5,000	0.0130		0.0130
1	6,000	6,100	0.0150		0.0150
1	7,000	7,000	0.0160		0.0160
1	8,000	8,000	0.0195		0.0195
1	9,000	9,000	0.0215		0.0215
1	10,000	10,000	0.0245		0.0245
Unload					
1	0	0	0.0105		0.0105
Reload					
1	Max.	12,000	0.0285		0.0285
Unload					
1	0	0	0.0105		0.0105

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	620	0.0920		0.0920
1	1,000	1,020	0.1550		0.1550
1	1,500	1,700	0.2690		0.2690
1	0	0	0.0145		0.0145
1	500	500	0.0735		0.0735
1	1,000	1,140	0.1800		0.1800
1	1,500	1,600	0.2625		0.2625
1	2,000	2,000	0.3235		0.3235
1	2,500	2,500	0.4110		0.4110
1	0	0	0.0220		0.0220
1	2,500	2,500	0.4195		0.4195
1	3,000	3,000	0.5125		0.5125
1	3,500	3,500	0.6275		0.6275
1	4,000	4,000	0.7735		0.7735
Unload					
1	0	0	0.1460		0.1460
Reload					
1	Max.	4,200	1.0420		1.0420
Unload					
1	0	0	0.3745		0.3745

Field Notes

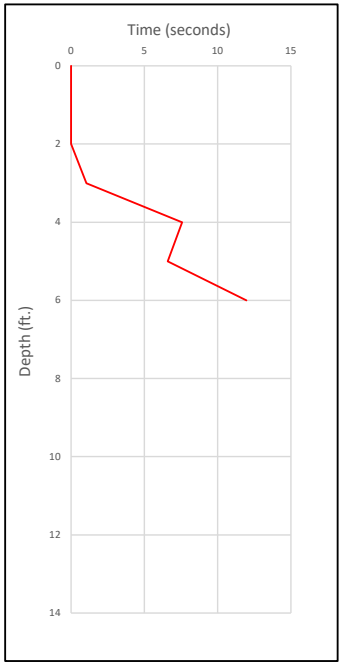
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-27
Date/Time Installed:	2/1/22 8:49 AM	Date/Time Tested:	2/22/22 3:18 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	27.2
Pushed to Depth (ft.):	3	Embedment Depth (ft.):	7.0	Avg. Installation Rate (sec/ft)	3.89

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	1.05
4	7.59
5	6.6
6	11.96
7	
8	
9	
10	
11	
12	
Total Time (s) =	27.2



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,560	0.0010		0.0010
1	3,000	3,000	0.0080		0.0080
1	4,000	4,000	0.0110		0.0110
1	5,000	5,000	0.0155		0.0155
1	6,000	6,200	0.0185		0.0185
1	7,000	7,000	0.0215		0.0215
1	8,000	8,000	0.0235		0.0235
1	9,000	9,000	0.0245		0.0245
1	10,000	11,400	0.0335		0.0335
Unload					
1	0	0	0.0045		0.0045
Reload					
1	Max.	12,900	0.0455		0.0455
Unload					
1	0	0	0.0055		0.0055

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	560	0.1490		0.1490
1	1,000	1,000	0.2945		0.2945
1	1,500	1,500	0.4660		0.4660
1	0	0	0.0150		0.0150
1	500	560	0.1385		0.1385
1	1,000	1,000	0.3420		0.3420
1	1,500	1,730	0.4950		0.4950
1	2,000	2,060	0.9820		0.9820
1	2,500	2,500	1.3852		1.3852
1	0	0	0.1684		0.1684
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0				
Reload					
1	Max.				
Unload					
1	0				

Field Notes

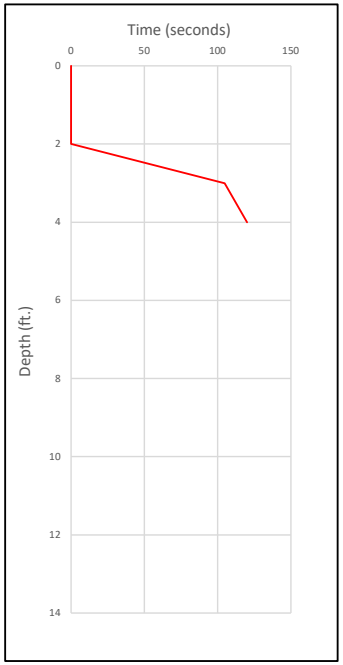
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-28
Date/Time Installed:	2/1/22 9:45 AM	Date/Time Tested:	2/4/22 2:15 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	N/A	Pre-Drill Diameter (in):	N/A	Total Drive Time (sec):	224.95
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	4.5	Avg. Installation Rate (sec/ft)	49.99

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	104.95
4	120
5	
6	
7	
8	
9	
10	
11	
12	
Total Time (s) =	224.95



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,500	0.0150		0.0150
1	3,000	3,500	0.0220		0.0220
1	4,000	4,000	0.0565		0.0565
1	5,000	5,210	0.2020		0.2020
1	6,000	6,420	0.2655		0.2655
1	7,000	7,000	0.2700		0.2700
1	8,000	8,000	0.2965		0.2965
1	9,000	9,300	0.4200		0.4200
1	10,000	10,100	0.6055		0.6055
Unload					
1	0	0	0.5845		0.5845
Reload					
1	Max.	12,000	0.7570		0.7570
Unload					
1	0	0	0.6050		0.6050

Lateral Testing

Lateral Load Height Above Grade (ft):		3	Deflection Gauge Height (in):		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	620	0.2940		0.2940
1	1,000	1,200	0.4595		0.4595
1	1,500	1,520	0.5210		0.5210
1	0	0	0.1690		0.1690
1	500	620	0.1655		0.1655
1	1,000	1,260	0.5270		0.5270
1	1,500	1,800	0.6485		0.6485
1	2,000	2,000	0.6715		0.6715
1	2,500	2,500	0.7630		0.7630
1	0	0	0.2160		0.2160
1	2,500	2,510	0.8510		0.8510
1	3,000	3,160	1.0215		1.0215
1	3,500				
1	4,000				
Unload					
1	0	0	0.3045		0.3045
Reload					
1	Max.				
Unload					
1	0				

Field Notes

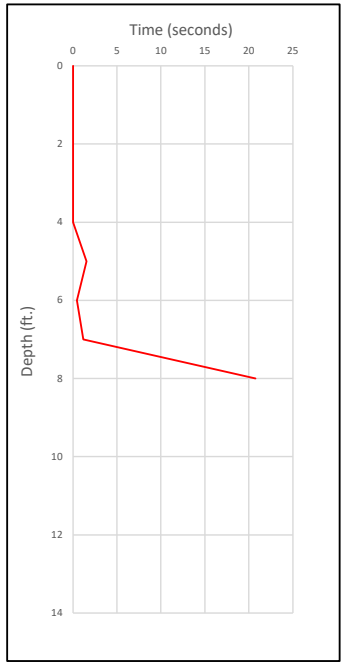
2nd deflection gauge damaged; one gauge used

ANS GEO

Project:	Carriger Solar	Site Location	Goldendale, WA	Pile ID:	PLT-29
Date/Time Installed:	1/28/21 12:48 PM	Date/Time Tested:	2/4/22 12:15 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	Pre-drilled	Pre-Auger Depth (ft):	N/A	Pile Length:	15
Pre-Drill Depth (ft):	7	Pre-Drill Diameter (in):	6	Total Drive Time (sec):	23.84
Pushed to Depth (ft.):	4	Embedment Depth (ft.):	8.0	Avg. Installation Rate (sec/ft)	2.98

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	0
4	0
5	1.52
6	0.43
7	1.16
8	20.73
9	
10	
11	
12	
Total Time (s) =	23.84



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	1,500	1,540	0.0015		0.0015
1	3,000	3,200	0.0010		0.0010
1	4,000	4,200	0.0030		0.0030
1	5,000	5,000	0.0045		0.0045
1	6,000	6,400	0.0090		0.0090
1	7,000	7,500	0.0135		0.0135
1	8,000	8,500	0.0170		0.0170
1	9,000	9,100	0.0275		0.0275
1	10,000	10,500	0.0360		0.0360
Unload					
1	0	0	0.0245		0.0245
Reload					
1	Max.	12,000	0.0850		0.0850
Unload					
1	0	0	0.0635		0.0635

Lateral Testing

Lateral Load Height Above Grade (ft):		3	**Deflection Gauge Height (in):**		4
Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0.0000		0.0000
1	500	500	0.4325		0.4325
1	1,000	1,100	0.7160		0.7160
1	1,500	1,540	1.0170		1.0170
1	0				
1	500				
1	1,000				
1	1,500				
1	2,000				
1	2,500				
1	0				
1	2,500				
1	3,000				
1	3,500				
1	4,000				
Unload					
1	0	0	0.5612		0.5612
Reload					
1	Max.				
Unload					
1	0				

Field Notes

2nd deflection gauge damaged; one gauge used

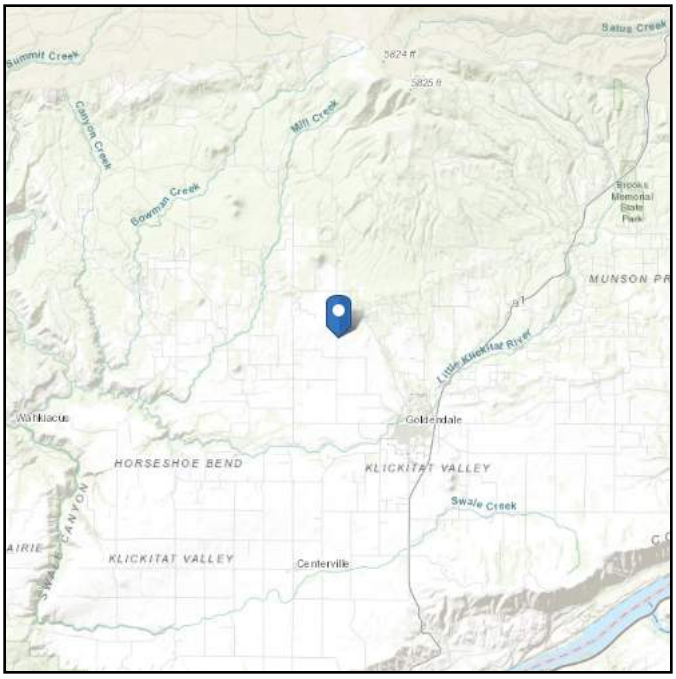
Attachment F

Seismic Support Data

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	1862.93 ft (NAVD 88)
Risk Category:	II	**Latitude:**	45.866528
Soil Class:	C - Very Dense Soil and Soft Rock	**Longitude:**	-120.873639



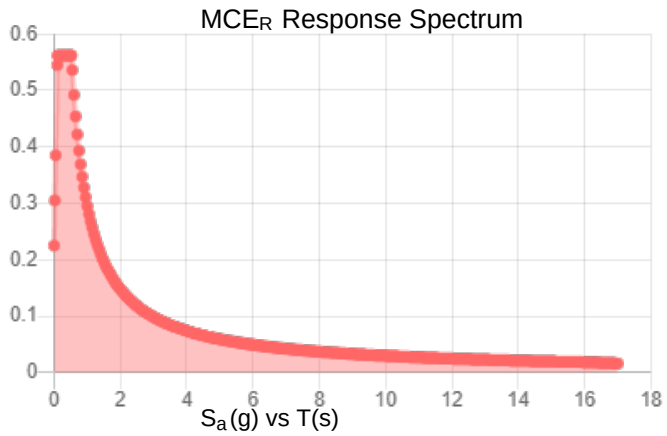
Seismic

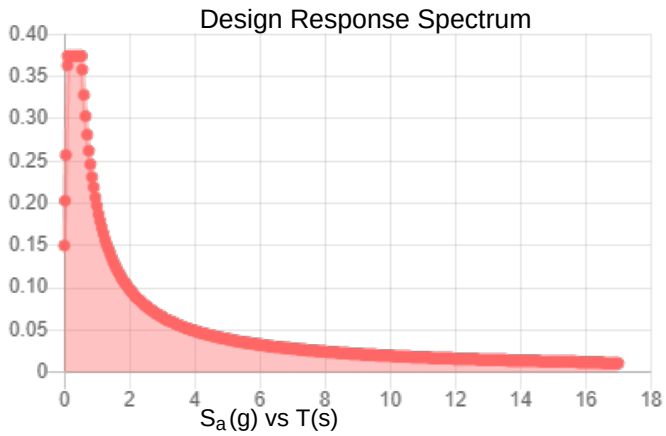
Site Soil Class: C - Very Dense Soil and Soft Rock

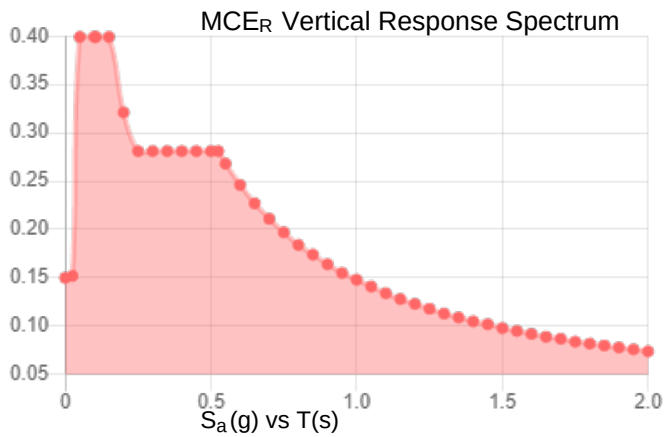
Results:

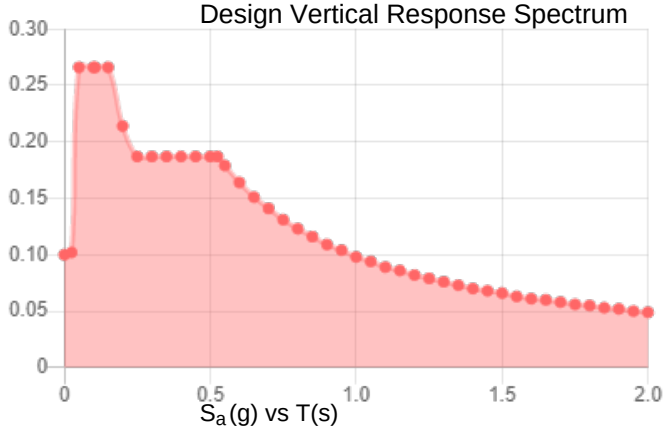
S_S :	0.432	S_{D1} :	0.197
S_1 :	0.197	T_L :	16
F_a :	1.3	PGA :	0.193
F_v :	1.5	PGA_M :	0.233
S_{MS} :	0.562	F_{PGA} :	1.207
S_{M1} :	0.295	I_e :	1
S_{DS} :	0.374	C_v :	0.888

Seismic Design Category C









Data Accessed: Wed Feb 17 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.

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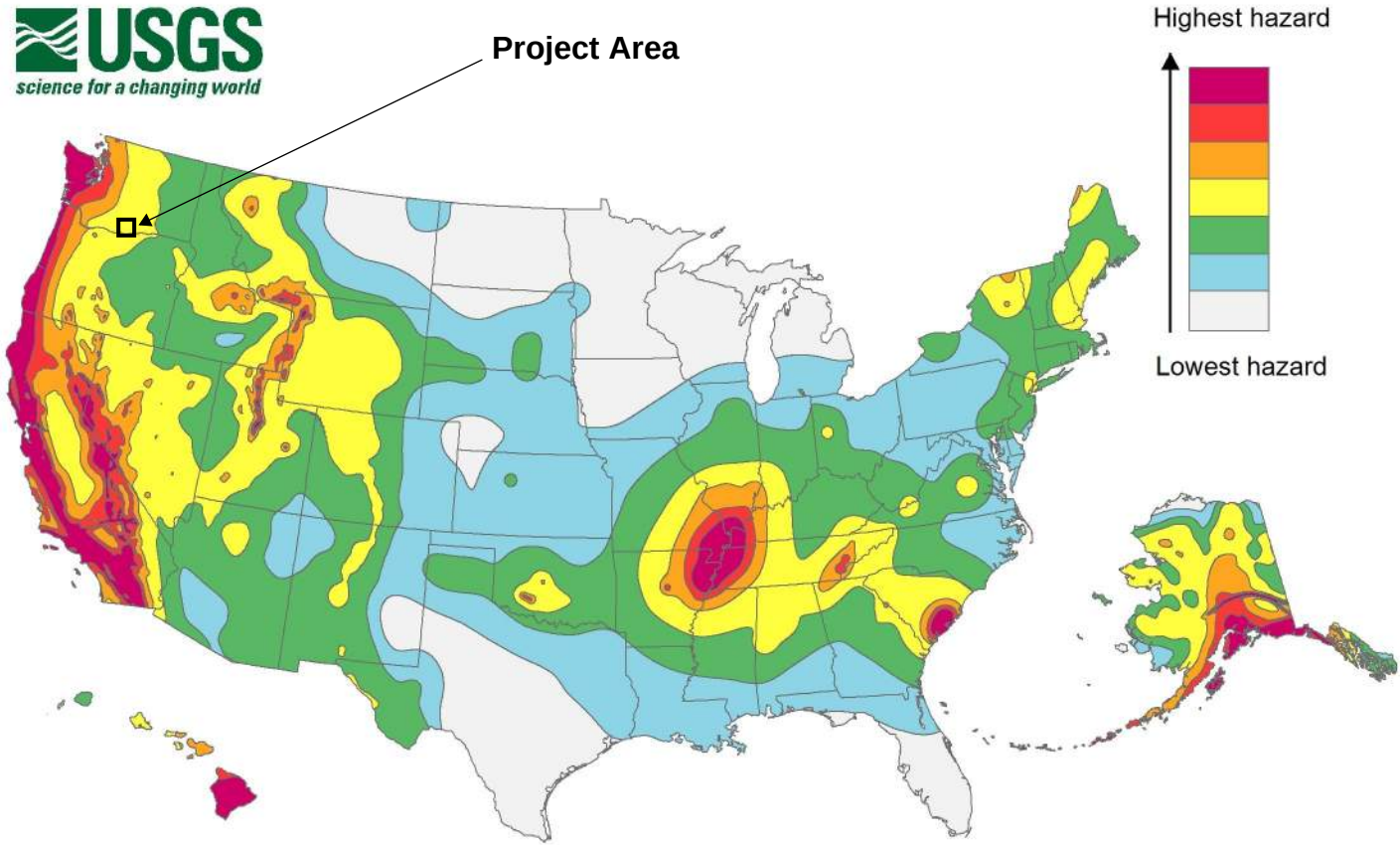
USGS
science for a changing world
Project Area
Highest hazard
Lowest hazard