Appendix 10-1

Geotechnical Report

Geotechnical Report

AES – Brookside Solar Project

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ANS GEO

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1 Introduction

ANS Geo, Inc. is pleased to provide this Geotechnical Report (Report) to AES to summarize the results of our geotechnical field investigation in support of the proposed Brookside Solar Energy Generation project located in Chateaugay, New York. To guide the design and construction of the proposed solar facility, ANS Geo developed and implemented a geotechnical investigation program which encompassed a desktop study of local geologic conditions, soil borings, field electrical resistivity testing, pile load testing, laboratory thermal resistivity and corrosion testing, California Bearing Ratio (CBR) and laboratory soil material testing.

2 Methodology

2.1 Soil Borings

ANS Geo retained Earth Dimensions, Inc., (EDI) of Elma, New York to advance 44 soil borings (B-01 through B-42, B-SS-1 and B-SS-2) completed at select locations across the project site between March 2 and 10, 2021. The soil boring locations are depicted in the Investigation Location Plan, provided as **Attachment A**.

The 42 array-area soil borings were advanced to approximately 20 feet below ground surface (BGS) or until practical refusal, whichever was encountered first. Both substation-area soil borings extended to practical refusal, which was encountered between 24 and 30 feet below grade. A Diedrich D-50 track-mounted drill rig was used to collect soil samples using the Standard Penetration Test (SPT) Method through hollow-stem augers in accordance with ASTM Standard D1586. Soil samples were generally collected continuously within the upper 10 feet in each boring, then in five-foot intervals thereafter to the termination depth. Soil borings, proposed by ANS Geo and confirmed by AES review, were located at relatively evenly spread locations throughout the project's array area(s). All soil borings were overseen and logged by an ANS Geo representative under the direction of a Professional Engineer licensed in the State of New York. Typed soil boring logs are presented as **Attachment B**.

At select soil boring locations, auger cuttings were collected one (1) and five (5) feet below grade with the purpose of obtaining bulk soil samples for laboratory California Bearing Ratio (CBR), thermal resistivity testing (TRT), and corrosivity testing. Upon completion, each borehole was backfilled to its existing grade with soil cuttings.

2.2 Electrical Resistivity Testing

As part of our field investigation program, ANS Geo performed field Electrical Resistivity Tomography (ERT) testing between April 29 and May 1, 2021. Testing was conducted at 13 locations within the proposed array area(s), two of which (ERT-10 and ERT-13) were completed in the vicinity of the project's substation. In-situ soil resistivity measurements were obtained by utilizing the Wenner 4-Pin Method in accordance with ASTM G57 and IEEE Standard 80.

Two (2) mutually perpendicular traverses were collected at each location utilizing "a"-spacings of 2, 5, 10, 25, and 50 feet, with additional 75-foot spacings at the two (2) substation locations. Test results are presented as **Attachment C**.

2.3 Pile Load Testing

2.3.1 Test Pile Installation

ANS Geo completed pile load testing at 44 accessible locations across the proposed solar array area(s). Each test location included a pair of test piles, totaling 88 piles tested for both uplift and lateral capacities. At each test location, W6x9x15 steel sections ("piles") were installed to varying depths between eight (8) and 10.5 feet BGS through the overburden via direct push to significant resistance, then driven to their targeted depths using

a GAYK HRE 4000 Pile Driver. Installation rates varied up to 6.0 seconds per foot, with an average of approximately 2.5 seconds per foot. 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 New York.

2.3.2 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 hydraulic load cell attached to a rigid tripod reaction frame. Uplift loads were generally applied in one-minute, 1,000-pound increments up to 10,000 pounds. Once achieved, the load was then unloaded to measure residual deflection. After the tension was fully released, the piles were reloaded up to a maximum uplift load of roughly 13,000 pounds or one-inch of deflection.

2.3.3 Lateral Load Testing

A lateral load test was also 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 a hydraulic load cell. Test loads were applied cyclically 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 deflection of approximately one-inch, if not already achieved.

The location of each pile load test is depicted in the Investigation Location Plan, provided as **Attachment A**. Results of the pile load testing program are summarized within **Section 5**.

3 Geology and Subsurface Conditions

ANS Geo conducted a brief, desktop review of surficial and bedrock geology maps and reports made available by the New York State Geological Survey (NYSGS) and the New York State Education Department (NYSED) prior to conducting our field investigation. The available mapping indicates that the native surficial soils are predominantly classified as “till” which are described as poorly sorted, boulder to clay size material. A smaller portion of the project area resides within soils classified as “lacustrine delta” which are described as generally well-sorted coarse to fine sand and gravel material. Bedrock geological mapping indicates the project site is underlain entirely by the Potsdam Sandstone formation which predominantly consists of sandstone bedrock.

ANS Geo additionally reviewed overburden soil information made available by the USDA’s Natural Resources Conservation Service (NRCS). The NRCS classifies the upper six (6) feet of soil primarily as material of the Brayton stony loam, Moira stony loam, and Runeberg soils units. The full NRCS soil report is provided as **Attachment G**.

ANS Geo has provided the generalized subsurface conditions within Table 1 below based upon the observations made during our geotechnical investigation for the solar project. ANS Geo notes that this profile is highly generalized and that soil boring logs, been provided as **Attachment B**, should be reviewed for location-specific subsurface conditions.

Table 1 – Generalized Subsurface Profile

Avg. Depth (ft)	Material	Avg. Consistency	Description
0' – 0.5'	Topsoil	-	Four (4) to 10 inches of topsoil existed at surface across most of the project.
0.5' – 20'	Silt / Clay / Sand	Stiff	A combination of silts, clays, and sands were generally observed as the primary overburden material throughout the project area, generally becoming more "sandy" within the southeastern parcels. This variable and homogenous soil composition is typical of till geology, which frequently includes cobbles and/or boulders. Drilling refusal, likely attributed to cobbles and/or boulders, was encountered in several locations between 13 and 20 feet below grade.

The mapped soil formations identified within our desktop study are consistent with the findings of our field investigations. It should be noted that split spoon "refusal", indicative of cobbles and/or boulders, was occasionally encountered as shallow as two (2) feet below grade, and should be anticipated during construction.

4 Laboratory Results

4.1 Soil Index Testing

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

Table 2 – Soil Index Testing Summary

Sieve Analysis Samples							
Boring ID	Sample ID	Depth (feet)	% Gravel	% Sand	% Fines		% Moisture
					% Silt	% Clay	
B-01	S-4	6 – 8	2.1	78.4	19.5		15.9
B-04	S-3	4 – 6	5.7	90.5	3.8		5.2
B-35	S-2	2 – 4	9.9	44.5	45.6		13.9
B-39	S-5	8 – 10	6.6	59.5	33.9		7.3
B-41	S-4	6 – 8	0.0	97.3	2.7		2.6
B-42	S-2	2 – 4	5.8	44.1	50.1		15.9

Atterberg Samples							
Boring ID	Sample ID	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	% Moisture	USCS Symbol
B-02	S-2	2 – 4	29.4	20.8	8.6	12.3	CL
B-03	S-3	4 – 6	26.7	19.1	7.6	10.9	CL
B-06	S-4	6 – 8	30.5	19.8	10.7	11.0	CL
B-07	S-2	2 – 4	30.3	19.6	10.7	13.4	CL

Table 2 (cont.) – Soil Index Testing Summary

Atterberg Samples							
Boring ID	**Sample ID**	**Depth (feet)**	**Liquid Limit**	**Plastic Limit**	**Plasticity Index**	**% Moisture**	**USCS Symbol**
B-09	S-3	4 – 6	27.1	19.4	7.7	24.5	CL
B-10	S-5	8 – 10	25.5	19.4	6.1	11.7	ML
B-12	S-3	4 – 6	30.0	19.8	10.2	17.0	CL
B-13	S-4	6 – 8	26.3	19.2	7.1	11.6	ML
B-15	S-3	4 – 6	29.6	19.8	9.8	14.6	CL
B-17	S-3	4 – 6	29.0	20.6	8.4	13.8	CL
B-19	S-2	2 – 4	26.3	19.3	7.0	17.3	ML
B-20	S-3	4 – 6	28.9	19.8	9.1	19.2	CL
B-21	S-5	8 – 10	28.0	19.7	8.3	11.9	CL
B-22b	S-2	2 – 4	28.6	20.1	8.5	16.0	CL
B-24	S-4	6 – 8	29.1	20.3	8.8	10.4	CL
B-25	S-3	4 – 6	31.5	20.3	11.2	16.1	CL
B-27	S-2	2 – 4	29.0	20.3	8.7	17.9	CL
B-30	S-4	6 – 8	31.2	20.7	10.5	15.4	CL
B-31	S-3	4 – 6	29.1	19.8	9.3	16.8	CL
B-33	S-4	6 – 8	27.8	18.3	9.5	15.9	CL
B-36	S-4	6 – 8	30.5	19.8	10.7	15.9	CL
B-37	S-3	4 – 6	30.9	20.0	10.9	16.7	CL
B-38	S-2	2 – 4	28.8	20.2	8.6	11.6	CL
B-40	S-3	4 – 6	28.2	19.8	8.4	15.7	CL
B-SS-1	S-4	6 – 8	27.7	19.2	8.5	12.9	CL
B-SS-2	S-3	4 – 6	27.4	19.0	8.4	13.8	CL

4.2 Thermal Resistivity Testing

ANS Geo collected bulk samples from three (3) locations throughout the project area 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 Consultants' accredited laboratory for testing. The soil was compacted to 85 percent of its Standard Proctor Density in accordance with ASTM D698, and Thermal Resistivity Testing was conducted in accordance with IEEE Standard 442-2017. Results of the thermal testing are summarized within Table 3. Complete, as-received results have been provided within **Attachment D**.

Table 3 – Thermal Resistivity Testing Summary

Location ID	Material Type	Thermal Resistivity Values at Various Moisture Contents					Received Moisture Content (%)	Re-Molded Dry Density (lb/ft^3)
		% water	% water	% water	% water	% water		
		(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)		
B-17	Clayey Silt	0.0	3.3	6.6	9.9	12.6	16.0	101.6
		512	**205**	**95**	**70**	**62**		
B-22a	Sandy Silt/Clay	0.0	3	6	9	12.1	16.8	102.0
		734	**297**	**145**	**110**	**96**		
B-SS-2	Sandy Silt/Clay	0.0	2.75	5.5	8.25	10.9	13.5	103.6
		658	**243**	**108**	**85**	**76**		

4.3 Corrosivity Testing

ANS Geo collected additional samples from two (2) to four (4) feet below grade at five (5) locations for corrosivity testing. The results of the testing, completed by ANS Consultants, have been summarized within Table 4 and are detailed within **Attachment D**.

Table 4 – Corrosivity Testing Summary

Location ID	pH	Sulfate (mg/kg)	Chloride (mg/kg)	Soil Box (Calculated Resistivity) (Ω/cm)	Redox Potential (average) (mV)
B-04	6.60	10	45	10,000	114
B-13	6.90	17	55	7,000	111
B-25	6.38	22	40	8,000	125
B-32	6.99	12	25	8,000	109
B-39	6.57	24	35	7,500	124

4.4 California Bearing Ratio

ANS Geo collected an additional sample from one (1) to three (3) feet below grade at two (2) locations 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, completed by ANS Consultants, have been summarized within Table 5 and are detailed within **Attachment D**.

Table 5 – California Bearing Ratio Summary

Location ID	CBR Ratio (%)
B-13	2.6
B-42	6.8

5 Pile Load Testing Results

Table 6 presents the summarized results of the pile load testing program. 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	Embedment Depth (ft.)	Average Pile Installation Rate (sec/ft)	Approx. **Uplift** Load at 1-inch Deflection (lbs)	Approx. **Lateral** Load at 1-inch Deflection (lbs)
PT-01A	10	4.4	10,000	5,000
PT-01B	10	3.3	> 13,000	5,300
PT-02A	10	5.0	> 13,000	4,600
PT-02B	10	4.1	> 13,000	4,500
PT-03A	9	2.0	7,000	4,200
PT-03B	9	1.6	9,000	5,000
PT-04A	8	1.9	> 13,000	5,100
PT-04B	8	1.3	12,000	4,600
PT-05A	10.5	5.0	> 13,000	3,500
PT-05B	10.5	6.0	> 13,000	3,900
PT-06A	9	3.2	12,000	3,900
PT-06B	9	2.2	> 13,000	4,200
PT-07A	10.5	1.8	9,100	4,100
PT-07B	10.5	3.2	6,100	4,000
PT-08A	9	2.5	5,200	5,900
PT-08B	9	1.5	2,400	4,300
PT-09A	8	1.3	9,600	5,100
PT-09B	8	1.3	8,200	4,800
PT-10A	8	1.6	2,900	4,300
PT-10B	8	1.5	3,600	4,300
PT-11A	10	2.3	> 13,000	5,100
PT-11B	10	2.3	> 13,000	5,200
PT-12A	10	1.6	5,900	4,200
PT-12B	10	1.0	4,900	3,700
PT-13A	8	2.0	6,800	4,300
PT-13B	8	1.7	6,200	2,900
PT-14A	10.5	3.7	11,900	5,000
PT-14B	10.5	2.8	11,000	3,600
PT-15A	9	4.1	10,100	2,700
PT-15B	9	1.9	7,700	4,100
PT-16A	8	1.5	3,800	4,100
PT-16B	8	1.7	10,100	5,000
PT-17A	10	1.7	6,000	4,600
PT-17B	10	2.1	7,000	4,900
PT-18A	9	2.1	> 13,000	5,700
PT-18B	9	2.5	10,100	4,700
PT-19A	8	1.9	6,800	5,500
PT-19B	8	1.7	7,500	5,000
PT-20A	10.5	4.3	> 13,000	3,300
PT-20B	10.5	4.2	> 13,000	3,400
PT-21A	10	1.4	6,800	4,500
PT-21B	10	2.2	8,500	4,400
PT-22A	10.5	2.1	> 13,000	6,000
PT-22B	10.5	2.9	> 13,000	5,400
PT-23A	9	3.2	> 13,000	4,000
PT-23B	9	2.7	10,500	5,300
PT-24A	8	1.9	9,600	6,000
PT-24B	8	1.5	6,600	6,000

Table 6 (cont.) – Pile Load Testing Summary

Load Test ID	Embedment Depth (ft.)	Average Pile Installation Rate (sec/ft)	Approx. **Uplift** Load at 1-inch Deflection (lbs)	Approx. **Lateral** Load at 1-inch Deflection (lbs)
PT-25A	8	1.5	3,400	5,100
PT-25B	8	1.7	3,600	5,300
PT-26A	9	1.5	5,600	5,400
PT-26B	9	1.5	5,100	5,900
PT-27A	10.5	3.3	11,500	6,000
PT-27B	10.5	4.5	> 13,000	6,000
PT-28A	10	2.2	3,300	5,400
PT-28B	10	3.7	5,000	4,500
PT-29A	8	5.5	7,400	4,100
PT-29B	8	2.1	6,300	4,000
PT-30A	9	2.7	12,200	4,300
PT-30B	9	2.0	> 13,000	5,300
PT-31A	10	2.7	11,400	4,700
PT-31B	10	3.9	> 13,000	4,800
PT-32A	8	1.7	8,000	3,900
PT-32B	8	2.5	8,500	4,200
PT-33A	9	1.4	3,600	3,900
PT-33B	9	1.6	3,300	3,500
PT-34A	10	2.1	10,200	4,100
PT-34B	10	2.5	8,000	4,100
PT-35A	10.5	6.1	> 13,000	3,600
PT-35B	10.5	3.3	> 13,000	3,700
PT-36A	8	1.8	4,600	4,700
PT-36B	8	1.6	4,400	4,000
PT-37A	9	2.2	6,200	3,800
PT-37B	9	1.8	5,200	5,300
PT-38A	8	2.6	6,000	5,000
PT-38B	8	1.3	7,000	5,000
PT-39A	10	2.4	> 13,000	3,900
PT-39B	10	2.8	> 13,000	3,900
PT-40A	10.5	1.9	8,300	3,300
PT-40B	10	1.8	7,000	3,600
PT-41A	9	1.3	> 13,000	4,400
PT-41B	9	1.8	> 13,000	5,300
PT-42A	10	3.0	10,000	3,400
PT-42B	10	2.6	7,800	3,600
PT-43A	10.5	2.7	> 13,000	5,200
PT-43B	10.5	4.3	> 13,000	5,000
PT-44A	10	5.0	> 13,000	5,100
PT-44B	10	2.3	> 13,000	5,200

6 Seismic Site Classification

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

The seismic ground motion values for this this were obtained from the USGS Seismic Hazard Maps, referenced in ASCE 7-16 Standard and provided as **Attachment F,** and are as follows:

- 0.2 second spectral response acceleration, S_S= 0.541 g
- 1 second spectral response acceleration, S_1= 0.112 g
- Maximum spectral acceleration for short periods, S_{MS}= 0.739 g
- Maximum spectral acceleration for a 1-second period, S_{M1}= 0.265 g
- 5% damped design spectral acceleration at short periods, S_{DS}= 0.493 g
- 5% damped design spectral acceleration at 1-second period, S_{D1}= 0.177 g

6.1 Preliminary Seismic Evaluation

The designated seismic site class is anticipated based on results from our investigation program and using select areas of the site which have been investigated by ANS Geo.

From a tectonic and seismic setting, as noted by the Isachsen[1], et. al (1990), the project site is located in a "tectonically passive" region of New York state. This reference indicates sedimentary rocks are of the North American platform, Late Proterzoic to Paleozoic in age, which were deposited in shallow seas on the stable North American craton. Bedrock in the project area was deposited in shallow seas on the stable North American craton, with geologic setting in the Interior Lowlands adjacent to Lake Ontario. Figure 10-D, included with the 94-C Application documents, identifies seismic hazard potential, as well as known, prior epicenters and distances from the project based on the 2018 USGS Long-term National Seismic Hazard Model[2].

Review of USGS's 2018 National Seismic Hazard Map indicates the project area is at "moderate" risk of seismic activity. The most significant of these events, a well-known, 5.5 Magnitude earthquake was observed in 1944 near Cornwall, NY approximate 30 miles from the project site. However, further review of USGS-documented earthquakes within the project vicinity indicate there have only been two earthquakes within a 25-mile radius of the project site over the past 10 years (since April 2011). These two documented earthquakes include a 3.4 magnitude event (~9 miles, 2020) and a 3.2 magnitude event (~21 miles, 2011), both of which are classified as "minor" events. Within a five-mile radius, five previous seismic events were noted, including the largest being a 2.5 Magnitude event on May 31, 2005, as well as a 1.7 Magnitude event on June 5, 2005. The remaining three events were 1.2 to 1.1 Magnitude events recorded between June 12, 2005 and April 4, 2016.

Based on our observation of subsurface conditions, estimated Site Class ratings, review of USGS's 2018 National Seismic Hazard Map and historic seismic activities, it is our professional opinion that there is a low risk of significant seismic activity which may impact the proposed solar facility. In addition, while moderate seismic risk has been identified, this type of risk is traditionally managed during design and construction through proper planning and engineering evaluation such as the inclusion of potential seismic loads and impacts to project facilities. It is expected that seismic loading and considerations will be considered in this fashion in project engineering and structural engineering design.

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[1] Isachsen, Y.W., T.D. Mock, R.E. Nyahay, and W.B. Rogers, 1990, New York State Geological Highway Map. Educational Leaflet No. 33. 1:1,000,000, four-plate color sheet.

[2] Petersen, M. D., Shumway, A. M., Powers, P. M., Mueller, C. S., Moschetti, M. P., Frankel, A. D., … Zeng, Y. (2019). The 2018 update of the US National Seismic Hazard Model: Overview of model and implications. Earthquake Spectra.

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's measured acidity, 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 are anticipated to be "mildly" to "moderately" corrosive to embedded steel piles. Typically, a zinc coating of 1.7 oz/ft^2 (3 mil, or approximately 75 micrometers) is the minimum thickness for Grade 75 steel (W6x9) as specified by ASTM A123. As such, we expect that such piles would generally maintain an approximate lifespan of at least 30 years.

In addition, the average chloride concentration obtained from soil testing across five discrete samples (as indicated in Table 4) is 45 parts-per-million (ppm, or mg/kg). The concentration of chloride ions affects the corrosion rate of embedded steel[3]. Based on empirical studies performed, the relationship between corrosion rate and chloride concentrations can be estimated as:

$$CR = 16.28 * \ln(CL) - 83.8$$

Where CR is defined as the "corrosion rate" of steel (in micrometers per year), and CL is the chloride concentration in parts-per-million. Using the equation above, and considering an average chloride concentration of 45 ppm, the corrosion rate is nearly zero across the planned service life of the facility.

7.2 Frost & Adfreeze Considerations

Given the location of the project and soils encountered, the potential for frost heave against post foundations should be considered. Fine-grained soils, or granular soils with greater than 10 percent fine-grained content are frost-susceptible due to the inability of entrapped moisture from infiltrating or evaporating prior to freezing. Trapped moisture will begin to create ice lenses, which will grip the steel posts or embedded structures, followed by ice-jacking due to frost heave. The phenomenon is more commonly referred to as "adfreeze stress", which can be considered as an external, upward force applied to the post. The magnitude of the upward force will depend on the depth/thickness of the frost zone, the interface bond stress between embedded structure/material and the surrounding area, and the surface area of the structure/material in contact with this bond stress.

Several methods exist to evaluate frost susceptibility of soils, including determination of fine-grained content of near-surface soils, evaluation of air freezing index, and local, empirical correlations such as the Atlas of Soil Freezing Depth Extremes for the Northeastern United States.

The first evaluation is to determine frost susceptibility of the site soils. The earliest method was developed by Arthur Casagrande that uses percentage of fine fraction less than 0.02 mm by weight, in which silts and very fine sands are considered to have medium to very high frost susceptibility. The method was further expanded by the US Army Corps of Engineers (1965) into a widely-used classification system which categorizes soils into frost groups F1 through F4. Classification is made in order of increasing frost-susceptibility (ie. worse soils are F4), and loss of strength during thaw. Based on the predominant, near-surface soil type at the site (silts and clays), the site can be classified as frost group F4.

[3] J. B. Decker, K.M. Rollins, J.C. Ellsworth, "Corrosion Rate Evaluation and Prediction for Piles Based on Long-Term Field Performance", American Society of Civil Engineers Journal of Geotechnical and Geoenvironmental Engineering, 134(4), pp. 341-351 (2008)

Frost penetration depth may be calculated in multiple ways, including local, County, or State building code frost depths, the US Army Corps of Engineers method using the modified Berggren Equation, and empirical data.

Within Franklin County, New York, frost depth is mapped to exist at approximately 70 inches (5.8 feet) below grade. However, we recognize that fluctuations in air temperature, snow cover and insulation, and historic freezing indices have shown empirical correlations of shallower frost depth. Based on the Atlas of Soil Freezing Depth Extremes for the Northeastern United States, for a return period of 25 years, the maximum depth of freezing under sod is approximately 40 inches.

Using the modified Berggren Equation, frost penetration depth can also be calculated as follows:

$$X = \lambda \sqrt{\frac{48\, k_f\, nF}{L_s}}$$

Where each variable is defined as follows:

X = depth of frost penetration [m]
λ = dimensionless coefficient based on dry density and water content
n = dimensionless conversion factor from air index to surface freezing index
k_f = thermal conductivity of frozen soil [BTU/ft-hr-°F]
F = air freezing index [°F-days]
L_s = volumetric latent heat of soil [BTU/ft^3]

Using this relationship, it is recognized that frost penetration depth is directly proportional to the square root of thermal conductivity of the frozen soil and surface freezing index, and inversely proportional to the square root of volumetric latent heat of the soil. The thermal conductivity of frozen soil is a function of soil type (ie. fine-grained or coarse-grained), moisture content, and dry density. The following assumptions are made to calculate frost depth at this site:

1. Mean annual air temperature (MAAT) of 41.8°F from the 1981 – 2020 Climate Normals data taken from the National Oceanic and Atmospheric Administration (NOAA)
2. The average annual number of frost days assumed was 142 days
3. An air freezing index of 1,971 °F-days for a 25-year return period using NOAA data (Massena [conservative])
4. The ratio of surface index to air index (*n*) of 0.7 for bare soil without any overlying soil or ice
5. A dry density of 95 lb/ft^3 for fine-grained, near-surface soils
6. An average water content of 18% based on laboratory results for samples within the frost zone

Using the assumptions above, and input into the modified Berggren Equation, the calculated frost penetration depth for a 25-year return period is approximately 46 inches.

Based on our evaluation, since conditions may exist where snow cover is not present during low temperature extremes, and using a calculated depth of frost penetration, ANS Geo recommends that all structural foundations be founded at 42 inches (3.5 feet) below grade or deeper, for a 25-year design life, to ensure adequate protection from frost conditions which may jeopardize the integrity of subgrade soils and associated substructure.

As predominantly silty and/or clayey soils were observed near grade, ANS Geo recommends that an unfactored adfreeze (uplift) stress of 1,500 pounds per square foot (10.4 psi) be considered within the 42-inch frost penetration depth of posts for panel foundation sizing and design.

7.3 Soil Shrink & Swell Potential

Shrinkage and swelling of soils refer to the volumetric change (decrease and increase) exhibited in primarily fine-grained soils due to a change in moisture conditions. The extent of shrinking and swelling is largely

influenced by the type and amount of clay present in the native near-surface soils. Higher-risk soils generally include fine-grained material with a high clay content, greater than 50 percent by weight, and liquid limits of 50 percent or higher (fat clays). Based on our observed soil conditions and results of laboratory testing, it is our professional opinion that the native on-site soils exhibit a low to negligible shrink and/or swell potential in the event of significant moisture fluctuation.

7.4 Recommended Soil Parameters for Pile Design

Based on our interpretation of the subsurface conditions observed within our investigation programs and results of pile load testing, ANS Geo recommends that the soil parameters, as depicted within Table 7, be considered for foundation post design purposes.

Table 7 – Recommended LPILE Soil Parameters

Depth	Material	Effective Unit Weight	Internal Friction Angle	Cohesion	Soil Modulus (k)	Soil Strain (E_{50})	Allowable Bearing Capacity	Allowable Side Resistance
0' – 0.5'	Topsoil *(Soft Clay [Matlock])*	100 lb/ft^3	---	300 lb/ft^2	---	0.010	---	---
0.5' – 2'	Silty Clay *(Mod Stiff Clay w/o Free Water)*	105 lb/ft^3	---	500 lb/ft^2	125 lb/in^3	0.009	---	---
2' – 3.5'	Silty Sand *(Sand [Reese])*	115 lb/ft^3	37°	---	200 lb/in^3	---	1,500 lb/ft^2	---
3.5' – 7'	Silty Sand *(Sand [Reese])*	115 lb/ft^3	37°	---	200 lb/in^3	---	2,000 lb/ft^2	375 lb/ft^2
7' – 15'	Silty Sand *(Sand [Reese])*	120 lb/ft^3	39°	---	250 lb/in^3	---	3,000 lb/ft^2	425 lb/ft^2

Note: Italicized material types represent our recommended LPILE soil models.

ANS Geo recommends that allowable side resistance within the upper 3.5 feet be neglected due to frost impact, and adfreeze stresses, as noted in Section 7.2, be considered. Pile load testing results and subsurface observations were evaluated by ANS Geo using LPILE software to provide these refined soil parameters. ANS Geo notes that the soil parameters depicted within Table 7 represent values calibrated to curve-fit our lateral load test data; these parameters (effective unit weight and internal friction angle) should not be relied upon for other site foundation designs. It is our recommendation that verification load testing and detailed structural calculations be performed prior to construction to confirm these recommendations.

8 Construction Recommendations

8.1 Excavation

Depending on proposed foundation configurations, degree of earthwork, and depth of utilities, some excavations may extend deeper than four feet below grade. Excavations deeper than four feet should be shored or sloped and benched, in accordance with OSHA regulations, to ensure safe working conditions within the excavations. For benching purposes, overburden soils may be considered as "Type B" material and should be sloped no steeper than 1H:1V (horizontal to vertical). All 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 New York, and should be submitted to the engineer for review. As typical of till geology, the contractor should anticipate occasional cobbles or boulders within excavations and earthwork activities.

8.2 Dewatering

ANS Geo observed perched water as shallow as 1.9 feet below grade at the time of our investigation program. Although this does not represent static groundwater levels, the contractor should be prepared to manage groundwater, perched water, and/or infiltrated stormwater as needed using localized pump-and-sump or similar techniques to allow for concrete foundation construction in-the-dry. Water discharge should be managed in compliance with applicable state and local regulations. The contractor should be sure to grade the surface as necessary to divert stormwater away from open excavation to the extent possible.

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 8. Native material beneath the separation fabric should be inspected for unsatisfactory conditions such as standing water, frozen soil, organics, protruding cobbles or boulders, or deleterious materials. Should any unsatisfactory conditions exist within the native subgrade, the excavation should be undercut an additional six inches (12 total inches beneath proposed foundation depth) prior to placement of the geotextile separation fabric.

Table 8 – Recommended Gradation of Structural Fill

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

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

8.4 Backfilling and 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 be screened of any cobbles, boulders, and any particles larger than 3 inches in diameter, and should not be used beneath any load-bearing structures. General backfill 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 8.

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 eight (8) inches of compacted crushed stone as specified within Table 9.

Table 9 – Recommended Gradation of Crushed Stone

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

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

8.6 Pile Drivability

ANS Geo anticipates that, as typical with solar farm construction, solar panels will be supported by steel H-Piles (wide-flanged sections) driven to approximately 10 to 12 feet below grade. It is ANS Geo's professional opinion that the parameters provided in **Section 7.4** may be used to preliminarily size the proposed piles, however, we recommend verification load testing prior to construction using final design loads, the intended pile profile, and the planned pile depth. These steel piles are typically installed via direct-push, vibration, and/or percussive hammer methods.

Based on our observations within our limited investigation program, we anticipate that occasional refusals (cobbles and/or boulders) may be encountered at the foundation post locations within the anticipated embedment depths, however, we expect this frequency to be approximately 10 to 20 percent of pile locations, or less. It should be noted that this is a high-level estimate based on a limited number of test pile installations across the site.

ANS Geo recommends that the contractor be prepared to pre-drill at proposed post locations to clear obstructions, as needed. 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 March through May 2021 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.

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.

ANS GEO

Attachment A

Investigation Location Plan

ANS GEO

Client: aes

INVESTIGATION LOCATION PLAN

AES
BROOKSIDE SOLAR PROJECT
CHATEAUGAY, NEW YORK

Legend

- Site Boundaries
- Delineated Wetland/Water Feature
- Soil Boring and Pile Load Test
- Soil Boring Only
- Pile Load Test Only
- Electrical Resistivity Test

0 1,200 2,400 ft

Absolute Scale: 1 inch = 1,200 feet
Scale at 11" x 17" AS SHOWN

Prepared by: Kyle Hansen
Date: May 5, 2021
Drawing Number: ILP-1 Rev.0

ANS GEO

Attachment B

Soil Boring Logs

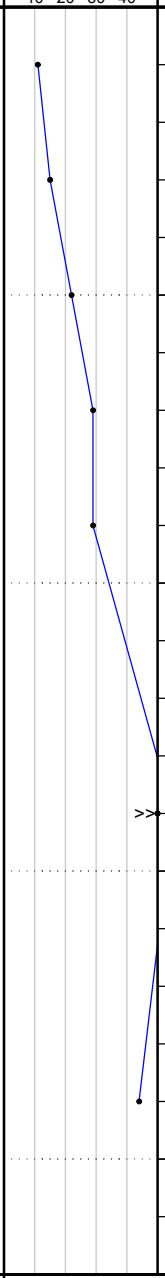
Soil Boring Log

B-01

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.934495 N, -74.137753 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	8	6 5 6 10	11	SP	Loose, dark brown coarse to fine SAND with roots, some coarse to fine Gravel, dry (SP)					
	S-2	13	5 7 8 12	15		Medium dense, brown coarse to fine SAND, trace coarse to fine Gravel, moist (SP)					
5	S-3	18	8 11 11 14	22		Medium dense, brown coarse to fine SAND, trace coarse to fine Gravel, wet (SP)					
	S-4	24	23 13 16 34	29	SM	Medium dense, dark brown coarse to fine SAND, little Silt, trace to fine Gravel, wet (SM)					
	S-5	24	12 11 18 37	29	ML	Very stiff, dark brown Sandy SILT, some coarse to fine Gravel, moist (ML)			>4.5		
10											
	S-6	15	62 50/4" - -	> 50	CL	Top 5" - Dark brown Sandy SILT, some coarse to fine Gravel, moist (ML) Gray CLAY, some coarse to fine Gravel, moist (CL)			4.5		Drill rig chatter while augering.
15											Drill rig chatter while augering.
	S-7	24	22 21 23 22	44		Very stiff, gray CLAY, some coarse to fine Gravel, trace coarse to fine Sand, moist (CL)			4.5		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/2/2021 2:15:00 PM			13.8

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

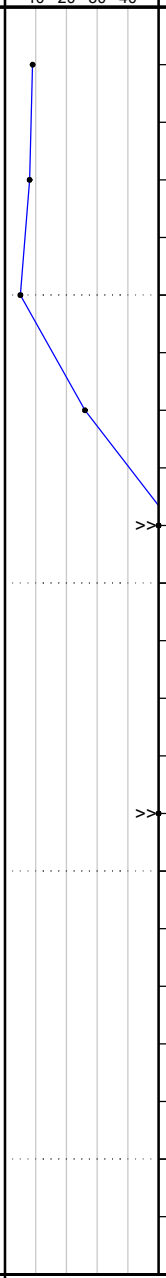
Soil Boring Log

B-02

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.934376 N, -74.133327 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						11" - TOPSOIL					
	S-1	15	3 2 7 7	9	SM	Very loose, brown coarse to fine SAND, some Silt, trace roots, moist (SM)					
	S-2	13	4 3 5 4	8	CL	Medium stiff, light brown CLAY, some coarse to fine Gravel, trace coarse to fine Sand, moist (CL)			1.5		
5	S-3	24	4 3 2 4	5	ML	Medium stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)					Drill rig chatter while augering.
	S-4	23	17 14 12 28	26	CL	Very stiff, brown Silty CLAY, some coarse to fine Sand, some coarse to fine Gravel, moist (CL)			2.5		
	S-5	0	50/1"	> 50		NO RECOVERY: Assumed to be hard, brown Silty CLAY, some coarse to fine Sand, some coarse to fine Gravel (CL)					
10											Drill rig chatter while augering.
	S-6	3	50/3"	> 50		Hard, brown Sandy CLAY, some coarse to fine Gravel, moist (CL)			>4.5		Auger refusal at 13.7 feet BGS
						End of Boring at 13.7 feet BGS Borehole backfilled with cuttings					
15											
20											



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/2/2021 3:41:00 PM			12.8

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

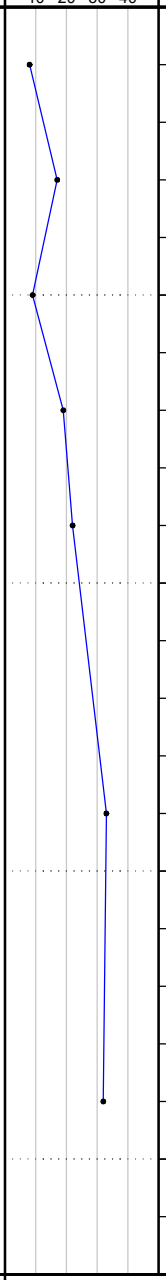
Soil Boring Log

B-03

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.93608 N, -74.13036 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
						6" - TOPSOIL				
	S-1	13	8 3 5 8	8	SP	Loose, brown coarse to fine SAND with roots, moist (SP)				
	S-2	14	8 9 8 50/5"	17		Medium dense, dark brown coarse to fine SAND, some coarse to fine Gravel, moist (SP)				
5	S-3	24	6 4 5 19	9	CL	Stiff, brown CLAY, some coarse to fine Gravel, trace Silt, moist (CL)			1.75	
	S-4	13	11 10 9 8	19		Very stiff, brown Silty CLAY, some coarse to fine Gravel, wet (CL)				
	S-5	21	8 7 15 17	22		Very stiff, brown CLAY, some coarse to fine Gravel, moist (CL)			>4.5	
10										
	S-6	24	19 16 17 17	33		Hard, brown to gray CLAY, some coarse to fine Gravel, moist (CL)			4	
15										
	S-7	5	20 15 17 15	32		Hard, gray CLAY, some coarse to fine Gravel, moist (CL)			1	
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

Saturated cuttings at 11 feet BGS

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/2/2021 5:05:00 PM			1.9

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

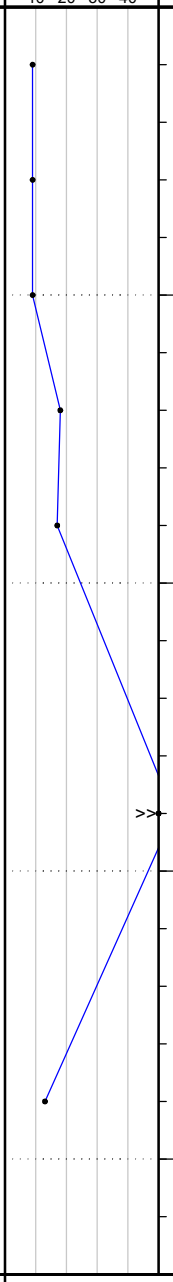
Soil Boring Log

B-04

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.935171 N, -74.125365 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/5/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/5/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						8" - TOPSOIL					
	S-1	10	4 4 5 5	9	SP	Loose, reddish brown coarse to fine SAND, moist (SP)					
	S-2	12	4 4 5 3	9		Loose, reddish brown coarse to fine SAND, moist (SP)					
5	S-3	12	3 3 6 9	9		Loose, reddish brown coarse to fine SAND, trace fine Gravel, trace Silt, moist (SP)					
	S-4	15	7 7 11 13	18		Medium dense, reddish brown coarse to fine SAND, some coarse to fine Gravel, moist (SP)					Drill rig chatter while augering.
	S-5	20	10 10 7 14	17		Medium dense, reddish brown coarse to fine SAND, some coarse to fine Gravel, moist (SP)					
10											Drill rig chatter while augering.
	S-6	6	50/4"	> 50		Very dense, reddish brown coarse to fine SAND, some coarse to fine Gravel, moist (SP)					
15											Drill rig chatter while augering.
	S-7	20	1 3 10 7	13	ML	Stiff, gray Sandy SILT, some coarse to fine Gravel, moist (ML)					
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

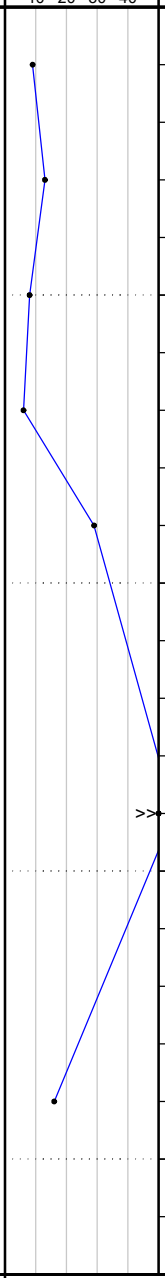
Soil Boring Log

B-05

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.931734 N, -74.138859 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	6	4 3 6 8	9	ML	Stiff, dark brown SILT with roots, some coarse to fine Sand, some coarse to fine Gravel, moist (ML)			2		
	S-2	20	2 6 7 3	13		Stiff, brown Sandy SILT with roots, some coarse to fine Gravel, moist (ML)			2.5		
5	S-3	19	2 3 5 5	8		Stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1.75		
	S-4	18	2 2 4 10	6		Medium stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1.25		
	S-5	24	7 12 17 21	29		Medium stiff, brown Sandy SILT, some coarse to fine Gravel, some Clay, moist (ML)			>4.5		Drill rig chatter while augering.
10											
	S-6	17	12 50/6"	> 50		Hard, brown Sandy SILT, some coarse to fine Gravel, some Clay, moist (ML)			1.5		Drill rig chatter while augering.
15											
	S-7	8	5 8 8 14	16		Very stiff, gray Sandy SILT, some coarse to fine Gravel, some Clay, moist (ML)					
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/2/2021 11:43:00 AM			9.8

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

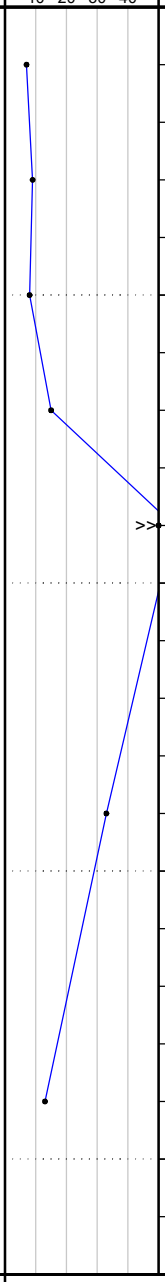
Soil Boring Log

B-06

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.930729 N, -74.135633 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	2	4 3 4 5	7		TOPSOIL					
	S-2	18	6 5 4 6	9	ML	Stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
5	S-3	8	4 3 5 7	8		Medium stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)			.5		
	S-4	19	5 5 10 31	15	CL	Stiff, light brown Sandy CLAY, some coarse to fine Gravel, moist (CL)			2		Drill rig chatter while augering.
	S-5	24	23 30 33 44	> 50	ML	Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			4		
10											Drill rig chatter while augering.
	S-6	8	18 16 17 26	33		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)					
15											
	S-7	24	4 5 8 7	13		Stiff, brownish gray Sandy SILT, some coarse to fine Gravel, moist (ML)					
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

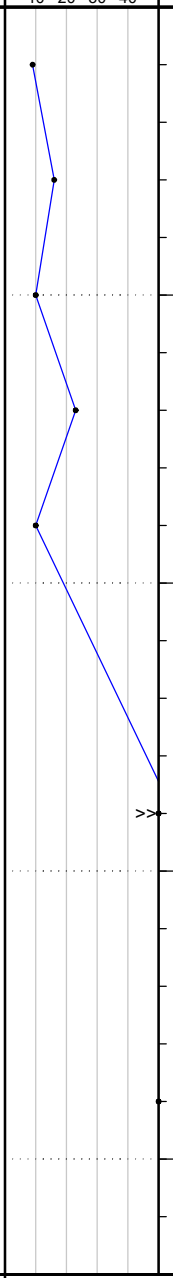
Soil Boring Log

B-07

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.931922 N, -74.129376 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/4/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/4/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
0	S-1	19	4 3 6 9	9	ML	Stiff, dark brown SILT with roots, some coarse to fine Sand, some coarse to fine Gravel, moist (ML)					
	S-2	24	12 7 9 10	16	CL	Very stiff, brown Silty CLAY, some coarse to fine Sand, some coarse to fine Gravel, moist (CL)			2		
5	S-3	24	4 6 4 6	10	ML	Stiff, brown SILT, some coarse to fine Gravel, moist (ML)			2		
	S-4	19	8 17 6 6	23		Very stiff, brown Clayey SILT, some coarse to fine Gravel, moist (ML)			1.5		Drill rig chatter while augering.
	S-5	24	3 5 5 6	10		Stiff, brown Clayey SILT, some coarse to fine Gravel, moist (ML)			1.5		
10											Drill rig chatter while augering.
											Saturated soil cuttings at 11 feet BGS
	S-6	24	19 36 24 31	> 50	CL	Hard, brown Sandy CLAY, little Silt, little coarse to fine Gravel, moist (CL)			1.5		
15											Drill rig chatter while augering.
	S-7	24	8 12 38 44	50		Hard, brown Sandy CLAY, some coarse to fine Gravel, trace Silt, moist (CL)			3.5		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-08

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.931067 N, -74.124741 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	22	2 3 5 7	8		12" - TOPSOIL			4		
					ML	Medium stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	13	7 9 9 13	18		Very stiff, brown SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2		Drill rig chatter while augering.
5	S-3	11	4 8 7 6	15		Very stiff, brown SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5		
	S-4	13	3 4 5 5	9	CL	Stiff, brown Silty CLAY, little coarse to fine Gravel, little coarse to fine Sand, moist (CL)			1		
	S-5	24	1 2 7 4	9		Stiff, brown SILT, some coarse to fine Gravel, some corse to fine Sand, trace Clay, moist (ML)			1		
10					ML						Drill rig chatter while augering.
	S-6	22	12 15 23 33	38		Stiff, gray SILT, some coarse to fine Gravel, some corse to fine Sand, trace Clay, moist (ML)			1.5		
15											Drill rig chatter while augering.
	S-7	20	40 48 50/5"	> 50	SM	Very dense, brown Silty SAND, some coarse to fine Gravel, wet (SM)					
20						End of Boring at 19.5 feet BGS Borehole backfilled with cuttings					

N-Value: 10 20 30 40 (>> at S-7)

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/3/2021 3:52:00 PM			19.1

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

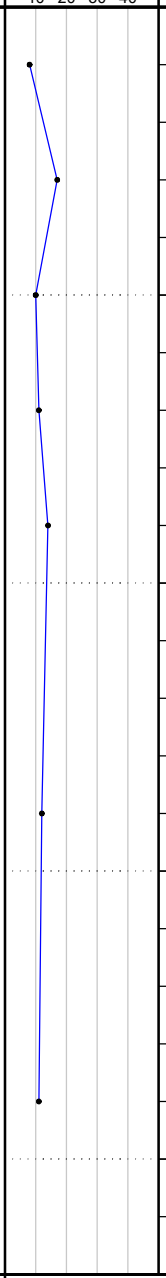
Soil Boring Log

B-09

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.927397 N, -74.140133 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/2/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/2/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
						5" - TOPSOIL				
	S-1	12	3 3 5 6	8	SM	Loose, light brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)				
	S-2		9 9 8 7	17		Medium dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)				
5	S-3		4 4 6 8	10	CL	Stiff, brown Sandy CLAY, some coarse to fine Gravel, trace Silt, moist (CL)			0.5	
	S-4	23	4 5 6 11	11	ML	Stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1	
	S-5		5 5 9 17	14		NO RECOVERY: Assumed to be stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2	
10					CL	Stiff, gray Clay, trace coarse Gravel, wet (CL)				
	S-6	21	7 6 6 7	12					1.5	
15										
	S-7	21	4 5 6 8	11		Stiff, gray Clay, trace coarse Gravel, wet (CL)			1.5	
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

Gravel rising from the soil cuttings at 11 feet BGS

Water observed around 12 feet BGS

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/2/2021 8:30:00 AM			12
3/2/2021 9:05:00 AM			19.3

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

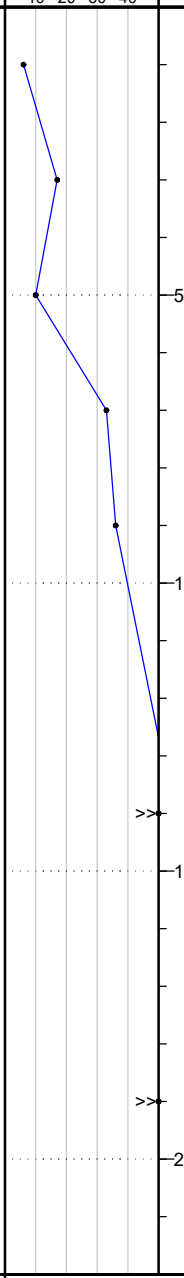
Soil Boring Log

B-10

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.928428 N, -74.132774 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	18	2 3 3 9	6	ML	Medium stiff, dark brown Sandy SILT, trace coarse to fine Gravel, moist (ML)				
	S-2	24	11 9 8 11	17		Very stiff, brown Clayey SILT, little coarse to fine Sand, trace coarse to fine Gravel, moist (ML)			1.75	
5	S-3	18	4 5 5 7	10		Stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			2	
	S-4	15	4 10 23 13	33	CL	Hard, brown Silty CLAY, some coarse Gravel, little coarse to fine Sand, moist (CL)			1.75	
	S-5	14	5 11 25 50/2"	36	ML	Hard, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			2	
10										
	S-6	24	44 29 27 18	> 50	CL	Hard, brown Silty CLAY, little coarse to fine Sand, little coarse to fine Gravel, moist (CL)			2.5	
15										
	S-7	13	11 46 50/3"	> 50	ML	Hard, gray Sandy SILT, some coarse to fine Gravel, moist (ML)			4.5	
						End of Boring at 19.3 feet BGS Borehole backfilled with cuttings				
20										



Drilling & Strata Notes

Drill rig chatter while augering.

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

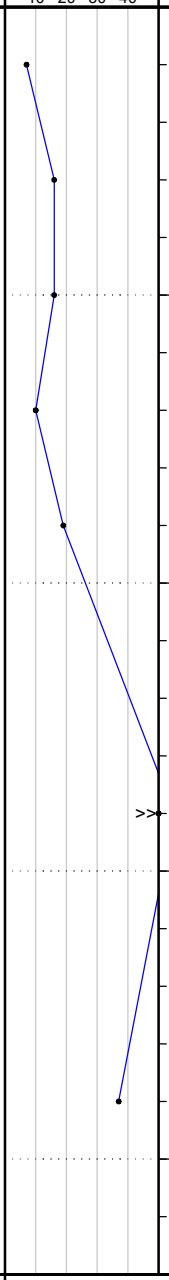
Soil Boring Log

B-11

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.9261 N, -74.136095 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	19	3 2 5 8	7		12" - TOPSOIL					
					ML	Medium stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	20	5 7 9 10	16	CL	Very stiff, brown Silty CLAY, some coarse to fine Gravel, moist (CL)			2		
5	S-3	24	6 7 9 8	16		Very stiff, brown Silty CLAY, some coarse to fine Gravel, moist (CL)			2.5		
	S-4	22	5 4 6 6	10		Stiff, brown Sandy CLAY, some Silt, some coarse to fine Gravel, wet (CL)			1.5		
	S-5	20	6 9 10 8	19		Very stiff, brown Silty CLAY, little coarse to fine Gravel, little coarse to fine Sand,wet (CL)			2.5		
10											Drill rig chatter while augering.
	S-6	21	19 36 48 12	> 50		Hard, brown Silty CLAY, little coarse to fine Gravel, little coarse to fine Sand,wet (CL)			2		
15											Drill rig chatter while augering.
	S-7	20	12 16 21 20	37		Hard, brown CLAY, some coarse to fine Gravel, some coarse to fine Sand, trace Silt, moist (CL)			2.25		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/3/2021 10:05:00 AM			10.3

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-12

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.927133 N, -74.125644 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	3	4 4 8 10	12	ML	Stiff, brown Gravely SILT, some coarse to fine Sand, moist (ML)					
	S-2	9	5 26 50/4"	> 50	CL	Hard, brown Silty CLAY, little coarse to fine Sand, little coarse to fine Gravel, wet (CL)					Drill rig chatter while augering.
5	S-3	5	5 3 2 5	5		Medium stiff, brown CLAY, some coarse to fine Gravel, wet (CL)					Drill rig chatter while augering.
	S-4	7	2 2 1 1	3	ML	Soft, brown SILT, some coarse to fine Gravel, wet (ML)					
	S-5	20	1 38 20 9	> 50		Hard, brown SILT, some coarse to fine Gravel, wet (ML)					
10											Saturated soil cuttings observed at 10 feet BGS
	S-6	17	7 17 21 21	38		Hard, brown SILT, some coarse to fine Gravel, wet (ML)					
15											Drill rig chatter while augering.
					SM						Saturated soil cuttings observed at 16 feet BGS
	S-7	12	48 50/3"	> 50		Hard, brown Silty coarse to fine SAND, some coarse to fine Gravel, miost (SM)					
						End of Boring at 18.7 feet BGS Borehole backfilled with cuttings					
20											

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

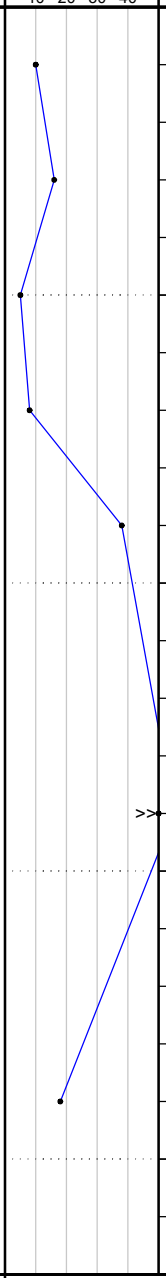
Soil Boring Log

B-13

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.922663 N, -74.136218 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/5/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/5/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	10	7 3 7 10	10			TOPSOIL					
	S-2	11	5 11 5 4	16	ML		Very stiff, brownish gray Sandy SILT, some coarse to fine Gravel, wet (ML)			<1		
5	S-3	24	2 3 2 4	5			Medium stiff, brownish gray Sandy SILT, some coarse to fine Gravel, wet (ML)			1		
	S-4	24	2 3 5 10	8			Medium stiff, brownish gray Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			1		
	S-5	19	21 18 20 28	38			Hard, brownish gray Sandy SILT, some coarse to fine Gravel, little Clay, wet (ML)			2		
10												Drill rig chatter while augering. Moist soil cuttings observed at 11 to 12 feet BGS
	S-6	14	14 50/4"	> 50			Hard, brownish gray Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			3		>>
15												Drill rig chatter while augering.
	S-7	17	7 8 10 10	18			Very stiff, blueish gray Sandy SILT, some coarse to fine Gravel, moist (ML)			1		
20							End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-14

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.924575 N, -74.131633 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
0						8" - TOPSOIL					
	S-1	11	2 4 3 5	7	ML	Medium stiff, brown Sandy SILT, moist (ML)					
	S-2	24	6 8 15 8	23		Very stiff, brown SILT, some clay, some coarse to fine Gravel, moist (ML)			1.5		
5	S-3	20	2 11 12 11	23		Very stiff, brown Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			1		
	S-4	18	7 6 10 6	16		Very stiff, brown Clayey SILT, little coarse to fine Sand, little coarse to fine Gravel, moist (ML)			1.5		
	S-5	18	7 5 5 8	10		Stiff, brown SILT, some coarse to fine Gravel, wet (ML)			1		
10					CL	Hard, brown Silty CLAY, some coarse Gravel, moist (CL)					Drill rig chatter while augering.
	S-6	1	14 36 50/5"	> 50					>>		Large boulders encountered at 13 feet BGS
15					ML	Hard, brown Sandy SILT, some coarse to fine Gravel, wet (ML)					
	S-7	11	25 50/3"	> 50		End of Boring at 18.7 feet BGS Borehole backfilled with cuttings			>4.5		>>
20											

N-Value (10 20 30 40)

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/3/2021 11:30:00 AM			15.5

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

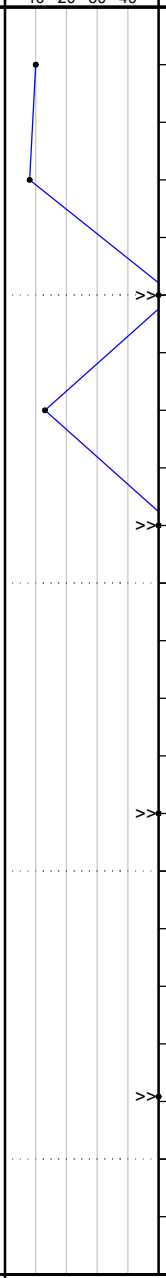
Soil Boring Log

B-15

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.924236 N, -74.127625 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/3/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/3/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						10" - TOPSOIL					
	S-1	14	10 4 6 6	10	CL	Stiff, brown CLAY, some coarse to fine sand, some coarse to fine Gravel, moist (CL)					
	S-2	0	3 3 5 8	8		NO RECOVERY: Assumed to be medium stiff, brown CLAY, some coarse to fine sand, some coarse to fine Gravel (CL)					
5	S-3	18	10 49 12 10	> 50		Hard, brown Silty CLAY, some coarse to fine Gravel, moist (CL)			2.5		
	S-4	24	4 6 7 7	13		Stiff, brown Silty CLAY, some coarse to fine Gravel, wet (CL)			1.5		
	S-5	6	35 50/2"	> 50		Hard, brown CLAY, some coarse to fine Gravel, trace Silt, wet (CL)			<1		
10											Drill rig chatter while augering.
					ML						
	S-6	24	14 29 26 24	> 50		Hard, dark gray Sandy SILT, some coarse to fine Gravel, wet (ML)			4.5		
15											
	S-7	18	7 26 51 50/4"	> 50		Hard, gray Sandy SILT, some coarse to fine Gravel, wet (ML)			2.5		Saturated soil cuttings at 18 feet BGS
20						End of Boring at 19.8 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/3/2021 1:47:00 PM			7.2

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

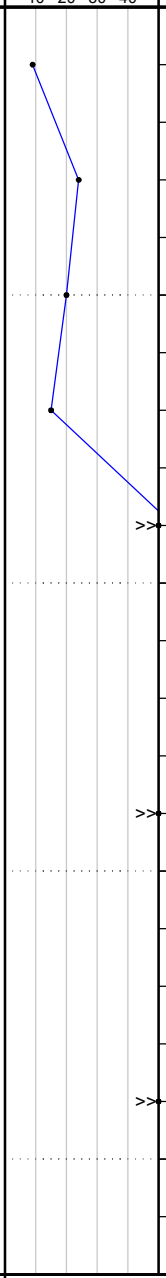
Soil Boring Log

B-16

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.925214 N, -74.122872 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/4/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/4/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	12	1 4 5 8	9	ML	5" - TOPSOIL Stiff, light brown SILT, some Clay, moist (ML)					
	S-2	15	6 8 16 15	24		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2		
5	S-3	15	12 12 8 22	20		Very stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2.5		Drill rig chatter while augering.
	S-4	20	3 5 10 30	15		Stiff, light brown SILT, some coarse to fine Gravel, little coarse to fine Sand, moist (ML)			2.5		
	S-5	24	11 27 27 36	> 50		Hard, light brown SILT, some coarse to fine Gravel, little coarse to fine Sand, moist (ML)			2.5		
10					SM						
	S-6	5	43 49 50/5"	> 50		Very dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			1.5		
15											Drill rig chatter while augering.
	S-7	2	50/3"	> 50		Very dense, light brown Gravely coarse to fine SAND, some Silt, moist (SM) End of Boring at 18.2 feet BGS Borehole backfilled with cuttings					
20											



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

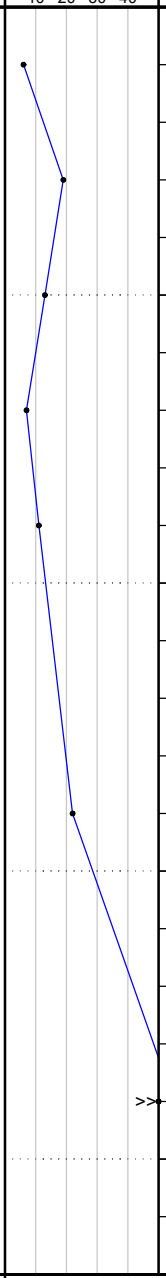
Soil Boring Log

B-17

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.926273 N, -74.117073 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/4/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/4/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						6" - TOPSOIL					
	S-1	13	3 3 3 5	6	ML	Medium stiff, brown Clayey SILT, some coarse to fine Gravel, trace coarse to fine Sand, moist (ML)			1.5		
	S-2	21	12 11 8 8	19		Very stiff, brown Clayey SILT, little coarse to fine Sand, little coarse to fine Gravel, moist (ML)			2.5		
5	S-3	24	5 6 7 6	13	CL	Stiff, brown Silty CLAY, some coarse to fine Gravel, moist (CL)			1.5		
	S-4	24	4 3 4 9	7		Medium stiff, light brown Silty CLAY, some coarse to fine Gravel, moist (CL)			1.5		
	S-5	1	4 5 6 10	11	ML	Stiff, gray Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)					
10											Drill rig chatter while augering.
	S-6	12	6 11 11 12	22		Very stiff, gray Sandy SILT, little coarse to fine Gravel, little Clay, moist (ML)			<1		
15											Drill rig chatter while augering.
	S-7	18	32 50/5"	> 50		Very stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			2.5		
20						End of Boring at 18.9 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

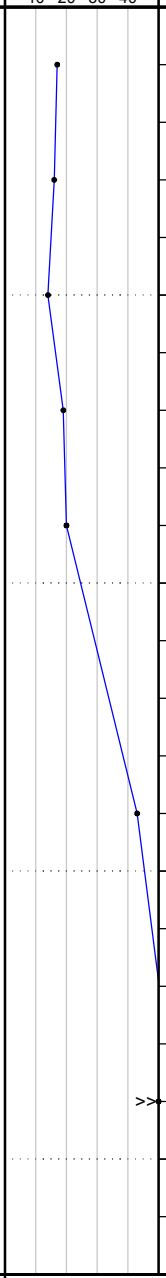
Soil Boring Log

B-18

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.928268 N, -74.114628 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/5/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/5/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
						8" - TOPSOIL				
	S-1	16	8 5 12 19	17	ML	Very stiff, brown Sandy SILT, moist (ML)				
	S-2	24	12 7 9 9	16		Very stiff, light brown Clayey SILT, little coarse to fine Gravel, little coarse to fine Sand, moist (ML)			2.5	
5	S-3	20	5 8 6 5	14		Stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5	
	S-4	16	5 6 13 12	19		Very stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2	
	S-5	24	4 6 14 17	20		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2	
10										
	S-6	18	16 16 27 25	43		Hard, brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1	
15										
	S-7	2	50/5"	> 50		Hard light brown Sandy SILT, little coarse to fine Gravel, little Clay, moist (ML)			1.5	
						End of Boring at 18.4 feet BGS Borehole backfilled with cuttings				
20										



Drilling & Strata Notes

Moist cohesive soil cuttings at 15 feet BGS

Drill rig chatter while augering.

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-19

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.930006 N, -74.111489 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/5/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/5/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						6" - TOPSOIL					
	S-1	12	4 3 5 9	8	ML	Medium stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)			2		
	S-2	16	8 5 20 12	25		Very stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1		
5	S-3	22	4 4 10 8	14		Stiff, dark brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1		
	S-4	19	4 6 4 6	10		Stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay moist (ML)			1.5		Drill rig chatter while augering.
	S-5	20	5 6 8 10	14		Stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			1		
10											Moist soil cuttings observed at 10 to 11 feet BGS
											Drill rig chatter while augering.
	S-6	15	5 7 10 26	17		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			<1		
15											Moist soil cuttings observed at 16 to 17 feet BGS
					SM						
	S-7	6	27 50/3"	> 50		Very dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			<1		
20						End of Boring at 18.7 feet BGS Borehole backfilled with cuttings					

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

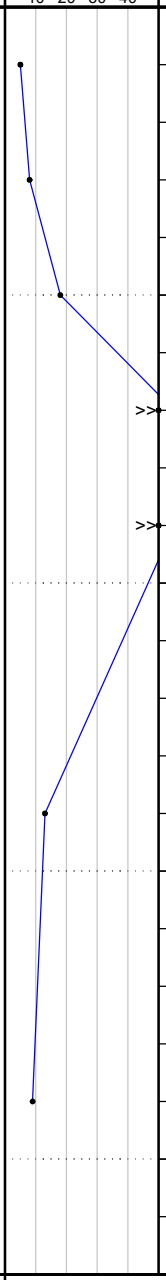
Soil Boring Log

B-20

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.924788 N, -74.1128 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/5/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/5/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	7	2 1 4 5	5		TOPSOIL			<1		
	S-2	18	1 2 6 5	8	ML	Medium Stiff, reddish brown Sandy SILT, some coarse to fine Gravel, wet (ML)			1.5		
5	S-3	23	3 6 12 16	18	CL	Very Stiff, brown Sandy CLAY, some coarse to fine Gravel, wet (CL)			<1		
	S-4	2	17 11 50/5"	> 50	ML	Hard, reddish brown Sandy SILT, some coarse to fine Gravel, wet (ML)					
	S-5	3	38 50 50/5"	> 50		Hard, reddish brown Sandy SILT, some coarse to fine Gravel, wet (ML)					Drill rig chatter while augering.
10											Saturated soil cuttings observed at 9 to 10 feet BGS Drill rig chatter while augering.
	S-6	24	31 6 7 7	13		Stiff, gray Sandy SILT, little Clay, moist (ML)					
15											
	S-7	22	4 4 5 6	9		Stiff, gray Sandy SILT, little Clay, wet (ML)					Wet soil cuttings observed at 18 feet BGS
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/5/2021 8:15:00 AM			8
3/5/2021 8:45:00 AM			13.1

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-21

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.921204 N, -74.133271 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						9" - TOPSOIL					
	S-1	12	1 6 5 7	11	ML	Stiff, light brown Clayey SILT, moist (ML)			1.5		
	S-2	18	4 4 3 3	7		Medium stiff, light brown Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			1.5		
5	S-3	5	3 6 15 9	21		Very stiff, light brown Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			<1		5 — Drill rig chatter while augering.
	S-4	21	1 2 3 9	5		Medium stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1		
	S-5	18	2 6 16 15	22	CL	Very stiff, grayish brown Silty CLAY, little coarse to fine Gravel, little coarse to fine Sand, moist (CL)			1.5		10 — Drill rig chatter while augering.
	S-6	2	2 3 5 4	8	ML	Medium stiff, gray Sandy SILT, some coarse to fine Gravel, moist (ML)					15 — Moist soil cuttings observed at 16 feet BGS
	S-7	24	15 15 13 16	28		Very stiff, gray Sandy SILT, some coarse to fine Gravel, little Clay, moist (ML)			2		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					20

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-22a

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.920217 N, -74.123672 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	12	9 5 5 10	10			TOPSOIL					
	S-2	15	12 10 9 10	19	CL		Very stiff, reddish brown Sandy CLAY, little coarse to fine Gravel, little Silt, moist (CL)			3		
5	S-3	14	5 6 5 5	11	ML		Stiff, reddish brown Sandy SILT, little coarse to fine Gravel, little Clay, moist (ML)			1.5		
							End of Boring at 6 feet BGS Borehole backfilled with cuttings					
10												
15												
20												

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-22b

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.919068 N, -74.123527 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	N-Value (10 20 30 40)	Drilling & Strata Notes
							TOPSOIL						
	S-1	18	4 8 10 6	18	ML		Very stiff, light brown Sandy SILT, moist (ML)						
	S-2	17	4 7 8 9	15			Stiff, light brown Sandy SILT, some coarse to fine Gravel, little Clay, moist (ML)			1			
5	S-3	15	9 9 50/5"	> 50			Hard, light brown Sandy SILT, some coarse to fine Gravel, little Clay, moist (ML)			3.5		>>	5
							End of Boring at 5.4 feet BGS Borehole backfilled with cuttings						
10													10
15													15
20													20

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-22c

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.917863 N, -74.123428 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	N-Value (10 20 30 40)	Drilling & Strata Notes
	S-1	6	6 4 3 6	7	SM		TOPSOIL Loose, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)						
	S-2	20	10 4 7 6	11			Medium dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			2.5			
5	S-3	24	4 3 4 5	7	ML		Medium stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			<1			
							End of Boring at 6 feet BGS Borehole backfilled with cuttings						
10													
15													
20													

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

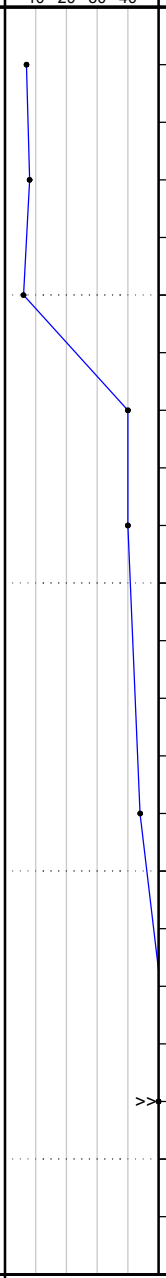
Soil Boring Log

B-23

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.921174 N, -74.12015 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/4/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/4/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						10" - TOPSOIL					
	S-1	16	1 3 4 2	7	ML	Medium stiff, brown Sandy SILT, some Clay, moist (ML)			2		
	S-2	15	4 3 5 11	8	CL	Medium stiff, light brown Silty CLAY, some coarse to fine Gravel, little coarse to fine Sand, moist (CL)			1.5		
5	S-3	24	3 3 3 4	6		Medium stiff, light brown Silty CLAY, some coarse to fine Gravel, little coarse to fine Sand, moist (CL)			1.5		Moist soil cuttings observed at 4 feet BGS
	S-4	20	4 12 28 50/5"	40	ML	Hard, dark brown Sandy SILT, some Clay, some coarse to fine Gravel, moist (ML)			3		Drill rig chatter while augering.
	S-5	6	10 18 22 23	40	CL	Hard, brown Sandy Clay, some coarse to fine Gravel, moist (CL)					Wet soil cuttings observed at 8 feet BGS
10											Drill rig chatter while augering.
	S-6	22	12 18 26 32	44	ML	Hard, dark brown Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			2.5		
15											
	S-7	10	3 10 50/3"	> 50		Hard, gray Sandy SILT, some coarse to fine Gravel, wet (ML)			<1		
20						End of Boring at 19.2 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

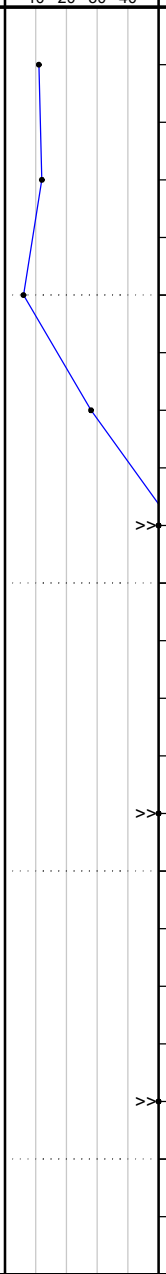
Soil Boring Log

B-24

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.920794 N, -74.114385 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/4/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/4/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						8" - TOPSOIL					
	S-1	17	3 4 7 7	11	CL	Stiff, brown Silty CLAY, some coarse to fine Sand, moist (CL)			2.5		
	S-2	14	3 5 7 7	12	ML	Stiff, brown Sandy SILT, little Clay, little coarse to fine Gravel, moist (ML)			<1		
5	S-3	15	2 3 3 2	6		Medium stiff, brown Clayey SILT, little coarse to fine Sand, little coarse to fine Gravel, wet (ML)			1		
	S-4	24	4 10 18 28	28	CL	Very stiff, brown Sandy CLAY, little coarse to fine Gravel, trace Silt, moist (CL)			2		
	S-5	2	31 50/6"	> 50		Hard, light brown Silty CLAY, some coarse to fine Gravel, moist (CL)			<1		
10											Drill rig chatter while augering.
	S-6	8	48 41 50/3"	> 50	ML	Hard, dark brown Sandy SILT, some coarse Gravel, moist (ML)			4		Drill rig chatter while augering.
15											
	S-7	10	17 36 26 24	> 50	SM	Very dense, brown Silty coarse to fine SAND, little Clay, little coarse to fine Gravel, moist (SM)					
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

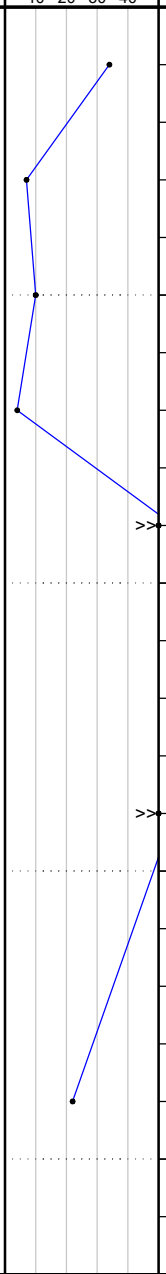
Soil Boring Log

B-25

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.919079 N, -74.13053 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	3	2 12 22 15	34	ML	Hard, dark brown Clayey SILT, little coarse to fine Sand, little coarse to fine Gravel, moist (ML)					
	S-2	24	2 4 3 4	7		Medium stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1		
5	S-3	24	3 5 5 3	10	CL	Stiff, brown Sandy CLAY, little coarse to fine Gravel, trace Silt, moist (CL)			<1		
	S-4	20	1 2 2 3	4	ML	Medium stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			<1		
	S-5	14	4 9 50/6"	> 50		Hard, grayish brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			<1		
10											Drill rig chatter while augering. Moist soil cuttings observed at 11 to 13 feet BGS
	S-6	0	50/5"	> 50		NO RECOVERY: Assumed to be hard, grayish brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)					
15											Wet soil cuttings observed at 15 feet BGS Drill rig chatter while augering.
	S-7	20	4 11 11 37	22		Very stiff, gray Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			1.5		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/6/2021 10:40:00 AM			19.4

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-26

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.917882 N, -74.132717 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						8" - TOPSOIL					
	S-1	14	1 4 4 12	8	ML	Medium stiff, brown Sandy SILT, trace Clay, moist (ML)					
	S-2	22	8 7 9 22	16		Very stiff, brown Sandy SILT, trace coarse to fine Gravel, trace Clay, moist (ML)			1.5		
5	S-3	17	3 6 15 8	21		Very stiff, reddish brown Sandy SILT, trace coarse to fine Gravel, trace Clay, moist (ML)			1.5		Drill rig chatter while augering.
	S-4	15	6 12 17 10	29		Very stiff, reddish brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5		
	S-5	21	7 7 11 21	18		Very stiff, dark brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2.5		
10											Drill rig chatter while augering.
	S-6	24	12 16 21 24	37		Hard, brown Clayey SILT, little coarse to fine Gravel, little coarse to fine Sand, moist (ML)			3		
15											
	S-7	3	16 19 21 22	40		Hard, dark brown Clayey SILT, little coarse to fine Gravel, little coarse to fine Sand, moist (ML)			1.5		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

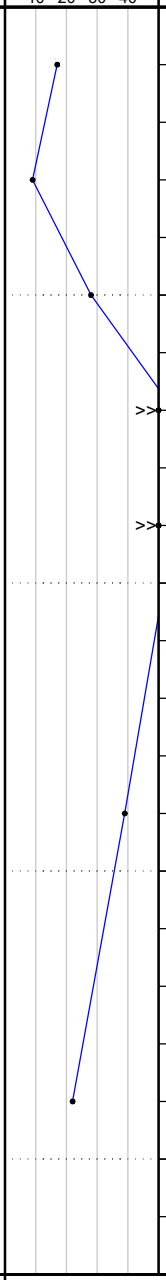
Soil Boring Log

B-27

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.916035 N, -74.134112 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/6/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						9" - TOPSOIL					
	S-1	18	3 4 13 9	17	ML	Very stiff, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)					
	S-2	24	4 4 5 6	9	CL	Stiff, brown Sandy CLAY, little coarse to fine Gravel, trace Silt, moist (CL)			2		
5	S-3	15	3 11 17 12	28	ML	Very stiff, brown Sandy SILT, some coarse to fine Gravel, some Clay, moist (ML)			1.5		
	S-4	8	50/6"	> 50		Hard, dark brown SILT, some coarse to fine Gravel, little Clay, moist (ML)			<1		Drill rig chatter while augering.
	S-5	2	19 50/5"	> 50	GC	Very dense, light brown Clayey GRAVEL, some Silt, moist (GC)					Drill rig chatter while augering.
10											
	S-6	15	20 18 21 16	39	SM	Dense, brown Silty SAND, some coarse to fine Gravel, moist (SM)			1.5		
15											Drill rig chatter while augering.
	S-7	24	2 5 17 23	22		Medium dense, grayish brown Silty SAND, some coarse to fine Gravel, wet (SM)			<1		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

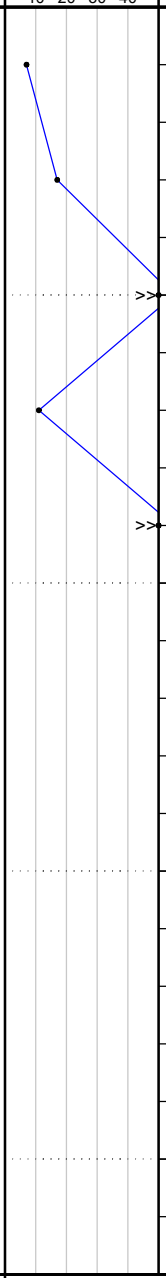
Soil Boring Log

B-28

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.915814 N, -74.130345 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/7/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/7/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1		3 3 4 7	7	ML	Medium stiff, dark brown Sandy SILT, moist (ML)					
	S-2		8 7 10 10	17	SM	Medium dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
5	S-3		34 32 42 12	> 50		Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
	S-4		3 5 6 10	11		Medium dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			1		
	S-5		50/5"	> 50		Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			1		Drill rig chatter while augering.
10											
						End of Boring at 13 feet BGS Borehole backfilled with cuttings					Auger refusal at 13 feet BGS
15											
20											



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-29

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.914889 N, -74.137077 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/6/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/7/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						4" - TOPSOIL					
	S-1	8	3 2 8 20	10	ML	Stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	22	10 6 7 8	13		Stiff, light brown Sandy SILT, some coarse to fine Gravel, moist (ML)			1.5		
5	S-3	17	3 3 50/5"	> 50		Hard, light brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5		Drill rig chatter while augering.
	S-4	18	2 3 6 16	9	SM	Loose, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, wet (SM)			<1		
	S-5	20	13 13 23 31	36		Dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, wet (SM)			2.5		
10											Wet soil cuttings observed at 10 feet BGS
											Drill rig chatter while augering.
	S-6	0	50/1"	> 50		NO RECOVERY: Assumed to be very dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, wet (SM)					Drill rig chatter while augering.
15						End of Boring at 15 feet BGS Borehole backfilled with cuttings					Auger refusal at 14.7 feet BGS Auger repostioned and resumed Auger refusal at 15 feet BGS
20											

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/6/2021 3:30:00 PM			7.7

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

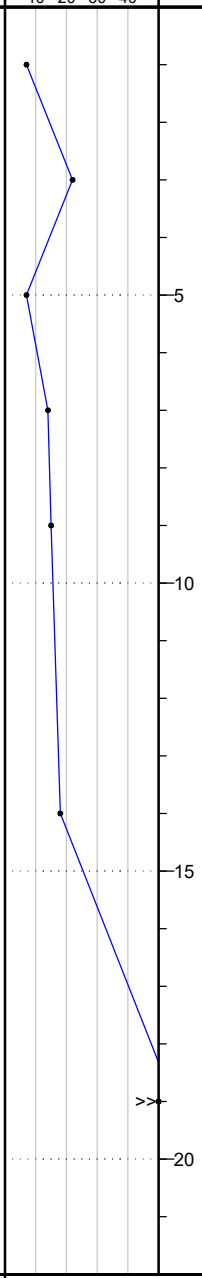
Soil Boring Log

B-30

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.913878 N, -74.132688 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/7/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/7/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	18	3 3 4 7	7	ML	Medium stiff, dark brown Sandy SILT, trace coarse to fine Gravel, moist (ML)				
	S-2	14	15 13 9 7	22	SM	Medium dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)				
5	S-3	12	4 3 4 5	7	ML	Medium stiff, grayish brown Sandy SILT, some Clay, trace coarse to fine Gravel, moist (ML)			1	
	S-4	22	2 10 4 5	14	CL	Stiff, grayish brown Sandy CLAY, some Silt, trace coarse to fine Gravel, moist (CL)			0.75	
	S-5	10	3 3 12 19	15	ML	Stiff, grayish brown Sandy SILT, some Clay, trace coarse to fine Gravel, moist (ML)			0.75	
10										
	S-6	24	8 6 12 22	18	ML	Very stiff, grayish brown Sandy SILT, some Clay, trace coarse to fine Gravel, moist (ML)			0.75	
15										
	S-7	15	12 25 30 49	> 50	SM	Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, wet (SM)				
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/7/2021 10:05:00 AM	18		19.3

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

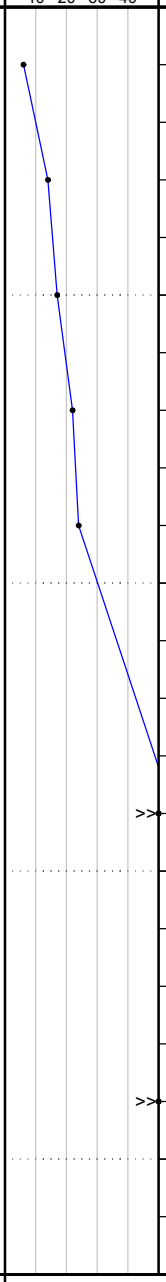
Soil Boring Log

B-31

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.913186 N, -74.136427 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/7/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/7/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	22	6 3 3 8	6	ML	Medium stiff, dark brown Sandy SILT, moist (ML)		NP		
	S-2	16	12 5 9 8	14		Stiff, grayish brown Sandy SILT, trace Clay, moist (ML)		L	0.5	
5	S-3	18	5 8 9 10	17	CL	Medium dense, grayish brown Silty CLAY, little coarse to fine Sand, little coarse to fine Gravel, moist (CL)		NP		
	S-4	24	4 11 11 14	22	SM	Medium dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)		NP		
	S-5	24	9 13 11 18	24		Medium dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)		NP		
10										
	S-6	5	50/5"	> 50		Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)		NP		
15										
	S-7	16	29 32 26 39	> 50		Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)		NP		
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

Drill rig chatter while augering.

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

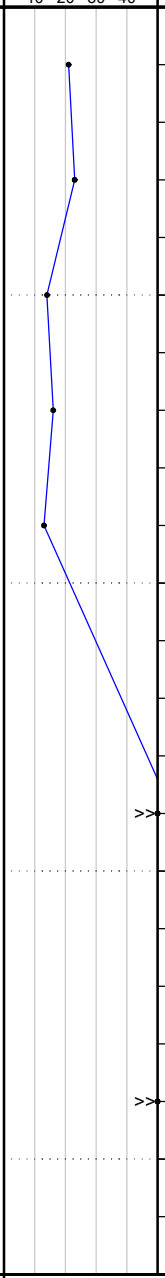
Soil Boring Log

B-32

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.915842 N, -74.123415 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/8/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/8/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
			9 6 15			6" - TOPSOIL					
	S-1	7		21	ML	Very stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	20	11 10 13 17	23	SM	Medium dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			<1		
5	S-3	24	4 9 5 6	14	ML	Stiff, light brown Sandy SILT, some coarse to fine Gravel, little Clay, moist (ML)			1.5		
	S-4	24	6 7 9 10	16		Very stiff, light brown SILT, some coarse to fine Gravel, some coarse to fine Sand, little Clay, moist (ML)			2.5		Drill rig chatter while augering.
	S-5	21	4 5 8 10	13		Stiff, light brown SILT, some coarse to fine Gravel, some coarse to fine Sand, little Clay, moist (ML)			1.5		Drill rig chatter while augering.
10											Moist soil cuttings observed at 10 feet BGS
	S-6	15	24 29 50/3"	> 50		Hard, grayish brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			3		
15											Drill rig chatter while augering.
	S-7	7	27 50/5"	> 50		Hard, grayish brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			3		
20						End of Boring at 18.9 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

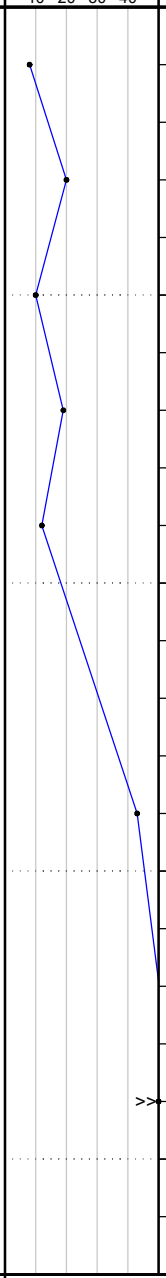
Soil Boring Log

B-33

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.913073 N, -74.122683 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/8/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/8/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	12	4 4 4 6	8	ML	Medium stiff, black Sandy SILT, moist (ML)				
	S-2	17	6 10 10 6	20	SM	Medium dense, light brown Silty coarse to fine SAND, little coarse to fine Gravel, moist (SM)				
5	S-3	24	4 5 5 4	10		Loose, light brown Silty coarse to fine SAND, little coarse to fine Gravel, moist (SM)			1.5	
	S-4	5	11 10 9 10	19	CL	Medium dense, light brown Sandy CLAY, little Silt, little coarse to fine Gravel, moist (CL)				
	S-5	18	3 6 6 11	12	SM	Medium dense, light brown Silty coarse to fine SAND, little coarse to fine Gravel, moist (SM)			<1	
10						▼				
	S-6	24	17 19 24 18	43		Dense, light brown Silty coarse to fine SAND, little coarse to fine Gravel, moist (SM)			2.5	
15										
	S-7	24	37 31 31 37	> 50		TOP 12": Light brown Silty coarse to fine SAND, little coarse to fine Gravel, moist (SM)			4	
					ML	Gray Sandy SILT, moist (ML)				
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

Drill rig chatter while augering.

Moist cuttings observed at 12 feet BGS

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/8/2021 8:10:00 AM			10.6

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

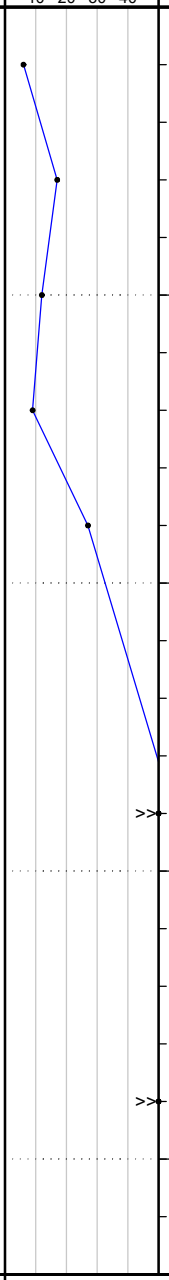
Soil Boring Log

B-34

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.915899 N, -74.119245 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/8/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/8/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						10" - TOPSOIL					
	S-1	13	5 3 3 10	6	SM	Loose, light brown Silty coarse to fine SAND, moist (SM)					
	S-2	24	6 8 9 9	17		Medium dense, dark brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
5	S-3	15	7 6 6 4	12	ML	Stiff, reddish brown Sandy SILT, some coarse to fine Gravel, moist (ML)			<1		Drill rig chatter while augering.
	S-4	24	5 4 5 8	9		Stiff, reddish brown Sandy SILT, some coarse to fine Gravel, moist (ML)			2		
	S-5	24	8 13 14 15	27	SM	Medium dense, light brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			2.5		
10											Drill rig chatter while augering.
	S-6	20	14 30 33 50/4"	> 50		Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			2.5		
15											Drill rig chatter while augering.
	S-7	1	50/3"	> 50		Very dense, light brown coarse to fine SAND, some coarse to fine Gravel, little Silt, moist (SM)					
20						End of Boring at 18.2 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

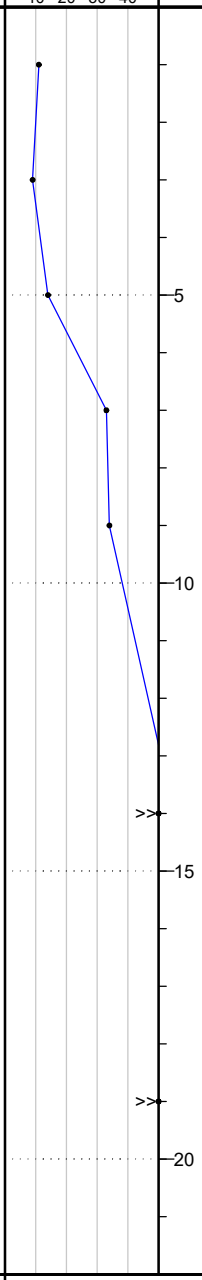
Soil Boring Log

B-35

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.913492 N, -74.11903 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/8/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/8/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	22	4 5 6 7	11	ML		Stiff, dark brown Sandy SILT, trace coarse to fine Gravel, moist (ML)		L	<0.5	
	S-2	24	8 4 5 5	9	SM		Loose, brown Silty coarse to fine SAND, trace coarse to fine Gravel, trace Clay, moist (SM)		L	1.5	
5	S-3	12	7 6 8 10	14			Medium dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)		L	1.5	
	S-4	24	8 15 18 20	33			Dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			3	
	S-5	24	11 16 18 18	34			Dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			1.25	
10											
	S-6	19	11 31 50 37	> 50			Very dense, grayish brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			.5	
15											
	S-7	20	38 47 32 50/4"	> 50			Very dense, dark brown Silty coarse to fine SAND, some coarse to fine Gravel, trace Clay, moist (SM)			4.5	
20							End of Boring at 19.8 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

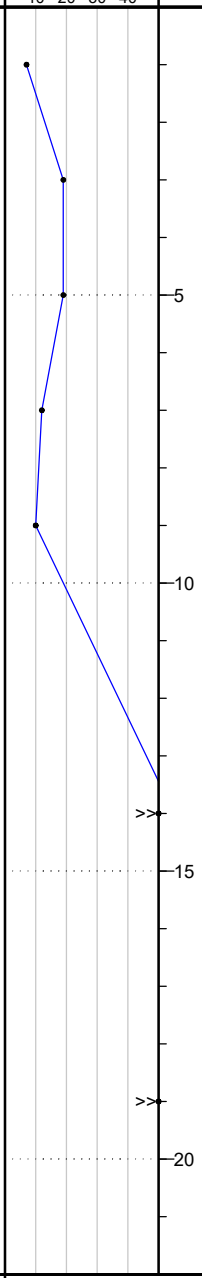
Soil Boring Log

B-36

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.91229 N, -74.11595 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/8/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/8/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	19	3 4 3 4	7	SM	Loose, dark brown Silty coarse to fine SAND, some coarse to fine Gravel (SM)				
	S-2	7	10 8 11 17	19		Medium dense, brown coarse to fine SAND, some coarse to fine Gravel, little Silt (SM)				
5	S-3	8	10 9 10 17	19		Medium dense, brown coarse to fine SAND, some coarse to fine Gravel, some Silt, moist (SM)				
	S-4	24	4 6 6 6	12	CL	Stiff, brown CLAY, some coarse to fine Sand, some coarse to fine Gravel, trace Silt, moist (CL)			<1	
	S-5	24	2 4 6 50/3"	10	ML	Stiff, brown Sandy SILT, some coarse to fine Gravel, wet (ML)			1	
10										
	S-6	13	15 22 29 17	> 50	SM	Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			>4.5	
15										
	S-7	20	3 31 33 50/3"	> 50		Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			1	
20						End of Boring at 19.7 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/8/2021 2:30:00 PM			17.6

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

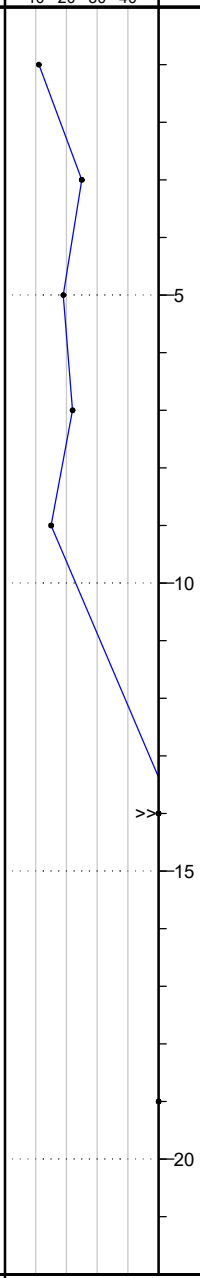
Soil Boring Log

B-37

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.915603 N, -74.114026 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
	S-1	12	7 6 5 8	11		TOPSOIL				
	S-2	16	11 15 10 12	25	SM	Medium dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			1	
5	S-3	24	10 11 8 7	19	CL	Very stiff, brown Silty CLAY, little coarse to fine Sand, little coarse to fine Gravel, moist (CL)			2	
	S-4	4	9 11 11 11	22	ML	Very stiff, dark brown Sandy SILT, some coarse to fine Gravel, moist (ML)				
	S-5	6	5 8 7 8	15		Hard, brown Sandy SILT, some coarse to fine Gravel, wet (ML)				
10										
	S-6	15	28 49 50/2"	> 50	SM	Very dense, dark brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			>4.5	
15										
	S-7	24	27 18 32 43	50		Dense, dark brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			3	
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings				



Drilling & Strata Notes

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

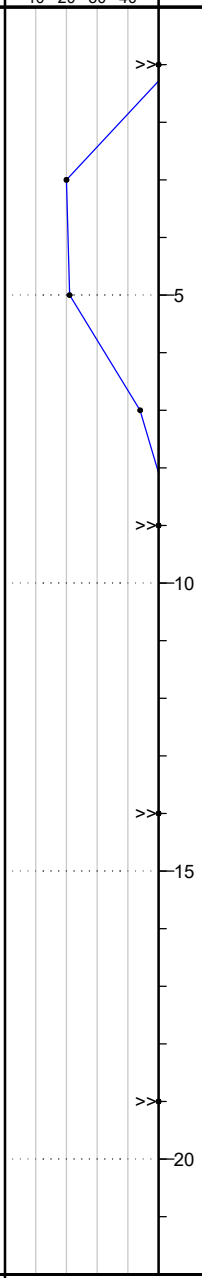
Soil Boring Log

B-38

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918256 N, -74.110037 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	21	27 32 23 14	> 50		15" - TOPSOIL					
					SM	Dense, brown coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM)					
	S-2	20	8 9 11 10	20	CL	Very stiff, brown CLAY, some coarse to fine Sand, some coarse to fine Gravel, moist (CL)			1.5		
5	S-3	21	5 9 12 16	21	ML	Very stiff, brown SILT, some coarse to fine Sand, some coarse to fine Gravel, moist (ML)			2		
	S-4		14 20 24 27	44	SM	Dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			3		
	S-5	2	25 50/5"	> 50		Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
10											
	S-6	1	31 50/5"	> 50		Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
15											
	S-7		51 50/4"	> 50		Very dense, brown Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)					
						End of Boring at 18.8 feet BGS Borehole backfilled with cuttings					
20											



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

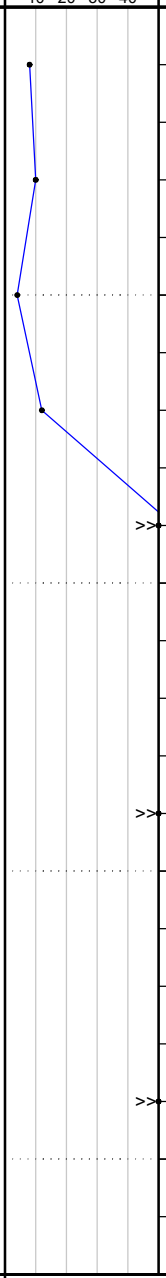
Soil Boring Log

B-39

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.911852 N, -74.110633 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
						8" - TOPSOIL					
	S-1	14	3 3 5 10	8	ML	Medium stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	9	6 4 6 4	10		Stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			.5		
5	S-3	24	1 2 2 3	4		Soft, brown SILT, some coarse to fine Sand, some coarse to fine Gravel, wet (ML)					
	S-4	24	2 4 8 16	12		Stiff, brown Sandy SILT, some coarse to fine Gravel, wet (ML)			1		
	S-5	24	16 25 40 31	> 50	SM	Very dense, brown Silty coarse to fine SAND, trace coarse to fine Gravel, moist (SM)			>4.5		Drill rig chatter while augering.
10											Moist soil cuttings observed at 10 feet BGS
	S-6	1	50/2"	> 50	ML	Hard, brown SILT, some coarse to fine Sand, wet (ML)					
15											
	S-7	21	21 26 45 33	> 50	SM	Very dense, dark gray Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			>4.5		Drill rig chatter while augering.
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

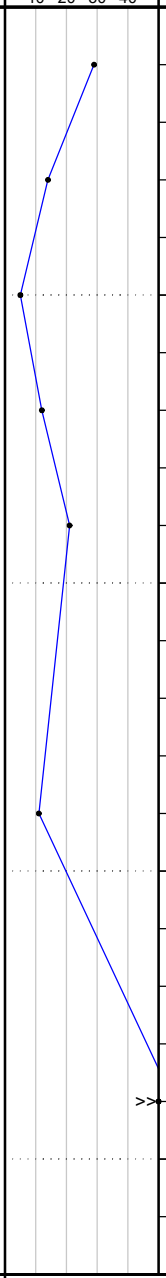
Soil Boring Log

B-40

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.914481 N, -74.108641 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	5	10 17 12 9	29	ML	Very stiff, brown Sandy SILT, some coarse to fine Gravel, moist (ML)					
	S-2	13	9 5 9 4	14		Very stiff, dark brown Sandy SILT, some coarse to fine Gravel, wet (ML)					
5	S-3	11	1 2 3 1	5	CL	Medium stiff, brown CLAY, some coarse to fine Sand, some coarse to fine Gravel, wet (CL)			<0.5		
	S-4	21	1 3 9 17	12	ML	Stiff, grayish brown Sandy SILT, some coarse to fine Gravel, wet (ML)			1.5		
	S-5	21	5 10 11 12	21		Very stiff, grayish brown Sandy SILT, some coarse to fine Gravel, wet (ML)					
10											
	S-6	24	6 5 6 8	11		Stiff, brown Sandy SILT, coarse to fine Gravel, trace Clay, wet (ML)					Saturated soil cuttings observed at 13 feet BGS
15											
	S-7	24	19 26 35 34	> 50	SM	Very dense, dark gray Silty coarse to fine SAND, some coarse to fine Gravel, moist (SM)			>4.5		Drill rig chatter while augering.
20						End of Boring at 20 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)
3/9/2021 4:15:00 PM			19.1

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

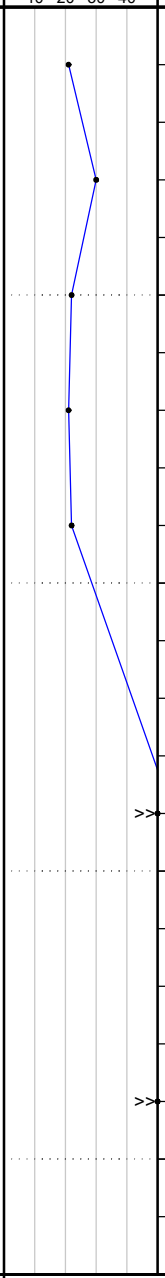
Soil Boring Log

B-41

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918385 N, -74.10549 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/10/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/10/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	18	6 13 8 6	21		14" - TOPSOIL					
					SP	Medium dense, brown coarse to fine SAND, moist (SP)					
	S-2	18	14 15 15 13	30		Medium dense, light brown coarse to fine SAND, moist (SP)					
5	S-3	19	15 12 10 10	22		Medium dense, light brown coarse to fine SAND, moist (SP)					
	S-4	16	4 9 12 13	21		Medium dense, light brown medium to fine SAND, trace Silt, moist (SP)					
	S-5	20	7 11 11 17	22		Medium dense, light brown coarse to fine SAND, moist (SP)					
10											
	S-6	20	13 32 37 31	> 50		Very dense, light brown coarse to fine SAND, trace Silt, moist (SP)					
15											Drill rig chatter while augering.
	S-7		14 21 50/2"	> 50	ML	Hard, dark brown Sandy SILT, some coarse to fine Gravel, moist (ML)			3		
20						End of Boring at 19.1 feet BGS Borehole backfilled with cuttings					



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

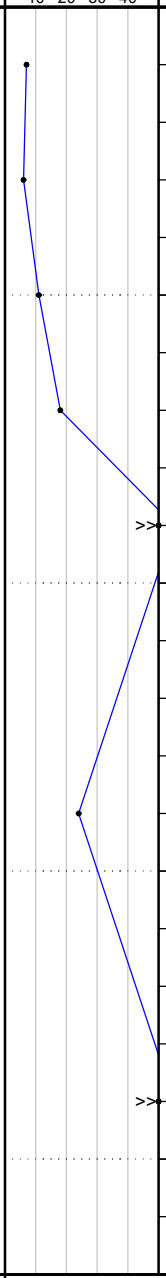
Soil Boring Log

B-42

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.921947 N, -74.101036 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/10/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/10/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)
			2 3 4			8" - TOPSOIL				
	S-1	15	4	7	SM	Loose, brown Silty coarse to fine SAND, moist (SM)				
	S-2	18	13 3 3 4	6	ML	Medium stiff, brown Sandy SILT, trace fine Gravel, moist (ML)				
5	S-3	24	1 7 4 6	11		Stiff, brown Sandy SILT, some coarse to fine Gravel, wet (ML)				
	S-4	24	6 8 10 11	18		Very stiff, brown Sandy SILT, some coarse to fine Gravel, wet (ML)			1	
	S-5	13	17 15 50/5"	> 50		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			1	
10										
	S-6	24	8 12 12 22	24		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			0.5	
15										
	S-7	5	50/5"	> 50		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			2	
						End of Boring at 18.4 feet BGS Borehole backfilled with cuttings				
20										



Drilling & Strata Notes

- Drill rig chatter while augering.
- Cohesive soil cuttings observed at 13 feet BGS

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

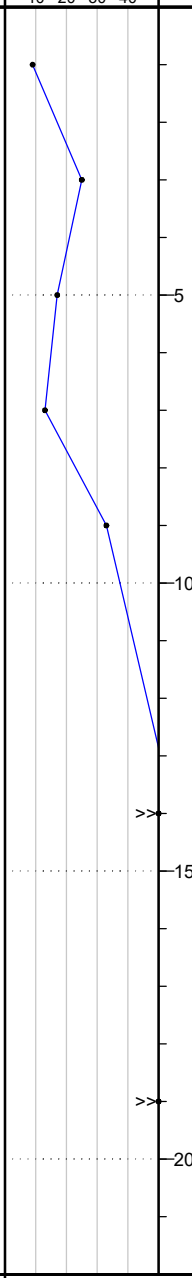
Soil Boring Log

B-SS-1

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918167 N, -74.114119 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	17	16 5 4 15	9	ML	Stiff, brown Sandy SILT, some coarse to fine Gravel (ML)					
	S-2	18	12 13 12 11	25		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			2		
5	S-3	21	6 8 9 12	17	CL	Very stiff, brown Sandy CLAY, some coarse to fine Gravel, trace Silt, moist (CL)			1.5		
	S-4	24	3 5 8 17	13	ML	Stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5		
	S-5	21	6 16 17 23	33		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1.5		
10											Drill rig chatter while augering.
	S-6	0	48 50/2"	> 50		NO RECOVERY: Assumed to be hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)					
15											
	S-7	10	26 49 47 35	> 50	SM	Very dense, grayish brown coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM)			4		Drill rig chatter while augering.
20											



In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-SS-1
(Continued)

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918167 N, -74.114119 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	N-Value (10 20 30 40)	Drilling & Strata Notes
25	S-8	0	50/1"	> 50			NO RECOVERY: Assumed to be very dense, grayish brown coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM) End of Boring at 24.1 feet BGS Borehole backfilled with cuttings					>>	Auger refusal at 24.1 feet BGS
30													
35													
40													
45													

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-SS-2

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918419 N, -74.113237 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Rig Model:	Diedrich D-50	**Sampler Type:**	Split Spoon	**Casing Type:**	Auger
Rig Type:	Track	**Sampler Length:**	24 inches	**Casing Length:**	5 feet
Drill Method:	Mud Rotary	**Sampler I.D.:**	1.375 inches	**Casing I.D.:**	2.5 inches
Hammer Type:	Safety	**Hammer Wt.:**	140 pounds	**Hammer Wt.:**	140 pounds
Drilling Fluid:	None	**Hammer Fall:**	30 inches	**Hammer Fall:**	30 feet

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	Drilling & Strata Notes
	S-1	15	13 4 4 11	8	ML	Medium stiff, dark brown SILT, some coarse to fine Sand (ML)					
	S-2	18	14 9 9 9	18		Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1		
5	S-3	24	17 9 8 10	17	CL	Very stiff, brown Sandy CLAY, some coarse to fine Gravel, trace Silt, moist (CL)			2		
	S-4	11	8 11 15 11	26	ML	Very stiff, brown Sandy SILT, some coarse to fine Gravel, trace Clay, wet (ML)			0.5		
	S-5	9	50/5"	> 50		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			1		
10											
	S-6	13	21 49 50/6"	> 50		Hard, brown Sandy SILT, some coarse to fine Gravel, trace Clay, moist (ML)			3.5		
15											
	S-7		12 46 50/4"	> 50	SM	Very dense, light grayish brown coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM)					
20											Drill rig chatter while augering.

N-Value: 10 20 30 40

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)

BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)

Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)

PP = Pocket Penetrometer, measured in tons per square ft.

TV = Torvane (Shear Vane), measured in tons per square ft.

Soil Boring Log

B-SS-2
(Continued)

Client:	AES	**Drilling Firm:**	Earth Dimensions Inc.	**Coordinates:**	44.918419 N, -74.113237 E
Project:	Brookside Solar	**Drill Crew:**	Andy / Kyle	**Horiz. Datum:**	NAD83
Location:	Chateaugay, NY	**Boring Start:**	3/9/2021	**Elevation:**	Grade
Inspector:	Nick Walker	**Boring End:**	3/9/2021	**Vert. Datum:**	N/A

Depth (ft)	Sample No.	Rec. (in)	Blows per 6"	N-Value	USCS Symbol	Graphic Log	Visual Classification	Toughness	Plasticity	PP (tsf)	TV (tsf)	N-Value (10 20 30 40)	Drilling & Strata Notes
25	S-8	13	12 50/4"				Very dense, grayish brown coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM)						
	S-9	18	13 45 49 50/2"	94			Very dense, dark gray coarse to fine SAND, some Silt, some coarse to fine Gravel, moist (SM)			>4.5		>>	Drill rig chatter while augering.
30							End of Boring at 29.6 feet BGS Borehole backfilled with cuttings						
35													
40													
45													

In-Borehole Water Levels

Date / Time	Casing Tip (ft)	Bot. of Hole (ft)	Water Lvl (ft)

General Notes

▼ = Water Level (if observed)
BGS = Below Ground Surface

Toughness: Low (L), Medium (M), High (H)
Plasticity: Non-Plastic (NP), Low (L), Medium (M), High (H)
PP = Pocket Penetrometer, measured in tons per square ft.
TV = Torvane (Shear Vane), measured in tons per square ft.

ANS GEO

Attachment C

Electrical Resistivity Testing Results

Soil Resistivity Results

Client:	AES	Date:	4/29/2021 - 5/1/2021
Project Name:	Brookside Solar Project	Weather:	Partly Cloudy
Project Location:	Chateaugay, New York	Temperature:	33°F - 49°F
Equipment:	AGI MiniSting		
Test Method:	Wenner 4 Electrode Array		

Array		Data	Array spacing (ft)					
			2	5	10	25	50	75
ERT-01	N-S	Measured Resistance (Ω)	425.4	126.4	26.19	4.27	2.114	-
		Apparent Resistivity (Ω-m)	1629.16	1210.36	501.40	204.43	202.42	-
	E-W	Measured Resistance (Ω)	430.7	135.1	29.9	4.406	2.148	-
		Apparent Resistivity (Ω-m)	1649.88	1293.27	572.41	210.98	205.65	-
ERT-02	N-S	Measured Resistance (Ω)	28.9	11.68	6.331	3.403	2.271	-
		Apparent Resistivity (Ω-m)	110.67	111.86	121.25	162.92	217.44	-
	E-W	Measured Resistance (Ω)	26.68	12.53	6.349	3.371	2.182	-
		Apparent Resistivity (Ω-m)	102.17	120.00	121.58	161.42	208.91	-
ERT-03	N-S	Measured Resistance (Ω)	85.47	26.19	11.29	4.963	2.684	-
		Apparent Resistivity (Ω-m)	327.36	250.76	216.19	237.62	257.01	-
	E-W	Measured Resistance (Ω)	102.1	28.56	11.84	4.806	2.635	-
		Apparent Resistivity (Ω-m)	391.06	273.44	226.77	230.09	252.37	-
ERT-04	N-S	Measured Resistance (Ω)	194.7	58.4	14.48	4.464	2.344	-
		Apparent Resistivity (Ω-m)	745.54	559.31	277.25	213.70	224.45	-
	E-W	Measured Resistance (Ω)	232.7	55.08	15.4	4.118	2.37	-
		Apparent Resistivity (Ω-m)	891.24	527.30	294.92	197.18	226.95	-
ERT-05	N-S	Measured Resistance (Ω)	66.76	26.41	12.83	4.887	2.747	-
		Apparent Resistivity (Ω-m)	255.73	252.86	245.64	233.99	263.04	-
	E-W	Measured Resistance (Ω)	77.69	25.95	12.78	4.77	2.743	-
		Apparent Resistivity (Ω-m)	297.58	248.50	244.72	228.39	262.65	-
ERT-06	N-S	Measured Resistance (Ω)	164.3	58.49	20.97	7.087	3.646	-
		Apparent Resistivity (Ω-m)	629.41	559.92	401.73	339.24	349.00	-
	E-W	Measured Resistance (Ω)	170.8	56.29	21.7	7.078	3.6	-
		Apparent Resistivity (Ω-m)	654.10	538.89	415.75	338.94	344.73	-
ERT-07	N-S	Measured Resistance (Ω)	54.7	14.83	7.159	3.301	2.556	-
		Apparent Resistivity (Ω-m)	209.52	141.98	137.10	158.07	244.72	-
	E-W	Measured Resistance (Ω)	45.4	14.25	7.036	3.351	2.565	-
		Apparent Resistivity (Ω-m)	173.89	136.46	134.75	160.42	245.58	-
ERT-08	N-S	Measured Resistance (Ω)	33.95	12.7	6.43	3.271	1.85	-
		Apparent Resistivity (Ω-m)	130.06	121.62	123.14	156.61	177.12	-
	E-W	Measured Resistance (Ω)	34.08	13.03	6.878	3.434	2.118	-
		Apparent Resistivity (Ω-m)	130.55	124.75	131.70	164.41	202.84	-
ERT-09	N-S	Measured Resistance (Ω)	35.6	18.87	10.72	4.686	2.289	-
		Apparent Resistivity (Ω-m)	136.37	180.69	205.37	224.36	219.15	-
	E-W	Measured Resistance (Ω)	34.94	16.46	12.1	4.377	2.217	-
		Apparent Resistivity (Ω-m)	133.84	157.64	231.80	209.55	212.23	-
ERT-10	N-S	Measured Resistance (Ω)	128.2	72.18	30.14	6.935	3.059	2.527
		Apparent Resistivity (Ω-m)	491.03	691.29	576.99	331.93	292.91	363.02
	E-W	Measured Resistance (Ω)	152.4	73.64	32.47	7.156	3.23	2.524
		Apparent Resistivity (Ω-m)	583.69	705.31	621.79	342.60	309.37	362.71
ERT-11	N-S	Measured Resistance (Ω)	102.2	37.13	12.2	4.436	2.422	-
		Apparent Resistivity (Ω-m)	391.67	355.70	233.57	212.42	231.95	-
	E-W	Measured Resistance (Ω)	103	35.68	12.42	4.404	2.32	-
		Apparent Resistivity (Ω-m)	394.72	341.68	237.77	210.89	222.11	-
ERT-12	N-S	Measured Resistance (Ω)	72.88	23.21	8.831	3.756	2.371	-
		Apparent Resistivity (Ω-m)	279.17	222.23	169.13	179.83	227.08	-
	E-W	Measured Resistance (Ω)	69.64	22.32	8.821	3.682	2.348	-
		Apparent Resistivity (Ω-m)	266.76	213.76	168.92	176.30	224.79	-
ERT-13	N-S	Measured Resistance (Ω)	132.4	48.22	17.51	5.768	2.782	2.202
		Apparent Resistivity (Ω-m)	507.19	461.77	335.28	276.15	266.43	316.38
	E-W	Measured Resistance (Ω)	112.7	46.33	19.81	5.849	2.695	2.161
		Apparent Resistivity (Ω-m)	431.60	443.48	379.48	280.05	258.10	310.29
		Site Average (Ω)	**119.93**	**41.15**	**14.71**	**4.69**	**2.55**	**2.35**
		Site Average (Ω-m)	**459.38**	**394.03**	**281.79**	**224.71**	**244.19**	**338.10**

ANS GEO

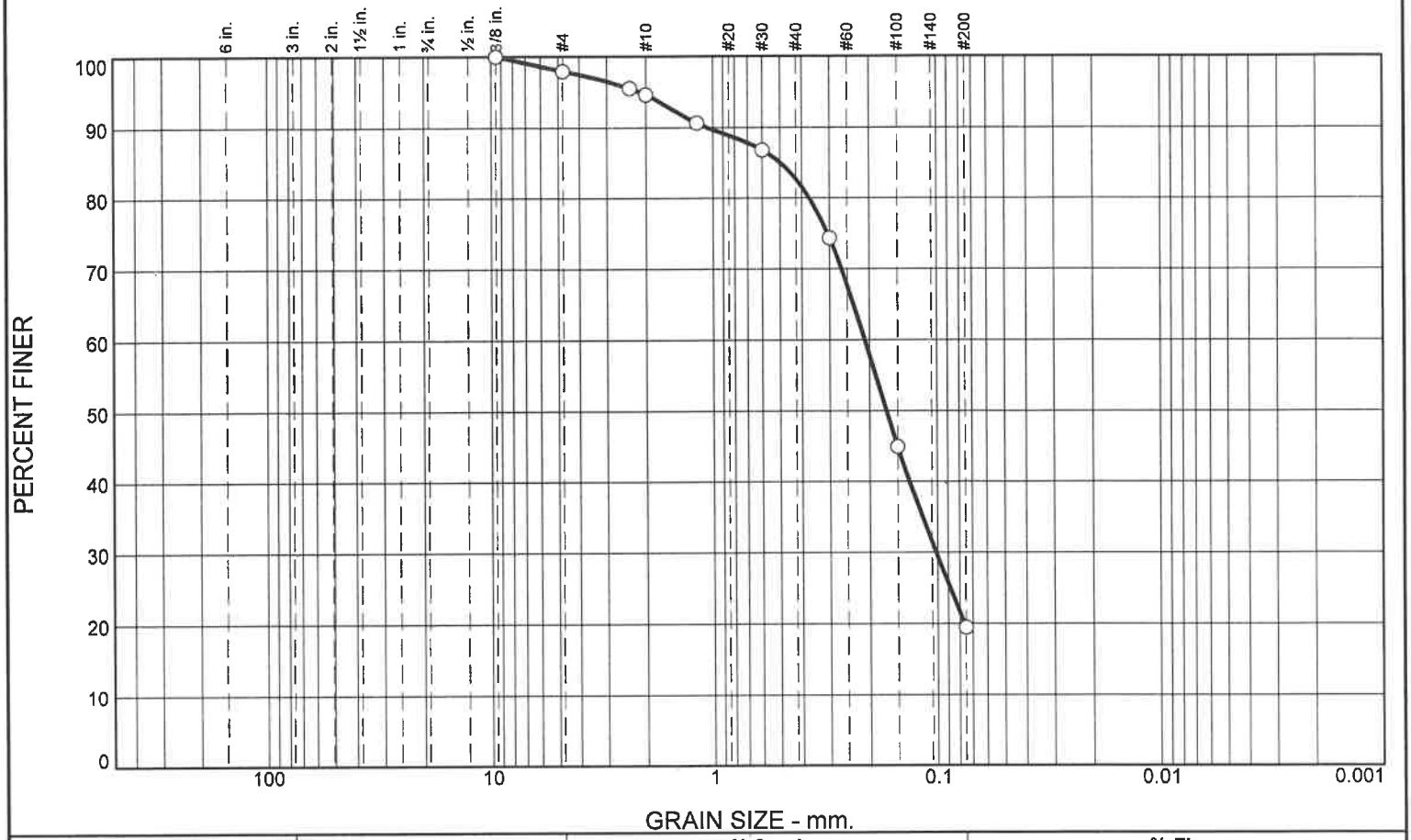
Attachment D

Laboratory Results

SIEVE ANALYSIS

RESULTS

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	3.3	11.9	63.2	19.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	97.9		
#8	95.5		
#10	94.6		
#16	90.6		
#30	86.8		
#50	74.3		
#100	45.0		
#200	19.5		

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.0630 D_{85}= 0.4990 D_{60}= 0.2097
D_{50}= 0.1682 D_{30}= 0.1019 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

In-Situ %MC=15.9
F.M.=1.10

Location: B-1, S-4
Sample Number: S-1 **Depth:** 6'-8 **Date:**

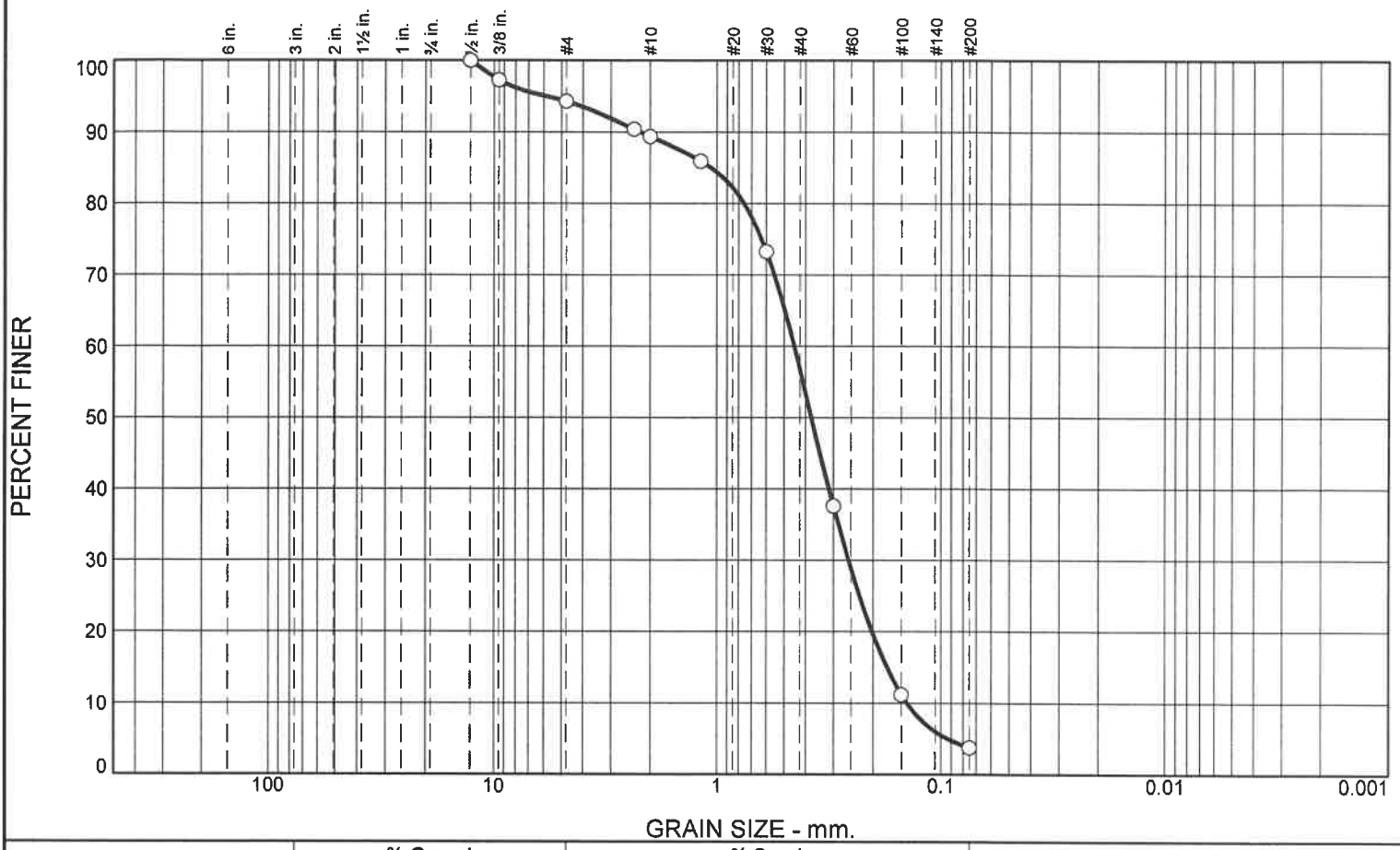
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

Project No: AOT-5632 **Figure 1 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.7	4.9	32.6	53.0	3.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	97.2		
#4	94.3		
#8	90.4		
#10	89.4		
#16	85.9		
#30	73.3		
#50	37.6		
#100	11.2		
#200	3.8		

* (no specification provided)

Material Description

poorly graded sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 2.2188 D_{85}= 1.0607 D_{60}= 0.4509
D_{50}= 0.3760 D_{30}= 0.2572 D_{15}= 0.1737
D_{10}= 0.1417 C_u= 3.18 C_c= 1.04

Classification

USCS= SP AASHTO= A-3

Remarks

In-Situ %MC=5.2
F.M.=2.10

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

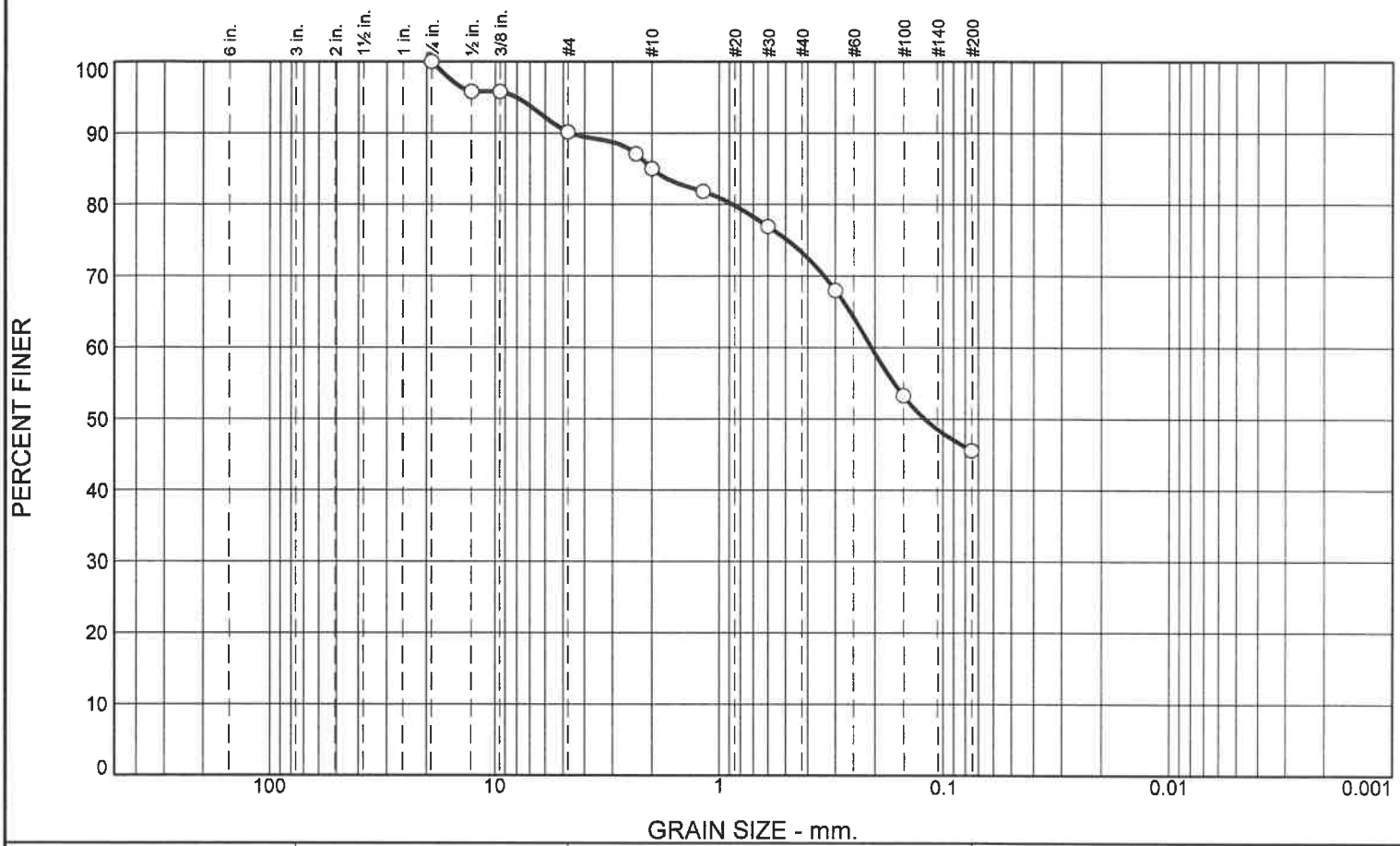
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

Project No: AOT-5632 **Figure 4 F 1**

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.9	5.1	11.7	27.7	45.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	95.8		
3/8	95.8		
#4	90.1		
#8	87.1		
#10	85.0		
#16	81.8		
#30	76.9		
#50	68.0		
#100	53.2		
#200	45.6		

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 4.6319 D_{85}= 1.9987 D_{60}= 0.2076
D_{50}= 0.1206 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

In-Situ %MC=13.9
F.M.=1.47

Location: B-35, S-2
Sample Number: S-23 **Depth:** 2'-4' **Date:**

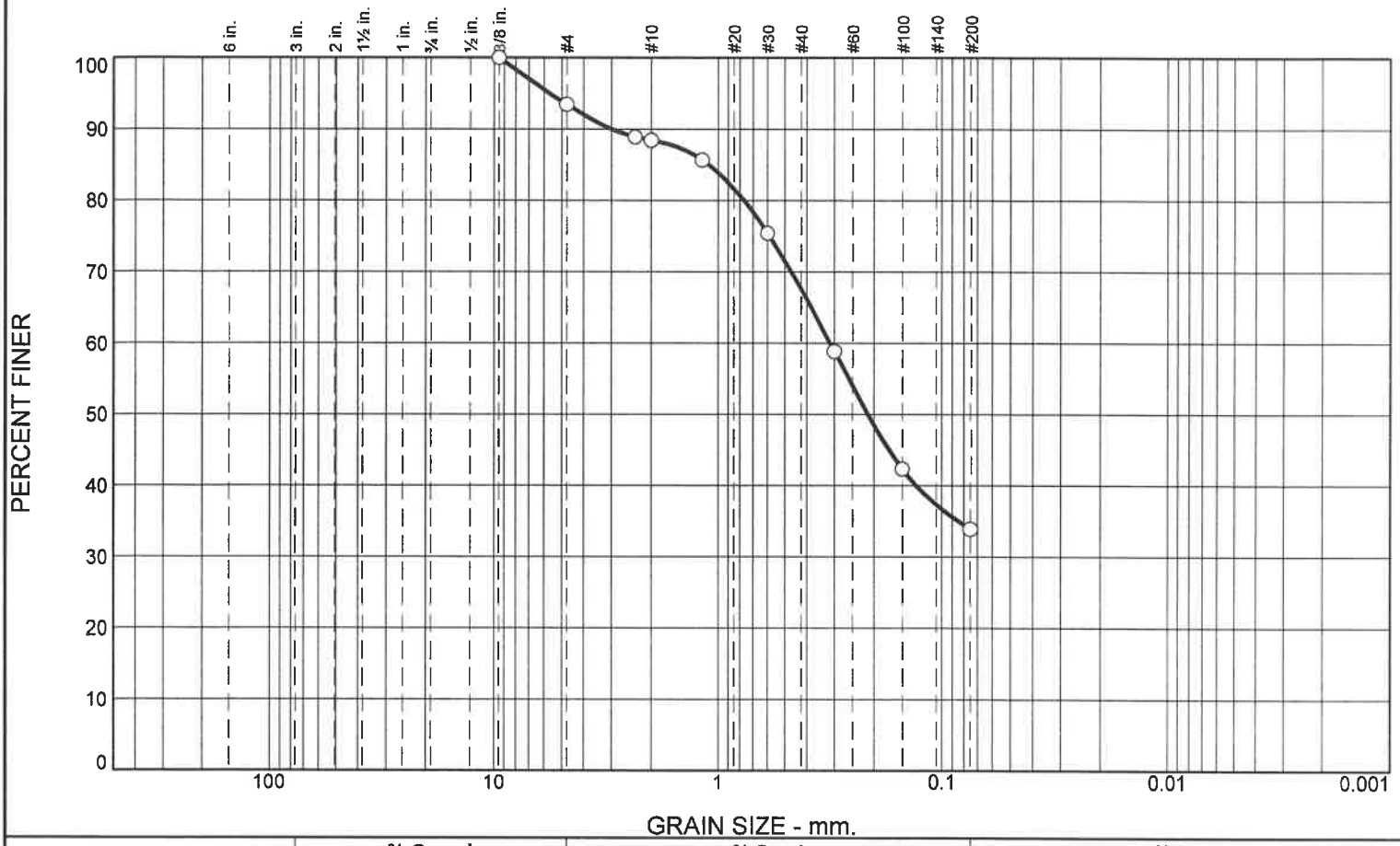
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

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

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.6	4.9	20.8	33.8	33.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	93.4		
#8	88.9		
#10	88.5		
#16	85.7		
#30	75.4		
#50	58.8		
#100	42.3		
#200	33.9		

* (no specification provided)

Material Description

silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 3.0022 D_{85}= 1.0993 D_{60}= 0.3138
D_{50}= 0.2131 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

In-Situ %MC=7.3
F.M.=1.55

Location: B-39, S-5
Sample Number: S-27 **Depth:** 8'-10' **Date:**

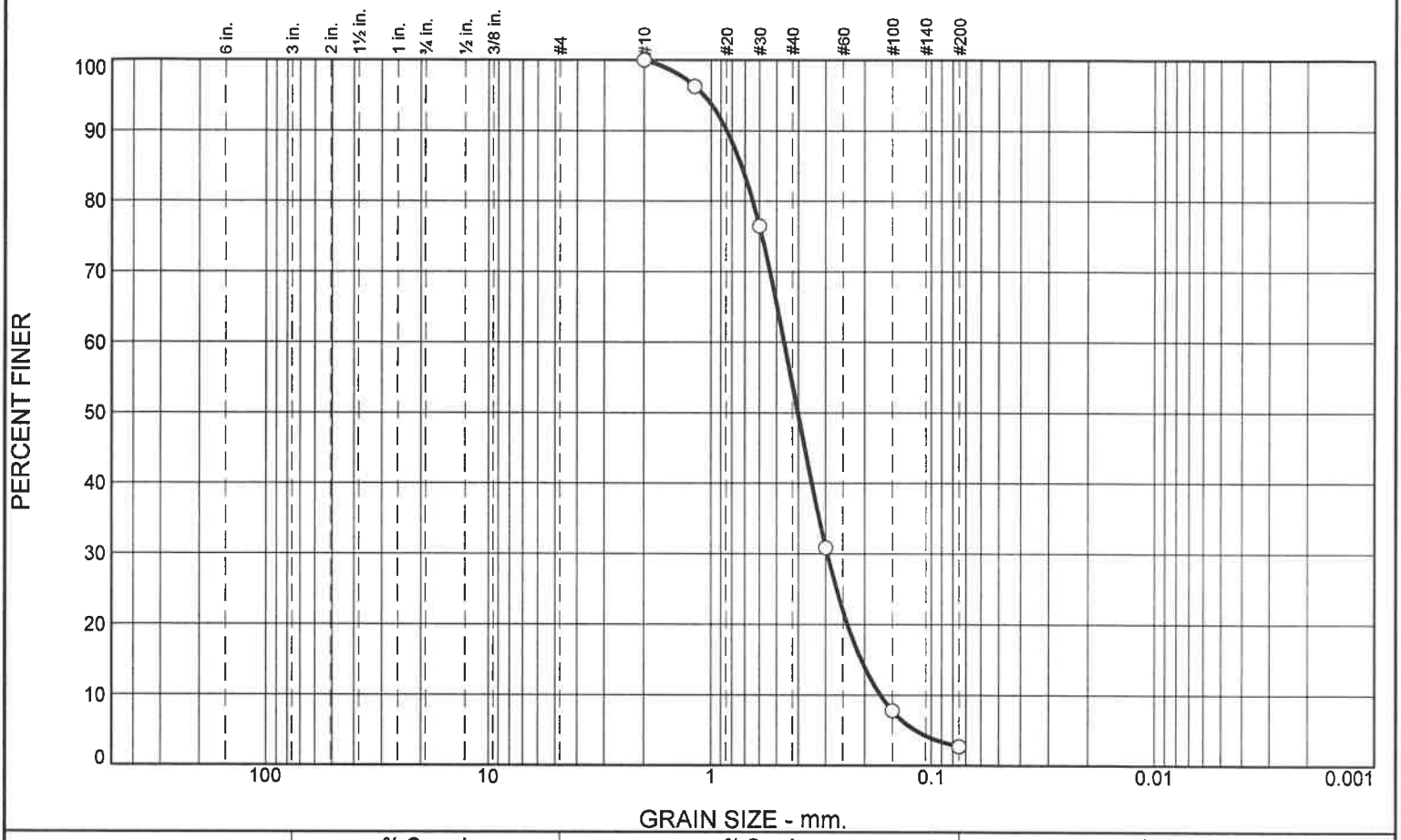
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

Project No: AOT-5632 **Figure** 27 F 1

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	45.9	51.4	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	96.3		
#30	76.5		
#50	30.9		
#100	7.8		
#200	2.7		

* (no specification provided)

Material Description

poorly graded sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.8443 D_{85}= 0.7234 D_{60}= 0.4623
D_{50}= 0.4013 D_{30}= 0.2955 D_{15}= 0.2073
D_{10}= 0.1700 C_u= 2.72 C_c= 1.11

Classification

USCS= SP AASHTO= A-3

Remarks

In-Situ %MC=2.6
F.M.=1.89

Location: B-41, S-4
Sample Number: S-29 **Depth:** 6'-8' **Date:**

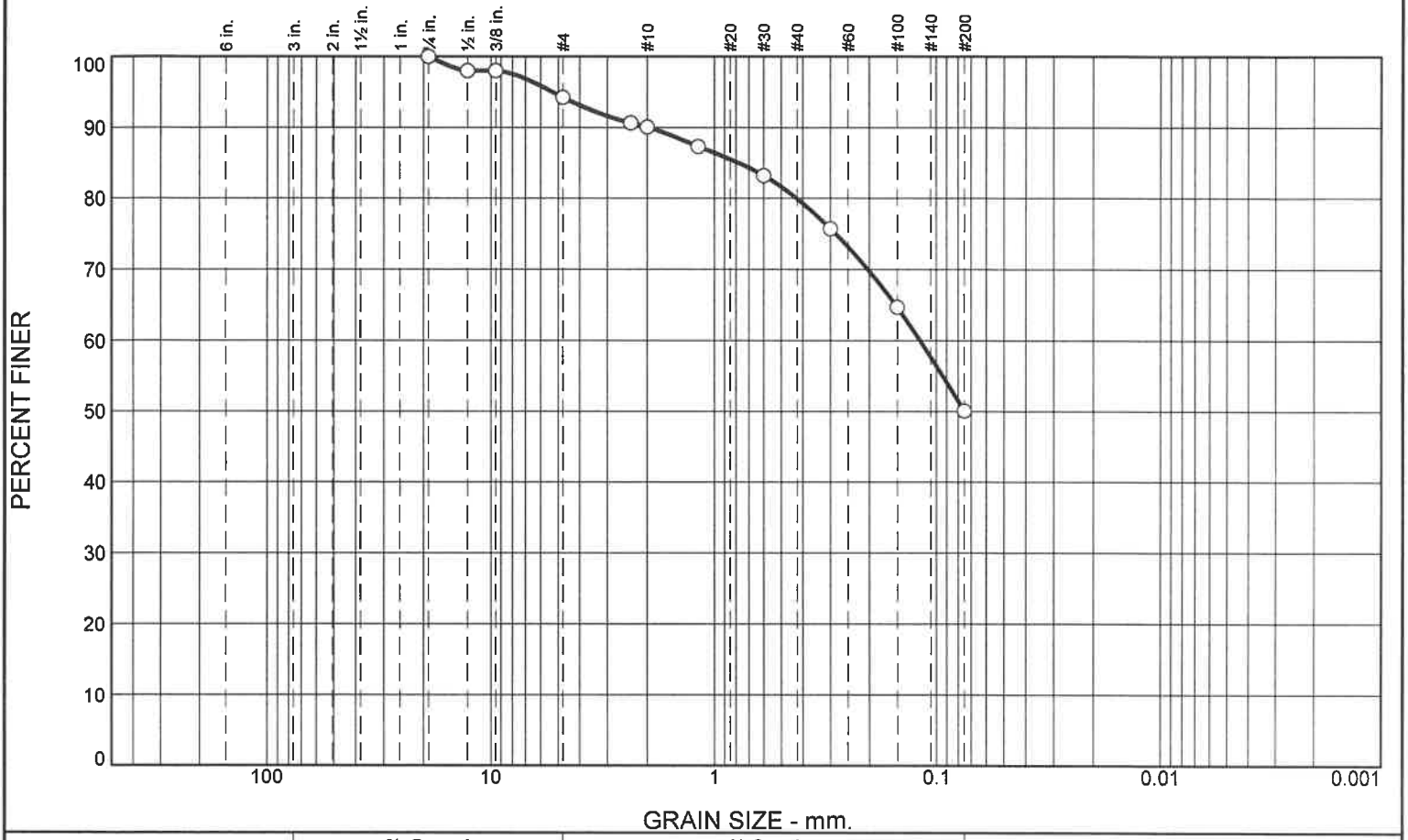
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

Project No: AOT-5632 **Figure** 29 F 1

Particle Size Distribution Report As per ASTM D-422



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.8	4.1	10.1	29.9	50.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	98.0		
3/8	98.0		
#4	94.2		
#8	90.6		
#10	90.1		
#16	87.3		
#30	83.2		
#50	75.7		
#100	64.7		
#200	50.1		

* (no specification provided)

Material Description

sandy silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.9721 D_{85}= 0.7793 D_{60}= 0.1184
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

In-Situ %MC=15.9
F.M.=1.06

Location: B-42, S-2
Sample Number: S-30 **Depth:** 2'-4' **Date:**

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

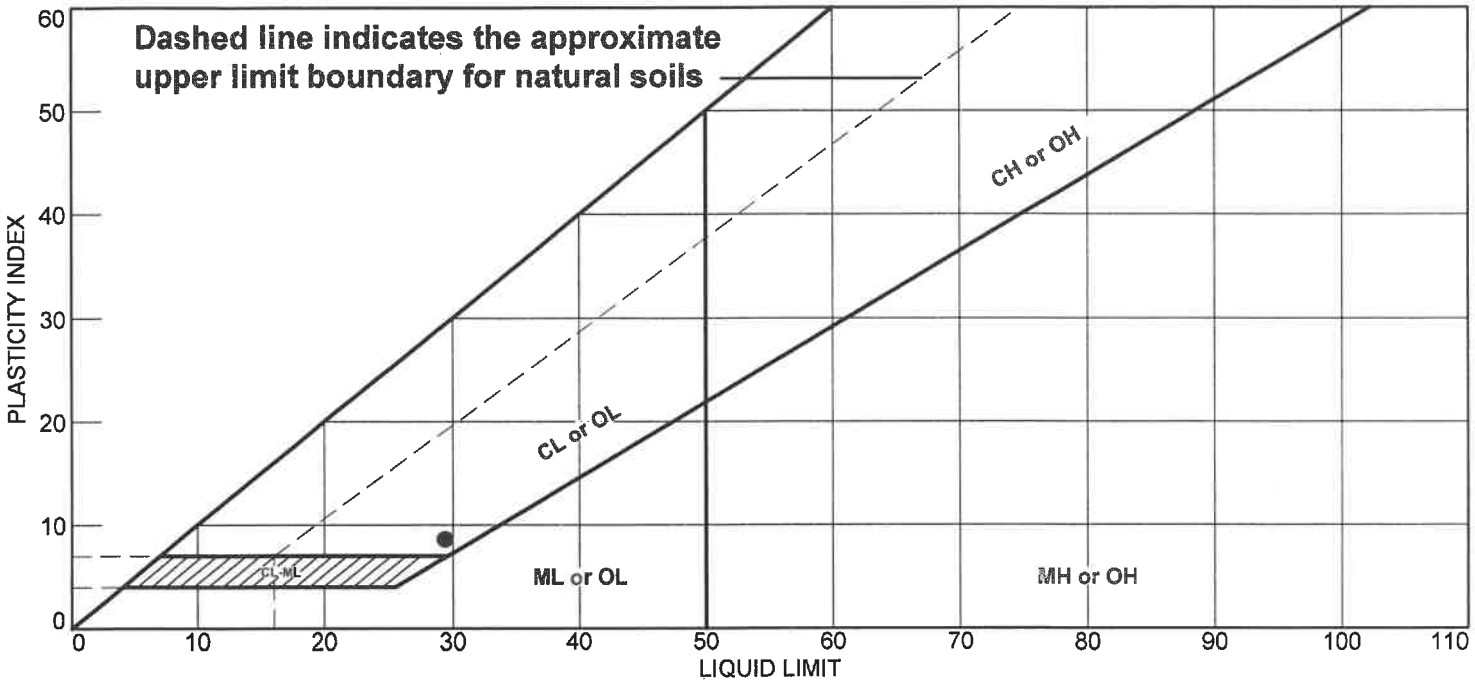
Client: ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

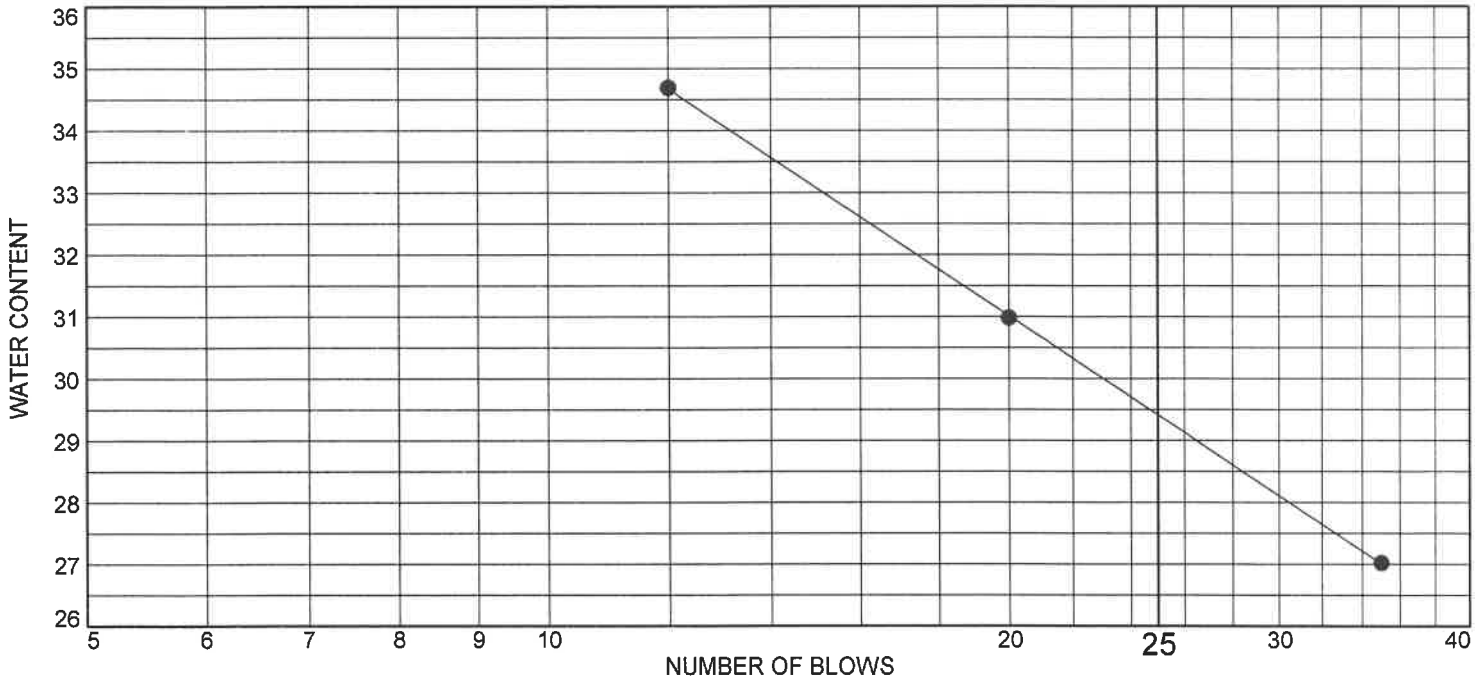
Project No: AOT-5632 **Figure** 30 F 1

ATTERBERG LIMITS

RESULTS

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.4	20.8	8.6			

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

Project: Brookside Solar, Chateaugay, New York

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

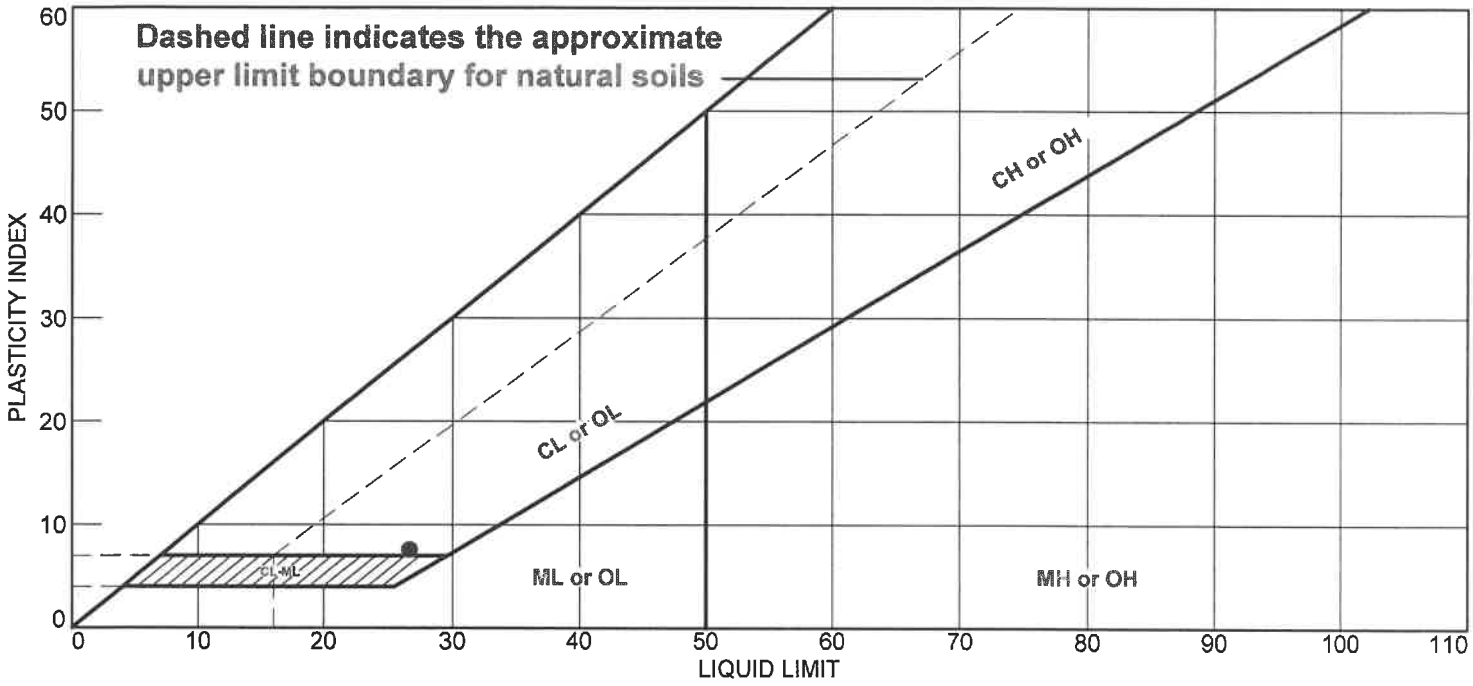
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Remarks:
● In-Situ %MC=12.3

Figure 2 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		26.7	19.1	7.6			

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

Project: Brookside Solar, Chateaugay, New York

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

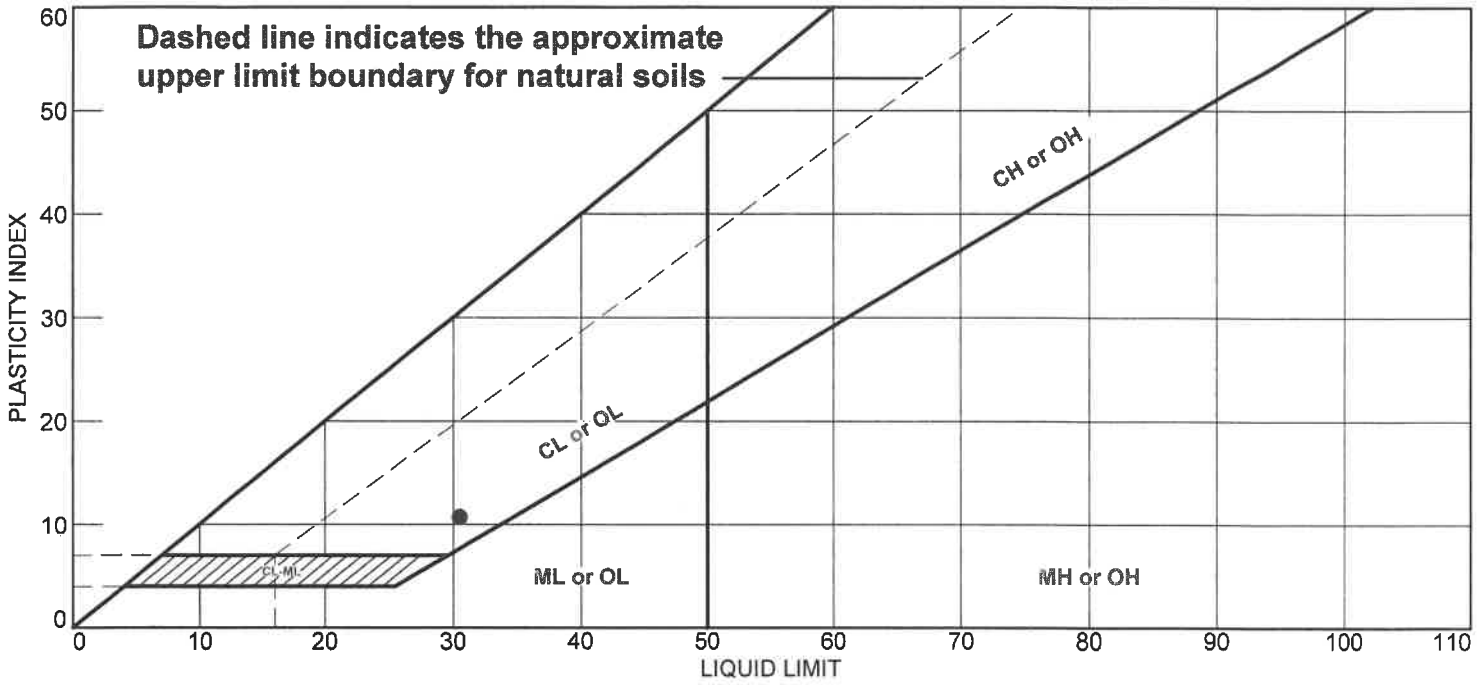
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Remarks:
● In-Situ %MC=10.9

Figure 3 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		30.5	19.8	10.7			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-6, S-4
Sample Number: S-5 **Depth:** 6'-8'

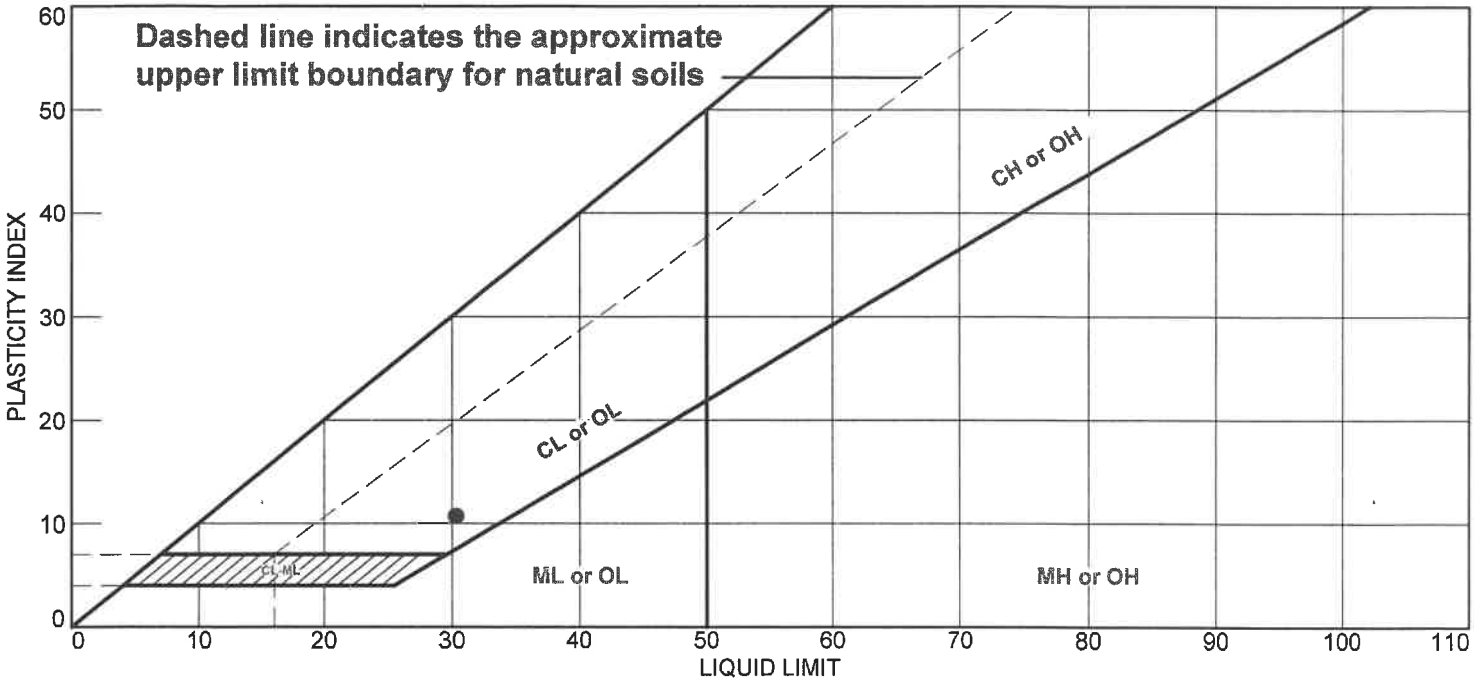
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Remarks:
● In-Situ %MC=11.0

Figure 5 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		30.3	19.6	10.7			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-7, S-2
Sample Number: S-6 **Depth:** 2'-4'

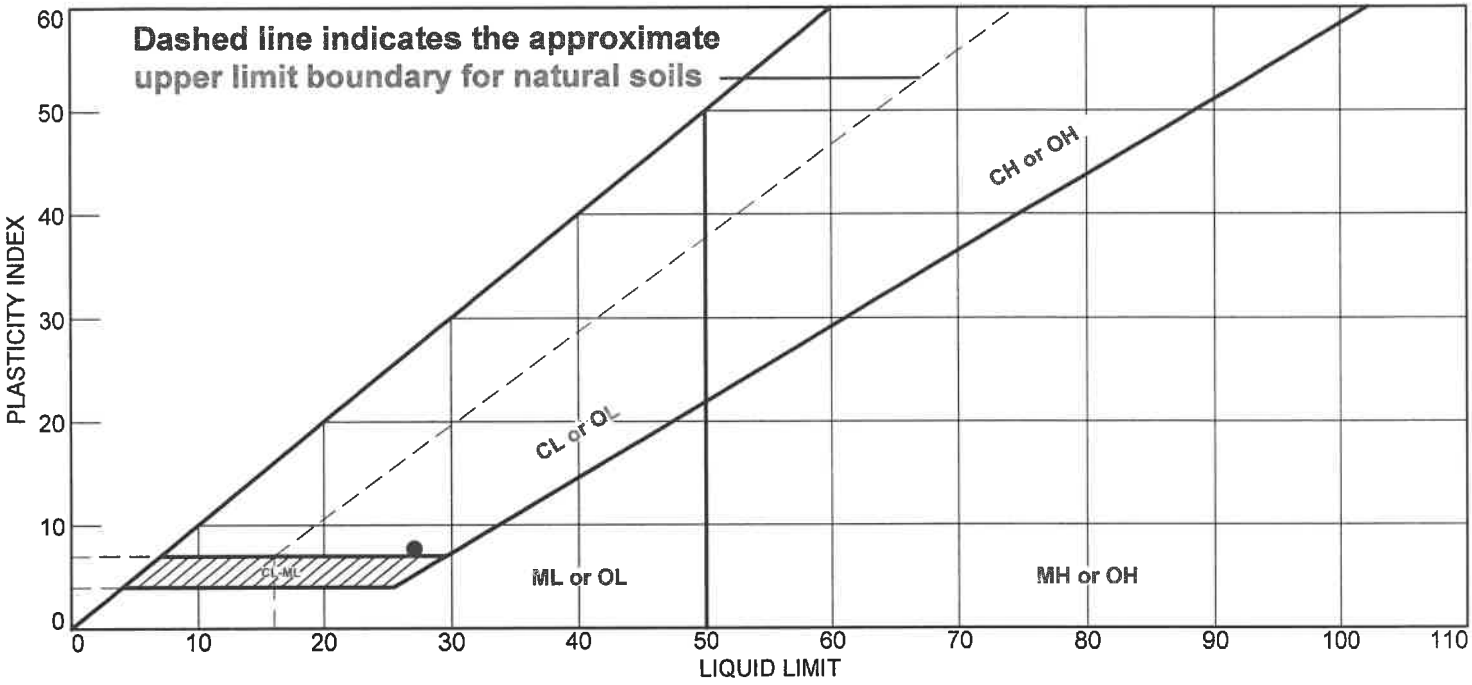
ANS CONSULTANTS, INC.

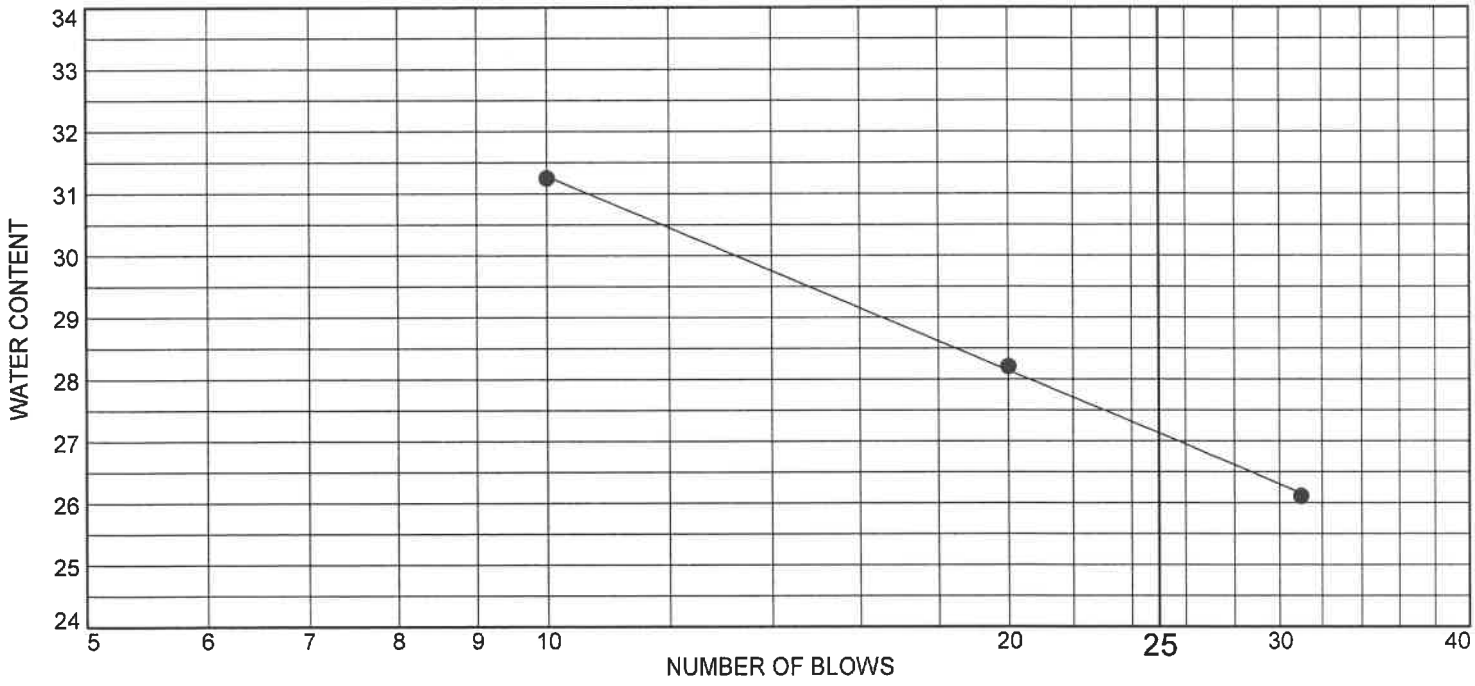
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=13.4

Figure 6 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		27.1	19.4	7.7			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-9, S-3
Sample Number: S-7 **Depth:** 4'-6'

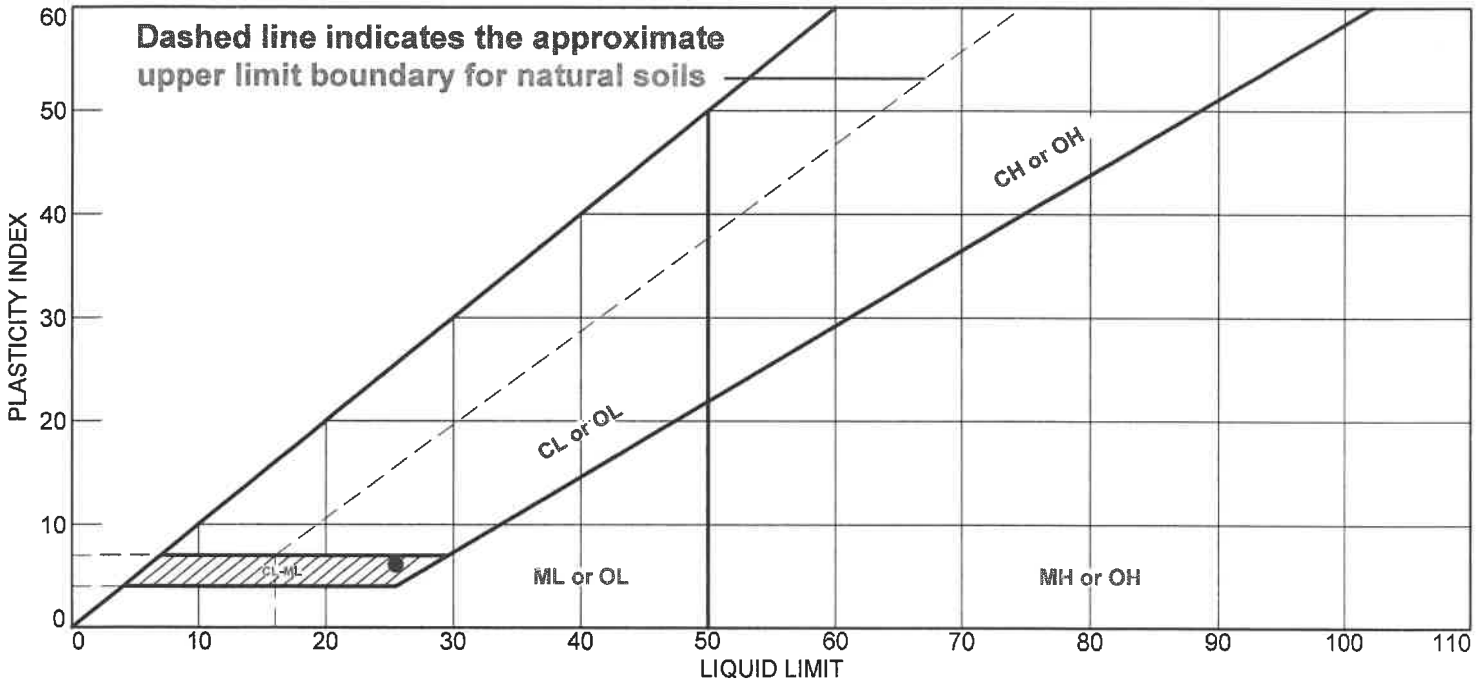
ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Remarks:
● In-Situ %MC=24.5

Figure 7 F 1

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		25.5	19.4	6.1			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-10, S-5
Sample Number: S-8 **Depth:** 8'-10'

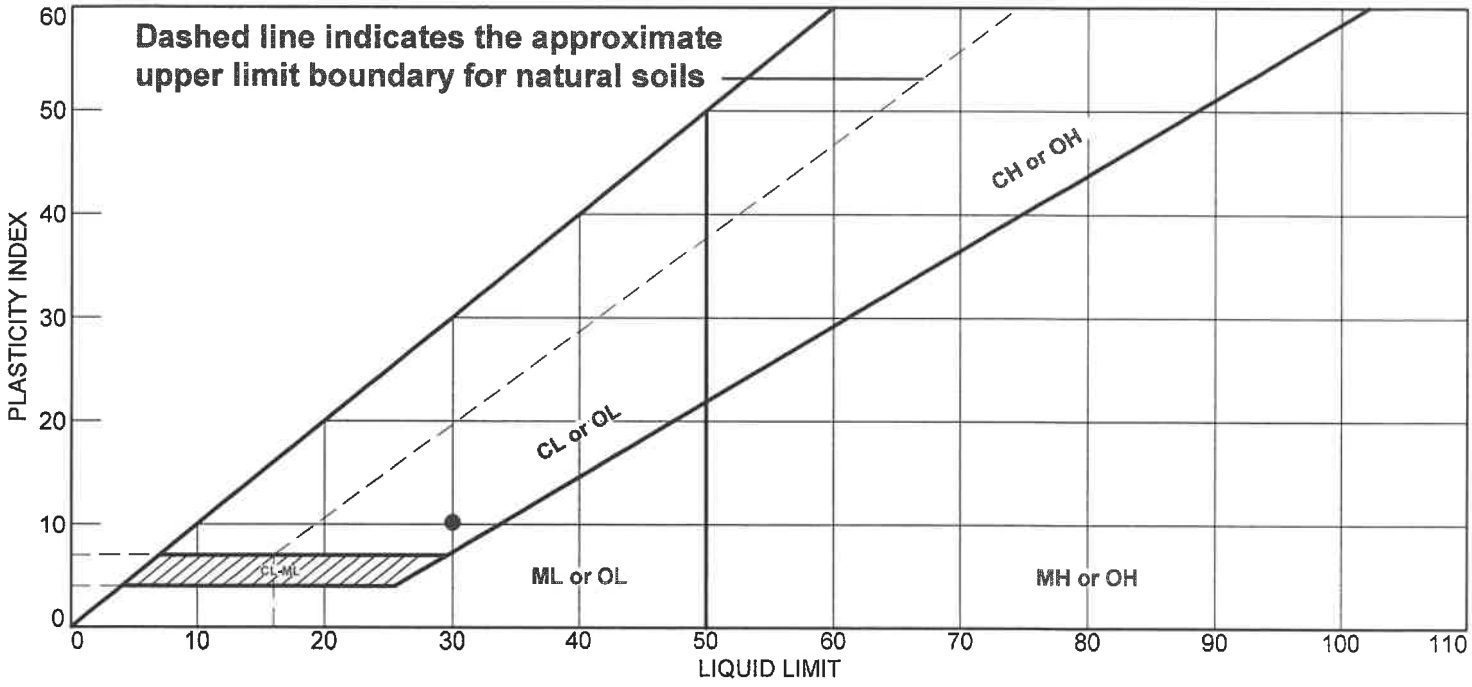
ANS CONSULTANTS, INC.

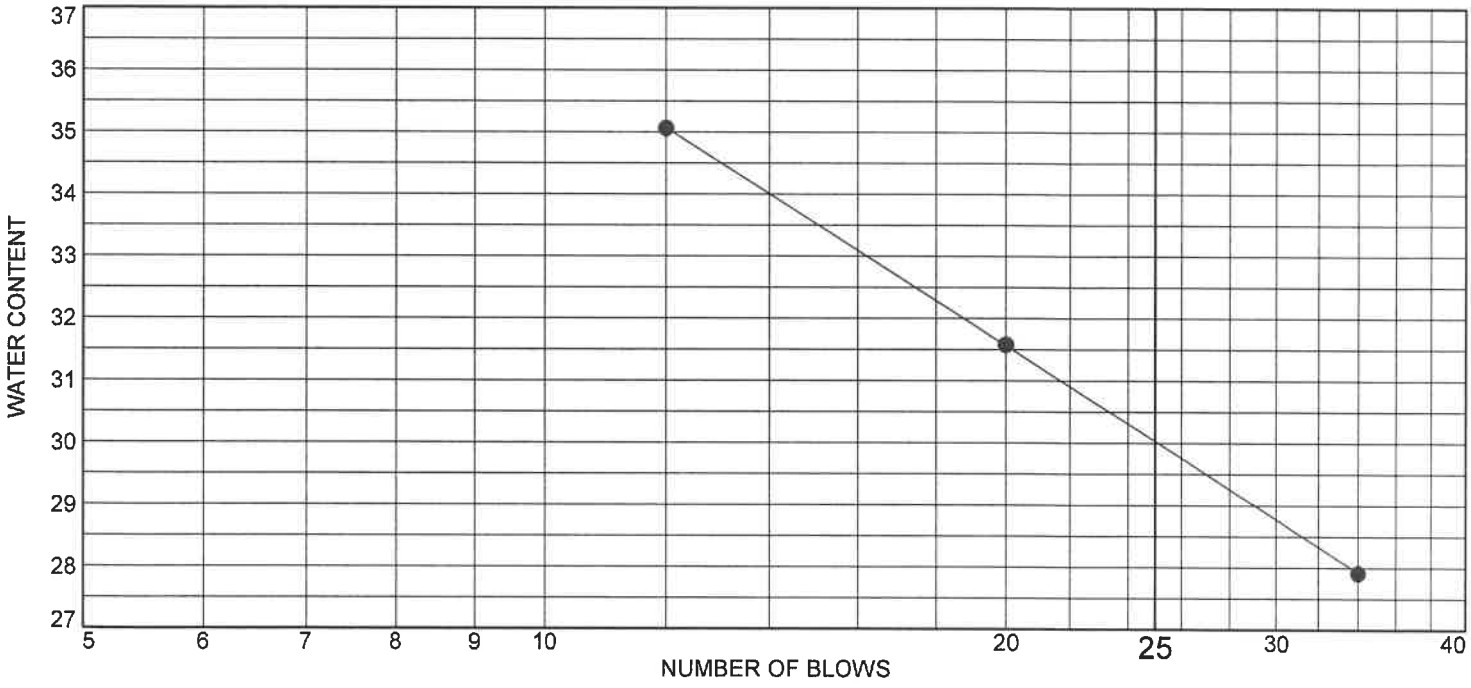
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=11.7

Figure 8 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		30.0	19.8	10.2			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-12, S-3
Sample Number: S-9 **Depth:** 4'-6'

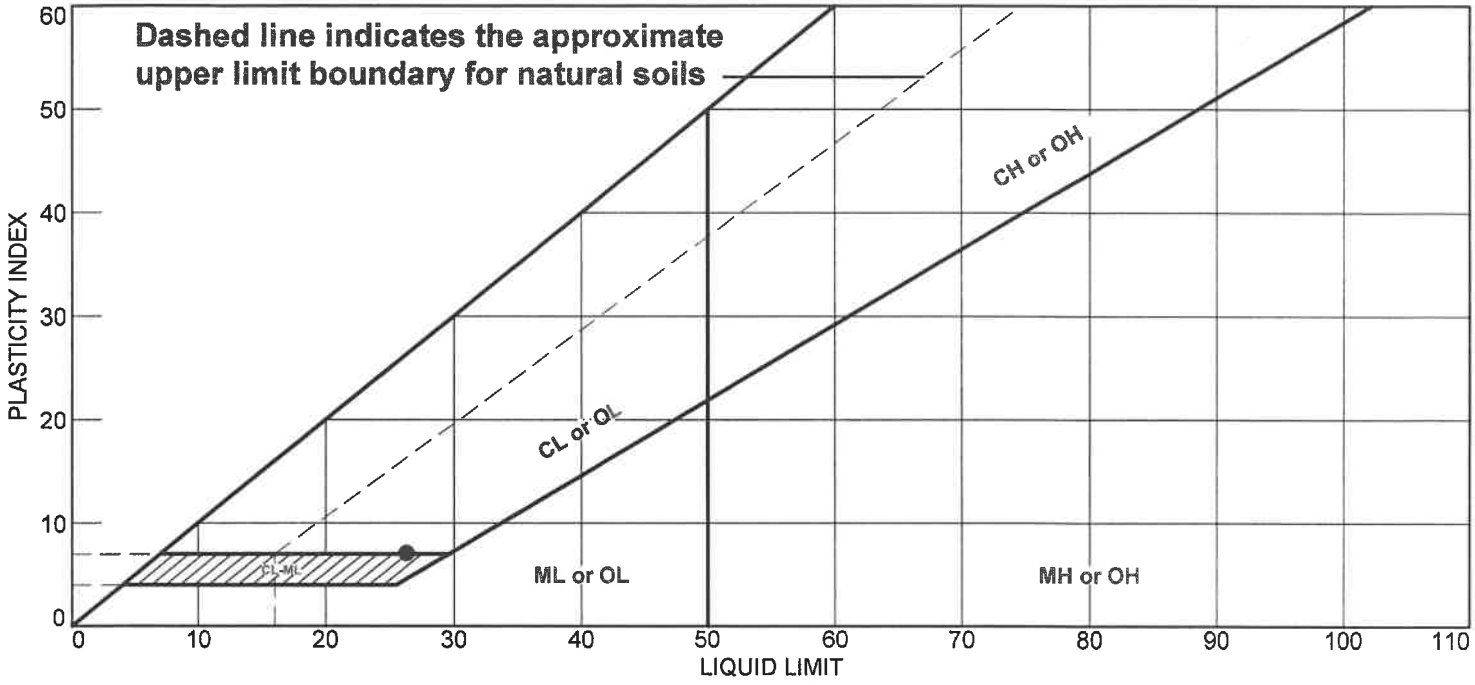
ANS CONSULTANTS, INC.

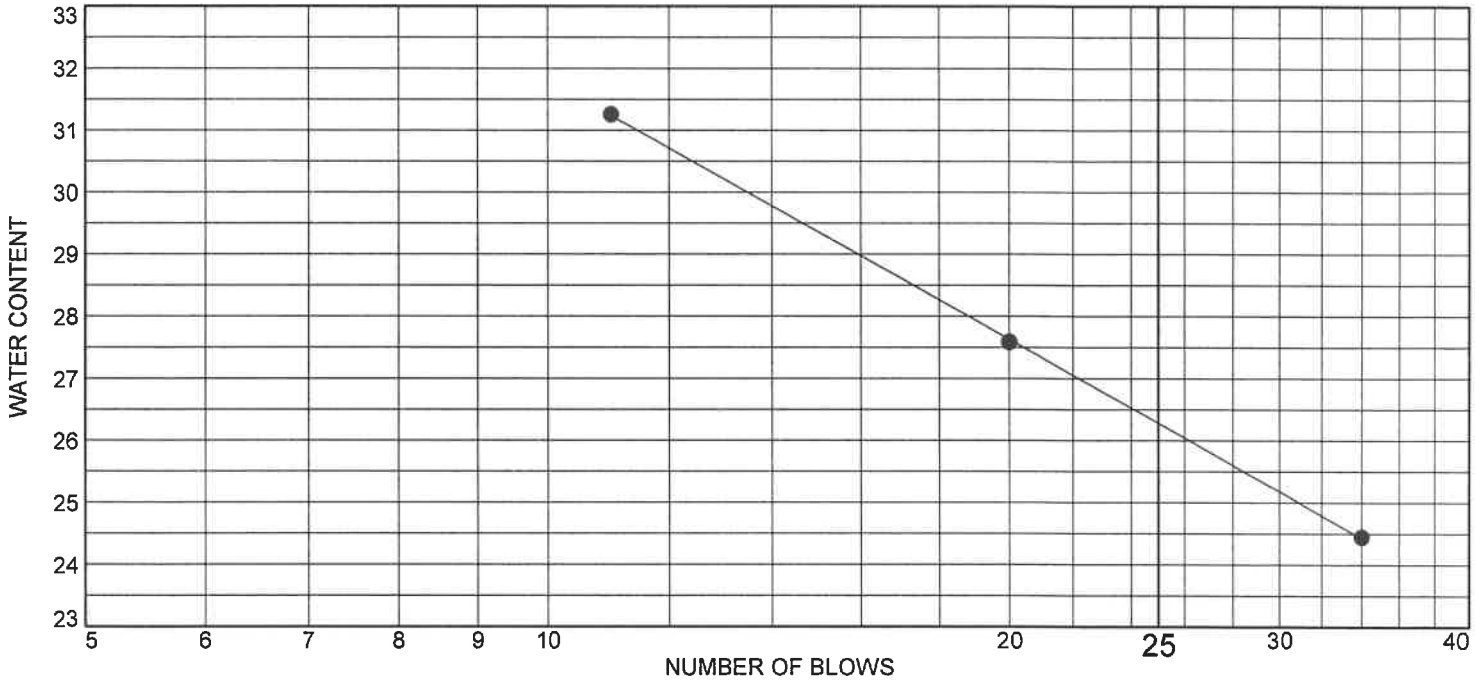
South Plainfield, New Jersey

Remarks:
● In-Siu %MC=17.0

Figure 9 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		26.3	19.2	7.1			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-13, S-4
Sample Number: S-10 **Depth:** 6'-8'

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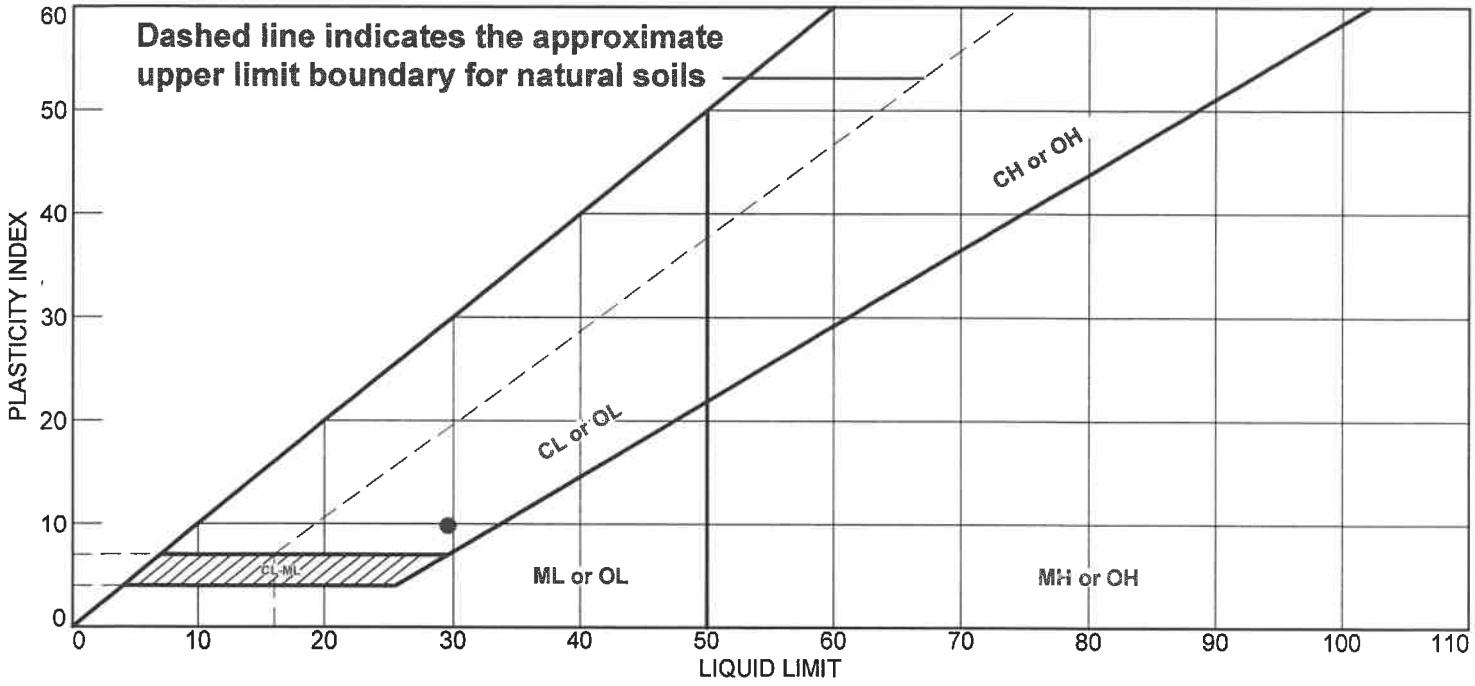
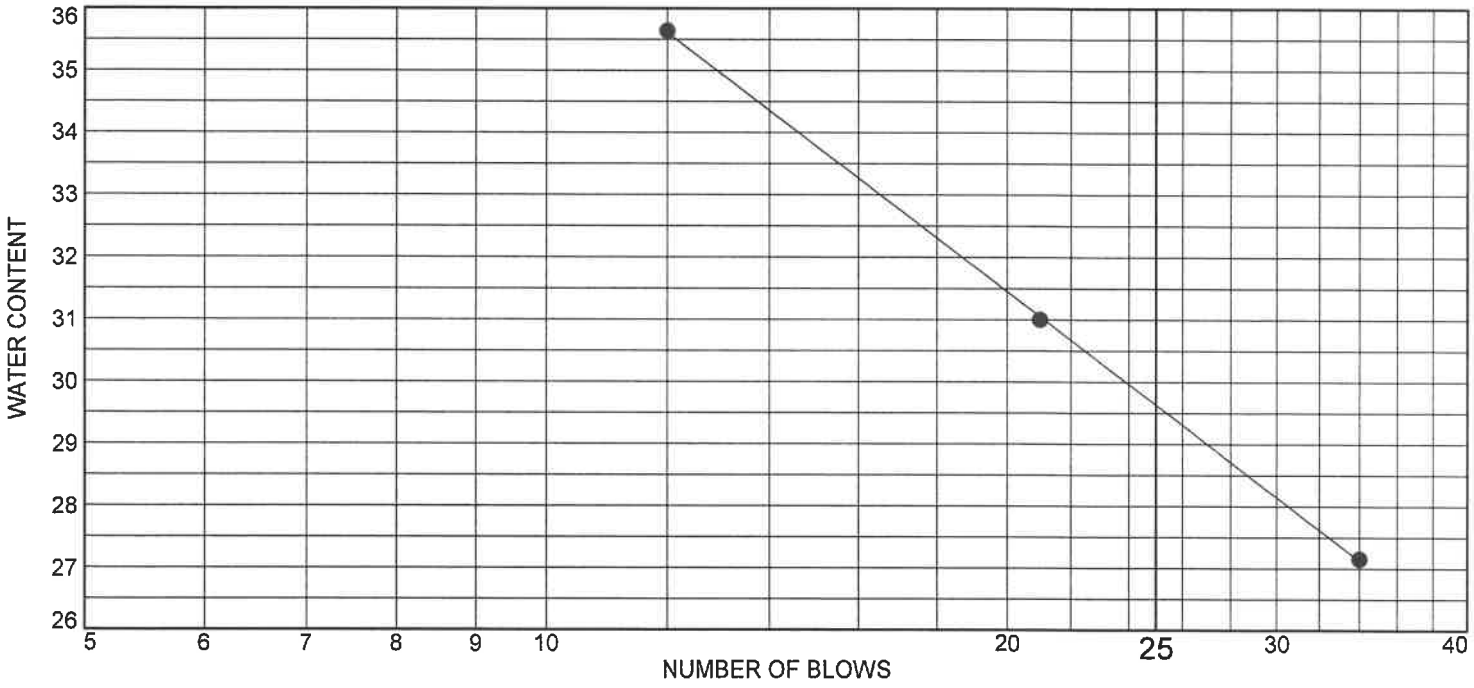
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=11.6

Figure 10 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.6	19.8	9.8			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-15, S-3
Sample Number: S-11 **Depth:** 4'-6'

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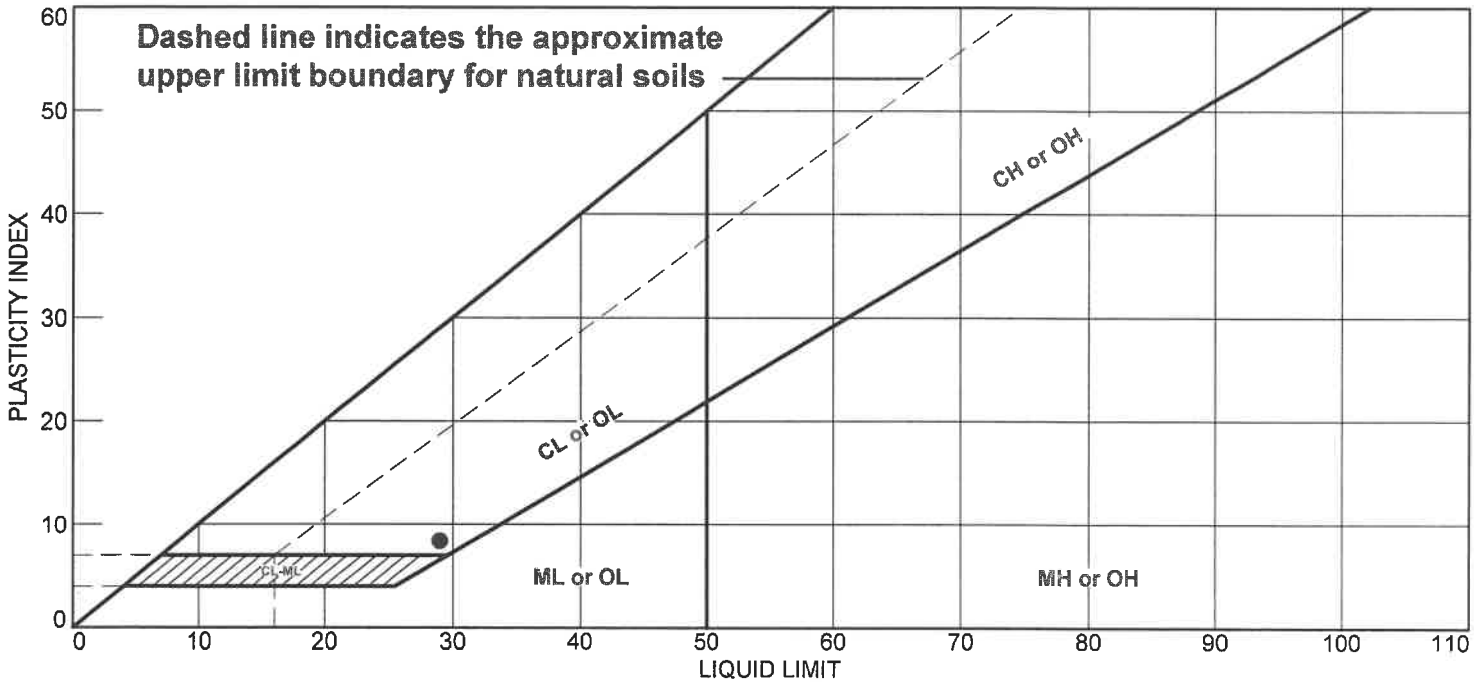
Remarks:
● In-Situ %MC=14.6

Figure 11 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.0	20.6	8.4			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-17, S-3
Sample Number: S-12 **Depth:** 4'-6'

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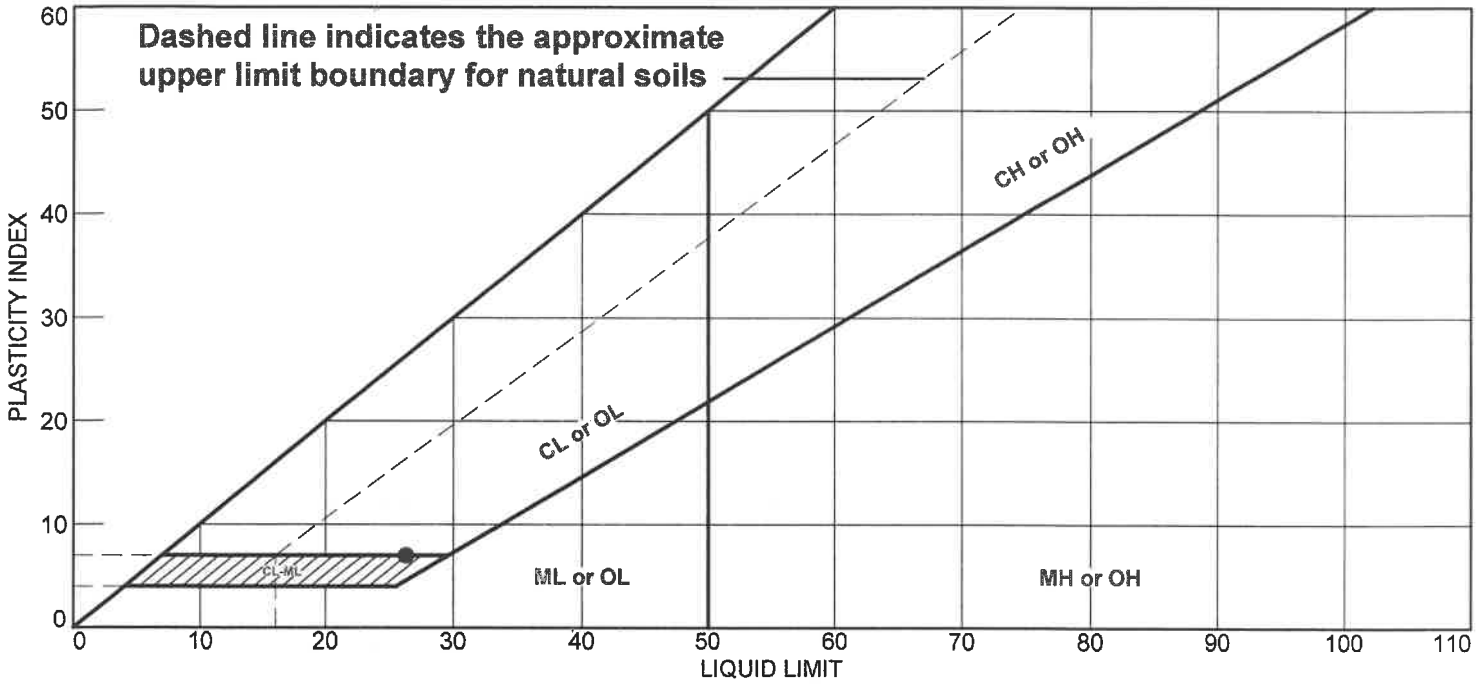
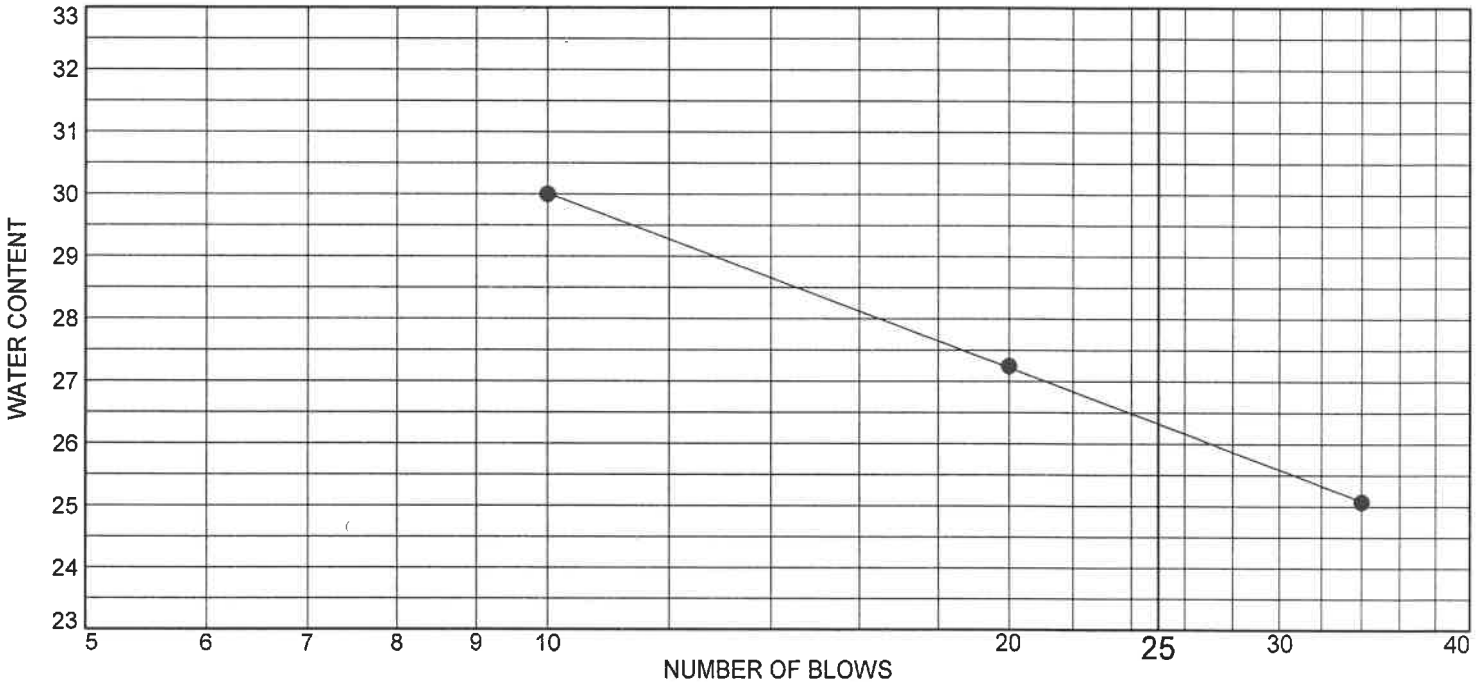
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=13.8

Figure 12 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		26.3	19.3	7.0			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-19, S-2
Sample Number: S-13 **Depth:** 2'-4'

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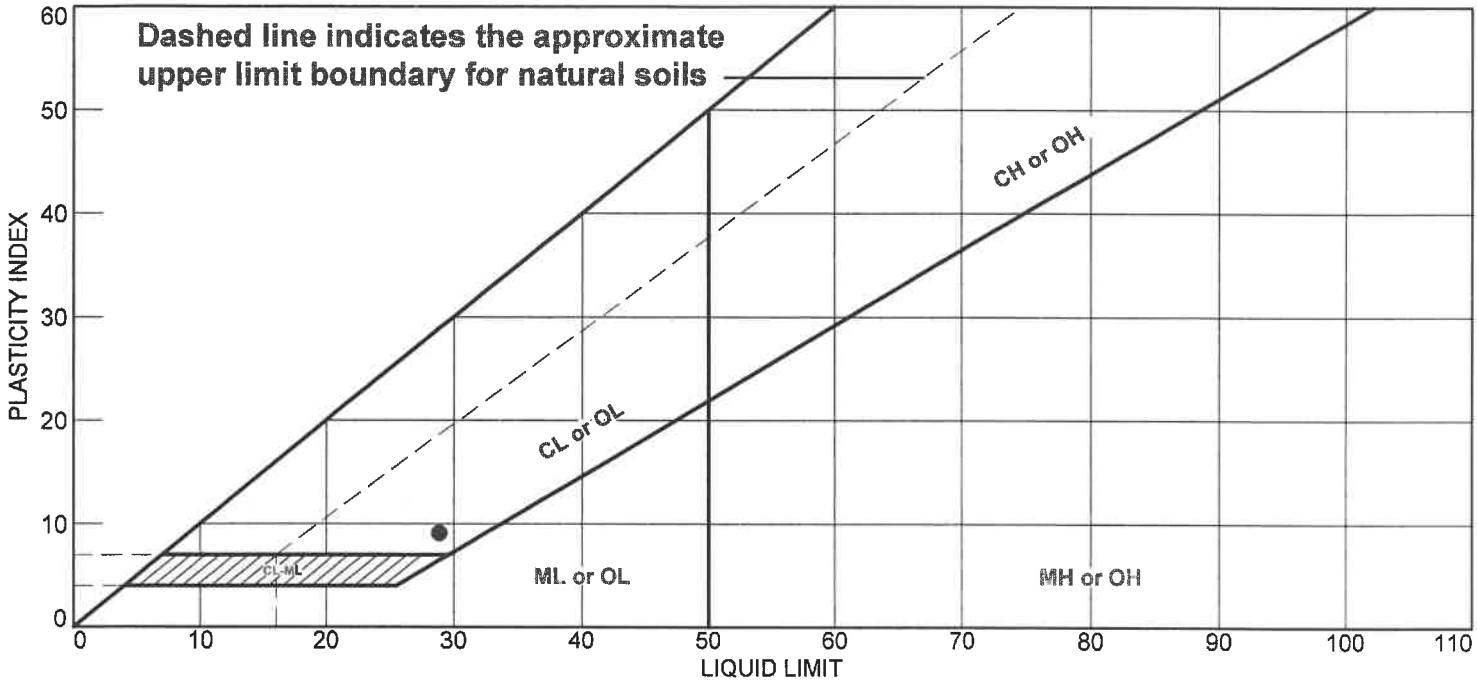
Remarks:
● In-Situ %MC=17.3

Figure 13 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.9	19.8	9.1			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-20, S-3
Sample Number: S-14 **Depth:** 4'-6'

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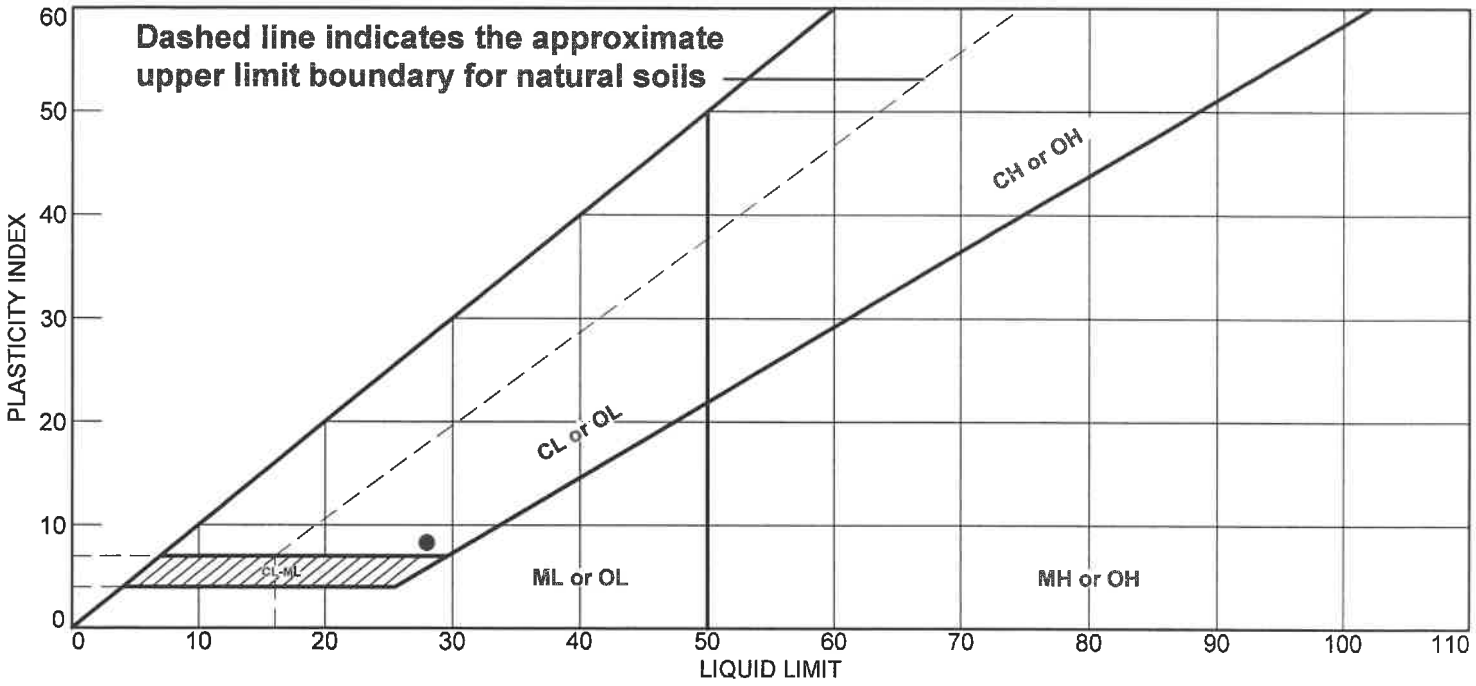
Remarks:
● In-Situ %MC=19.2

Figure 14 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.0	19.7	8.3			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-21, S-5
Sample Number: S-15 **Depth:** 8'-10'

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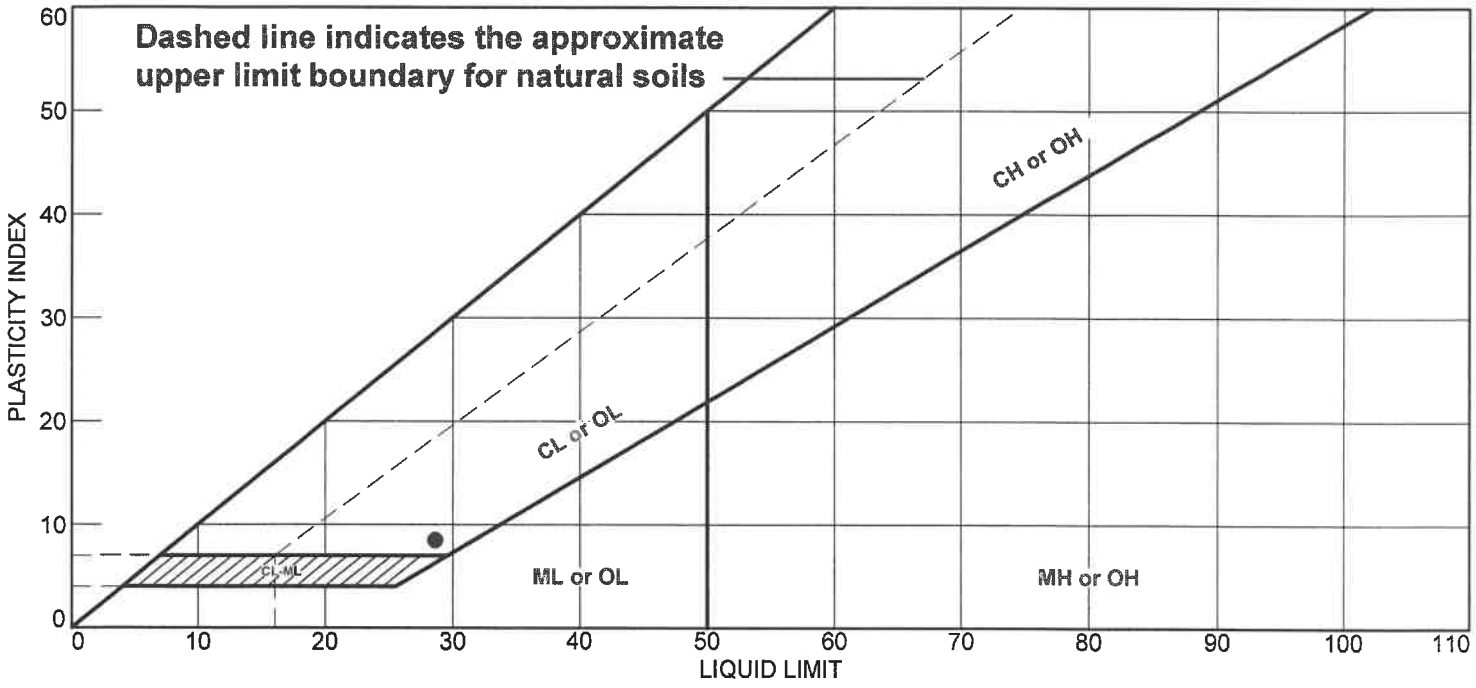
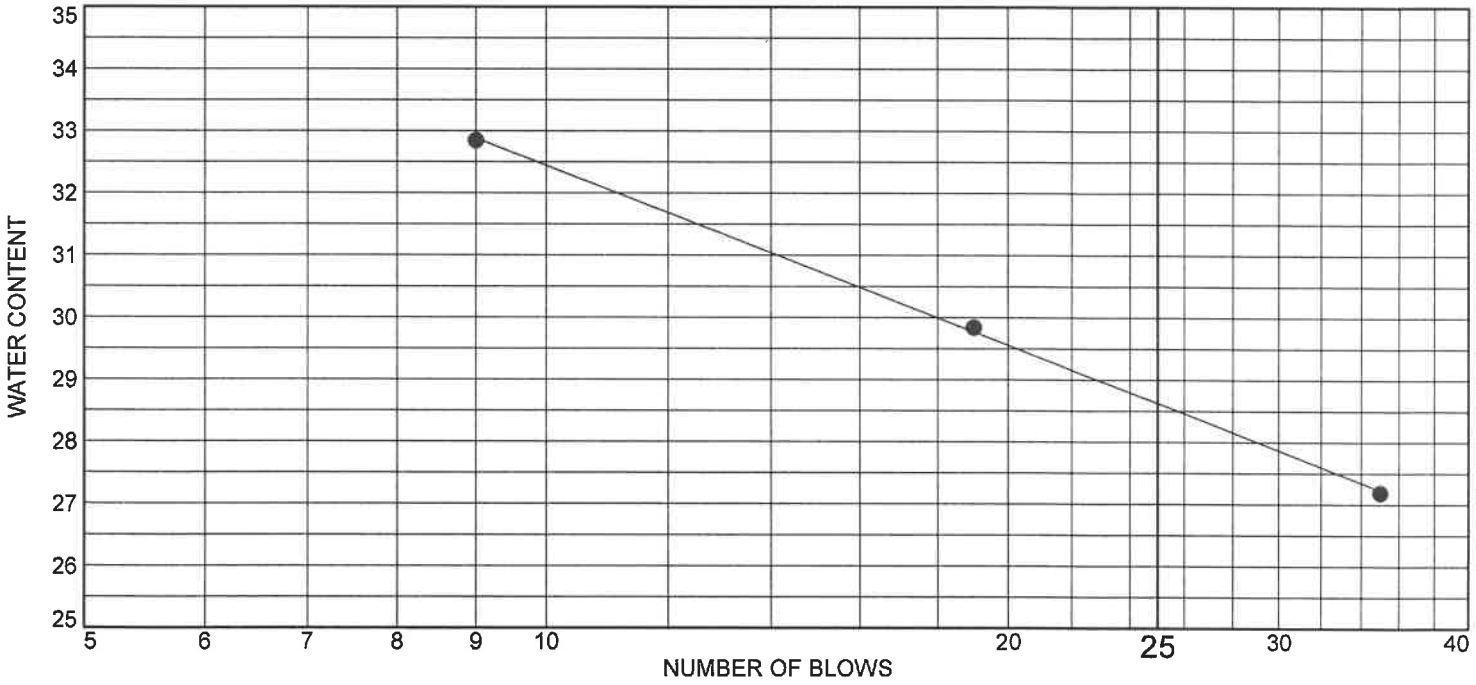
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=11.9

Figure 15 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.6	20.1	8.5			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-22B, S-2
Sample Number: S-16 **Depth:** 2'-4'

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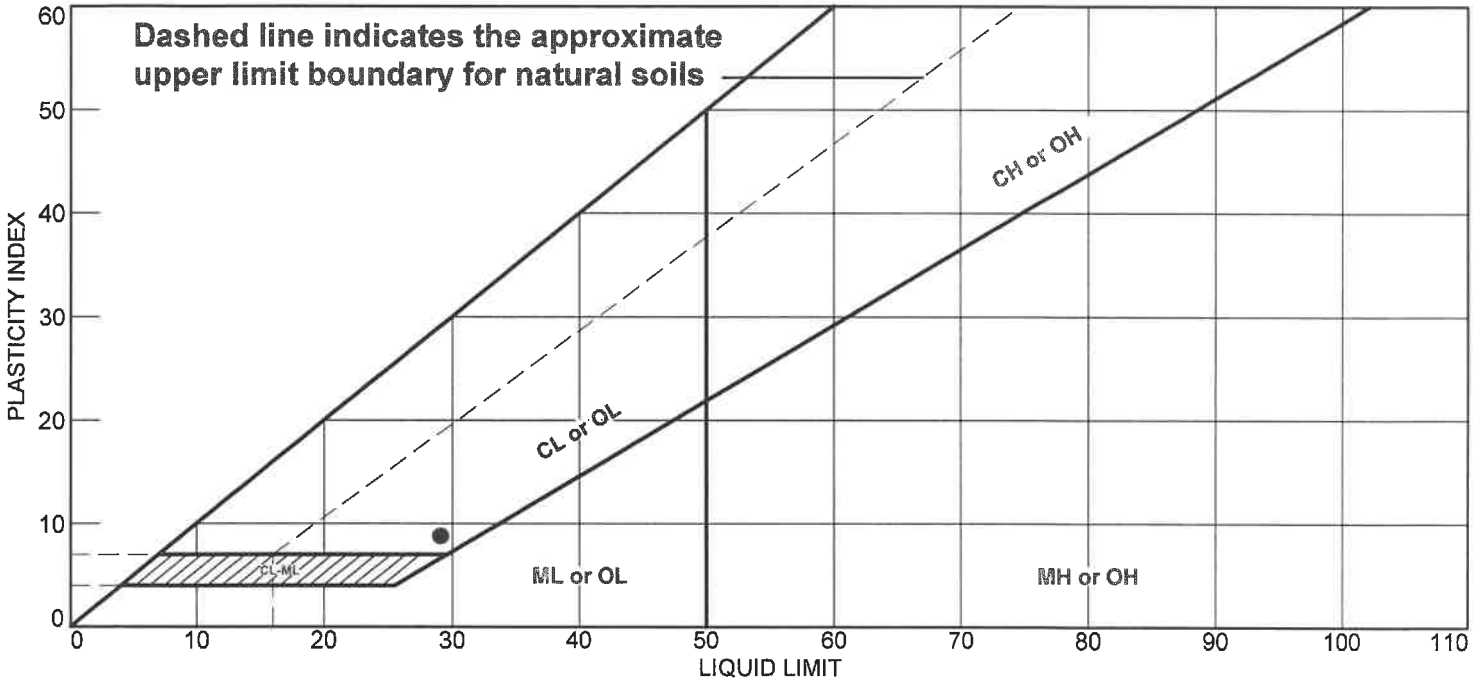
Remarks:
● In-Situ%MC=16.0

Figure 16 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.1	20.3	8.8			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-24, S-4
Sample Number: S-17 **Depth:** 6'-8'

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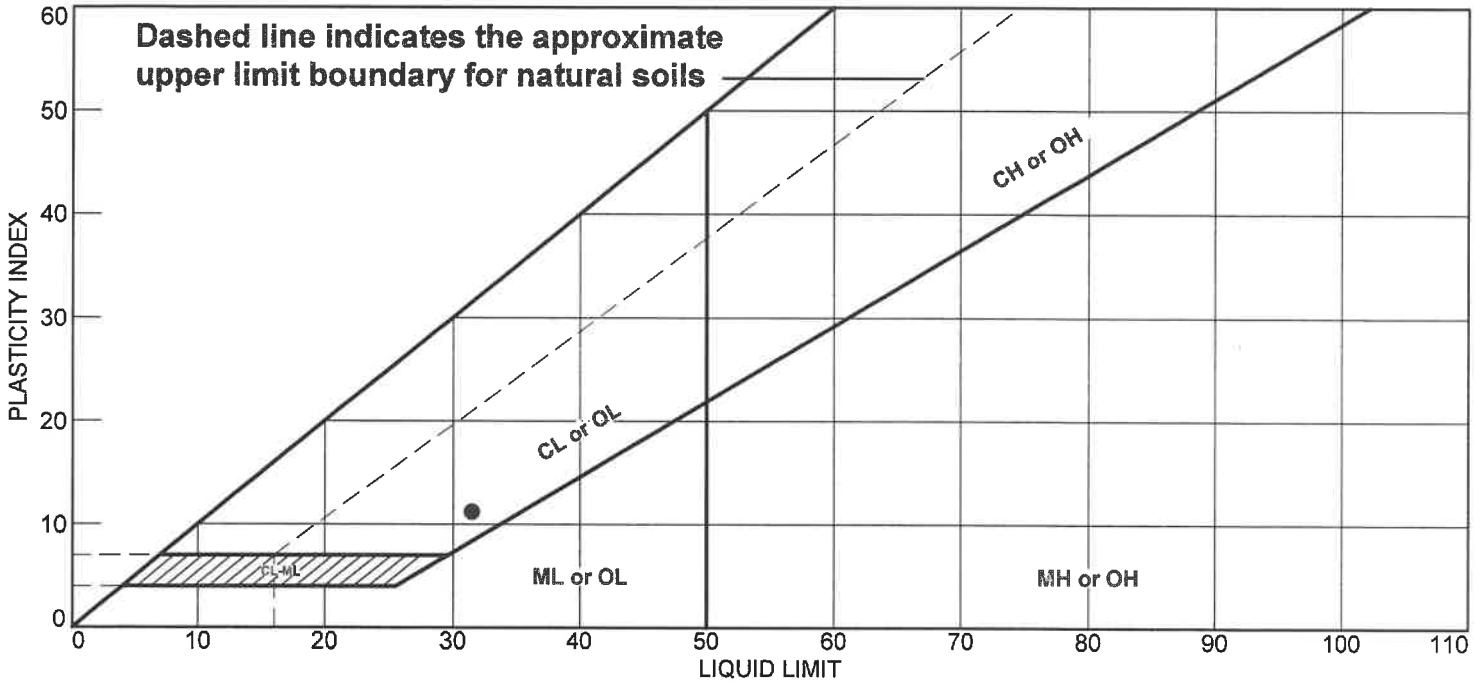
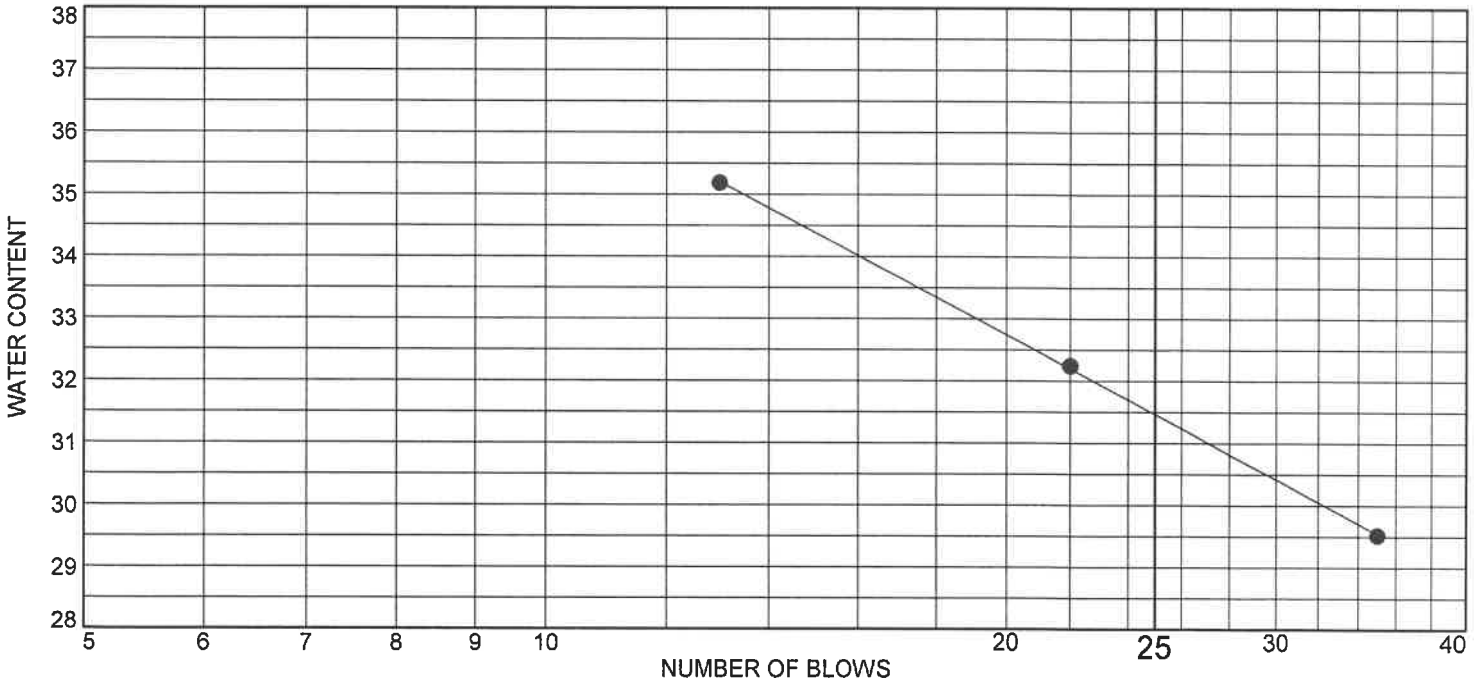
Remarks:
● In-Situ %MC=10.4

Figure 17 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		31.5	20.3	11.2			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-25, S-3
Sample Number: S-18 **Depth:** 4'-6'

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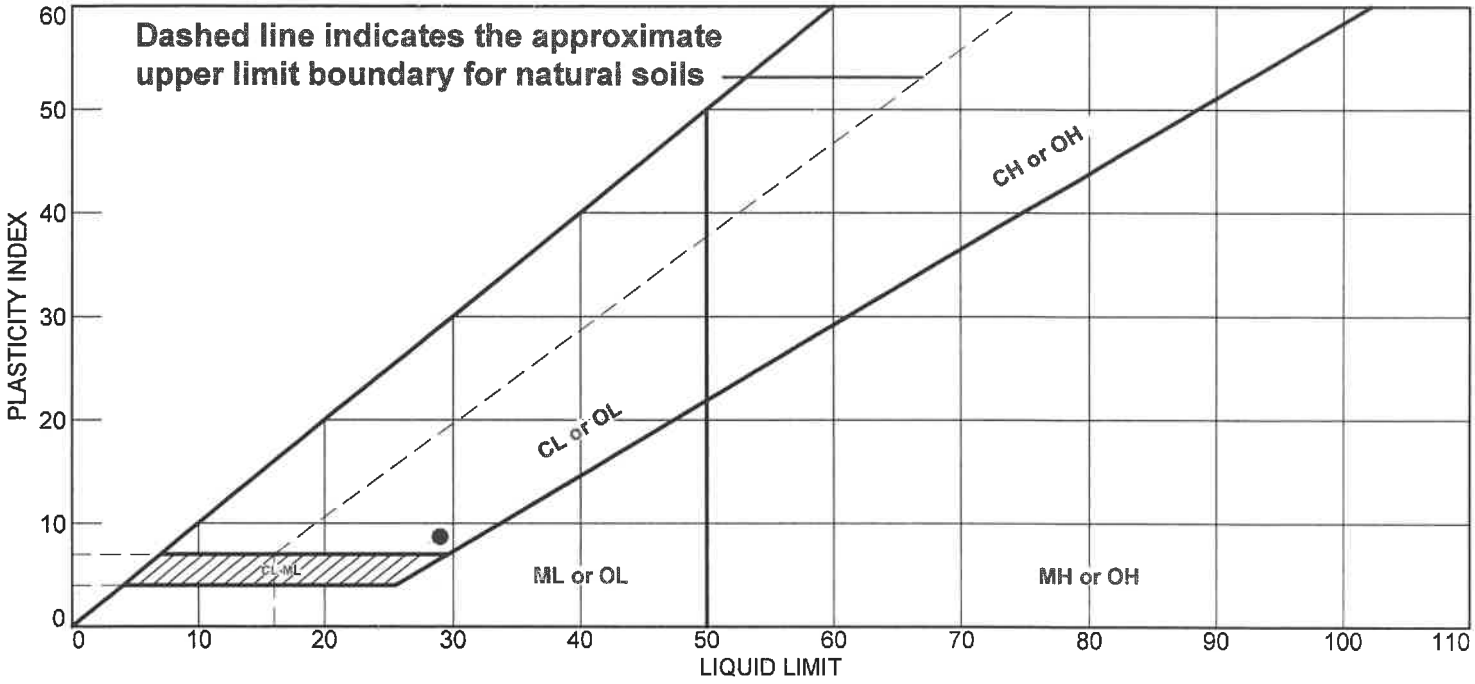
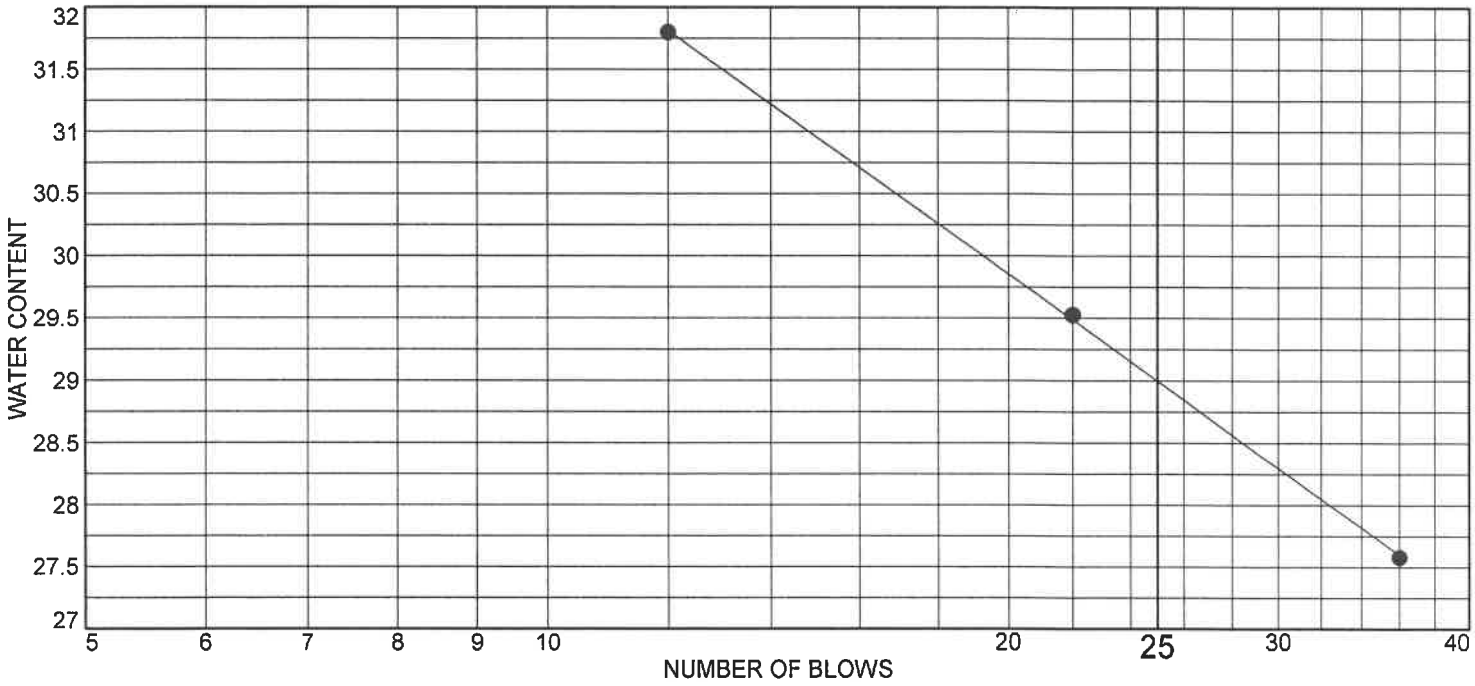
Remarks:
● I-Situ %Mc=16.1

Figure 18 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.0	20.3	8.7			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-27, S-2
Sample Number: S-19 **Depth:** 2'-4'

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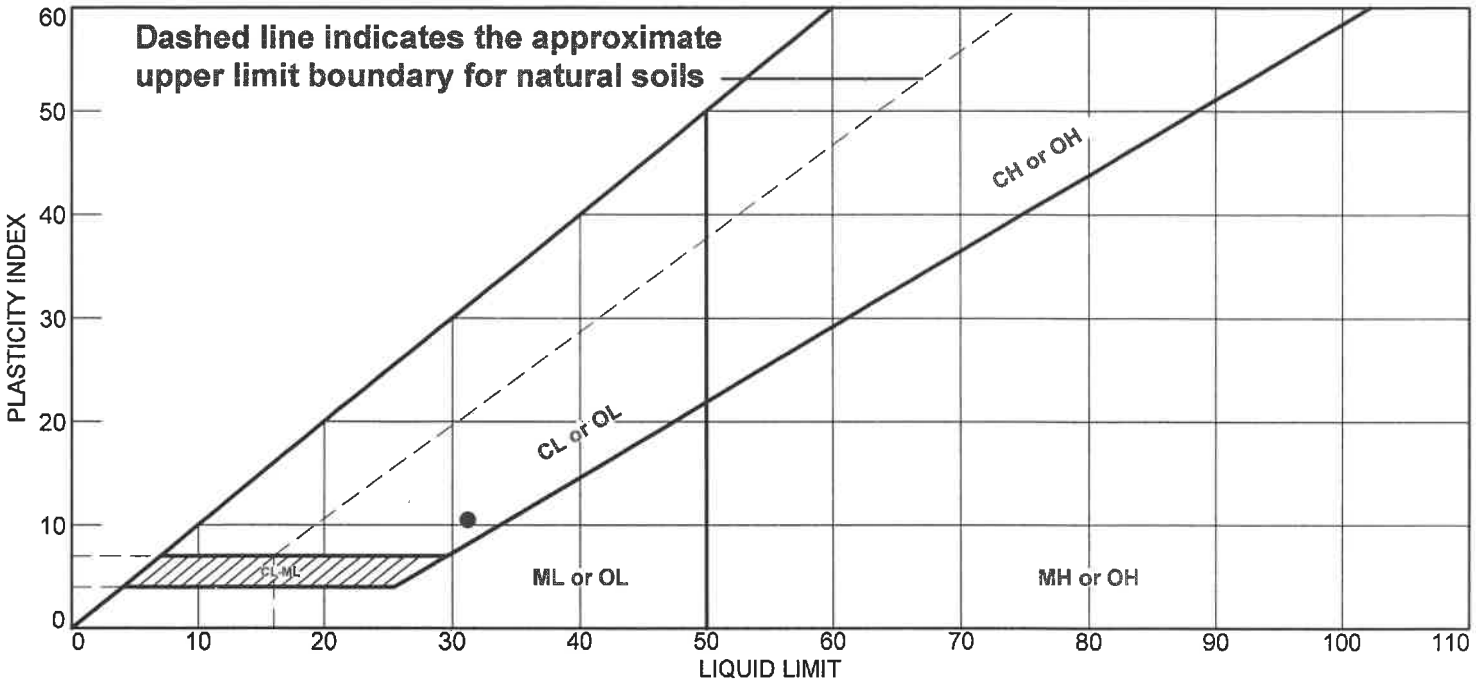
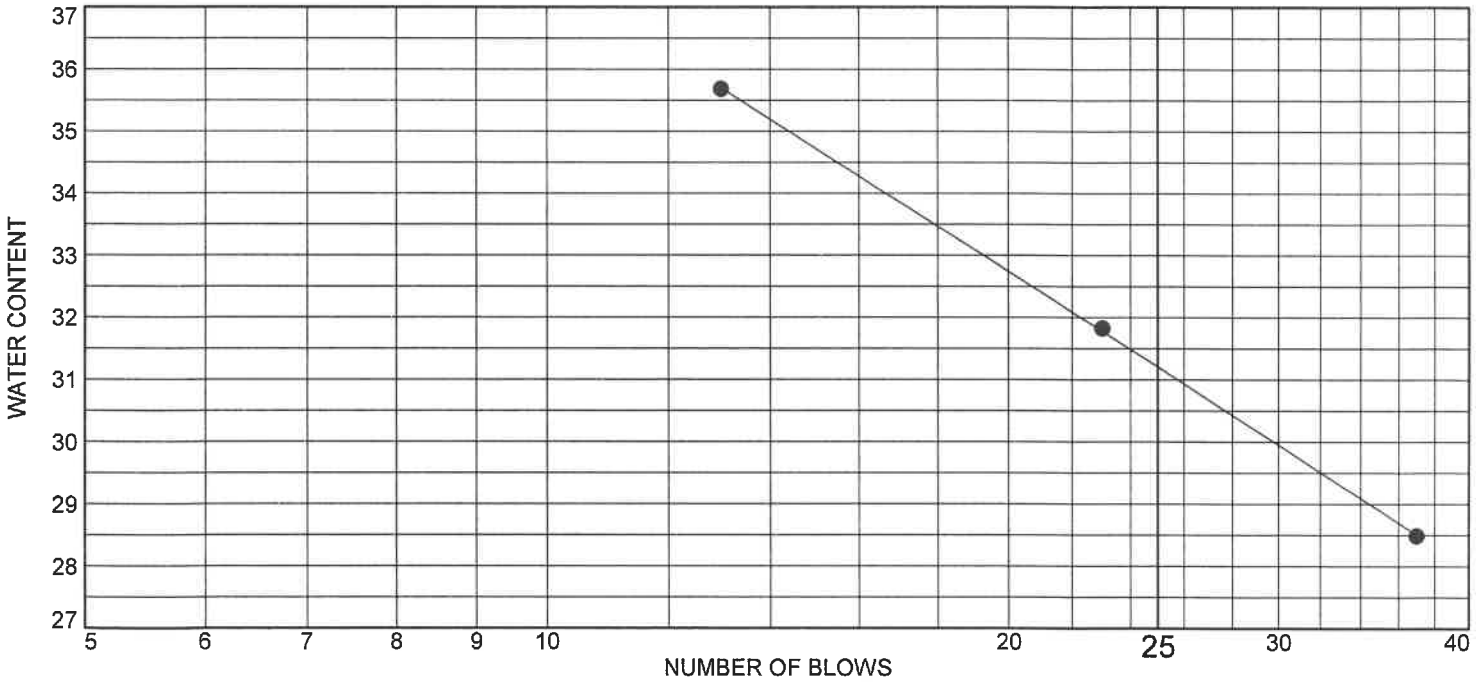
Remarks:
● In-Situ %MC=17.9

Figure 19 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		31.2	20.7	10.5			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-30, S-4
Sample Number: S-20 **Depth:** 6'-8'

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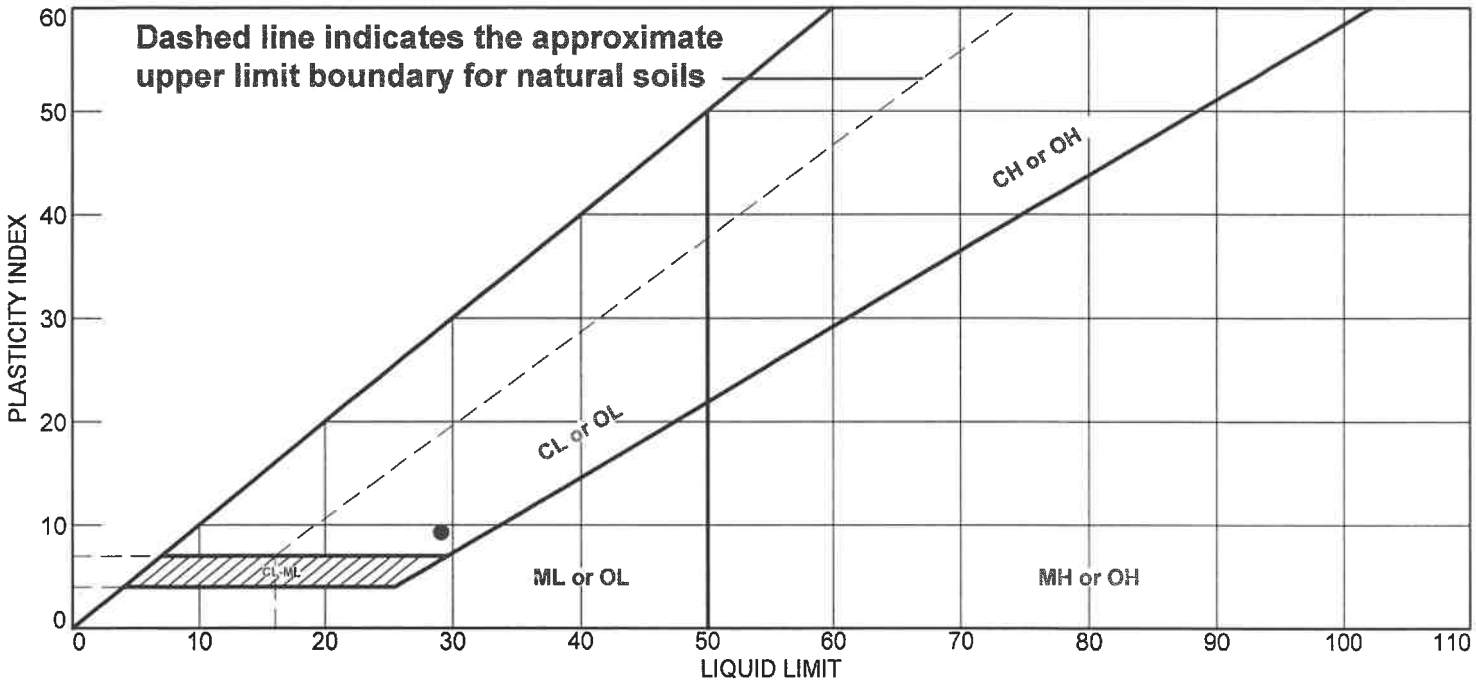
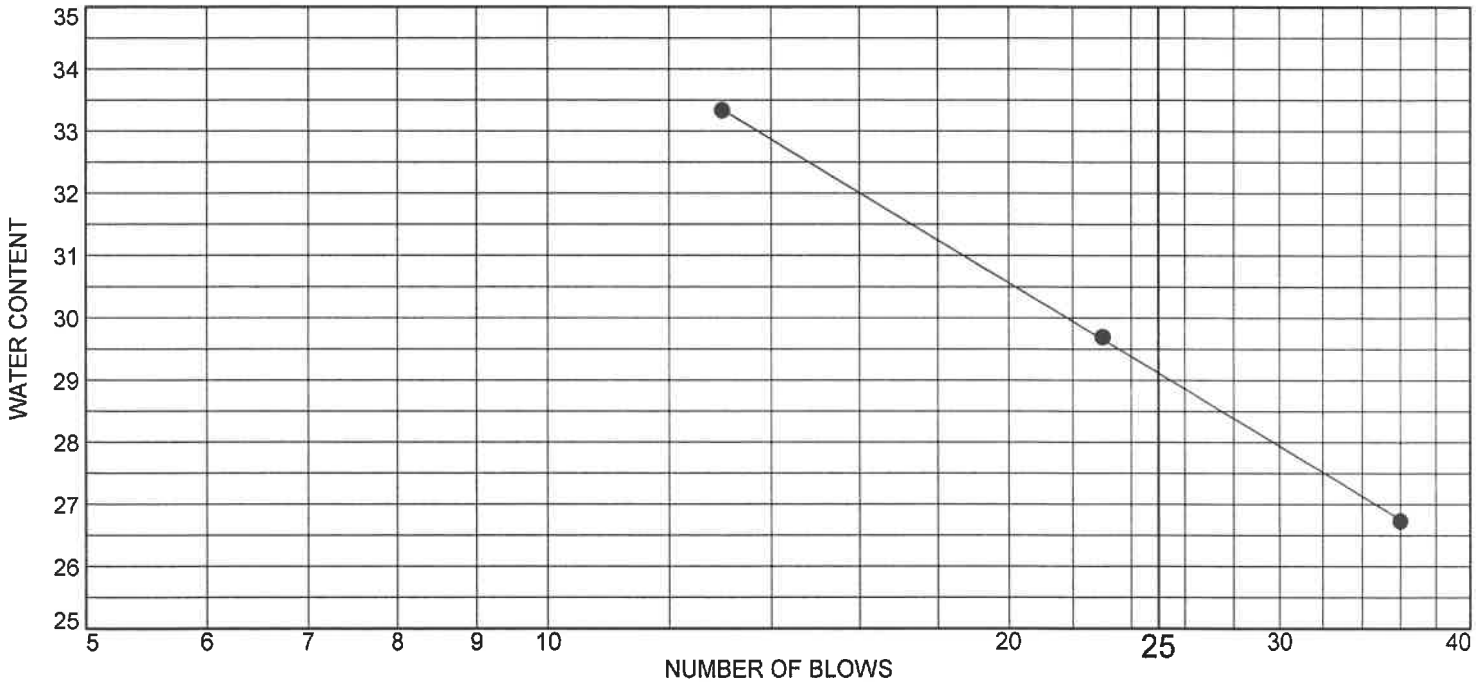
Remarks:
● In-Situ %MC=15.4

Figure 20 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		29.1	19.8	9.3			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-31, S-3
Sample Number: S-21 **Depth:** 4'-6'

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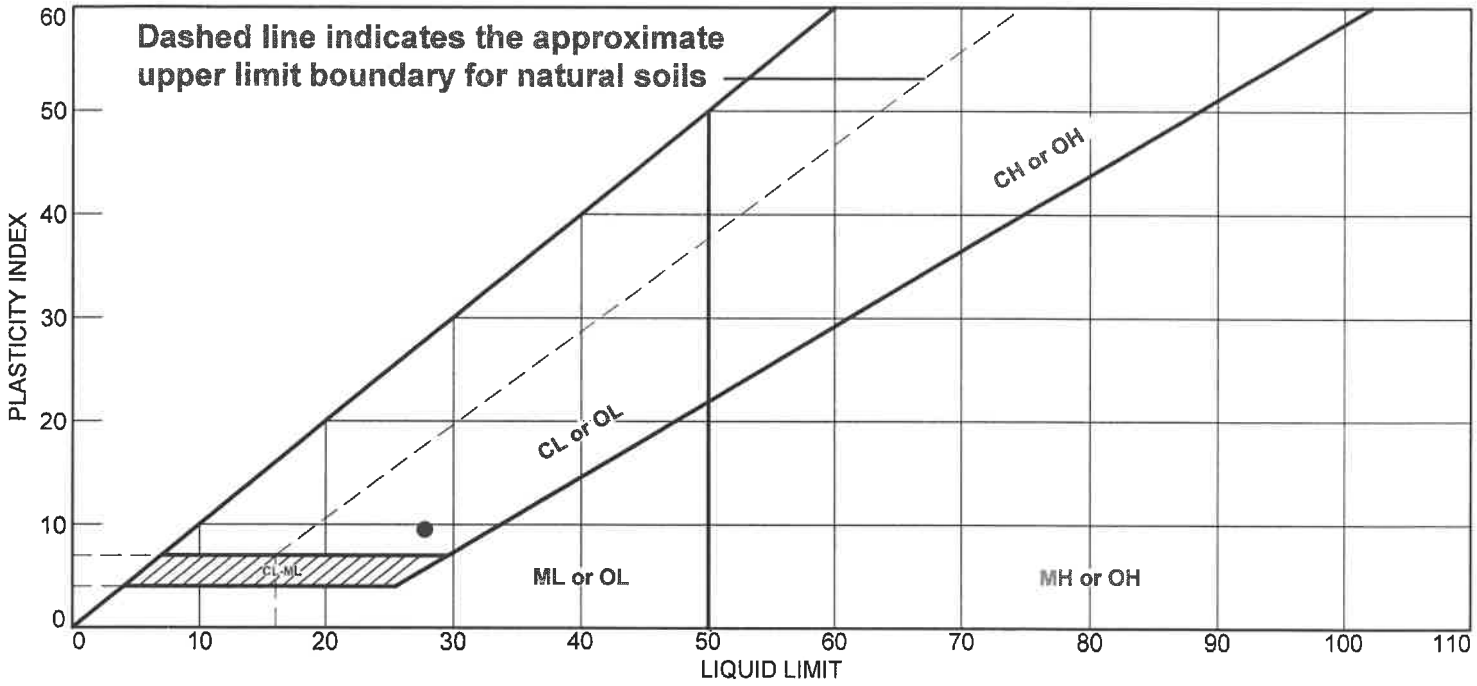
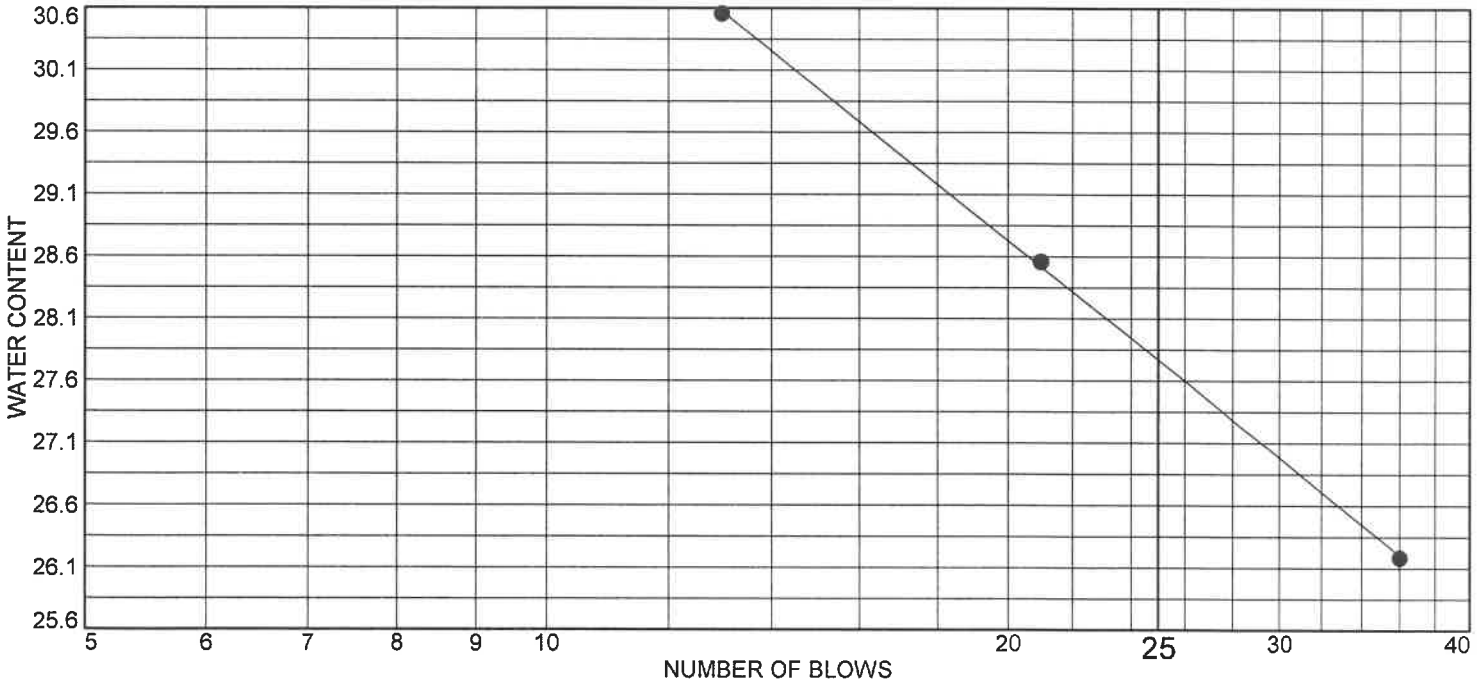
South Plainfield, New Jersey

Remarks:
● In-Situ %MC16.8

Figure 21 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		27.8	18.3	9.5			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-33, S-4
Sample Number: S-22 **Depth:** 6'-8'

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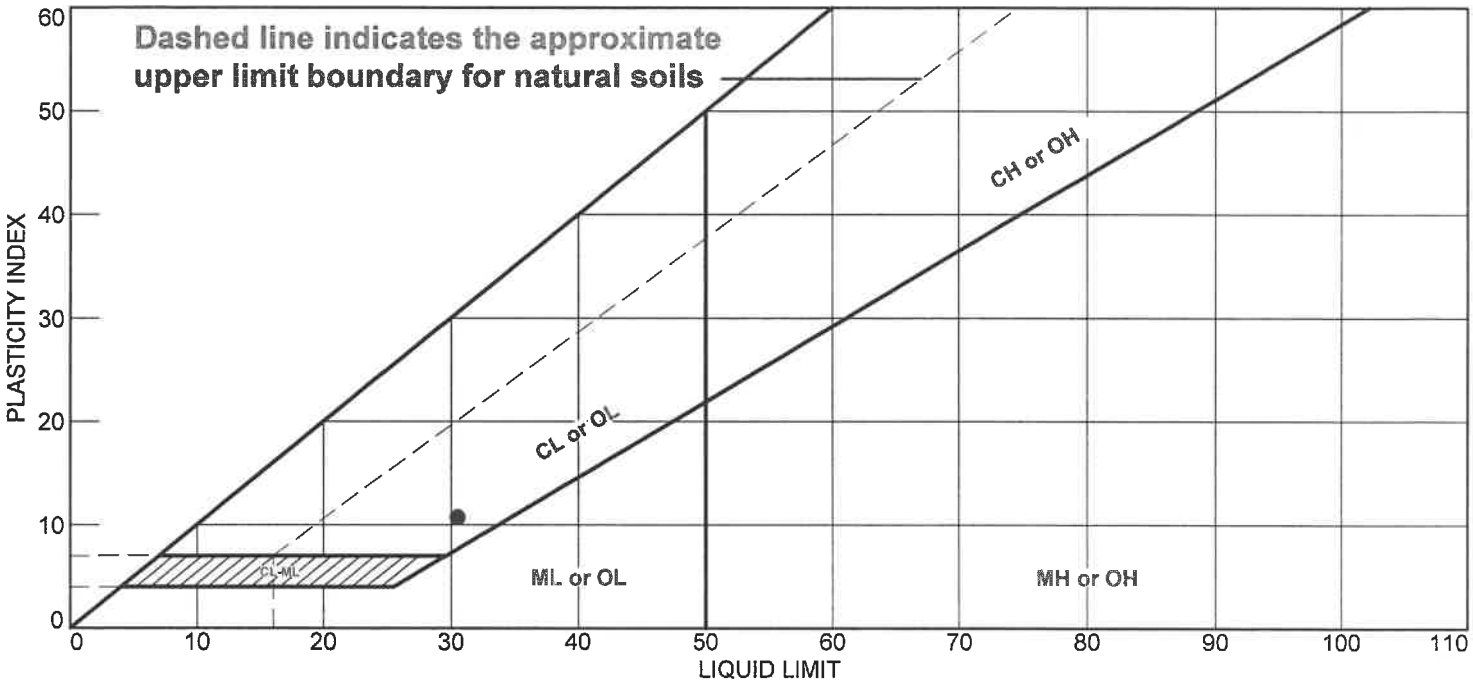
Remarks:
● In-Situ %MC=15.9

Figure 22 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		30.5	19.8	10.7			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-36, S-4
Sample Number: S-24 **Depth:** 6'-8'

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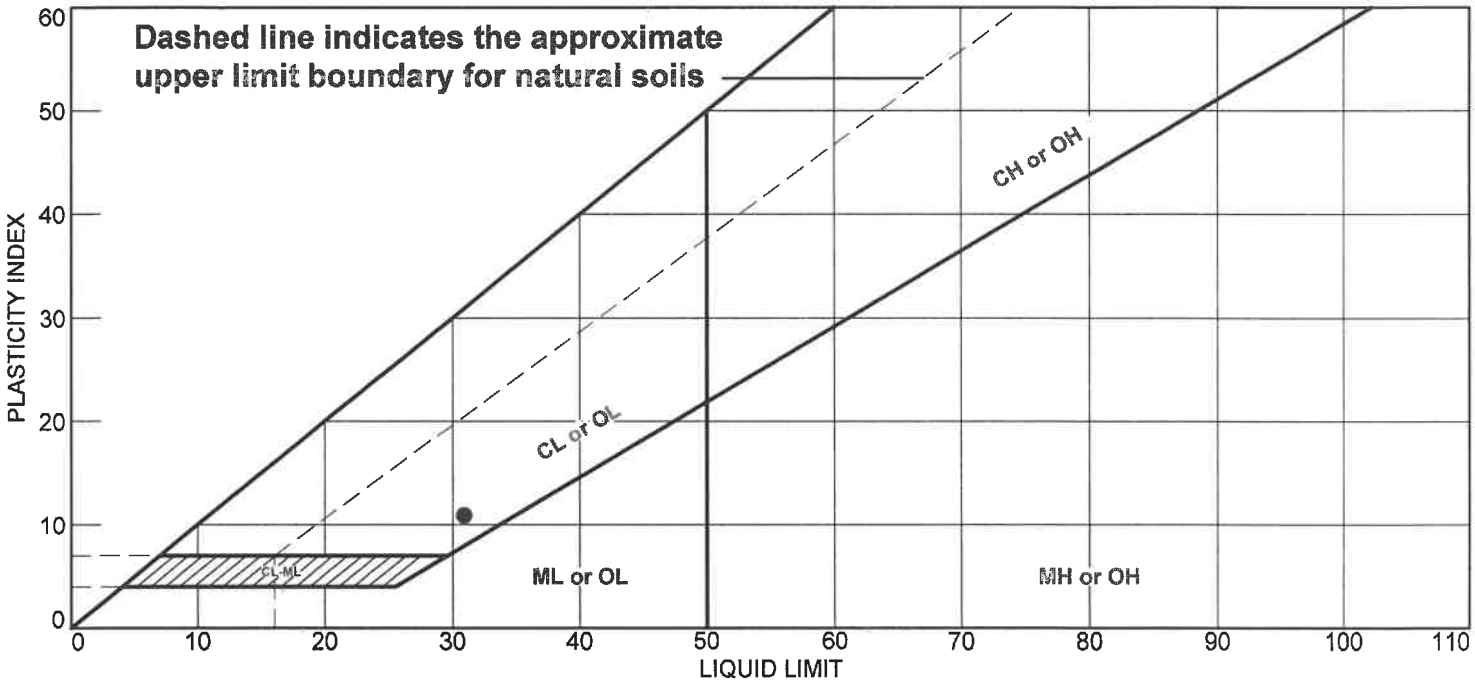
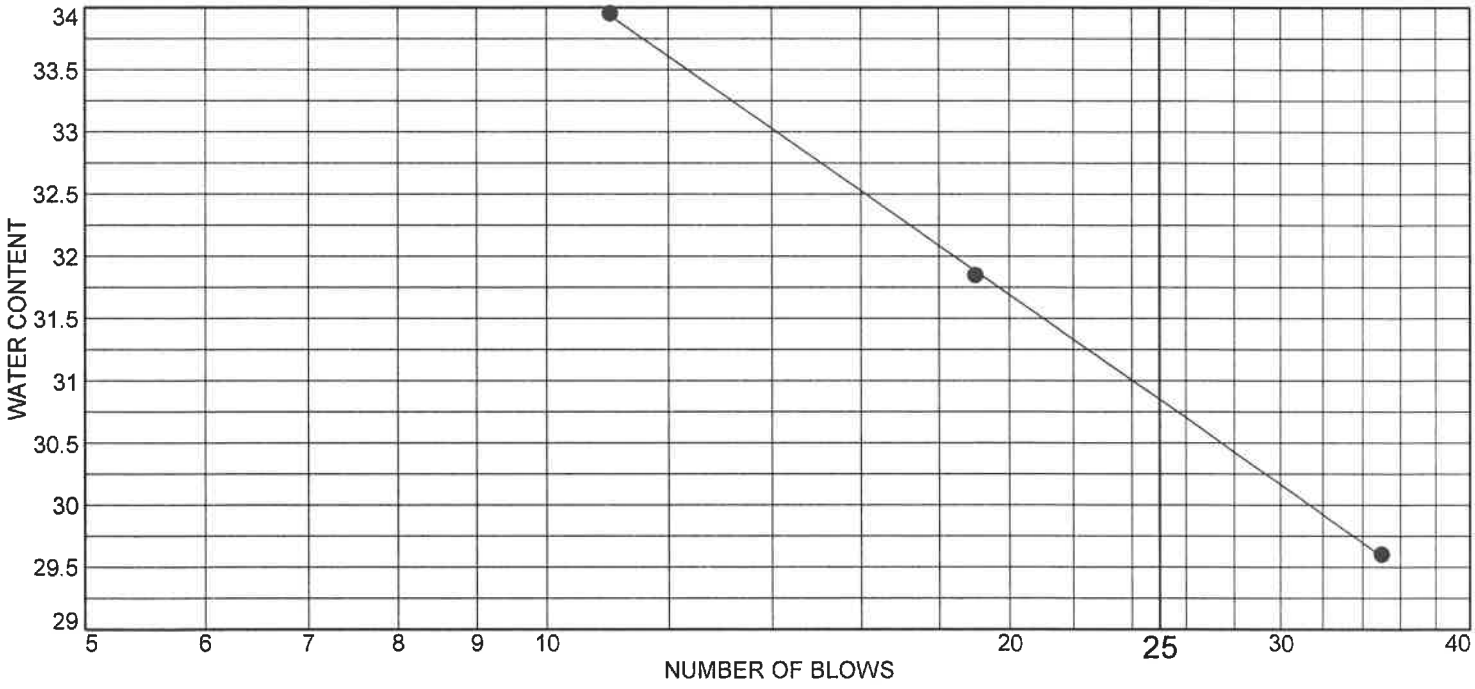
Remarks:
● In-Situ %MC=15.9

Figure 24 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		30.9	20.0	10.9			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-37, S-3
Sample Number: S-25 **Depth:** 4'-6'

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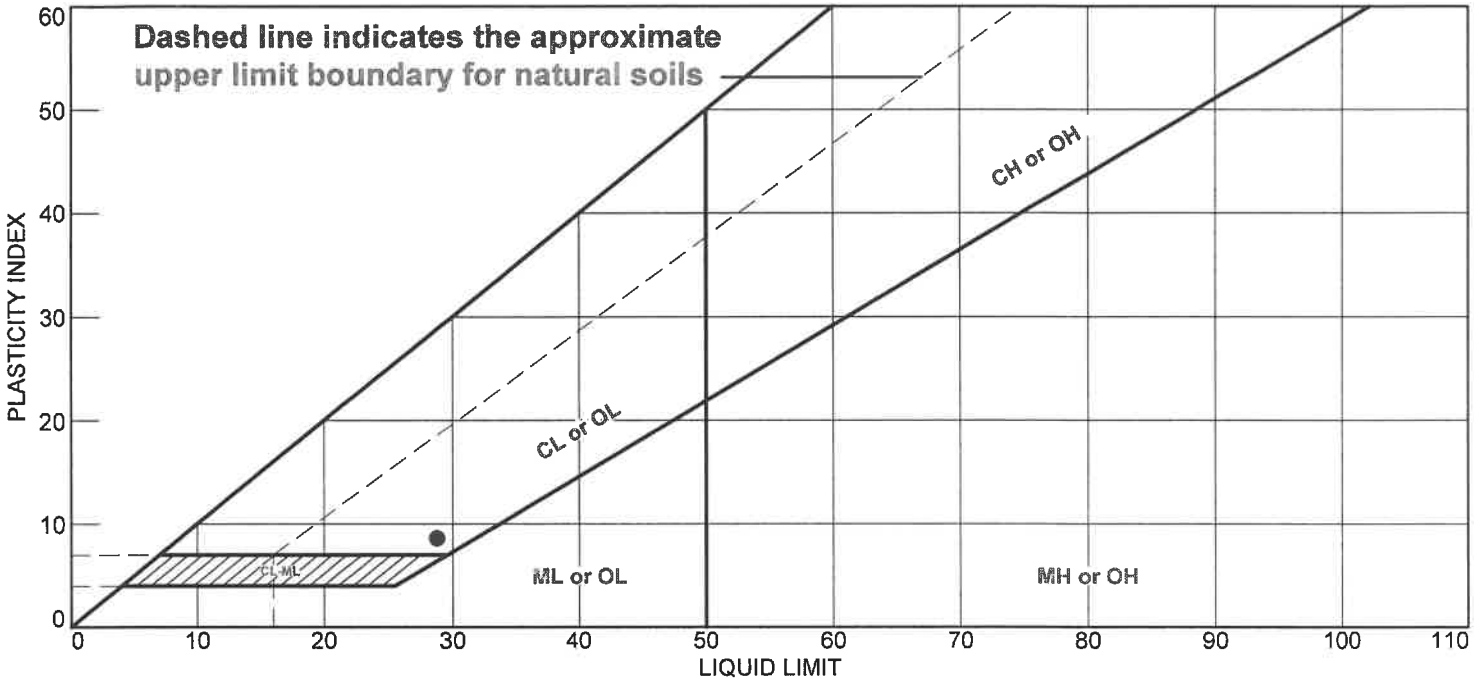
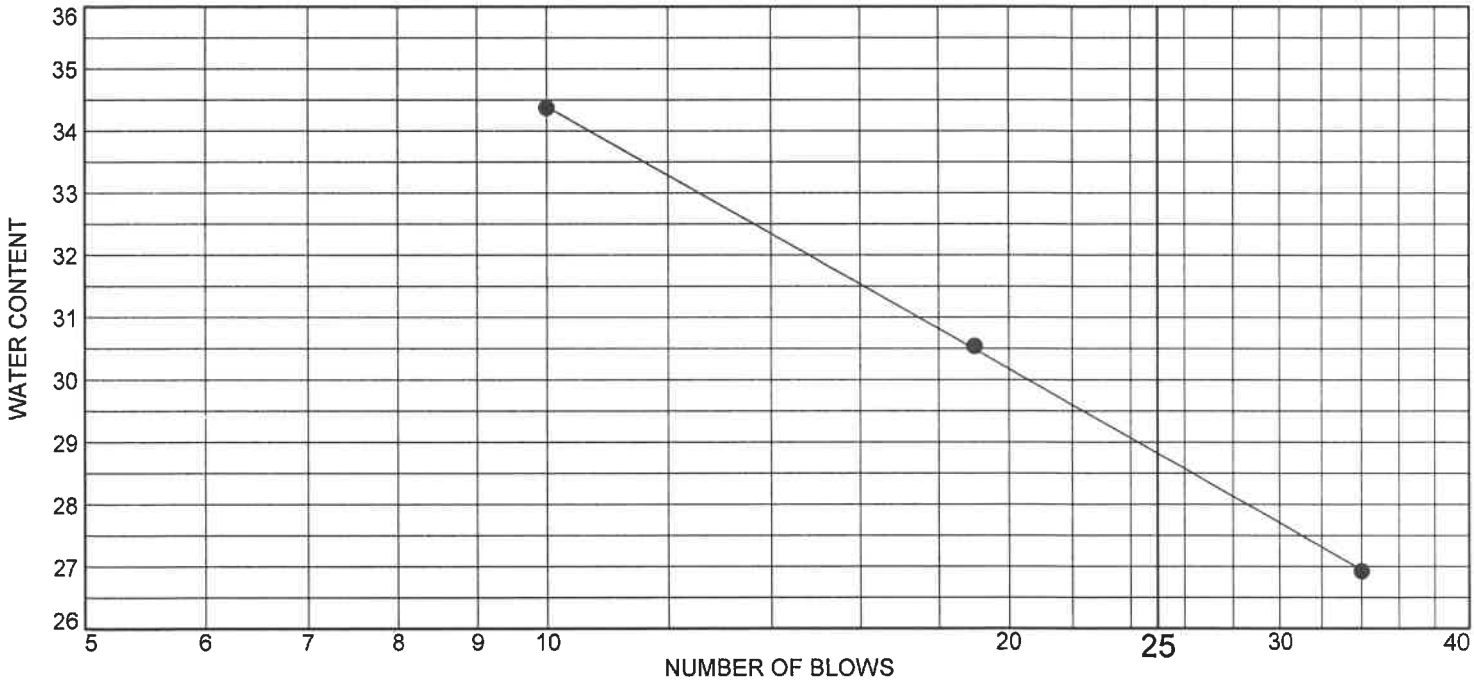
Remarks:
● In-Situ %MC=16.7

Figure 25 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.8	20.2	8.6			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-38, S-2
Sample Number: S-26 **Depth:** 2'-4'

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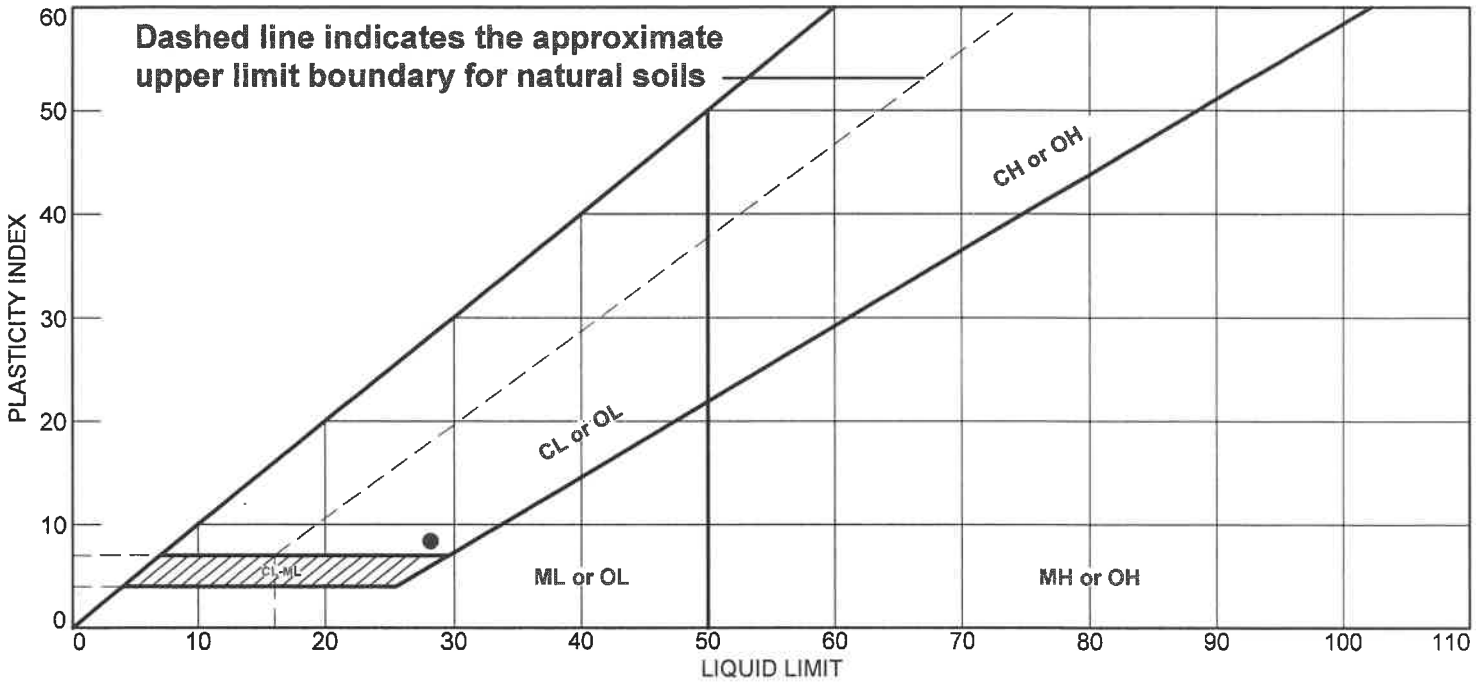
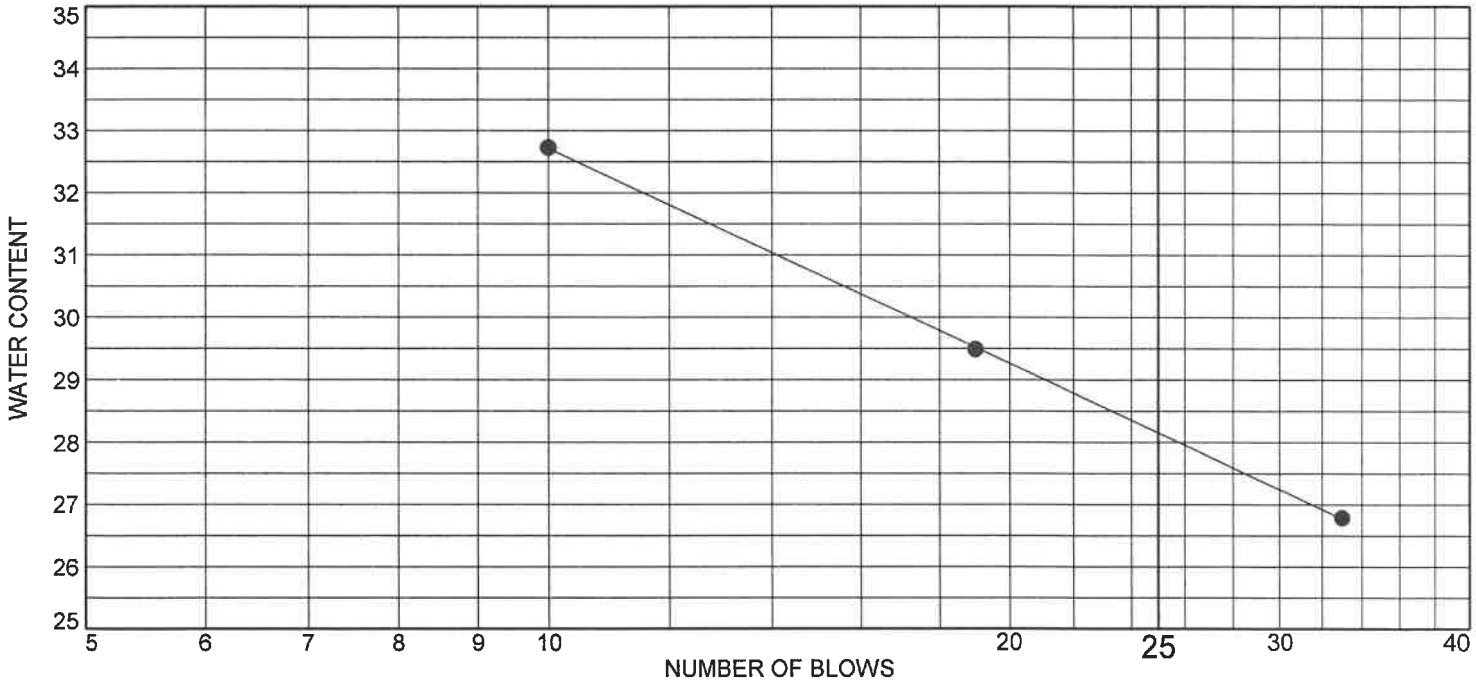
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=11.6

Figure 26 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		28.2	19.8	8.4			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-40, S-3
Sample Number: S-28 **Depth:** 4'-6'

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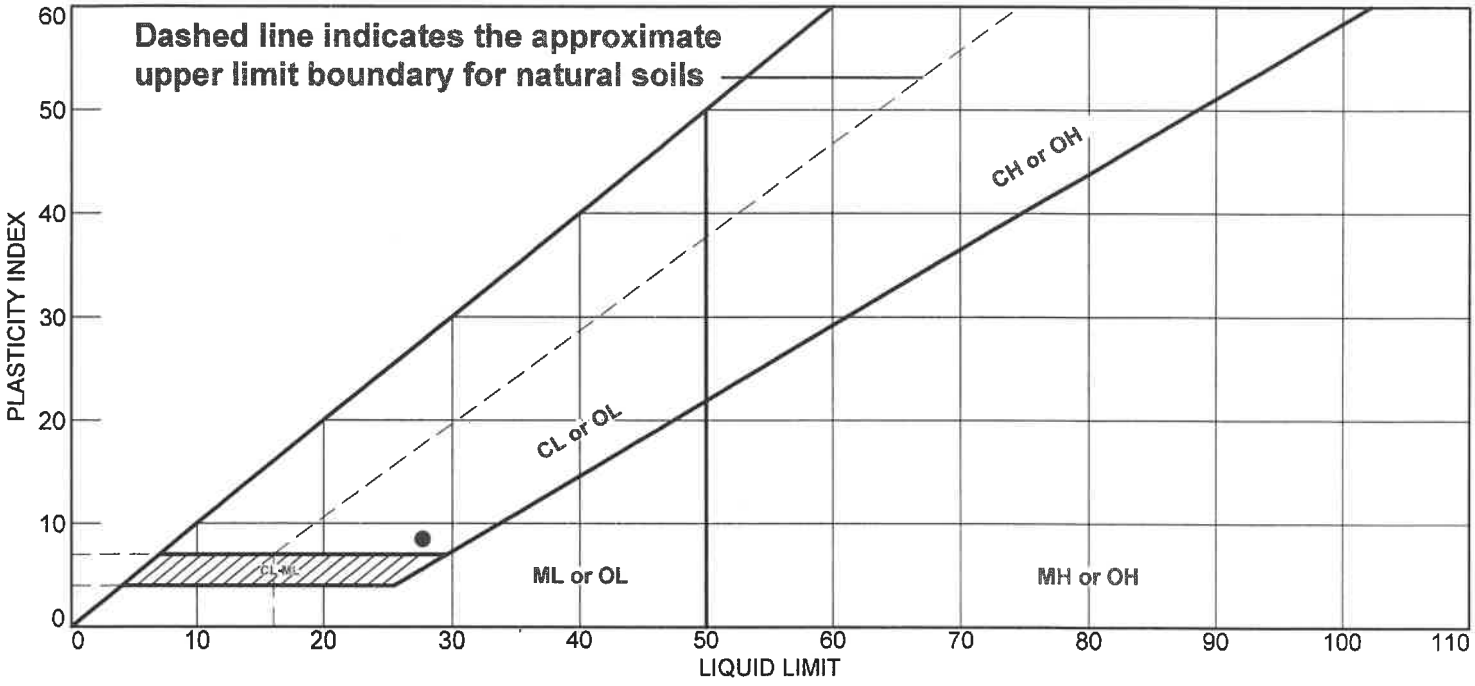
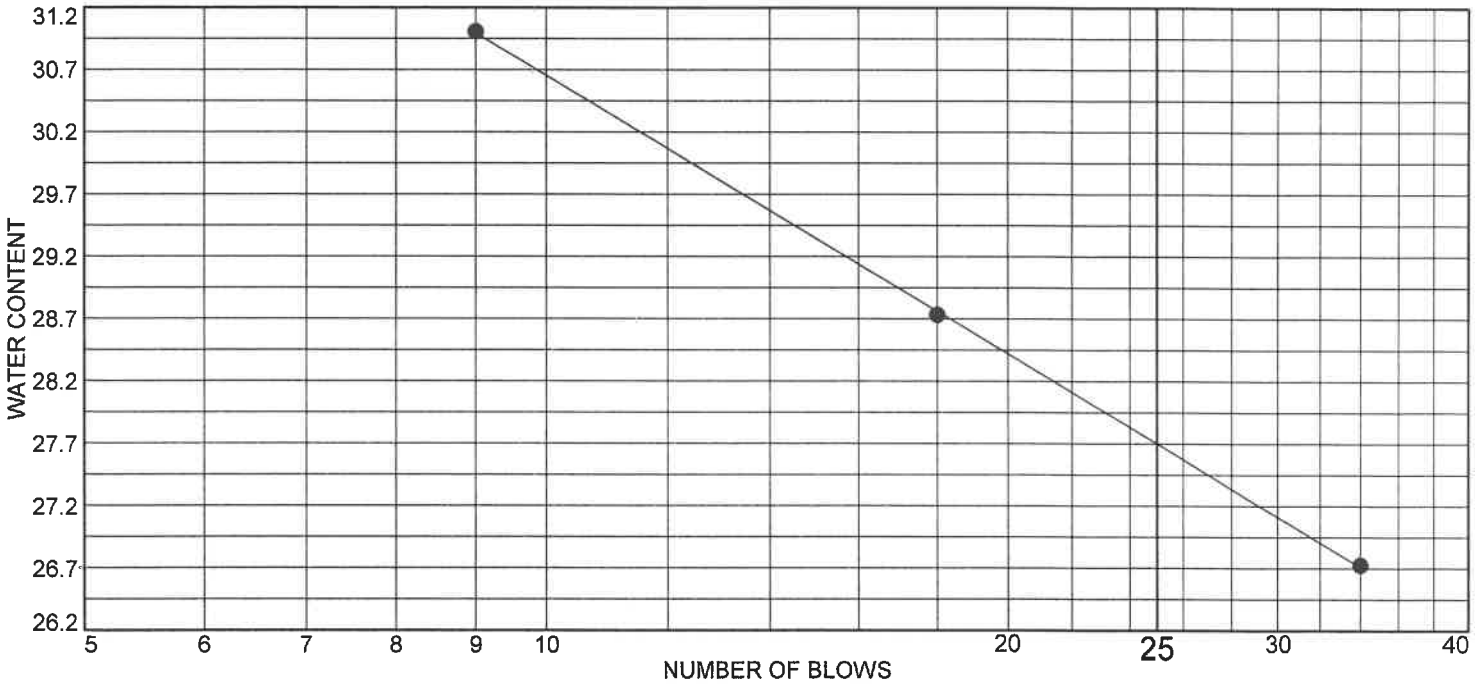
Remarks:
● In-Situ %MC=15.7

Figure 28 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		27.7	19.2	8.5			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-SS-1, S-4
Sample Number: S-31 **Depth:** 6'-8'

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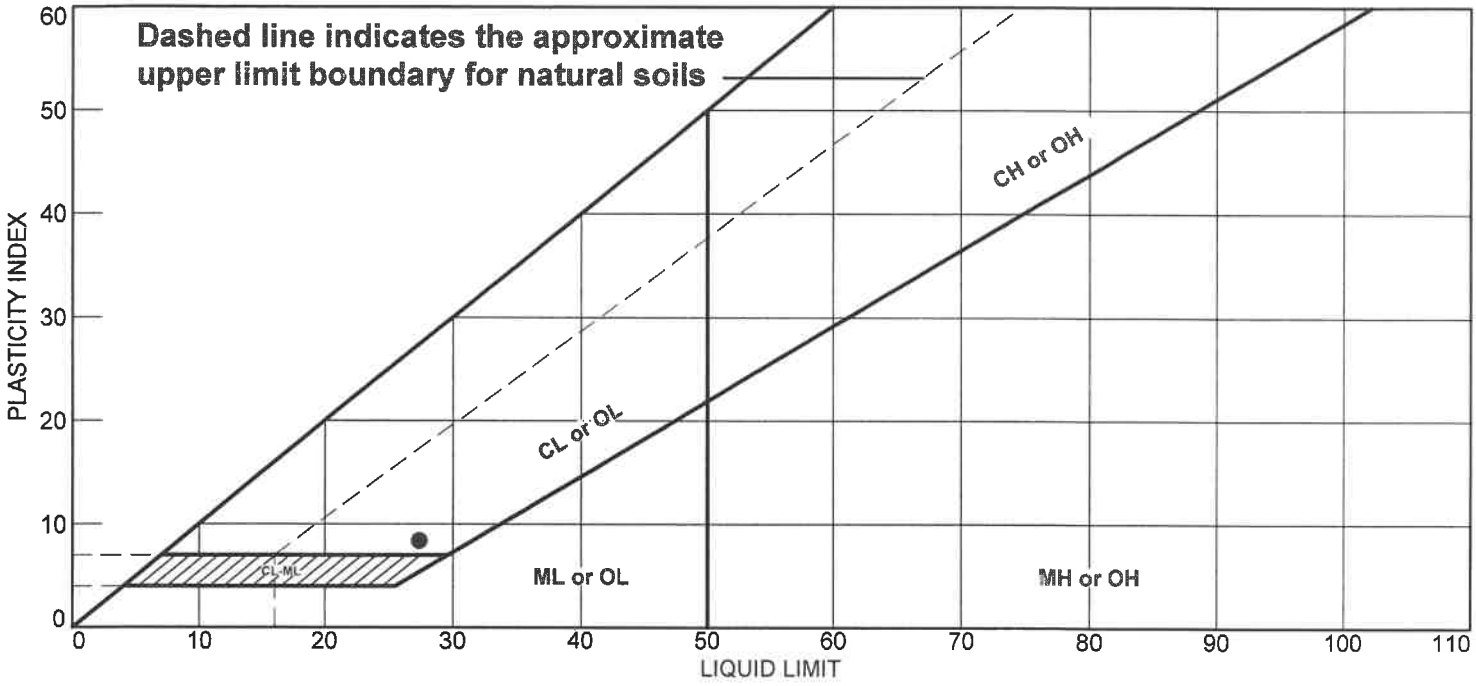
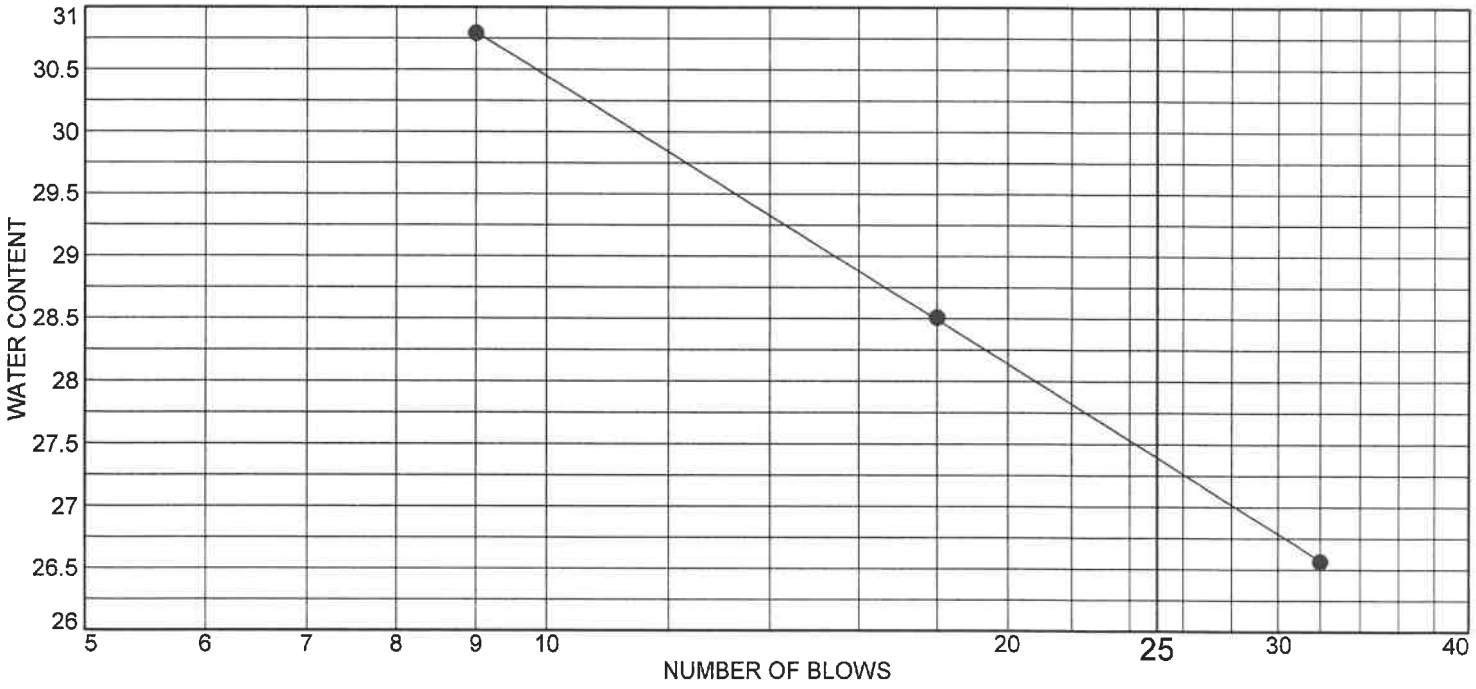
South Plainfield, New Jersey

Remarks:
● In-Situ %MC=12.9

Figure 31 F 3

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		27.4	19.0	8.4			

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

Project: Brookside Solar, Chateaugay, New York

Location: B-SS-2, S-3
Sample Number: S-32 **Depth:** 4'-6'

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Remarks:
● In-Situ %MC=13.8

Figure 32 F 3

THERMAL RESISTIVITY

RESULTS

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

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

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

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

DATE: 03/23/2021

FILE NO: AOT-5632

PROJECT: Brookside Solar
Chateaugay, New York

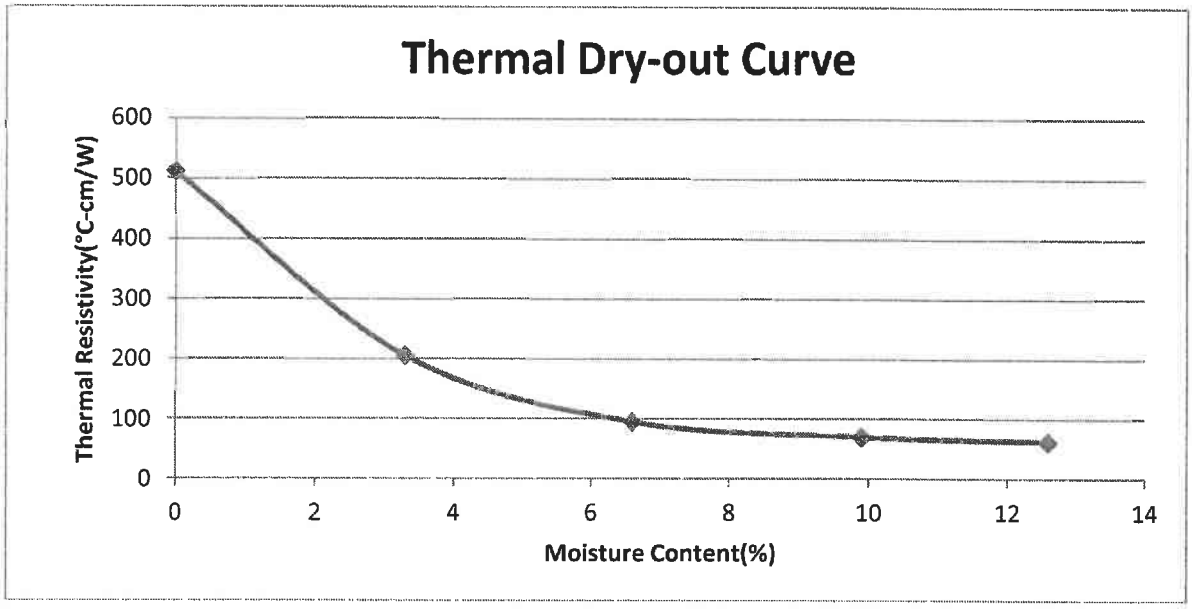
REPORT NO: S-33

Test Data- Sample No. S-33 (B-17, G-1, 3'- 5')

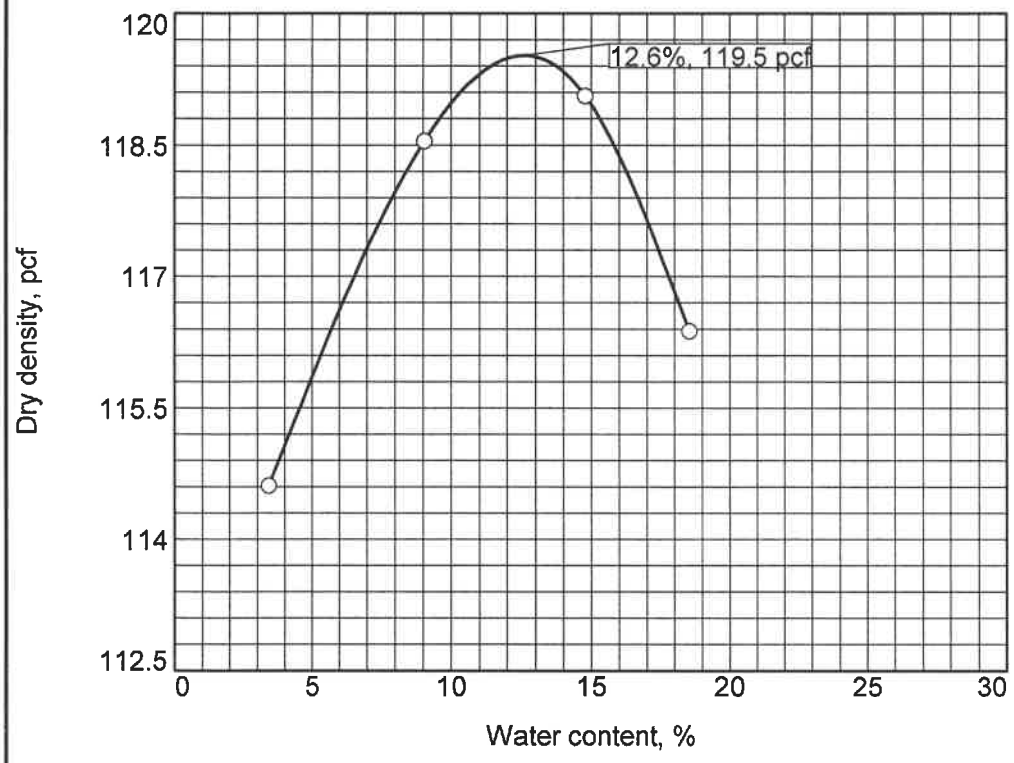
Standard Proctor Value: 119.5
Remolded Dry Density: 101.575 (85%)

Optimum Moisture Content: 12.6%
In-Situ Moisture Content: 16.0 %

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	27.8	512
3.3	27.5	205
6.6	27.3	95
9.9	27.1	70
12.6	27	62



COMPACTION TEST REPORT



Curve No.
S-33

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	13.38	13.73	13.98	14.02		
WM	9.43	9.43	9.43	9.43		
WW + T #1	691.8	801.4	969.1	749.9		
WD + T #1	668.9	734.9	844.3	632.7		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.4	9.0	14.8	18.5		
DRY DENSITY	114.6	118.5	119.1	116.4		

TEST RESULTS

Maximum dry density = 119.5 pcf

Optimum moisture = 12.6 %

Material Description

Remarks:

Project No. AOT-5632 **Client:** ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

○ **Location:** B-17, G-1, 3'-5' **Depth:** 3'-5' **Sample Number:** S-33

Checked by:
Title:

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Figure 33 F 2

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

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

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www.ANSConsultants.net

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

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

DATE: 03/23/2021

FILE NO: AOT-5632

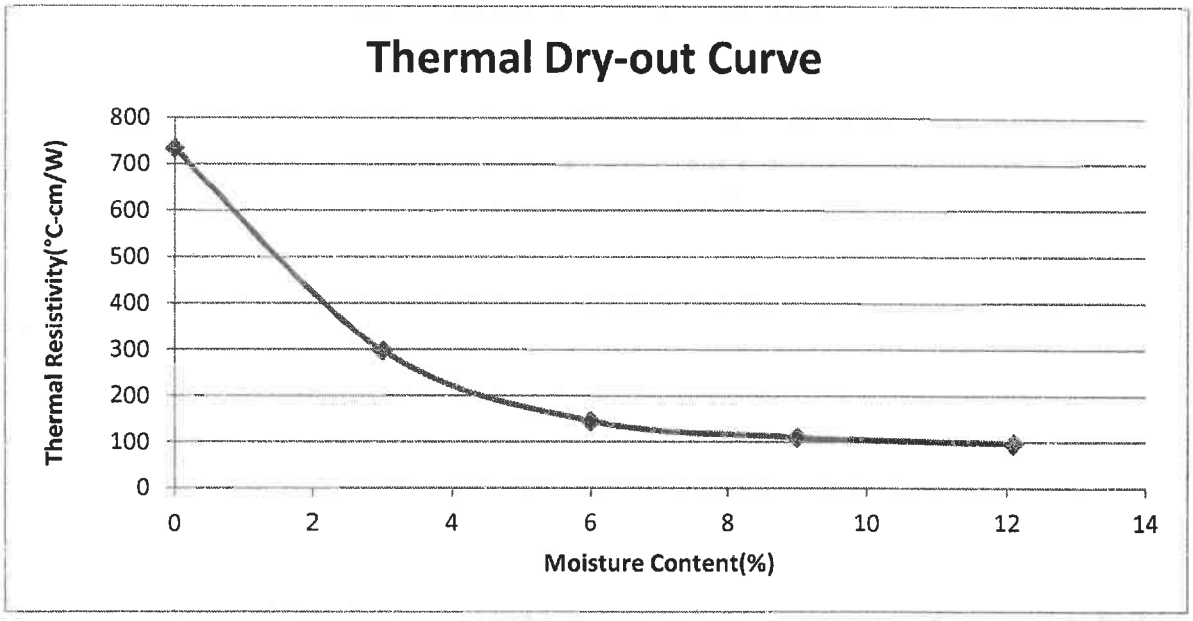
PROJECT: Brookside Solar
Chateaugay, New York

REPORT NO: S-35

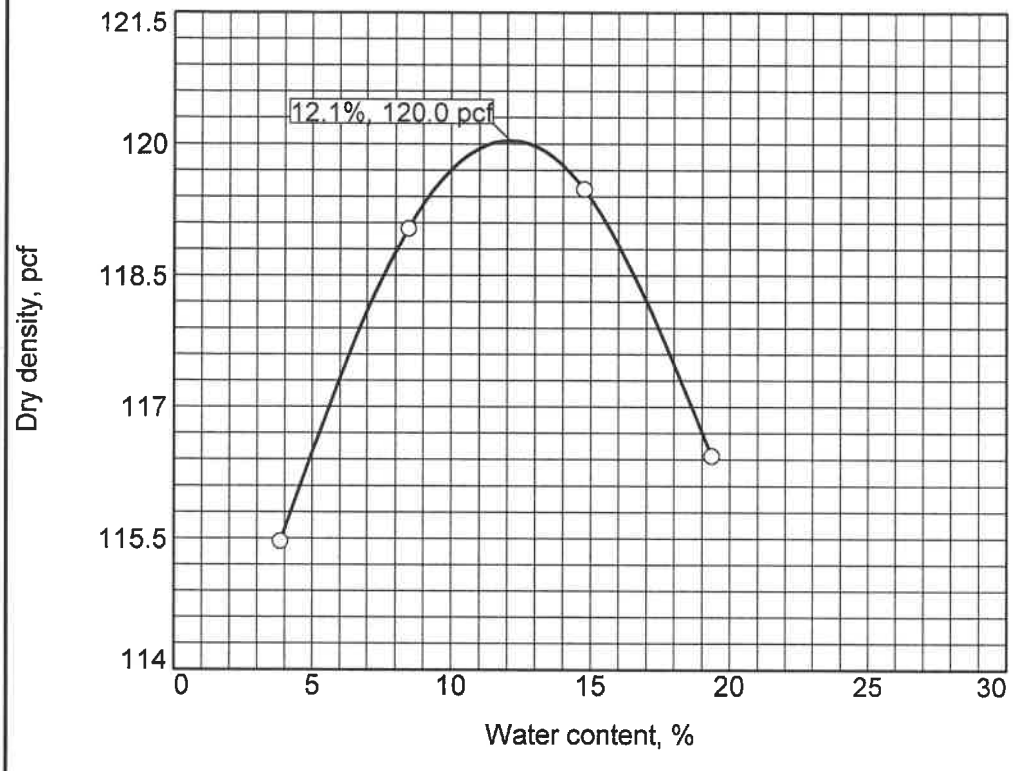
Test Data- Sample No. S-35 (B-22ab, G-1, 3'- 5')

Standard Proctor Value: 120.0
Remolded Dry Density: 102.0 (85%)
Optimum Moisture Content: 12.1%
In-Situ Moisture Content: 16.8 %

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	27.6	734
3	27.3	297
6	27	145
9	26.9	110
12.1	26.8	96



COMPACTION TEST REPORT



Curve No.
S-35

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	13.42	13.73	14.00	14.06		
WM	9.43	9.43	9.43	9.43		
WW + T #1	697.3	627.1	908.4	882.3		
WD + T #1	671.5	578.2	791.6	739.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.8	8.5	14.8	19.3		
DRY DENSITY	115.5	119.0	119.5	116.4		

TEST RESULTS

Maximum dry density = 120.0 pcf

Optimum moisture = 12.1 %

Material Description

Remarks:

Project No. AOT-5632 **Client:** ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

○ **Location:** B-22, G-1 **Depth:** 3'-5' **Sample Number:** S-35

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 35 F 2

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South Plainfield, NJ 07080

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

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

DATE: 03/23/2021

FILE NO: AOT-5632

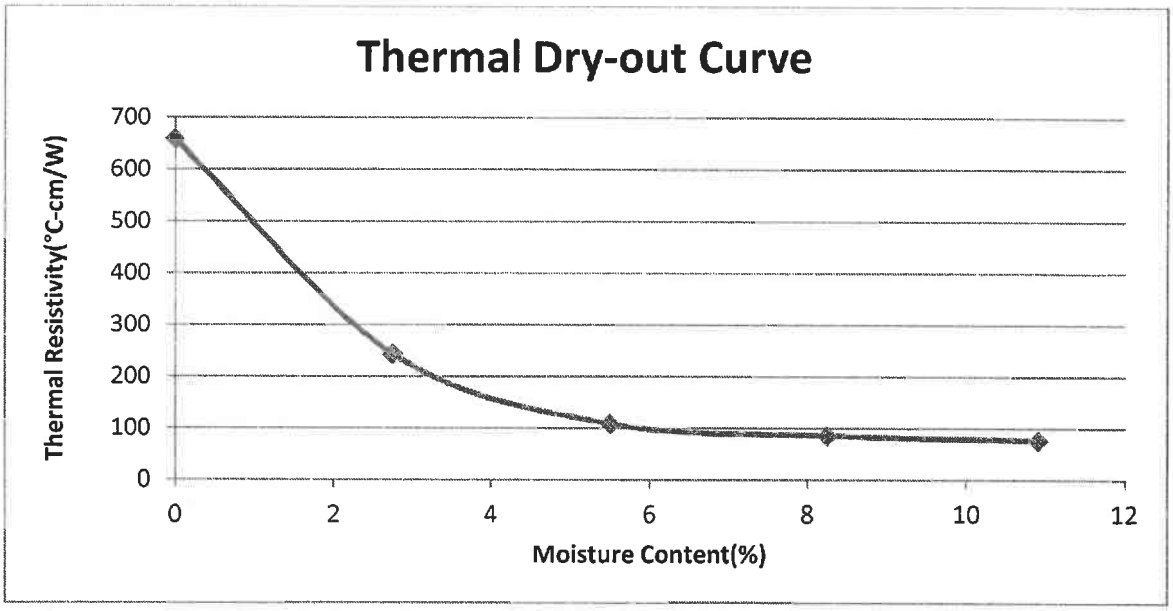
PROJECT: Brookside Solar
Chateaugay, New York

REPORT NO: S-37

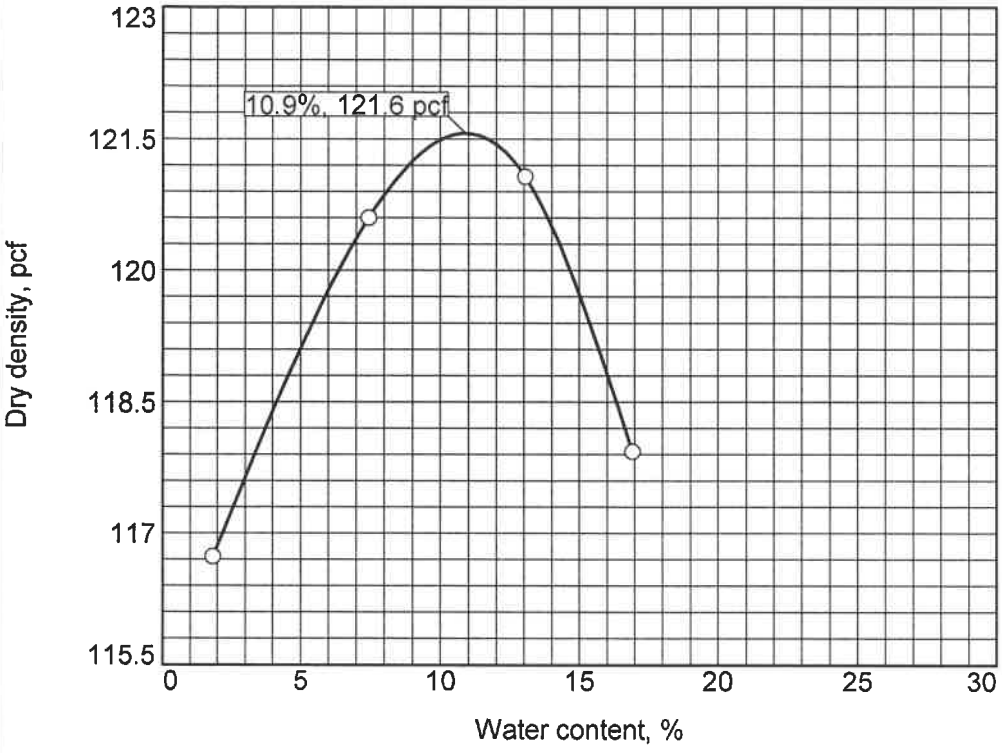
Test Data- Sample No. S-37 (B-SS-2, G-1, 3'- 5')

Standard Proctor Value: 121.9
Optimum Moisture Content: 10.9%
Remolded Dry Density: 103.615 (85%)
In-Situ Moisture Content: 13.5 %

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	27	658
2.75	26.7	243
5.5	26.4	108
8.25	26.2	85
10.9	26	76



COMPACTION TEST REPORT



Curve No.
S-37

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	22.66	23.47	24.01	24.09		
WM	13.75	13.75	13.75	13.75		
WW + T #1	720.1	680.9	671.8	818.7		
WD + T #1	707.1	633.7	594.3	700.2		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	1.8	7.4	13.0	16.9		
DRY DENSITY	116.7	120.6	121.1	117.9		

TEST RESULTS

Maximum dry density = 121.6 pcf

Optimum moisture = 10.9 %

Material Description

Remarks:

Project No. AOT-5632 **Client:** ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

○ **Location:** B-SS-2, G-1 **Depth:** 3'-5' **Sample Number:** S-37

Checked by:
Title:

ANS CONSULTANTS, INC.

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Figure 37 F 2

CORROSIVITY SUITE

RESULTS

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CERTIFICATE OF TEST - CORROSION ANALYSIS

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

DATE: 03/26/2021

FILE NO: AOT-5632

PROJECT: Brookside Solar
Chateaugay, NY

REPORT NO: S-38 to S-42

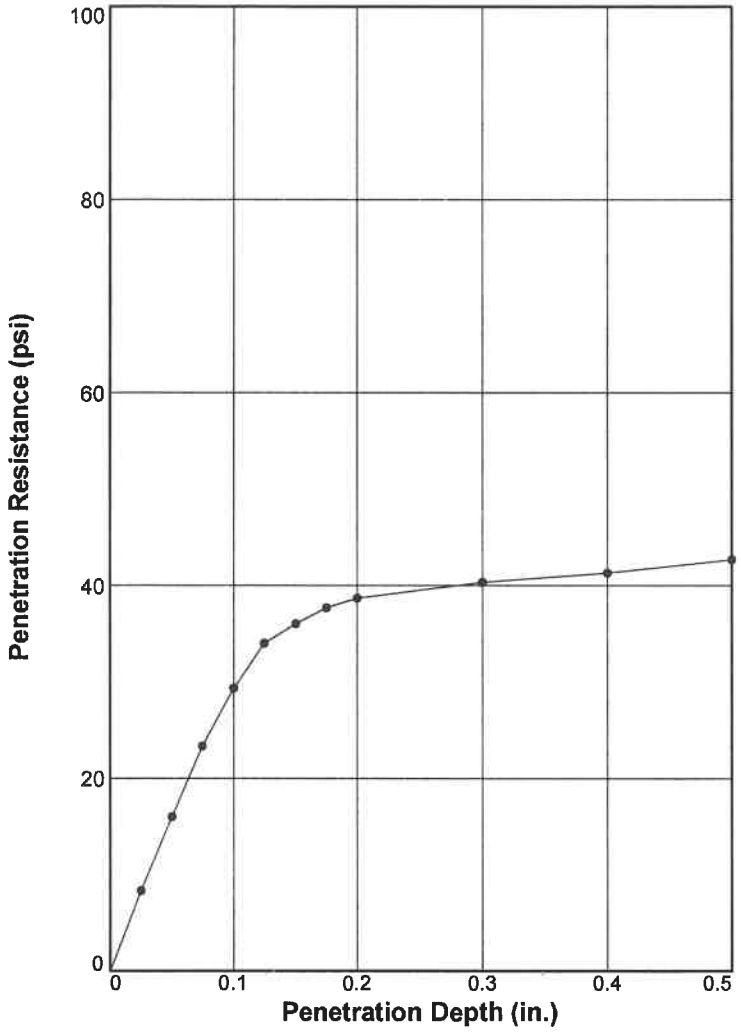
TEST PERFORMED:
1) Standard Test Method for Water Soluble Sulfate in Soil AS PER ASTM C-1580
2) Standard Test Method for measuring pH of Soil for use in Corrosion Testing AS PER ASTM G51-18
3) Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil AS PER ASTM G-200
4) Standard 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

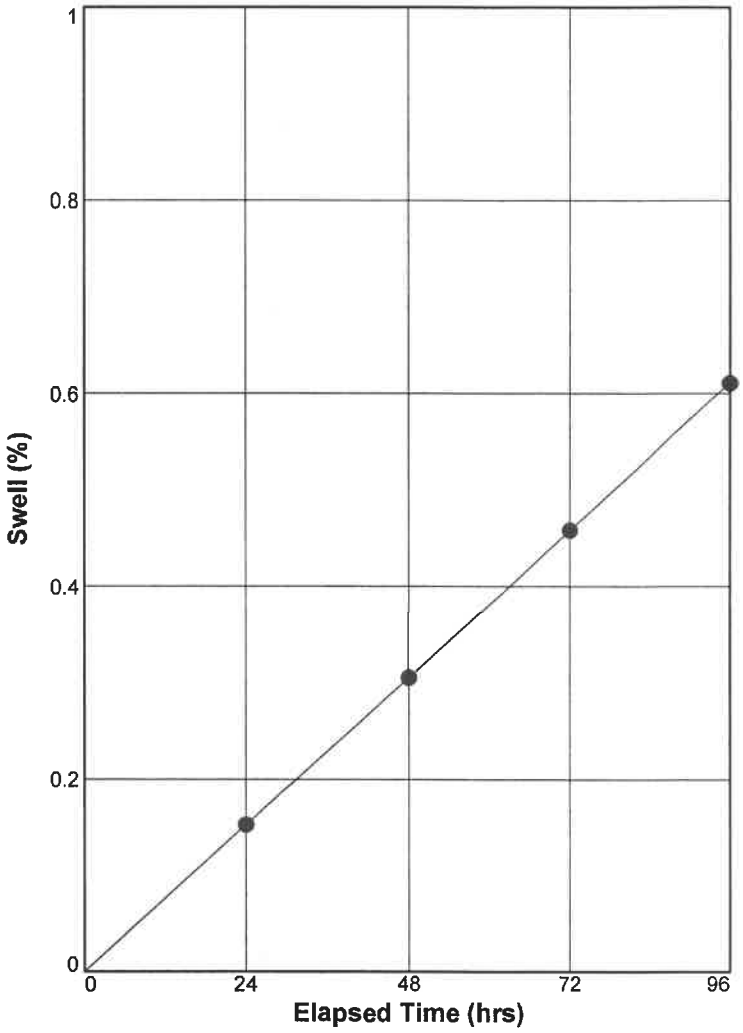
Sample No.	Sample ID	Sulfate (mg/Kg)	pH	ORP (mV)	Chloride (mg/Kg)	Resistivity (Ohm-cm)
S-38	B-13, Corr., 2'-3'	17	6.90	+111	55	7,000
S-39	B-25, Corr., 2'-3'	22	6.38	+125	40	8,000
S-40	B-4, Corr., 2'-3'	10	6.60	+114	45	10,000
S-41	B-39, Corr., 2'-3'	24	6.57	+124	35	7,500
S-42	B-32, Corr., 2'-3'	12	6.99	+109	25	8.000

CALIFORNIA BEARING RATIO

RESULTS

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 ○	100.7	89.8	11.6	100.1	89.3	18.8	2.9	2.6	0.000	10	0.6
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		112.1	11.6		

Project No: AOT-5632

Project: Brookside Solar, Chateaugay, New York

Location: B-13, G-1, CBR

Sample Number: S-34 **Depth:** 1'-3'

Date:

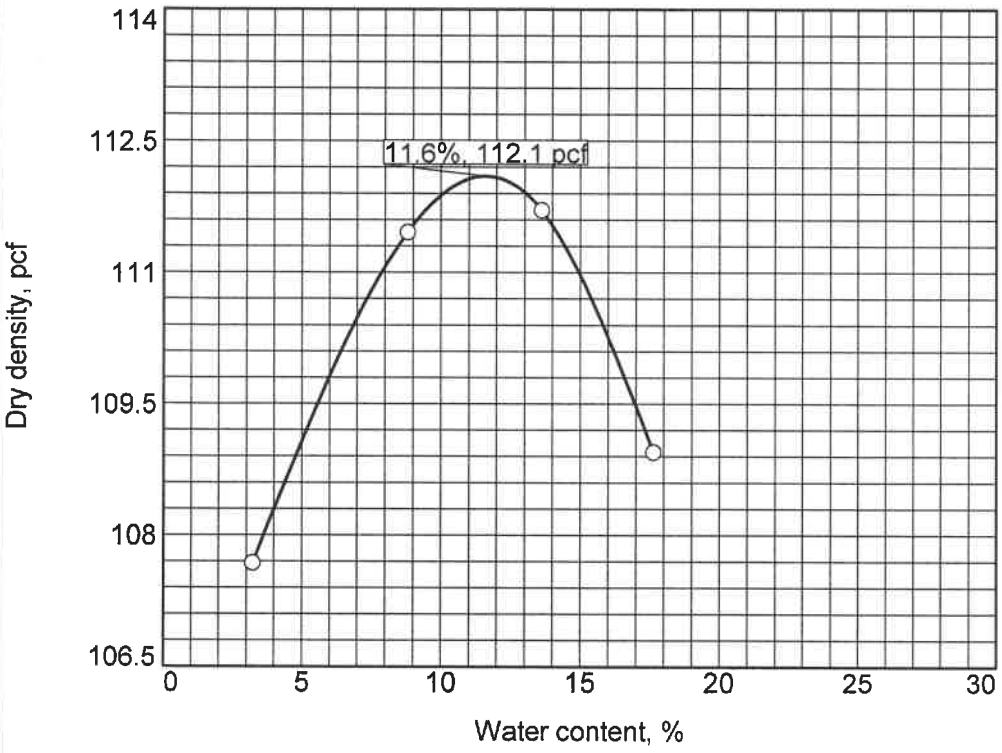
BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Test Description/Remarks:

Figure 34 F 4

COMPACTION TEST REPORT



Curve No.
S-34

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	22.08	22.84	23.27	23.36		
WM	13.75	13.75	13.75	13.75		
WW + T #1	725.7	685.9	768.2	957.5		
WD + T #1	703.0	630.4	676.2	814.0		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.2	8.8	13.6	17.6		
DRY DENSITY	107.7	111.5	111.7	109.0		

TEST RESULTS

Maximum dry density = 112.1 pcf

Optimum moisture = 11.6 %

Material Description

Remarks:

Project No. AOT-5632 **Client:** ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

○ **Location:** B-13, G-1, CBR **Depth:** 1'-3' **Sample Number:** S-34

ANS CONSULTANTS, INC.

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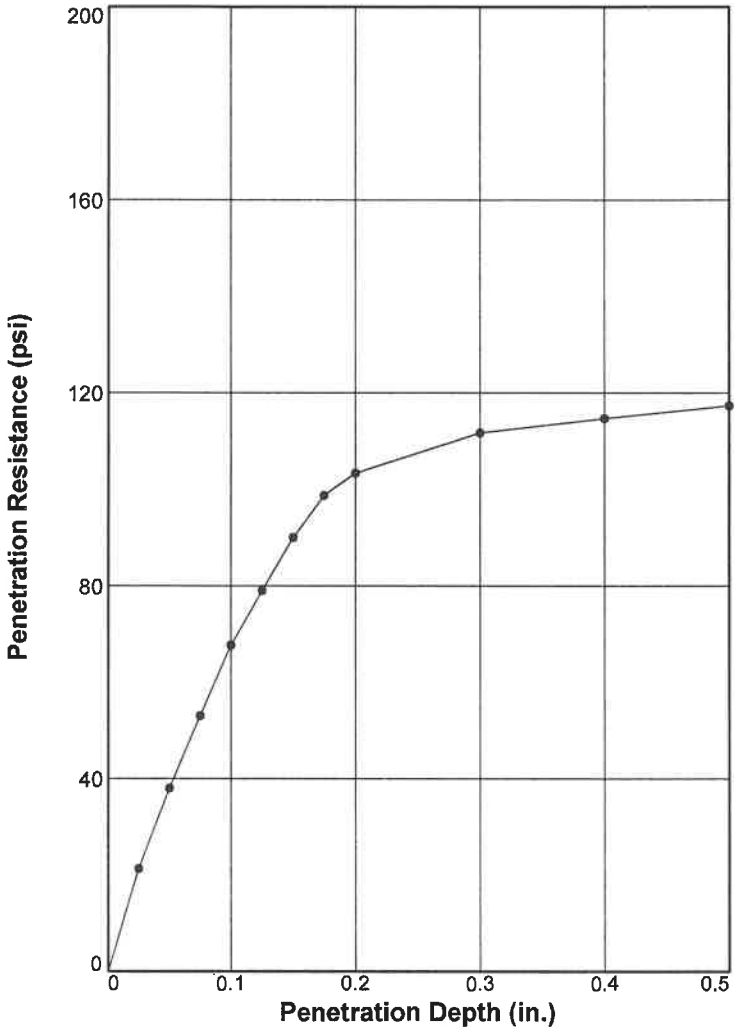
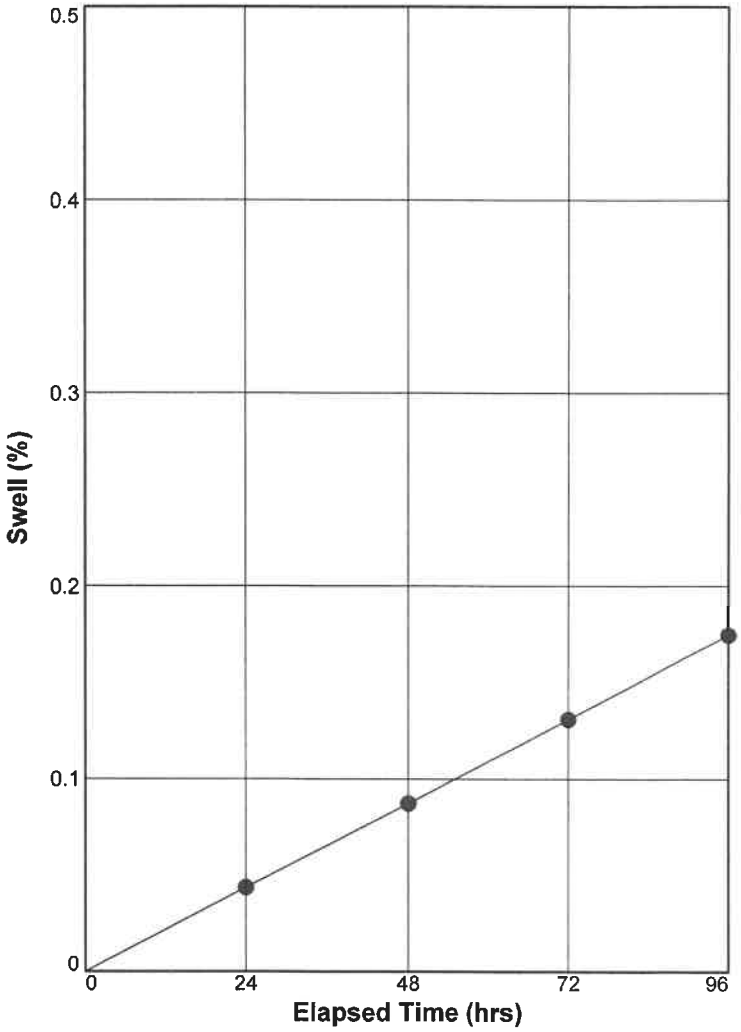
Checked by:
Title:

Figure 34 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 ○	97.6	90	12.3	97.4	89.9	18.6	6.8	6.9	0.000	10	0.2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
		108.4	12.3		

Project No: AOT-5632

Project: Brookside Solar, Chateaugay, New York

Location: B-42, G-1

Sample Number: S-36 **Depth:** 1'-3'

Date:

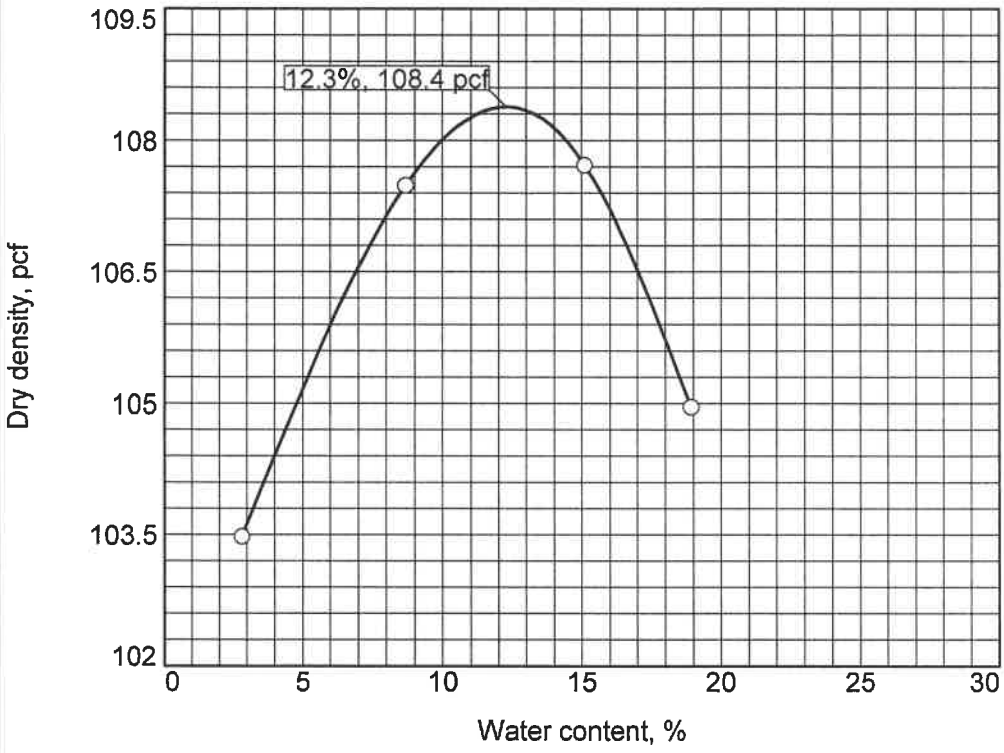
Test Description/Remarks:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Figure 36 F 4

COMPACTION TEST REPORT



Curve No.
S-36

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	12.97	13.32	13.56	13.59		
WM	9.43	9.43	9.43	9.43		
WW + T #1	691.5	857.4	1038.6	898.9		
WD + T #1	672.5	788.9	902.3	755.9		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.8	8.7	15.1	18.9		
DRY DENSITY	103.5	107.5	107.7	105.0		

TEST RESULTS

Maximum dry density = 108.4 pcf

Optimum moisture = 12.3 %

Material Description

Remarks:

Project No. AOT-5632 **Client:** ANS GEO, Inc.
Project: Brookside Solar, Chateaugay, New York

○ **Location:** B-42, G-1 **Depth:** 1'-3' **Sample Number:** S-36

ANS CONSULTANTS, INC.

South Plainfield, New Jersey

Checked by:
Title:

Figure 36 F 2

ANS GEO

Attachment E

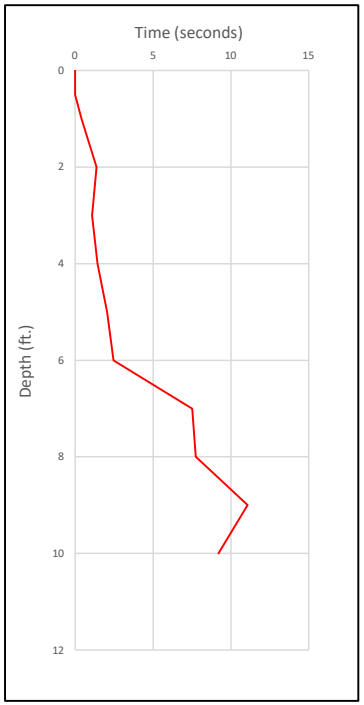
Pile Load Testing Logs

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-01A
Date/Time Installed:	3/25/21 11:05 AM	Date/Time Tested:	4/11/21 8:20 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	44.3
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	4.43

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.41
2	1.37
3	1.08
4	1.42
5	2.05
6	2.45
7	7.52
8	7.73
9	11.07
10	9.2
Total Time (s) =	44.3



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	1,520	0.0005	0.0120	0.0063
1	3,000	3,040	0.0105	0.0290	0.0198
1	4,000	4,080	0.0320	0.0522	0.0421
1	5,000	5,060	0.0620	0.0845	0.0733
1	6,000	6,120	0.1125	0.1420	0.1273
1	7,000	7,060	0.2085	0.2475	0.2280
1	8,000	8,020	0.3935	0.4475	0.4205
1	9,000	9,000	0.6055	0.6645	0.6350
1	10,000	10,040	0.9450	1.0010	0.9730
Unload					
	0	0	0.8955	0.9015	0.8985
1	Max.	7,620	1.0140	1.0490	1.0315
Unload					
1	0	0	0.9790	0.9750	0.9770

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	0.1360	0.0540	0.0950
1	1,000	1,000	0.2065	0.1140	0.1603
1	1,500	1,560	0.2940	0.1975	0.2458
1	0	0	0.0050	0.1015	0.0533
1	500	560	0.1185	0.1280	0.1233
1	1,000	1,060	0.2055	0.1675	0.1865
1	1,500	1,560	0.2775	0.2185	0.2480
1	2,000	2,040	0.3520	0.2960	0.3240
1	2,500	2,520	0.4275	0.3890	0.4083
1	0	0	0.0490	0.2040	0.1265
1	2,500	2,540	0.4175	0.4255	0.4215
1	3,000	3,020	0.4975	0.5235	0.5105
1	3,500	3,540	0.5725	0.6140	0.5933
1	4,000	4,020	0.6625	0.7290	0.6958
Unload					
1	0	0	0.1220	0.3735	0.2478
Reload					
	Max.	5,580	0.8890	1.3830	1.1360
1	0	0	0.2650	0.8085	0.5368

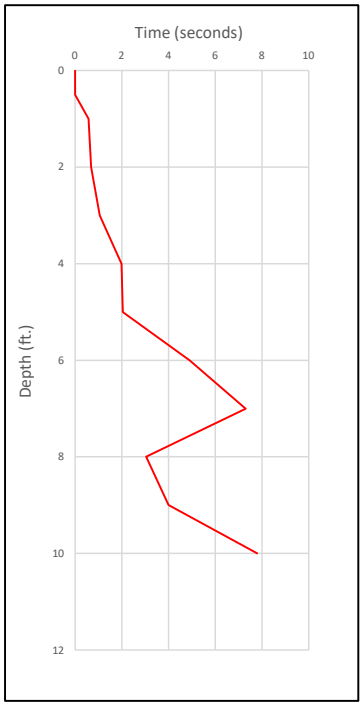
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-01B
Date/Time Installed:	3/25/21 11:15 AM	Date/Time Tested:	4/11/21 9:00 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	33.33
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	3.33

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.57
2	0.68
3	1.05
4	1.98
5	2.03
6	4.90
7	7.30
8	3.03
9	3.99
10	7.80
Total Time (s) =	33.33



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	1,540	-0.0160	0.0155	-0.0003
1	3,000	3,040	-0.0240	0.0270	0.0015
1	4,000	4,120	-0.0255	0.0355	0.0050
1	5,000	5,080	-0.0250	0.0415	0.0083
1	6,000	6,180	-0.0230	0.0485	0.0128
1	7,000	7,080	-0.0180	0.0580	0.0200
1	8,000	8,040	-0.0110	0.0680	0.0285
1	9,000	9,000	0.0000	0.0820	0.0410
1	10,000	10,160	0.0215	0.1080	0.0648
Unload					
1	0	0	0.0380	0.0525	0.0453
1	Max.	13,160	0.1835	0.2685	0.2260
Unload					
1	0	0	0.1880	0.2025	0.1953

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	0.1325	0.1140	0.1233
1	1,000	1,040	0.1875	0.1860	0.1868
1	1,500	1,580	0.2640	0.2785	0.2713
1	0	0	0.0415	0.0065	0.0240
1	500	500	0.1485	0.1290	0.1388
1	1,000	1,120	0.2210	0.2215	0.2213
1	1,500	1,640	0.2780	0.2950	0.2865
1	2,000	2,040	0.3320	0.3535	0.3428
1	2,500	2,520	0.4010	0.4290	0.4150
1	0	0	0.0605	0.0095	0.0350
1	2,500	2,540	0.4175	0.4500	0.4338
1	3,000	3,060	0.4965	0.5310	0.5138
1	3,500	3,540	0.5865	0.6190	0.6028
1	4,000	4,020	0.6785	0.7015	0.6900
Unload					
1	0	0	0.0790	0.0140	0.0465
Reload					
1	Max.	5,340	1.0160	0.9800	0.9980
Unload					
1	0	0	0.1410	0.0195	0.0803

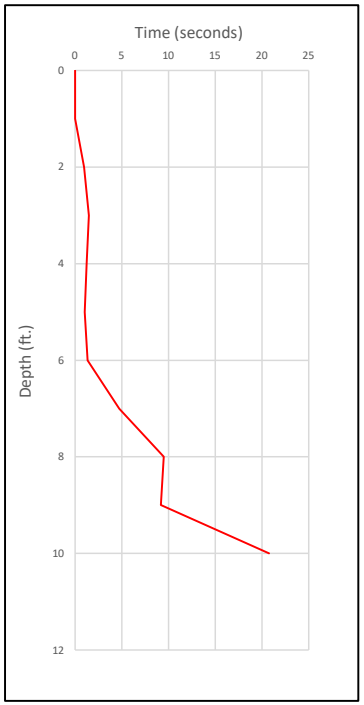
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-02A
Date/Time Installed:	3/25/21 11:50 AM	Date/Time Tested:	4/10/21 1:10 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	50.01
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	5.00

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.95
3	1.47
4	1.20
5	1.00
6	1.31
7	4.71
8	9.47
9	9.15
10	20.75
Total Time (s) =	50.01



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	1,540	0.0140	0.0040	0.0090
1	3,000	3,060	0.0250	0.0065	0.0158
1	4,000	4,120	0.0305	0.0110	0.0208
1	5,000	5,080	0.0350	0.0140	0.0245
1	6,000	6,120	0.0425	0.0200	0.0313
1	7,000	7,060	0.0505	0.0280	0.0393
1	8,000	8,120	0.0675	0.0430	0.0553
1	9,000	9,100	0.0855	0.0590	0.0723
1	10,000	10,060	0.1140	0.0845	0.0993
Unload					
	0	0	0.0625	0.0625	0.0625
1	Max.	13,100	0.2270	0.1820	0.2045
Unload					
1	0	0	0.1575	0.1555	0.1565

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	500	0.0870	0.0600	0.0735
1	1,000	1,020	0.1850	0.1345	0.1598
1	1,500	1,520	0.2700	0.2165	0.2433
1	0	0	0.0700	0.0400	0.0550
1	500	480	0.1420	0.1000	0.1210
1	1,000	1,080	0.2275	0.1750	0.2013
1	1,500	1,540	0.2890	0.2330	0.2610
1	2,000	2,000	0.3705	0.3155	0.3430
1	2,500	2,520	0.4650	0.4135	0.4393
1	0	0	0.0905	0.0845	0.0875
1	2,500	2,520	0.4905	0.4435	0.4670
1	3,000	3,000	0.5775	0.5360	0.5568
1	3,500	3,520	0.6920	0.6590	0.6755
1	4,000	4,000	0.7940	0.7800	0.7870
Unload					
1	0	0	0.1305	0.1845	0.1575
Reload					
1	Max.	4,960	1.0225	1.0825	1.0525
Unload					
1	0	0	0.1250	0.2620	0.1935

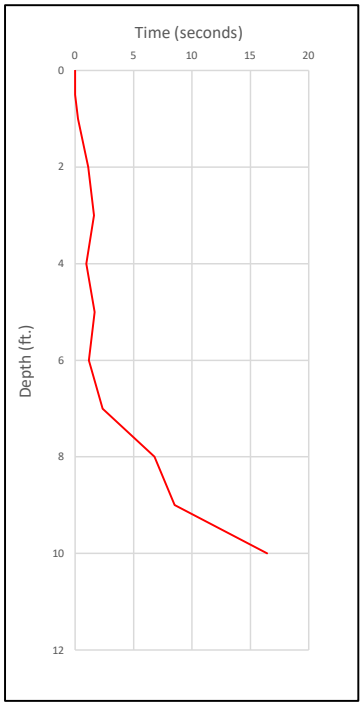
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-02B
Date/Time Installed:	3/25/21 11:55 AM	Date/Time Tested:	4/10/21 12:45 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	40.71
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	4.07

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.22
2	1.10
3	1.59
4	0.95
5	1.65
6	1.16
7	2.33
8	6.77
9	8.50
10	16.44
Total Time (s) =	40.71



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	1,560	0.0000	0.0040	0.0020
1	3,000	3,080	-0.0015	0.0120	0.0053
1	4,000	4,120	-0.0030	0.0190	0.0080
1	5,000	5,020	-0.0040	0.0250	0.0105
1	6,000	6,080	-0.0060	0.0345	0.0143
1	7,000	7,100	-0.0070	0.0420	0.0175
1	8,000	8,100	-0.0075	0.0510	0.0218
1	9,000	9,200	-0.0040	0.0615	0.0288
1	10,000	10,060	0.0010	0.0740	0.0375
Unload					
1	0	0	0.0205	0.0290	0.0248
1	Max.	13,200	0.1085	0.1355	0.1220
Unload					
1	0	0	0.1345	0.0745	0.1045

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	500	0.0330	0.1610	0.0970
1	1,000	1,020	0.0945	0.3010	0.1978
1	1,500	1,520	0.1655	0.4185	0.2920
1	0	0	0.0420	0.1175	0.0798
1	500	480	0.0775	0.2410	0.1593
1	1,000	1,080	0.1350	0.3640	0.2495
1	1,500	1,540	0.1865	0.4400	0.3133
1	2,000	2,000	0.2585	0.5345	0.3965
1	2,500	2,520	0.3430	0.6385	0.4908
1	0	0	0.0915	0.1285	0.1100
1	2,500	2,520	0.3805	0.6620	0.5213
1	3,000	3,000	0.4650	0.7565	0.6108
1	3,500	3,520	0.5790	0.8800	0.7295
1	4,000	4,000	0.6880	0.9900	0.8390
Unload					
1	0	0	0.1890	0.1585	0.1738
Reload					
1	Max.	4,960	0.9640	1.2420	1.1030
Unload					
1	0	0	0.2320	0.1515	0.1918

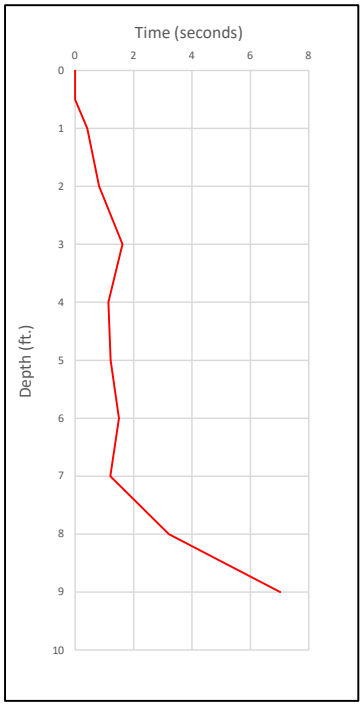
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-03A
Date/Time Installed:	3/25/21 12:05 PM	Date/Time Tested:	4/10/21 2:25 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	18.13
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	2.01

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.41
2	0.82
3	1.62
4	1.13
5	1.21
6	1.50
7	1.20
8	3.21
9	7.03
Total Time (s) =	18.13



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	1,540	0.0095	0.0025	0.0060
1	3,000	3,120	0.0210	0.0175	0.0193
1	4,000	4,040	0.0315	0.0230	0.0273
1	5,000	5,080	0.0530	0.0490	0.0510
1	6,000	6,080	0.1005	0.1015	0.1010
1	7,000	6,960	0.3365	0.3445	0.3405
1	8,000	7,140	1.0150	1.0215	1.0183
Unload					
1	0	0	0.9695	0.9595	0.9645

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	500	0.0740	0.1355	0.1048
1	1,000	1,000	0.1545	0.2240	0.1893
1	1,500	1,520	0.2545	0.3230	0.2888
1	0	0	0.0375	0.0420	0.0398
1	500	520	0.1180	0.1910	0.1545
1	1,000	1,080	0.2070	0.2700	0.2385
1	1,500	1,560	0.2835	0.3360	0.3098
1	2,000	2,000	0.3695	0.4120	0.3908
1	2,500	2,500	0.4880	0.5115	0.4998
1	0	0	0.0670	0.0580	0.0625
1	2,500	2,480	0.5215	0.5345	0.5280
1	3,000	2,980	0.6345	0.6295	0.6320
1	3,500	3,500	0.7735	0.7450	0.7593
1	4,000	4,000	0.9240	0.8765	0.9003
Unload					
1	0	0	0.1525	0.0925	0.1225
Reload					
	Max.	4,220	1.0350	0.9725	1.0038
1	0	0	0.2400	0.0970	0.1685

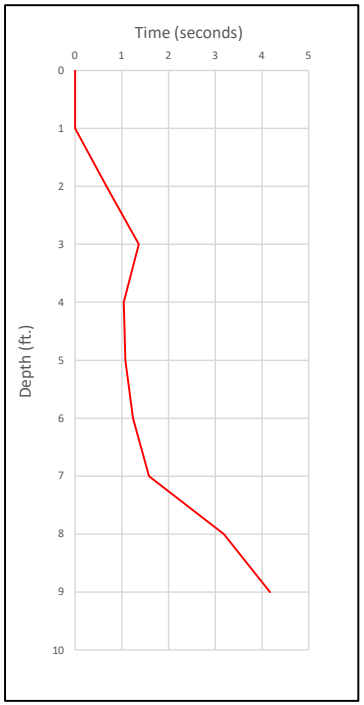
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-03B
Date/Time Installed:	3/25/21 12:15 PM	Date/Time Tested:	4/10/21 2:05 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	14.31
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	1.59

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.67
3	1.36
4	1.04
5	1.07
6	1.24
7	1.58
8	3.18
9	4.17
Total Time (s) =	14.31



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	1,580	0.0030	0.0035	0.0033
1	3,000	3,060	0.0040	0.0100	0.0070
1	4,000	4,140	0.0055	0.0185	0.0120
1	5,000	5,140	0.0095	0.0340	0.0218
1	6,000	6,060	0.0220	0.0590	0.0405
1	7,000	7,060	0.0395	0.0885	0.0640
1	8,000	7,980	0.0635	0.1235	0.0935
1	9,000	9,040	0.1010	0.1755	0.1383
1	10,000	10,020	0.2695	0.3545	0.3120
Unload					
1	0	0	0.2700	0.2825	0.2763
1	Max.	9,020	1.0215	1.0915	1.0565
Unload					
1	0	0	1.0180	1.0340	1.0260

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	500	0.0525	0.1105	0.0815
1	1,000	1,000	0.1130	0.1980	0.1555
1	1,500	1,520	0.1915	0.2975	0.2445
1	0	0	0.0125	0.0790	0.0458
1	500	520	0.0755	0.1720	0.1238
1	1,000	1,080	0.1445	0.2490	0.1968
1	1,500	1,560	0.2070	0.3150	0.2610
1	2,000	2,000	0.2770	0.3865	0.3318
1	2,500	2,500	0.3655	0.4785	0.4220
1	0	0	0.0255	0.1150	0.0703
1	2,500	2,480	0.3850	0.4990	0.4420
1	3,000	2,980	0.4750	0.5825	0.5288
1	3,500	3,500	0.5835	0.6805	0.6320
1	4,000	4,000	0.7020	0.7810	0.7415
Unload					
1	0	0	0.0650	0.1775	0.1213
Reload					
1	Max.	5,040	1.0065	1.0105	1.0085
Unload					
1	0	0	0.1180	0.1900	0.1540

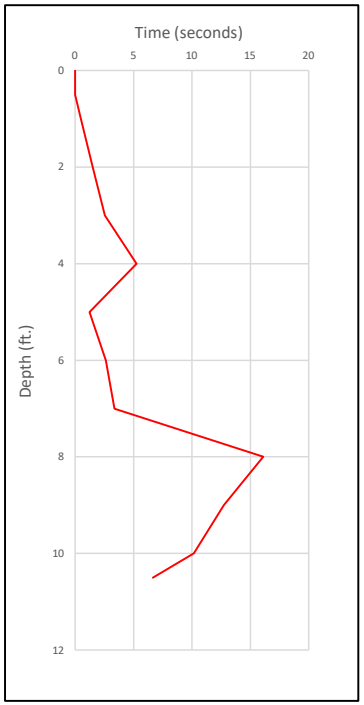
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-05A
Date/Time Installed:	3/25/21 10:40 AM	Date/Time Tested:	4/11/21 10:15 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	62.57
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	5.96

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.48
2	1.48
3	2.53
4	5.24
5	1.22
6	2.62
7	3.35
8	16.11
9	12.73
10	10.16
10.5	6.65
Total Time (s) =	62.57



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	1,580	0.0100	-0.0040	0.0030
1	3,000	3,060	0.0235	-0.0105	0.0065
1	4,000	4,040	0.0340	-0.0130	0.0105
1	5,000	5,040	0.0450	-0.0165	0.0143
1	6,000	6,060	0.0590	-0.0215	0.0188
1	7,000	7,120	0.0740	-0.0275	0.0233
1	8,000	8,060	0.0880	-0.0320	0.0280
1	9,000	9,060	0.1105	-0.0345	0.0380
1	10,000	10,040	0.1200	-0.0335	0.0433
Unload					
	0	0	0.0210	0.0125	0.0168
1	Max.	13,340	0.2055	-0.0240	0.0908
Unload					
1	0	0	0.0575	0.0455	0.0515

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	540	0.1130	0.1125	0.1128
1	1,000	1,020	0.2180	0.2130	0.2155
1	1,500	1,500	0.3345	0.3260	0.3303
1	0	0	0.0690	0.0865	0.0778
1	500	560	0.1805	0.1890	0.1848
1	1,000	1,060	0.2725	0.2770	0.2748
1	1,500	1,520	0.3585	0.3575	0.3580
1	2,000	2,040	0.4780	0.4720	0.4750
1	2,500	2,520	0.6090	0.6030	0.6060
1	0	0	0.1105	0.1675	0.1390
1	2,500	2,560	0.6550	0.6605	0.6578
1	3,000	3,000	0.7620	0.7630	0.7625
1	3,500	3,500	0.9050	0.9050	0.9050
1	4,000	3,940	1.0145	1.0180	1.0163
Unload					
1	0	0	0.1465	0.2790	0.2128

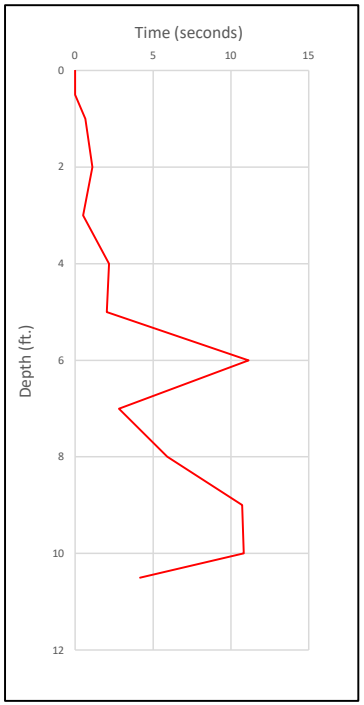
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-05B
Date/Time Installed:	3/25/21 10:40 AM	Date/Time Tested:	4/11/21 11:00 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	52.02
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	4.95

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.65
2	1.09
3	0.51
4	2.17
5	2.02
6	11.14
7	2.81
8	5.90
9	10.73
10	10.83
10.5	4.17
Total Time (s) =	52.02



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	1,560	0.0010	0.0050	0.0030
1	3,000	3,040	0.0015	0.0120	0.0068
1	4,000	4,040	0.0020	0.0175	0.0098
1	5,000	5,120	0.0015	0.0230	0.0123
1	6,000	6,120	0.0020	0.0280	0.0150
1	7,000	7,140	0.0030	0.0345	0.0188
1	8,000	8,040	0.0050	0.0410	0.0230
1	9,000	9,180	0.0090	0.0510	0.0300
1	10,000	10,140	0.0155	0.0600	0.0378
Unload					
1	0	0	0.0125	0.0180	0.0153
1	Max.	13,000	0.0545	0.1065	0.0805
Unload					
1	0	0	0.0430	0.0505	0.0468

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	560	0.1850	0.0800	0.1325
1	1,000	1,100	0.3685	0.1905	0.2795
1	1,500	1,540	0.5025	0.2975	0.4000
1	0	0	0.0880	0.1075	0.0978
1	500	500	0.2570	0.1700	0.2135
1	1,000	1,000	0.4040	0.2450	0.3245
1	1,500	1,580	0.5500	0.3455	0.4478
1	2,000	2,000	0.6565	0.4380	0.5473
1	2,500	2,520	0.8050	0.5735	0.6893
1	0	0	0.1065	0.1850	0.1458
1	2,500	2,560	0.8615	0.6465	0.7540
1	3,000	3,060	0.9880	0.7675	0.8778
1	3,500	3,560	1.1240	0.9035	1.0138
Unload					
1	0	0	0.1350	0.2630	0.1990

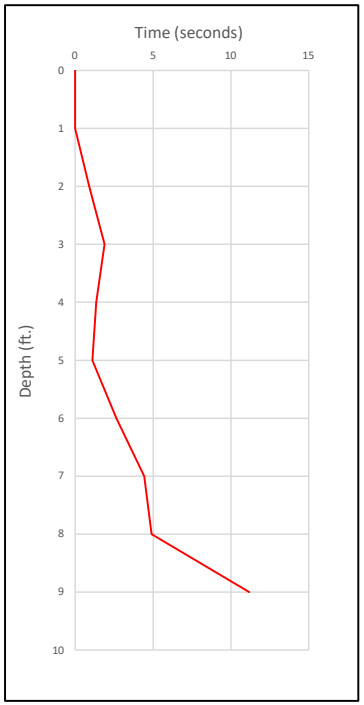
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-06A
Date/Time Installed:	3/25/21 10:15 AM	Date/Time Tested:	4/10/21 3:55 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	28.36
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	3.15

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.89
3	1.88
4	1.34
5	1.09
6	2.64
7	4.44
8	4.90
9	11.18
Total Time (s) =	28.36



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	0.0145	0.0030
1	3,000	3,080	-0.0110	0.0270	0.0080
1	4,000	4,080	-0.0095	0.0355	0.0130
1	5,000	5,060	-0.0050	0.0425	0.0188
1	6,000	6,060	-0.0010	0.0475	0.0233
1	7,000	7,140	0.0075	0.0565	0.0320
1	8,000	8,080	0.0160	0.0655	0.0408
1	9,000	9,060	0.0305	0.0800	0.0553
1	10,000	10,080	0.0620	0.1120	0.0870
Unload					
	0	0	0.0475	0.0505	0.0490
1	Max.	12,640	1.0125	1.0615	1.0370
Unload					
1	0	0	0.9790	0.9855	0.9823

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	540	0.2040	0.0830	0.1435
1	1,000	1,040	0.3315	0.1975	0.2645
1	1,500	1,520	0.4490	0.3015	0.3753
1	0	0	0.1045	0.0170	0.0608
1	500	560	0.3130	0.1055	0.2093
1	1,000	1,040	0.4100	0.2095	0.3098
1	1,500	1,500	0.4975	0.2965	0.3970
1	2,000	2,000	0.6035	0.3880	0.4958
1	2,500	2,500	0.7420	0.4835	0.6128
1	0	0	0.1965	0.0085	0.1025
1	2,500	2,540	0.8305	0.4995	0.6650
1	3,000	3,020	0.9530	0.5795	0.7663
1	3,500	3,480	1.1270	0.6720	0.8995
1	4,000	3,900	1.2750	0.7445	1.0098
Unload					
1	0	0	0.4505	-0.0960	0.1773

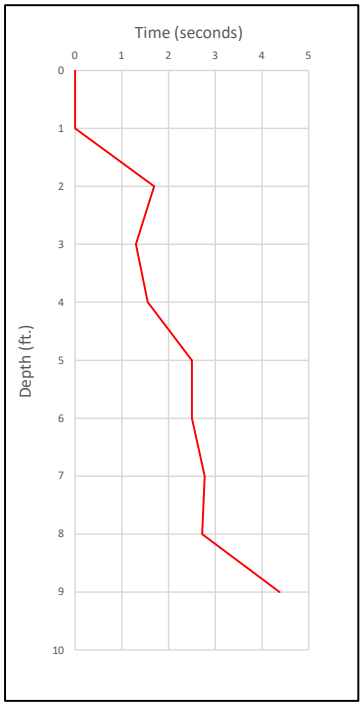
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-06B
Date/Time Installed:	3/25/21 10:20 AM	Date/Time Tested:	4/10/21 3:40 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	19.41
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	2.16

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.69
3	1.30
4	1.55
5	2.50
6	2.50
7	2.77
8	2.72
9	4.38
Total Time (s) =	19.41



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	1,540	0.0140	-0.0035	0.0053
1	3,000	3,060	0.0250	-0.0030	0.0110
1	4,000	4,080	0.0330	-0.0010	0.0160
1	5,000	5,100	0.0425	0.0045	0.0235
1	6,000	6,060	0.0550	0.0130	0.0340
1	7,000	6,980	0.0735	0.0250	0.0493
1	8,000	8,000	0.0975	0.0425	0.0700
1	9,000	9,080	0.1350	0.0715	0.1033
1	10,000	10,040	0.1735	0.1038	0.1387
Unload					
1	0	0	0.1085	0.1020	0.1053
1	Max.	13,080	0.3760	0.2735	0.3248
Unload					
1	0	0	0.2725	0.2610	0.2668

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	540	0.1955	0.0280	0.1118
1	1,000	1,040	0.3305	0.0850	0.2078
1	1,500	1,520	0.4380	0.1530	0.2955
1	0	0	0.0555	0.0475	0.0515
1	500	560	0.2540	0.0740	0.1640
1	1,000	1,040	0.3580	0.1205	0.2393
1	1,500	1,500	0.4445	0.1760	0.3103
1	2,000	2,000	0.5380	0.2515	0.3948
1	2,500	2,500	0.6420	0.3520	0.4970
1	0	0	0.0455	0.1095	0.0775
1	2,500	2,540	0.6695	0.4165	0.5430
1	3,000	3,020	0.7565	0.5145	0.6355
1	3,500	3,480	0.8605	0.6495	0.7550
1	4,000	3,900	0.9420	0.7635	0.8528
Unload					
1	0	0	-0.0045	0.2515	0.1235
Reload					
1	Max.	4,400	1.0660	1.0080	1.0370
Unload					
1	0	0	-0.0435	0.3560	0.1563

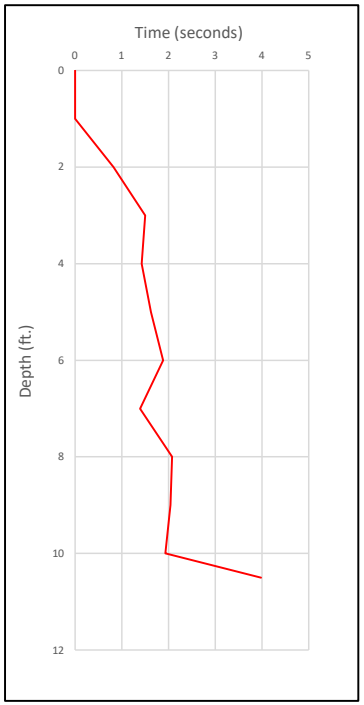
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-07A
Date/Time Installed:	3/24/21 5:00 PM	Date/Time Tested:	4/10/21 7:40 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	18.65
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	1.78

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.82
3	1.50
4	1.42
5	1.62
6	1.88
7	1.39
8	2.07
9	2.04
10	1.93
10.5	3.98
Total Time (s) =	18.65



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	1560	0.0145	-0.006	0.0043
1	3,000	3,080	0.0255	-0.0100	0.0078
1	4,000	4,080	0.0315	-0.0105	0.0105
1	5,000	5,080	0.0375	-0.0080	0.0148
1	6,000	6,120	0.0445	0.0045	0.0245
1	7,000	7,120	0.0550	0.0020	0.0285
1	8,000	8,120	0.0780	0.0190	0.0485
1	9,000	9,080	0.1195	0.0620	0.0908
1	10,000	9,260	1.0270	0.9755	1.0013
Unload					
1	0	0	0.9850	0.9755	0.9803

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	540	0.1850	0.1110	0.1480
1	1,000	1,000	0.2820	0.2290	0.2555
1	1,500	1,580	0.3625	0.3430	0.3528
1	0	0	0.0340	0.0840	0.0590
1	500	500	0.2210	0.1825	0.2018
1	1,000	1,120	0.3280	0.3000	0.3140
1	1,500	1,580	0.3895	0.3765	0.3830
1	2,000	2,020	0.4580	0.4565	0.4573
1	2,500	2,500	0.5550	0.5635	0.5593
1	0	0	0.0520	0.1200	0.0860
1	2,500	2,520	0.5930	0.5920	0.5925
1	3,000	3,000	0.6890	0.6840	0.6865
1	3,500	3,520	0.8050	0.7880	0.7965
1	4,000	4,080	0.9500	0.9155	0.9328
Unload					
1	0	0	0.0650	0.1590	0.1120
Reload					
1	Max.	4,080	1.0325	0.9605	0.9965
Unload					
1	0	0	0.0450	0.1655	0.1053

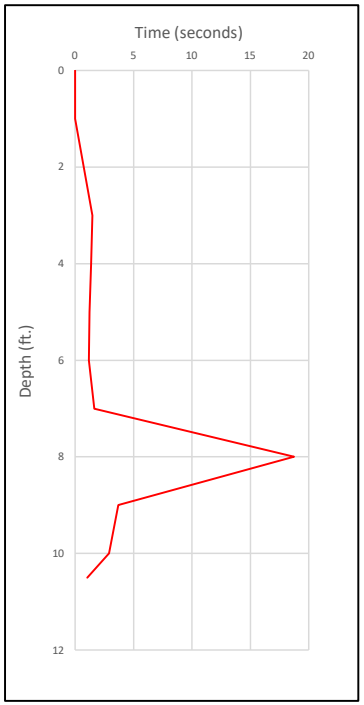
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-07B
Date/Time Installed:	3/24/21 5:10 PM	Date/Time Tested:	4/10/21 7:20 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	33.89
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	3.23

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.73
3	1.46
4	1.36
5	1.21
6	1.17
7	1.62
8	18.74
9	3.68
10	2.90
10.5	1.02
Total Time (s) =	33.89



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	1,560	-0.0075	0.0085	0.0005
1	3,000	3,020	-0.0125	0.0215	0.0045
1	4,000	4,120	-0.0120	0.0395	0.0138
1	5,000	5,040	0.0030	0.0685	0.0358
1	6,000	6,040	0.0835	0.1655	0.1245
1	7,000	6,140	1.0085	1.0845	1.0465
Unload					
1	0	0	1.0320	1.0100	1.0210

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	540	0.2180	0.0035	0.1108
1	1,000	1,000	0.3680	0.0395	0.2038
1	1,500	1,580	0.5190	0.1060	0.3125
1	0	0	0.1180	0.0505	0.0843
1	500	500	0.2825	0.0495	0.1660
1	1,000	1,120	0.4465	0.0935	0.2700
1	1,500	1,580	0.5485	0.1420	0.3453
1	2,000	2,020	0.6575	0.2085	0.4330
1	2,500	2,500	0.7955	0.3090	0.5523
1	0	0	0.1300	0.1490	0.1395
1	2,500	2,520	0.8300	0.3500	0.5900
1	3,000	3,000	0.9410	0.4460	0.6935
1	3,500	3,520	1.0590	0.5630	0.8110
1	4,000	4,080	1.1895	0.7160	0.9528
Unload					
1	0	0	0.0900	0.3545	0.2223
Reload					
1	Max.	4,080	1.2460	0.7920	1.0190
Unload					
1	0	0	0.0270	0.4500	0.2385

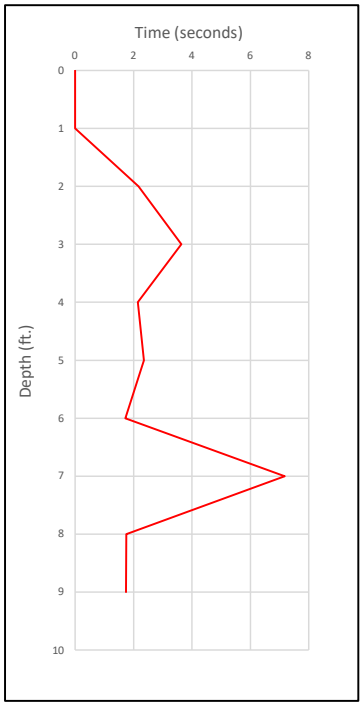
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-08A
Date/Time Installed:	3/25/21 8:30 AM	Date/Time Tested:	4/9/21 3:45 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	22.67
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	2.52

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	2.16
3	3.63
4	2.14
5	2.35
6	1.72
7	7.18
8	1.75
9	1.74
Total Time (s) =	22.67



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	1,580	0.0230	-0.0025	0.0103
1	3,000	3,340	0.0715	0.0270	0.0493
1	4,000	4,080	0.1250	0.0770	0.1010
1	5,000	5,100	0.4440	0.3915	0.4178
1	6,000	5,420	1.1190	1.0630	1.0910
Unload					
1	0	0	1.0060	1.0385	1.0223

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	520	0.0530	0.1020	0.0775
1	1,000	1,020	0.1120	0.1920	0.1520
1	1,500	1,560	0.1840	0.2855	0.2348
1	0	0	0.0710	0.0160	0.0435
1	500	600	0.1065	0.1275	0.1170
1	1,000	1,000	0.1455	0.1995	0.1725
1	1,500	1,580	0.2045	0.2915	0.2480
1	2,000	2,060	0.2545	0.3520	0.3033
1	2,500	2,540	0.3270	0.4175	0.3723
1	0	0	0.1030	0.0130	0.0580
1	2,500	2,560	0.3435	0.4280	0.3858
1	3,000	3,120	0.4190	0.5115	0.4653
1	3,500	3,540	0.4815	0.5695	0.5255
1	4,000	4,020	0.5625	0.6455	0.6040
Unload					
1	0	0	0.1605	0.0175	0.0890
Reload					
1	Max.	5,920	0.8990	1.0955	0.9973
Unload					
1	0	0	0.1990	0.1385	0.1688

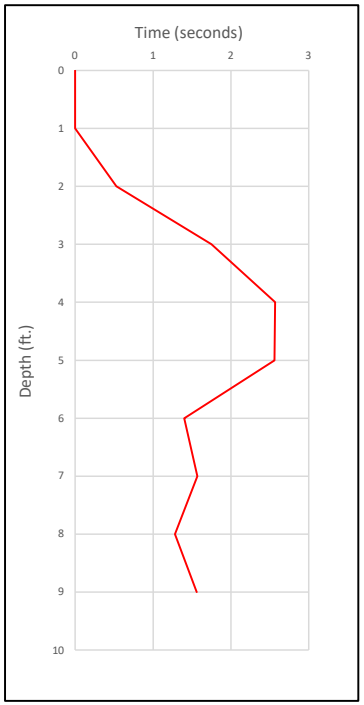
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-08B
Date/Time Installed:	3/25/21 8:40 AM	Date/Time Tested:	4/9/21 3:00 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	13.22
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	1.47

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.53
3	1.75
4	2.57
5	2.56
6	1.40
7	1.57
8	1.28
9	1.56
Total Time (s) =	13.22



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	1,560	0.0175	0.0125	0.0150
1	3,000	2,460	1.0905	1.0765	1.0835
Unload					
1	0	0	1.0545	1.0445	1.0495

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	500	0.1620	0.0305	0.0963
1	1,000	1,000	0.2995	0.1180	0.2088
1	1,500	1,480	0.4045	0.2060	0.3053
1	0	0	0.0200	0.0835	0.0518
1	500	480	0.2020	0.1075	0.1548
1	1,000	1,040	0.3305	0.1735	0.2520
1	1,500	1,540	0.4210	0.2390	0.3300
1	2,000	2,000	0.5150	0.3290	0.4220
1	2,500	2,520	0.6200	0.4420	0.5310
1	0	0	0.0180	0.1890	0.1035
1	2,500	2,520	0.6275	0.4975	0.5625
1	3,000	3,040	0.7165	0.5990	0.6578
1	3,500	3,560	0.8180	0.7230	0.7705
1	4,000	4,000	0.9110	0.8470	0.8790
Unload					
1	0	0	-0.0560	0.2950	0.1195
Reload					
1	Max.	4,360	1.0175	1.0060	1.0118
Unload					
1	0	0	0.0390	0.3460	0.1925

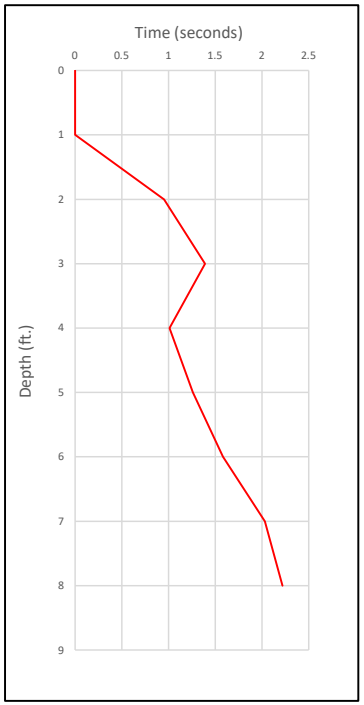
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-09A
Date/Time Installed:	3/25/21 9:50 AM	Date/Time Tested:	4/11/21 12:00 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	10.44
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.31

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.95
3	1.39
4	1.01
5	1.26
6	1.58
7	2.03
8	2.22
Total Time (s) =	10.44



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	1,540	0.0095	-0.0050	0.0023
1	3,000	3,080	0.0185	-0.0065	0.0060
1	4,000	4,420	0.0295	-0.0015	0.0140
1	5,000	5,080	0.0355	0.0025	0.0190
1	6,000	6,060	0.0515	0.0155	0.0335
1	7,000	7,040	0.0715	0.0335	0.0525
1	8,000	8,040	0.1160	0.0750	0.0955
1	9,000	9,020	0.2190	0.1780	0.1985
1	10,000	9,660	1.0505	1.0215	1.0360
Unload					
1	0	0	1.0215	1.0250	1.0233

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	540	0.0945	0.0810	0.0878
1	1,000	1,080	0.1845	0.1680	0.1763
1	1,500	1,520	0.2580	0.2430	0.2505
1	0	0	0.0225	0.0390	0.0308
1	500	500	0.1395	0.1355	0.1375
1	1,000	1,100	0.2195	0.2080	0.2138
1	1,500	1,680	0.3020	0.2905	0.2963
1	2,000	2,000	0.3405	0.3290	0.3348
1	2,500	2,520	0.4225	0.4155	0.4190
1	0	0	0.0455	0.0660	0.0558
1	2,500	2,540	0.4655	0.4645	0.4650
1	3,000	3,000	0.5270	0.5310	0.5290
1	3,500	3,500	0.6130	0.6250	0.6190
1	4,000	4,040	0.7235	0.7425	0.7330
Unload					
1	0	0	0.0695	0.1030	0.0863
Reload					
	Max.	5,160	0.9750	1.0130	0.9940
1	0	0	0.0785	0.1115	0.0950

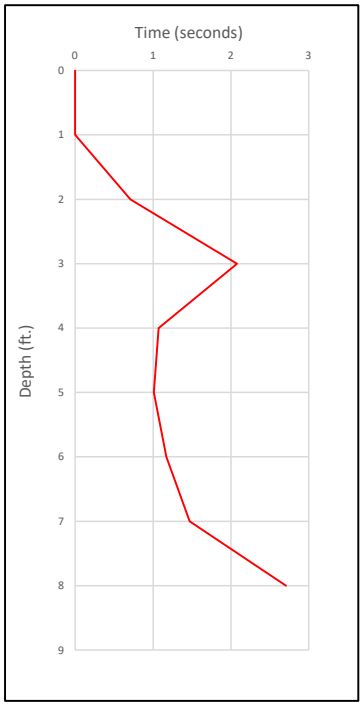
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-09B
Date/Time Installed:	3/25/21 9:55 AM	Date/Time Tested:	4/11/21 12:45 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	10.22
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.28

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.71
3	2.08
4	1.07
5	1.01
6	1.17
7	1.47
8	2.71
Total Time (s) =	10.22



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	1,560	0.0045	0.0045	0.0045
1	3,000	3,060	0.0115	0.0085	0.0100
1	4,000	4,080	0.0205	0.0140	0.0173
1	5,000	5,120	0.0375	0.0250	0.0313
1	6,000	6,080	0.0605	0.0455	0.0530
1	7,000	7,040	0.1130	0.0930	0.1030
1	8,000	8,020	0.2455	0.2270	0.2363
1	9,000	8,220	1.0390	1.0225	1.0308
Unload					
1	0	0	1.0055	1.0055	1.0055

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	0.0000
1	500	540	0.0880	0.1000	0.0940
1	1,000	1,080	0.1910	0.1905	0.1908
1	1,500	1,500	0.2695	0.2580	0.2638
1	0	0	0.0380	0.0440	0.0410
1	500	580	0.1400	0.1405	0.1403
1	1,000	1,000	0.2080	0.1955	0.2018
1	1,500	1,560	0.2975	0.2740	0.2858
1	2,000	2,020	0.3805	0.3510	0.3658
1	2,500	2,520	0.4770	0.4405	0.4588
1	0	0	0.0480	0.0680	0.0580
1	2,500	2,520	0.5085	0.4595	0.4840
1	3,000	3,020	0.6070	0.5480	0.5775
1	3,500	3,560	0.7300	0.6550	0.6925
1	4,000	4,020	0.8355	0.7475	0.7915
Unload					
1	0	0	0.0620	0.1045	0.0833
Reload					
1	Max.	4,980	1.0900	0.9590	1.0245
Unload					
1	0	0	0.0540	0.1360	0.0950

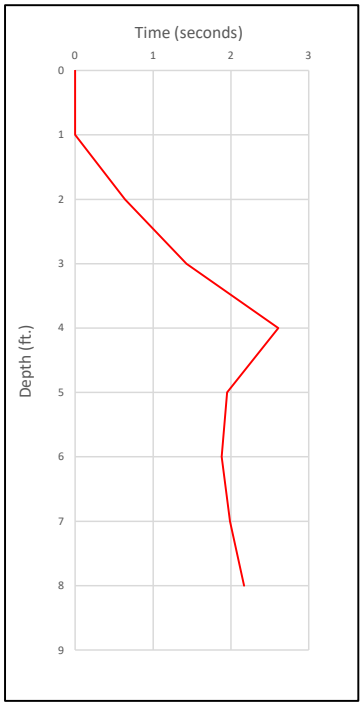
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-10A
Date/Time Installed:	3/25/21 9:05 AM	Date/Time Tested:	4/10/21 11:45 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	12.67
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.58

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.64
3	1.43
4	2.61
5	1.95
6	1.88
7	1.99
8	2.17
Total Time (s) =	12.67



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	1,620	0.0305	0.0235	0.0270
1	3,000	2,960	1.0060	1.0085	1.0073
Unload					
1	0	0	0.9365	0.9415	0.9390

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	500	0.0875	0.1225	0.1050
1	1,000	1,000	0.1790	0.2210	0.2000
1	1,500	1,480	0.2765	0.3200	0.2983
1	0	0	0.0695	0.0425	0.0560
1	500	480	0.1365	0.1555	0.1460
1	1,000	1,060	0.2310	0.2640	0.2475
1	1,500	1,500	0.3025	0.3385	0.3205
1	2,000	2,020	0.3975	0.4395	0.4185
1	2,500	2,560	0.5090	0.5570	0.5330
1	0	0	0.1025	0.0575	0.0800
1	2,500	2,500	0.5360	0.5675	0.5518
1	3,000	3,040	0.6395	0.6750	0.6573
1	3,500	3,500	0.7445	0.7795	0.7620
1	4,000	4,020	0.8700	0.9055	0.8878
Unload					
1	0	0	0.1520	0.0900	0.1210
Reload					
1	Max.	4,380	1.0095	1.0180	1.0138
Unload					
1	0	0	0.1830	0.1175	0.1503

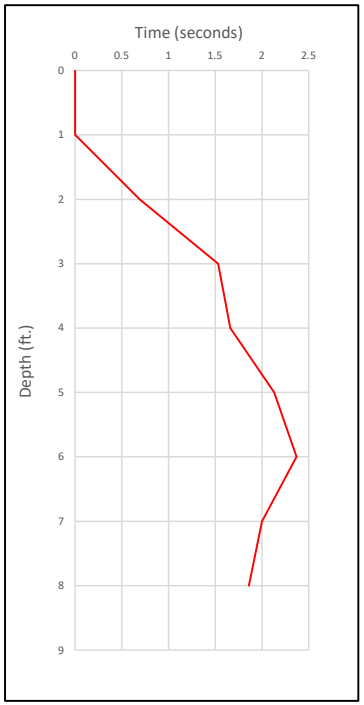
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-10B
Date/Time Installed:	3/25/21 9:10 AM	Date/Time Tested:	4/10/21 11:30 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	12.24
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.53

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.69
3	1.53
4	1.66
5	2.13
6	2.37
7	2.00
8	1.86
Total Time (s) =	12.24



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	1,580	0.0010	0.0280	0.0145
1	3,000	3,020	0.0920	0.1465	0.1193
1	4,000	3,600	0.9705	1.0445	1.0075
Unload					
1	0	0	0.9400	0.9670	0.9535

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	500	0.0830	0.1030	0.0930
1	1,000	1,000	0.1775	0.1865	0.1820
1	1,500	1,480	0.2765	0.2750	0.2758
1	0	0	0.0645	0.0570	0.0608
1	500	480	0.1355	0.1380	0.1368
1	1,000	1,060	0.2265	0.2285	0.2275
1	1,500	1,500	0.2980	0.2930	0.2955
1	2,000	2,020	0.3975	0.3785	0.3880
1	2,500	2,560	0.5160	0.4825	0.4993
1	0	0	0.1000	0.0660	0.0830
1	2,500	2,500	0.5370	0.4975	0.5173
1	3,000	3,040	0.6465	0.5955	0.6210
1	3,500	3,500	0.7605	0.6945	0.7275
1	4,000	4,020	0.8945	0.8220	0.8583
Unload					
1	0	0	0.1600	0.0925	0.1263
Reload					
1	Max.	4,380	1.0340	0.9545	0.9943
Unload					
1	0	0	0.205	0.1185	0.1618

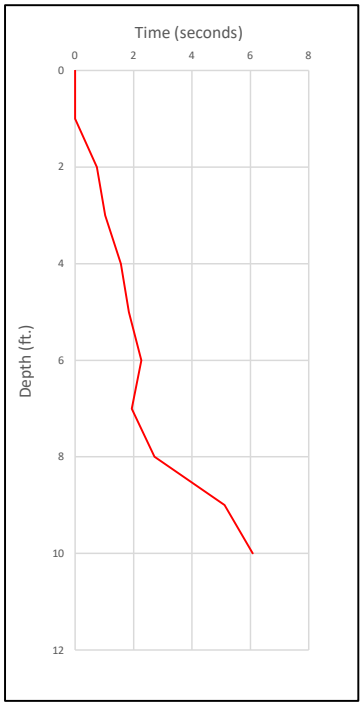
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-11A
Date/Time Installed:	3/25/21 9:25 AM	Date/Time Tested:	4/11/21 2:00 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	23.27
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	2.33

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.74
3	1.02
4	1.56
5	1.84
6	2.26
7	1.94
8	2.71
9	5.12
10	6.08
Total Time (s) =	23.27



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	1,660	-0.0085	0.0120	0.0018
1	3,000	3,040	-0.0120	0.0220	0.0050
1	4,000	4,060	-0.0125	0.0290	0.0083
1	5,000	5,040	-0.0135	0.0345	0.0105
1	6,000	6,080	-0.0125	0.0400	0.0138
1	7,000	7,040	-0.0105	0.0510	0.0203
1	8,000	8,120	-0.0055	0.0605	0.0275
1	9,000	9,060	0.0010	0.0760	0.0385
1	10,000	10,180	0.0175	0.0995	0.0585
Unload					
	0	0	0.0385	0.0475	0.0430
1	Max.	13,060	0.0905	0.1905	0.1405
Unload					
1	0	0	0.1100	0.1235	0.1168

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	480	0.0955	0.0685	0.0820
1	1,000	1,040	0.1980	0.1660	0.1820
1	1,500	1,500	0.2690	0.2360	0.2525
1	0	0	0.0635	0.0275	0.0455
1	500	480	0.1390	0.1105	0.1248
1	1,000	1,060	0.2215	0.1930	0.2073
1	1,500	1,520	0.2870	0.2565	0.2718
1	2,000	2,040	0.3690	0.3390	0.3540
1	2,500	2,520	0.4450	0.4140	0.4295
1	0	0	0.0945	0.0545	0.0745
1	2,500	2,540	0.4690	0.4435	0.4563
1	3,000	2,980	0.5380	0.5185	0.5283
1	3,500	3,520	0.6270	0.6195	0.6233
1	4,000	4,020	0.7160	0.7250	0.7205
Unload					
1	0	0	0.1120	0.0750	0.0935
Reload					
	Max.	5,300	1.0065	1.0690	1.0378
1	0	0	0.1035	0.1565	0.1300

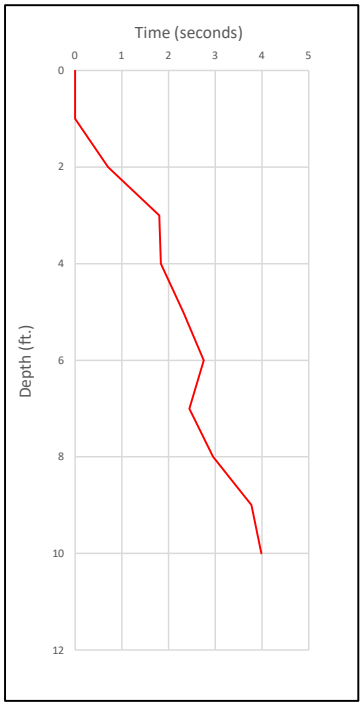
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-11B
Date/Time Installed:	3/25/21 9:30 AM	Date/Time Tested:	4/11/21 1:45 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	22.54
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	2.25

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.70
3	1.80
4	1.83
5	2.31
6	2.75
7	2.44
8	2.95
9	3.77
10	3.99
Total Time (s) =	22.54



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	1,580	-0.0010	0.0045	0.0018
1	3,000	3,060	0.0015	0.0090	0.0053
1	4,000	4,060	0.0045	0.0105	0.0075
1	5,000	5,080	0.0085	0.0125	0.0105
1	6,000	6,040	0.0135	0.0140	0.0138
1	7,000	7,100	0.0195	0.0155	0.0175
1	8,000	8,160	0.0260	0.0195	0.0228
1	9,000	9,000	0.0325	0.0230	0.0278
1	10,000	10,140	0.0440	0.0300	0.0370
Unload					
1	0	0	0.015	0.0155	0.0153
1	Max.	13,100	0.1205	0.0990	0.1098
Unload					
1	0	0	0.0825	0.0800	0.0813

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	480	0.0990	0.1080	0.1035
1	1,000	1,040	0.1955	0.2270	0.2113
1	1,500	1,500	0.2620	0.2985	0.2803
1	0	0	0.0290	0.0445	0.0368
1	500	480	0.1300	0.1515	0.1408
1	1,000	1,060	0.2205	0.2485	0.2345
1	1,500	1,520	0.2830	0.3170	0.3000
1	2,000	2,040	0.3565	0.3975	0.3770
1	2,500	2,520	0.4240	0.4745	0.4493
1	0	0	0.0605	0.0720	0.0663
1	2,500	2,540	0.4475	0.4990	0.4733
1	3,000	2,980	0.5140	0.5695	0.5418
1	3,500	3,520	0.6000	0.6565	0.6283
1	4,000	4,020	0.6920	0.7470	0.7195
Unload					
1	0	0	0.0560	0.0865	0.0713
Reload					
1	Max.	5,300	0.9770	1.0265	1.0018
Unload					
1	0	0	0.0475	0.1175	0.0825

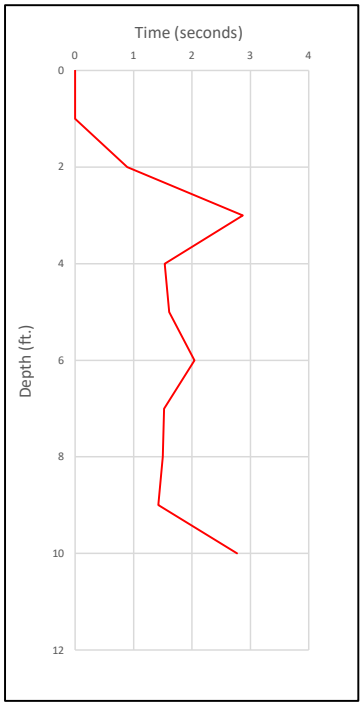
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-12A
Date/Time Installed:	3/24/21 4:40 PM	Date/Time Tested:	4/9/21 11:50 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	16.15
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	1.62

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.89
3	2.87
4	1.53
5	1.61
6	2.04
7	1.52
8	1.50
9	1.42
10	2.77
Total Time (s) =	16.15



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	1,580	0.0010	0.0045	0.0028
1	3,000	3,060	0.0155	0.0230	0.0193
1	4,000	4,000	0.0660	0.0770	0.0715
1	5,000	5,100	0.6795	0.7090	0.6943
1	6,000	5,920	0.9835	1.0210	1.0023
Unload					
1	0	0	0.9460	0.9695	0.9578

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	520	0.1225	0.0380	0.0803
1	1,000	1,220	0.2840	0.1625	0.2233
1	1,500	1,560	0.3505	0.2305	0.2905
1	0	0	0.0840	-0.0055	0.0393
1	500	480	0.1820	0.0210	0.1015
1	1,000	1,060	0.3020	0.1305	0.2163
1	1,500	1,520	0.3775	0.2155	0.2965
1	2,000	2,040	0.4930	0.3230	0.4080
1	2,500	2,540	0.6065	0.4495	0.5280
1	0	0	0.1475	0.0065	0.0770
1	2,500	2,560	0.6620	0.4565	0.5593
1	3,000	3,080	0.7715	0.5810	0.6763
1	3,500	3,560	0.8835	0.7160	0.7998
1	4,000	3,980	1.0035	0.8585	0.9310
Unload					
1	0	0	0.1975	0.1190	0.1583
Reload					
1	Max.	4,720	1.2400	1.1620	1.2010
Unload					
1	0	0	0.2530	0.3285	0.2908

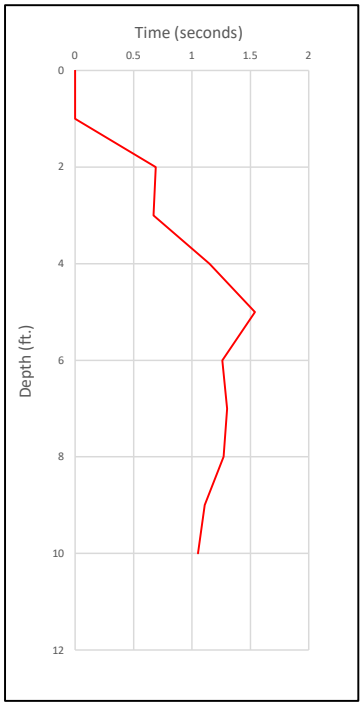
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-12B
Date/Time Installed:	3/24/21 4:45 PM	Date/Time Tested:	4/9/21 11:30 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	10.04
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	1.00

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.69
3	0.67
4	1.15
5	1.54
6	1.26
7	1.30
8	1.27
9	1.11
10	1.05
Total Time (s) =	10.04



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	1,580	0.0160	0.0140	0.0150
1	3,000	3,140	0.0330	0.0295	0.0313
1	4,000	4,080	0.0505	0.0455	0.0480
1	5,000	4,920	0.3520	0.3460	0.3490
1	6,000	4,920	1.0160	1.0090	1.0125
Unload					
1	0	0	0.9735	0.9710	0.9723

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	0.2490	0.0380	0.1435
1	1,000	1,020	0.3670	0.1105	0.2388
1	1,500	1,480	0.4935	0.1990	0.3463
1	0	0	0.0830	0.0265	0.0548
1	500	540	0.3065	0.0705	0.1885
1	1,000	1,080	0.4380	0.1480	0.2930
1	1,500	1,580	0.5555	0.2345	0.3950
1	2,000	2,020	0.6600	0.3150	0.4875
1	2,500	2,500	0.7960	0.4215	0.6088
1	0	0	0.1160	0.0420	0.0790
1	2,500	2,520	0.8790	0.4485	0.6638
1	3,000	3,000	1.0110	0.5585	0.7848
1	3,500	3,520	1.1640	0.6825	0.9233
1	4,000	3,860	1.2770	0.7870	1.0320
Unload					
1	0	0	0.1225	0.0700	0.0963

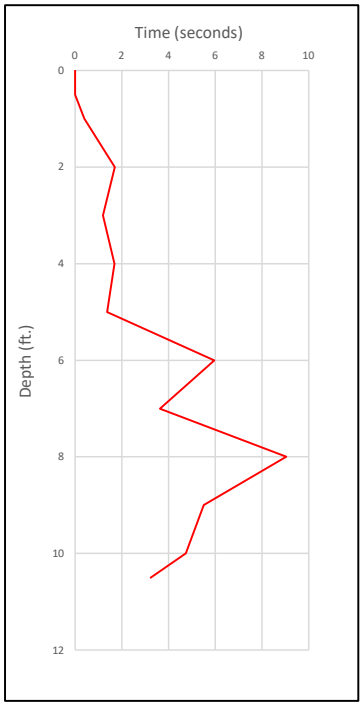
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-14A
Date/Time Installed:	3/25/21 12:50 PM	Date/Time Tested:	4/13/21 8:10 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	38.42
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	3.66

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.39
2	1.69
3	1.19
4	1.68
5	1.37
6	5.96
7	3.63
8	9.04
9	5.50
10	4.74
10.5	3.23
Total Time (s) =	38.42



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	1,560	-0.0015	0.0070	0.0028
1	3,000	3,100	-0.0020	0.0130	0.0055
1	4,000	4,080	-0.0025	0.0160	0.0068
1	5,000	5,020	-0.0025	0.0200	0.0088
1	6,000	6,160	0.0000	0.0265	0.0133
1	7,000	7,040	0.0030	0.0320	0.0175
1	8,000	8,080	0.0110	0.0420	0.0265
1	9,000	9,120	0.0250	0.0585	0.0418
1	10,000	10,000	0.0425	0.0770	0.0598
Unload					
1	0	0	0.0455	0.0420	0.0438
Reload					
1	Max.	11,960	0.9900	1.0225	1.0063
Unload					
1	0	0	0.9925	0.9685	0.9805

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	0.1040	0.0825	0.0933
1	1,000	1,040	0.1575	0.1525	0.1550
1	1,500	1,500	0.2195	0.2330	0.2263
1	0	0	0.0085	0.0985	0.0535
1	500	540	0.0950	0.1385	0.1168
1	1,000	1,120	0.1755	0.2055	0.1905
1	1,500	1,500	0.2205	0.2555	0.2380
1	2,000	2,060	0.2910	0.3580	0.3245
1	2,500	2,500	0.3605	0.4475	0.4040
1	0	0	0.0010	0.1825	0.0918
1	2,500	2,560	0.3845	0.4850	0.4348
1	3,000	3,020	0.4575	0.5715	0.5145
1	3,500	3,500	0.5465	0.6730	0.6098
1	4,000	4,000	0.6360	0.7785	0.7073
Unload					
1	0	0	0.0200	0.3060	0.1630
Reload					
1	Max.	5,120	0.9165	1.1105	1.0135
Unload					
1	0	0	0.0285	0.4880	0.2583

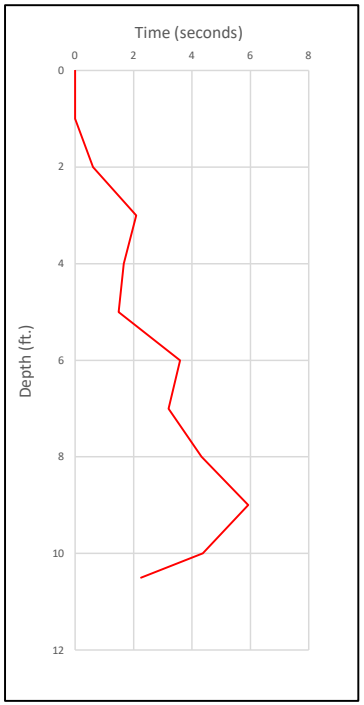
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-14B
Date/Time Installed:	3/25/21 12:55 PM	Date/Time Tested:	4/13/21 7:30 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	29.52
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	2.81

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.61
3	2.09
4	1.66
5	1.49
6	3.59
7	3.20
8	4.33
9	5.93
10	4.37
10.5	2.25
Total Time (s) =	29.52



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	1,560	-0.0030	0.0085	0.0028
1	3,000	3,080	-0.0025	0.0160	0.0068
1	4,000	4,060	-0.0010	0.0195	0.0093
1	5,000	5,100	0.0020	0.0235	0.0128
1	6,000	6,060	0.0065	0.0280	0.0173
1	7,000	7,040	0.0125	0.0340	0.0233
1	8,000	8,100	0.0215	0.0440	0.0328
1	9,000	9,060	0.0390	0.0620	0.0505
1	10,000	10,020	0.074	0.099	0.0865
Unload					
1	0	0	0.0635	0.0655	0.0645
Reload					
1	Max.	11,440	1.1500	1.1985	1.1743
Unload					
1	0	0	1.1295	1.1570	1.1433

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	540	0.1045	0.0900	0.0973
1	1,000	1,000	0.1860	0.1650	0.1755
1	1,500	1,500	0.2810	0.2560	0.2685
1	0	0	0.0970	0.0425	0.0698
1	500	560	0.1735	0.1360	0.1548
1	1,000	1,060	0.2400	0.2080	0.2240
1	1,500	1,520	0.3045	0.2725	0.2885
1	2,000	2,020	0.3905	0.3625	0.3765
1	2,500	2,520	0.5010	0.4695	0.4853
1	0	0	0.1675	0.0775	0.1225
1	2,500	2,540	0.5260	0.5030	0.5145
1	3,000	3,040	0.6175	0.6010	0.6093
1	3,500	3,520	0.7140	0.7065	0.7103
1	4,000	4,040	0.8290	0.8270	0.8280
Unload					
1	0	0	0.2585	0.1140	0.1863
Reload					
1	Max.	3,680	0.9965	1.0040	1.0003
Unload					
1	0	0	0.3030	0.1330	0.2180

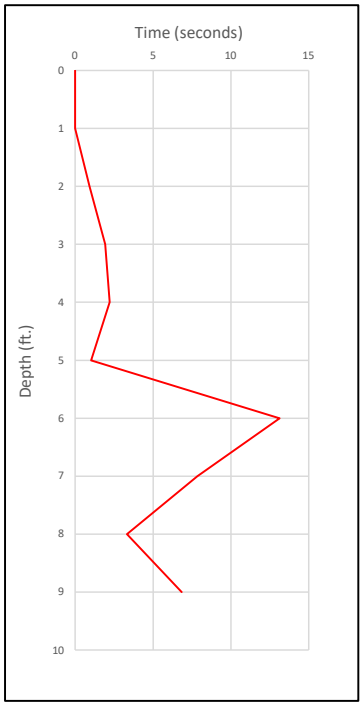
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-15A
Date/Time Installed:	3/25/21 1:05 PM	Date/Time Tested:	4/13/21 9:40 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	37.21
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	4.13

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.92
3	1.93
4	2.21
5	1.02
6	13.13
7	7.84
8	3.32
9	6.84
Total Time (s) =	37.21



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	1,520	0.0130	0.0020	0.0075
1	3,000	3,080	0.0290	-0.0010	0.0140
1	4,000	4,080	0.0410	0.0010	0.0210
1	5,000	5,060	0.0610	0.0030	0.0320
1	6,000	6,040	0.0910	0.0130	0.0520
1	7,000	7,040	0.1510	0.0480	0.0995
1	8,000	8,140	0.2620	0.1305	0.1963
1	9,000	9,020	0.4240	0.2685	0.3463
1	10,000	10,120	0.8195	0.6215	0.7205
Unload					
1	0	0	0.7040	0.6460	0.6750
Reload					
1	Max.	10120	1.3750	1.1690	1.2720
Unload					
1	0	0	1.2510	1.1860	1.2185

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	500	0.2110	0.0695	0.1403
1	1,000	1,000	0.4290	0.1895	0.3093
1	1,500	1,520	0.6535	0.3205	0.4870
1	0	0	0.0455	0.1840	0.1148
1	500	580	0.3455	0.2315	0.2885
1	1,000	1,080	0.5545	0.3050	0.4298
1	1,500	1,500	0.6845	0.4260	0.5553
1	2,000	2,080	0.9080	0.5325	0.7203
1	2,500	2,520	1.0835	0.6835	0.8835
1	0	0	0.0470	0.3795	0.2133
1	2,500	2,720	1.2100	0.8405	1.0253
Unload					
1	0	0	0.0100	0.4915	0.2508

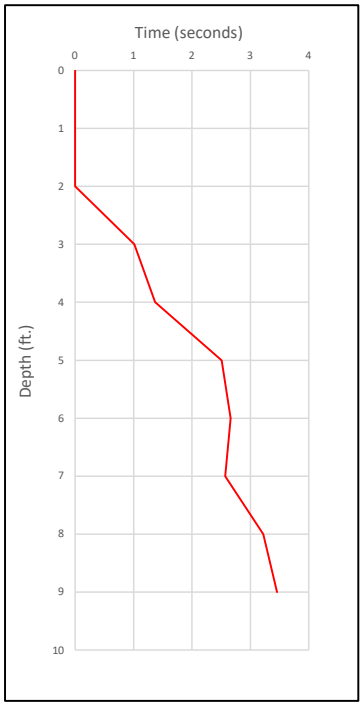
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-15B
Date/Time Installed:	3/25/21 1:10 PM	Date/Time Tested:	4/13/21 9:00 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	16.8
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	1.87

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	1.01
4	1.37
5	2.51
6	2.66
7	2.57
8	3.22
9	3.46
Total Time (s) =	16.8



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	1,560	0.0065	0.0050	0.0058
1	3,000	3,040	0.0125	0.0160	0.0143
1	4,000	4,080	0.0235	0.0330	0.0283
1	5,000	5,040	0.0505	0.0645	0.0575
1	6,000	6,120	0.0920	0.1140	0.1030
1	7,000	7,080	0.1730	0.1975	0.1853
1	8,000	7,720	1.0070	1.0290	1.0180
Unload					
1	0	0	0.9740	0.9895	0.9818

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	540	0.2360	0.0090	0.1225
1	1,000	1,020	0.3845	0.0630	0.2238
1	1,500	1,540	0.5235	0.1475	0.3355
1	0	0	0.0530	0.0460	0.0495
1	500	600	0.3280	0.0560	0.1920
1	1,000	1,220	0.4940	0.1290	0.3115
1	1,500	1,560	0.5545	0.1695	0.3620
1	2,000	2,020	0.6485	0.2435	0.4460
1	2,500	2,520	0.7605	0.3475	0.5540
1	0	0	0.0720	0.0760	0.0740
1	2,500	2,500	0.8075	0.3870	0.5973
1	3,000	3,080	0.9275	0.5065	0.7170
1	3,500	4,040	1.1585	0.7625	0.9605
1	4,000	4,280	1.2210	0.8385	1.0298
Unload					
1	0	0	0.0660	0.1525	0.1093

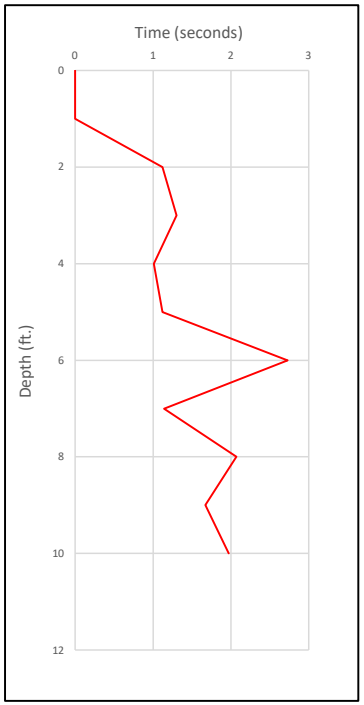
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-21A
Date/Time Installed:	3/28/21 12:00 PM	Date/Time Tested:	4/14/21 11:45 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	14.13
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	1.41

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.12
3	1.3
4	1.01
5	1.12
6	2.73
7	1.14
8	2.07
9	1.67
10	1.97
Total Time (s) =	14.13



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	1,540	-0.0060	0.0000	-0.0030
1	3,000	3,020	-0.0085	0.0025	-0.0030
1	4,000	4,080	-0.0050	0.0085	0.0018
1	5,000	5,080	0.0075	0.0250	0.0163
1	6,000	6,020	0.0360	0.0570	0.0465
1	7,000	6,800	0.9940	1.0140	1.0040
Unload					
1	0	0	0.9845	0.9785	0.9815

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	520	0.1040	0.1065	0.1053
1	1,000	1,000	0.2120	0.1935	0.2028
1	1,500	1,520	0.3195	0.2795	0.2995
1	0	0	0.0255	0.0525	0.0390
1	500	600	0.1655	0.1770	0.1713
1	1,000	1,100	0.2595	0.2425	0.2510
1	1,500	1,540	0.3235	0.3095	0.3165
1	2,000	2,000	0.4020	0.3930	0.3975
1	2,500	2,520	0.5025	0.4940	0.4983
1	0	0	0.0470	0.0790	0.0630
1	2,500	2,540	0.5235	0.5285	0.5260
1	3,000	3,020	0.6075	0.6165	0.6120
1	3,500	3,580	0.7140	0.7420	0.7280
1	4,000	4,020	0.8040	0.8565	0.8303
Unload					
1	0	0	0.0585	0.1140	0.0863
Reload					
1	Max.	4,520	0.9265	1.0825	1.0045
Unload					
1	0	0	0.0470	0.1445	0.0958

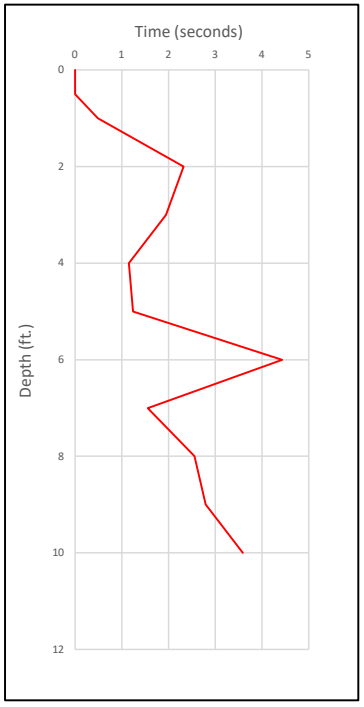
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-21B
Date/Time Installed:	3/28/21 12:05 PM	Date/Time Tested:	4/14/21 12:00 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	22.04
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	2.20

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.48
2	2.32
3	1.94
4	1.15
5	1.24
6	4.43
7	1.55
8	2.55
9	2.79
10	3.59
Total Time (s) =	22.04



Tensile Testing

Hold Time (min)	Target Load (lbs)	Load (lbs)	Deflection 1 (in.)	Deflection 2 (in.)	Average Deflection (in.)
1	0	0	0	0	0.0000
1	1,500	1,580	-0.0005	0.0105	0.0050
1	3,000	3,000	-0.0020	0.0195	0.0088
1	4,000	4,080	-0.0005	0.0270	0.0133
1	5,000	5,120	0.0055	0.0385	0.0220
1	6,000	6,120	0.0215	0.0605	0.0410
1	7,000	7,100	0.0620	0.1065	0.0843
1	8,000	8,160	0.1750	0.2290	0.2020
1	9,000	9,000	1.0355	1.0875	1.0615
Unload					
1	0	0	1.0370	1.0490	1.0430

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	0	0.0000
1	500	520	0.055	0.1125	0.0838
1	1,000	1,000	0.1255	0.2175	0.1715
1	1,500	1,520	0.2045	0.3235	0.2640
1	0	0	0.0455	0.0590	0.0523
1	500	600	0.1045	0.2045	0.1545
1	1,000	1,100	0.1615	0.2885	0.2250
1	1,500	1,540	0.2130	0.3605	0.2868
1	2,000	2,000	0.2850	0.4490	0.3670
1	2,500	2,520	0.3835	0.5600	0.4718
1	0	0	0.0910	0.1030	0.0970
1	2,500	2,540	0.4205	0.5955	0.5080
1	3,000	3,020	0.5085	0.6885	0.5985
1	3,500	3,580	0.6325	0.8140	0.7233
1	4,000	4,020	0.7480	0.9240	0.8360
Unload					
1	0	0	0.1225	0.1415	0.1320
Reload					
1	Max.	4,520	0.9675	1.1290	1.0483
Unload					
1	0	0	0.1270	0.1715	0.1493

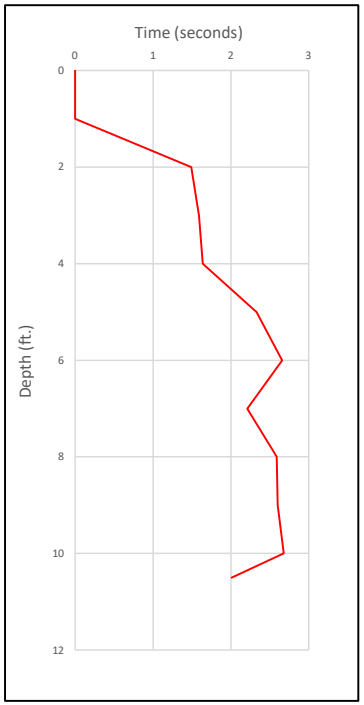
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-22A
Date/Time Installed:	3/28/21 9:05 AM	Date/Time Tested:	4/14/21 3:30 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	21.8
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	2.08

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.49
3	1.59
4	1.64
5	2.33
6	2.66
7	2.21
8	2.59
9	2.60
10	2.68
10.5	2.01
Total Time (s) =	21.8



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	1,560	-0.0085	0.0090	0.0002
1	3,000	3,040	-0.0135	0.0160	0.0013
1	4,000	4,120	-0.0140	0.0195	0.0028
1	5,000	5,160	-0.0140	0.0230	0.0045
1	6,000	6,060	-0.0130	0.0250	0.0060
1	7,000	7,060	-0.0120	0.0265	0.0073
1	8,000	8,080	-0.0105	0.0290	0.0093
1	9,000	9,060	-0.0085	0.0325	0.0120
1	10,000	10,000	-0.0065	0.0345	0.0140
Unload					
1	0	0	0.0025	0.0050	0.0038
Reload					
1	Max.	13,140	0.0030	0.0420	0.0225
Unload					
1	0	0	0.0065	0.0090	0.0078

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	740	0.1205	0.1715	0.1460
1	1,000	1,000	0.1585	0.2120	0.1853
1	1,500	1,520	0.2295	0.2890	0.2593
1	0	0	0.0245	0.0255	0.0250
1	500	540	0.1320	0.1655	0.1488
1	1,000	1,080	0.1975	0.2465	0.2220
1	1,500	1,540	0.2430	0.2985	0.2708
1	2,000	2,080	0.3055	0.3700	0.3378
1	2,500	2,500	0.3545	0.4250	0.3898
1	0	0	0.0360	0.0340	0.0350
1	2,500	2,560	0.3765	0.4530	0.4148
1	3,000	3,000	0.4245	0.5080	0.4663
1	3,500	3,500	0.4920	0.5845	0.5383
1	4,000	4,100	0.5660	0.6680	0.6170
Unload					
1	0	0	0.0560	0.0380	0.0470
Reload					
1	Max.	6,000	0.9365	1.0400	0.9883
Unload					
1	0	0	0.1155	0.0565	0.0860

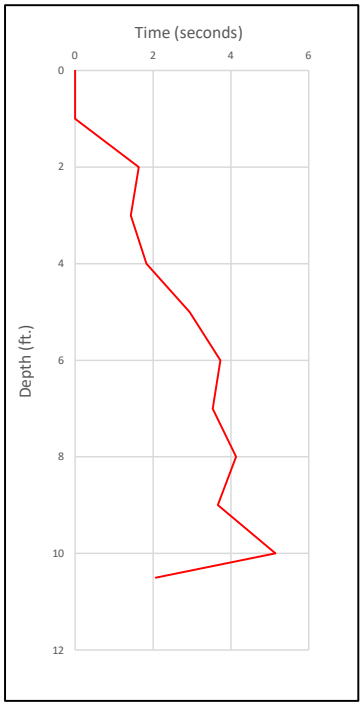
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-22B
Date/Time Installed:	3/28/21 9:10 AM	Date/Time Tested:	4/14/21 4:05 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	30.1
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	2.87

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.63
3	1.43
4	1.83
5	2.94
6	3.73
7	3.53
8	4.13
9	3.66
10	5.15
10.5	2.07
Total Time (s) =	30.1



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	1,540	-0.0005	0.0010	0.0003
1	3,000	3,080	0.0015	0.0035	0.0025
1	4,000	4,020	0.0040	0.0045	0.0043
1	5,000	5,120	0.0080	0.0045	0.0063
1	6,000	6,040	0.0115	0.0045	0.0080
1	7,000	7,000	0.0160	0.0055	0.0108
1	8,000	8,120	0.0245	0.0105	0.0175
1	9,000	9,120	0.0345	0.0175	0.0260
1	10,000	10,100	0.0510	0.0295	0.0403
Unload					
1	0	0	0.0300	0.0265	0.0283
Reload					
1	Max.	13,100	0.1215	0.0895	0.1055
Unload					
1	0	0	0.0935	0.0900	0.0918

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	520	0.0345	0.1955	0.1150
1	1,000	1,040	0.0790	0.3715	0.2253
1	1,500	1,560	0.1365	0.5155	0.3260
1	0	0	0.0770	0.0035	0.0403
1	500	580	0.1050	0.2815	0.1933
1	1,000	1,100	0.1295	0.4235	0.2765
1	1,500	1,560	0.1685	0.5125	0.3405
1	2,000	2,020	0.2210	0.5990	0.4100
1	2,500	2,520	0.2885	0.6865	0.4875
1	0	0	0.1240	-0.0150	0.0545
1	2,500	2,540	0.3215	0.6930	0.5073
1	3,000	3,040	0.3905	0.7675	0.5790
1	3,500	3,620	0.4810	0.8565	0.6688
1	4,000	4,020	0.5460	0.9190	0.7325
Unload					
1	0	0	0.1875	0.0010	0.0943
Reload					
1	Max.	5,660	0.9205	1.1795	1.0500
Unload					
1	0	0	0.3245	-0.0380	0.1433

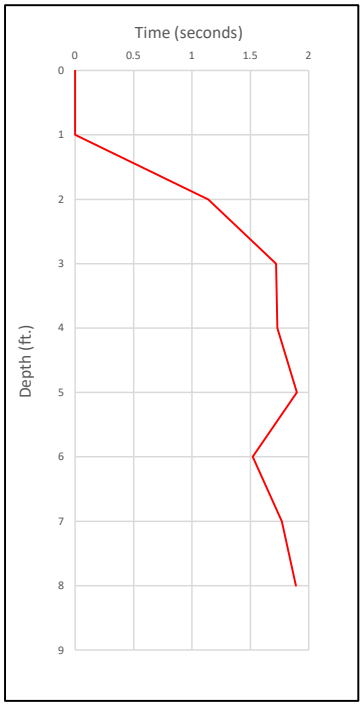
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-25A
Date/Time Installed:	3/28/21 9:25 AM	Date/Time Tested:	4/13/21 11:20 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	11.67
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.46

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.14
3	1.72
4	1.73
5	1.90
6	1.52
7	1.77
8	1.89
Total Time (s) =	11.67



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	1,560	0.0030	0.0050	0.0040
1	3,000	3,000	0.0345	0.0455	0.0400
1	4,000	3,480	1.0560	1.0760	1.0660
Unload					
1	0	0	1.0230	1.0315	1.0273

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	0.1280	0.0825	0.1053
1	1,000	1,080	0.2070	0.1550	0.1810
1	1,500	1,540	0.2825	0.2310	0.2568
1	0	0	0.0375	0.0495	0.0435
1	500	540	0.1620	0.1280	0.1450
1	1,000	1,080	0.2375	0.1905	0.2140
1	1,500	1,520	0.2915	0.2440	0.2678
1	2,000	2,040	0.3715	0.3210	0.3463
1	2,500	2,580	0.4655	0.4180	0.4418
1	0	0	0.0425	0.0725	0.0575
1	2,500	2,580	0.4900	0.4485	0.4693
1	3,000	3,060	0.5620	0.5215	0.5418
1	3,500	3,500	0.6400	0.6015	0.6208
1	4,000	4,040	0.7455	0.7100	0.7278
Unload					
1	0	0	0.0675	0.1140	0.0908
Reload					
1	Max.	5,120	1.0165	0.9975	1.0070
Unload					
1	0	0	0.0880	0.1575	0.1228

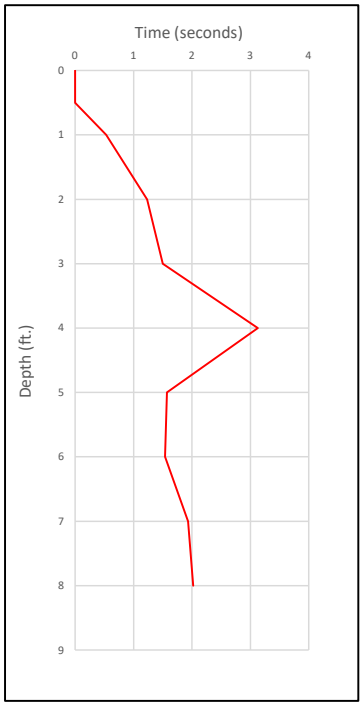
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-25B
Date/Time Installed:	3/28/21 9:30 AM	Date/Time Tested:	4/13/21 11:45 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	13.45
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	1.68

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.53
2	1.23
3	1.50
4	3.13
5	1.57
6	1.54
7	1.93
8	2.02
Total Time (s) =	13.45



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	1,540	0.0290	0.0140	0.0215
1	3,000	3,040	0.2270	0.2025	0.2148
1	4,000	3,640	1.0200	0.9880	1.0040
Unload					
1	0	0	0.9655	0.9595	0.9625

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	500	0.0435	0.1140	0.0788
1	1,000	1,040	0.1055	0.2195	0.1625
1	1,500	1,580	0.1740	0.3100	0.2420
1	0	0	0.0500	0.0270	0.0385
1	500	520	0.0975	0.1545	0.1260
1	1,000	1,000	0.1395	0.2365	0.1880
1	1,500	1,580	0.1850	0.3015	0.2433
1	2,000	2,020	0.2540	0.3820	0.3180
1	2,500	2,500	0.3180	0.4530	0.3855
1	0	0	0.0735	0.0345	0.0540
1	2,500	2,560	0.3545	0.4800	0.4173
1	3,000	3,000	0.4165	0.5470	0.4818
1	3,500	3,560	0.5040	0.6360	0.5700
1	4,000	4,040	0.5895	0.7220	0.6558
Unload					
1	0	0	0.1215	0.0750	0.0983
Reload					
1	Max.	5,540	0.9730	1.0675	1.0203
Unload					
1	0	0	0.2120	0.1340	0.1730

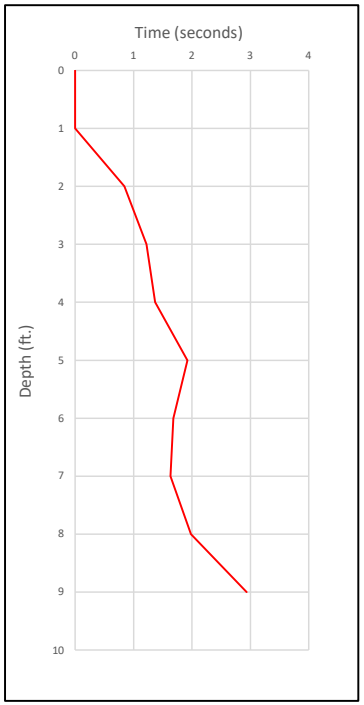
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-26A
Date/Time Installed:	3/28/21 11:45 AM	Date/Time Tested:	4/14/21 2:30 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	13.58
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	1.51

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.84
3	1.22
4	1.37
5	1.92
6	1.68
7	1.63
8	1.98
9	2.94
Total Time (s) =	13.58



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	1,700	-0.0010	0.0100	0.0045
1	3,000	3,060	0.0030	0.0175	0.0103
1	4,000	4,100	0.0190	0.0325	0.0258
1	5,000	5,120	0.0785	0.0920	0.0853
1	6,000	5,600	0.9955	1.0105	1.0030
Unload					
1	0	0	0.9770	0.9760	0.9765

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	540	0.1100	0.1105	0.1103
1	1,000	1,000	0.2075	0.1870	0.1973
1	1,500	1,540	0.3030	0.2675	0.2853
1	0	0	0.0585	0.0470	0.0528
1	500	540	0.1780	0.1510	0.1645
1	1,000	1,040	0.2530	0.2170	0.2350
1	1,500	1,500	0.3145	0.2720	0.2933
1	2,000	2,020	0.3915	0.3360	0.3638
1	2,500	2,520	0.4740	0.4075	0.4408
1	0	0	0.0790	0.0625	0.0708
1	2,500	2,580	0.5020	0.4285	0.4653
1	3,000	3,040	0.5815	0.4975	0.5395
1	3,500	3,500	0.6530	0.5585	0.6058
1	4,000	4,000	0.7440	0.6385	0.6913
Unload					
1	0	0	0.1000	0.0755	0.0878
Reload					
1	Max.	5,500	1.0850	0.9385	1.0118
Unload					
1	0	0	0.1230	0.0920	0.1075

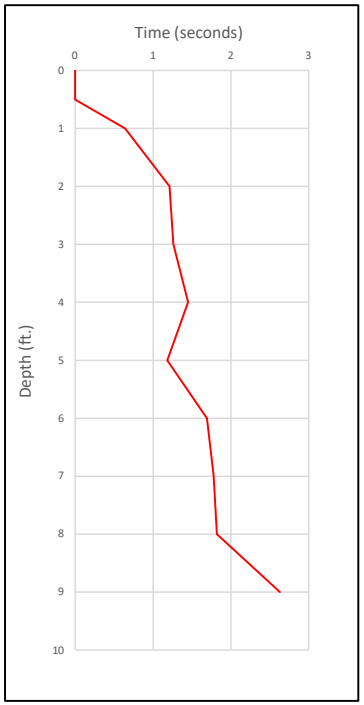
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-26B
Date/Time Installed:	3/28/21 11:50 AM	Date/Time Tested:	4/14/21 1:45 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	13.66
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	1.52

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.64
2	1.21
3	1.26
4	1.45
5	1.18
6	1.69
7	1.78
8	1.82
9	2.63
Total Time (s) =	13.66



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	1,560	0.0105	0.0070	0.0088
1	3,000	3,000	0.0195	0.0140	0.0168
1	4,000	4,000	0.0450	0.0395	0.0423
1	5,000	5,080	0.1385	0.1355	0.1370
1	6,000	5,220	1.0380	1.0330	1.0355
Unload					
1	0	0	1.0105	1.0130	1.0118

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	540	0.0750	0.0610	0.0680
1	1,000	1,120	0.1570	0.1365	0.1468
1	1,500	1,560	0.2195	0.1945	0.2070
1	0	0	0.0565	0.0160	0.0363
1	500	600	0.1280	0.0945	0.1113
1	1,000	1,180	0.1930	0.1680	0.1805
1	1,500	1,560	0.2345	0.2065	0.2205
1	2,000	2,020	0.2916	0.2655	0.2786
1	2,500	2,500	0.3705	0.3350	0.3528
1	0	0	0.0825	0.0235	0.0530
1	2,500	2,580	0.4015	0.3600	0.3808
1	3,000	3,040	0.4640	0.4175	0.4408
1	3,500	3,560	0.5475	0.4985	0.5230
1	4,000	4,040	0.6330	0.5795	0.6063
Unload					
1	0	0	0.1445	0.0505	0.0975
Reload					
1	Max.	6,020	1.1065	0.9640	1.0353
Unload					
1	0	0	0.2405	0.0650	0.1528

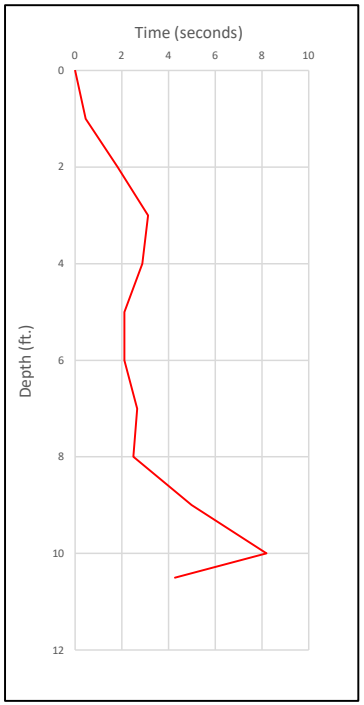
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-27A
Date/Time Installed:	3/28/21 11:20 AM	Date/Time Tested:	4/14/21 10:30 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	35.02
Pushed to Depth (ft.):	0	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	3.34

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0.44
2	1.81
3	3.12
4	2.87
5	2.1
6	2.1
7	2.65
8	2.49
9	4.98
10	8.19
10.5	4.27
Total Time (s) =	35.02



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	1,680	0.0085	-0.0010	0.0038
1	3,000	3,040	0.0135	-0.0010	0.0063
1	4,000	4,020	0.0170	-0.0005	0.0083
1	5,000	5,060	0.0200	0.0010	0.0105
1	6,000	6,120	0.0235	0.0045	0.0140
1	7,000	7,020	0.0275	0.0085	0.0180
1	8,000	8,080	0.0395	0.0190	0.0293
1	9,000	9,100	0.0550	0.0340	0.0445
1	10,000	10,020	0.0935	0.0725	0.0830
Unload					
1	0	0	0.0675	0.0640	0.0658
Reload					
1	Max	11,800	1.0520	1.0375	1.0448
1	0	0	1.0210	1.0235	1.0223

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	500	0.1920	0.0160	0.1040
1	1,000	1,080	0.3240	0.0930	0.2085
1	1,500	1,540	0.3840	0.1485	0.2663
1	0	0	0.0615	0.0430	0.0523
1	500	520	0.2690	0.0605	0.1648
1	1,000	1,120	0.3620	0.1105	0.2363
1	1,500	1,540	0.4005	0.1475	0.2740
1	2,000	2,000	0.4475	0.1995	0.3235
1	2,500	2,520	0.4955	0.2605	0.3780
1	0	0	0.0750	0.0605	0.0678
1	2,500	2,580	0.5165	0.2790	0.3978
1	3,000	3,020	0.5530	0.3260	0.4395
1	3,500	3,500	0.6005	0.3900	0.4953
1	4,000	4,020	0.6475	0.4600	0.5538
Unload					
1	0	0	0.0610	0.1045	0.0828
Reload					
1	Max.	6,000	0.8370	1.0415	0.9393
Unload					
1	0	0	0.1365	0.3790	0.2578

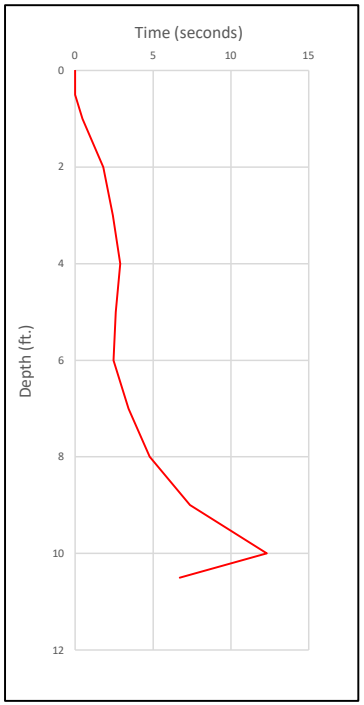
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-27B
Date/Time Installed:	3/28/21 11:25 AM	Date/Time Tested:	4/14/21 10:00 AM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	47.23
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10.5	Avg. Installation Rate (sec/ft)	4.50

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.47
2	1.79
3	2.42
4	2.88
5	2.6
6	2.46
7	3.43
8	4.78
9	7.37
10	12.31
10.5	6.72
Total Time (s) =	47.23



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	1,540	-0.0010	0.0030	0.0010
1	3,000	3,040	-0.0005	0.0060	0.0028
1	4,000	4,080	0.0010	0.0065	0.0038
1	5,000	5,140	0.0040	0.0080	0.0060
1	6,000	6,080	0.0095	0.0105	0.0100
1	7,000	7,000	0.0185	0.0165	0.0175
1	8,000	8,060	0.0305	0.0265	0.0285
1	9,000	9,080	0.0520	0.0445	0.0483
1	10,000	10,120	0.0880	0.0770	0.0825
Unload					
1	0	0	0.0775	0.0750	0.0763
Reload					
1	Max.	13,060	0.2680	0.2490	0.2585
Unload					
1	0	0	0.2535	0.2435	0.2485

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	500	0.0145	0.1425	0.0785
1	1,000	1,040	0.0510	0.2115	0.1313
1	1,500	1,500	0.0875	0.3310	0.2093
1	0	0	0.0320	0.0800	0.0560
1	500	600	0.0360	0.2470	0.1415
1	1,000	1,000	0.0565	0.2940	0.1753
1	1,500	1,480	0.0880	0.3505	0.2193
1	2,000	2,040	0.1325	0.4180	0.2753
1	2,500	2,520	0.1815	0.4790	0.3303
1	0	0	0.0430	0.1125	0.0778
1	2,500	2,500	0.1855	0.5045	0.3450
1	3,000	3,020	0.2290	0.5575	0.3933
1	3,500	3,520	0.2795	0.6150	0.4473
1	4,000	4,060	0.3405	0.6825	0.5115
Unload					
1	0	0	0.0555	0.1375	0.0965
Reload					
1	Max.	6,040	0.5740	0.9540	0.7640
Unload					
1	0	0	0.2205	0.5260	0.3733

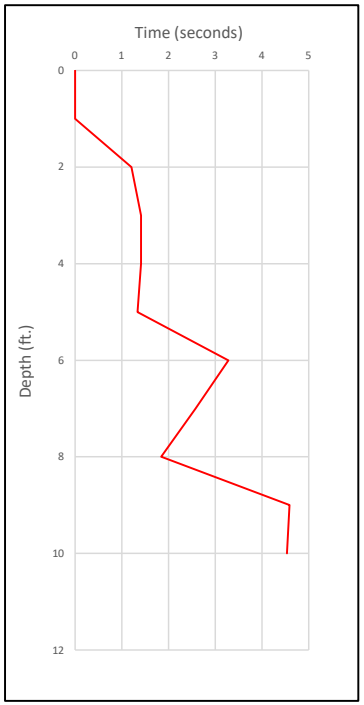
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-28A
Date/Time Installed:	3/28/21 9:45 AM	Date/Time Tested:	4/13/21 1:40 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	22.16
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	2.22

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.20
3	1.41
4	1.41
5	1.33
6	3.28
7	2.57
8	1.84
9	4.59
10	4.53
Total Time (s) =	22.16



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	1,560	0.0105	0.0085	0.0095
1	3,000	3,020	0.1865	0.1810	0.1838
1	4,000	3,380	1.0765	0.9840	1.0303
Unload					
1	0	0	1.0420	0.9640	1.0030

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	540	0.0825	0.1170	0.0998
1	1,000	1,040	0.1725	0.2050	0.1888
1	1,500	1,520	0.2640	0.2765	0.2703
1	0	0	0.0675	0.0345	0.0510
1	500	520	0.1580	0.1545	0.1563
1	1,000	1,200	0.2450	0.2450	0.2450
1	1,500	1,540	0.286	0.2815	0.2838
1	2,000	2,000	0.3580	0.3435	0.3508
1	2,500	2,540	0.4475	0.4215	0.4345
1	0	0	0.0935	0.0255	0.0595
1	2,500	2,560	0.4800	0.4500	0.4650
1	3,000	3,120	0.5745	0.5390	0.5568
1	4,000	4,020	0.7225	0.6795	0.7010
Unload					
1	0	0	0.1170	0.0520	0.0845
Reload					
1	Max.	5,500	1.0250	0.9870	1.0060
Unload					
1	0	0	0.1390	0.0900	0.1145

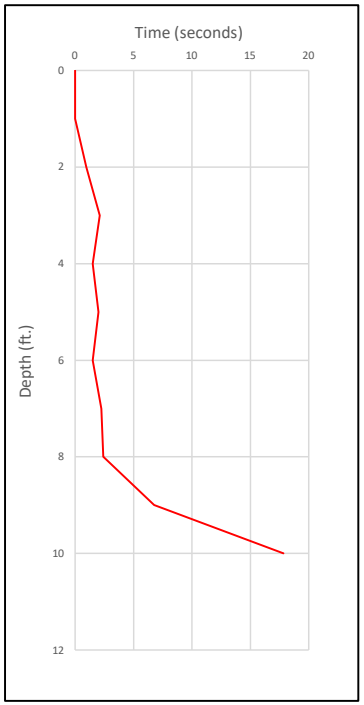
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-28B
Date/Time Installed:	3/28/21 9:50 AM	Date/Time Tested:	4/13/21 1:25 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	37.26
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	3.73

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0.95
3	2.10
4	1.50
5	1.99
6	1.49
7	2.23
8	2.40
9	6.75
10	17.85
Total Time (s) =	37.26



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	1,540	-0.0080	0.0085	0.0003
1	3,000	3,020	0.0205	0.0505	0.0355
1	4,000	4,100	0.7035	0.7455	0.7245
1	5,000	5,080	1.0045	1.0490	1.0268
Unload					
1	0	0	1.0045	1.0095	1.0070

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	540	0.2010	0.0415	0.1213
1	1,000	1,040	0.3305	0.1150	0.2228
1	1,500	1,520	0.4455	0.1990	0.3223
1	0	0	0.0715	0.0590	0.0653
1	500	520	0.2655	0.0950	0.1803
1	1,000	1,200	0.4130	0.1680	0.2905
1	1,500	1,540	0.4670	0.2075	0.3373
1	2,000	2,000	0.5550	0.2880	0.4215
1	2,500	2,540	0.6665	0.3895	0.5280
1	0	0	0.0620	0.0950	0.0785
1	2,500	2,560	0.7045	0.4250	0.5648
1	3,000	3,120	0.8215	0.5435	0.6825
1	4,000	4,020	0.9825	0.7430	0.8628
Unload					
1	0	0	0.0635	0.1660	0.1148
Reload					
1	Max.	4,640	1.1180	0.9135	1.0158
Unload					
1	0	0	0.0560	0.4145	0.2353

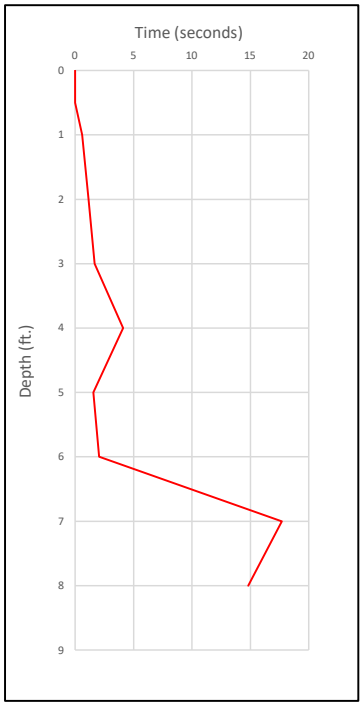
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-29A
Date/Time Installed:	3/28/21 11:00 AM	Date/Time Tested:	4/13/21 4:00 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	43.61
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	5.45

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.60
2	1.13
3	1.65
4	4.11
5	1.56
6	2.03
7	17.71
8	14.82
Total Time (s) =	43.61



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	1,520	0.0030	0.0065	0.0048
1	3,000	3,080	0.0060	0.0165	0.0113
1	4,000	4,060	0.0105	0.0250	0.0178
1	5,000	5,040	0.0180	0.0380	0.0280
1	6,000	6,020	0.0305	0.0585	0.0445
1	7,000	7,020	0.0845	0.1215	0.1030
1	8,000	7,480	1.0110	1.0660	1.0385
Unload					
1	0	0	1.0030	0.9935	0.9983

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	540	0.1640	0.0185	0.0913
1	1,000	1,060	0.3185	0.0885	0.2035
1	1,500	1,500	0.4335	0.1680	0.3008
1	0	0	0.0930	0.0845	0.0888
1	500	540	0.2435	0.1025	0.1730
1	1,000	1,060	0.3656	0.1425	0.2541
1	1,500	1,540	0.4590	0.2020	0.3305
1	2,000	2,020	0.5625	0.2840	0.4233
1	2,500	2,500	0.6800	0.3875	0.5338
1	0	0	0.1050	0.2030	0.1540
1	2,500	2,520	0.7175	0.4260	0.5718
1	3,000	3,020	0.8185	0.5130	0.6658
1	3,500	3,540	0.9510	0.6390	0.7950
1	4,000	4,000	1.0655	0.7590	0.9123
1	0	0	0.1735	0.3765	0.2750
Reload					
1	Max.	4,140	1.1840	0.8485	1.0163
Unload					
1	0	0	0.2115	0.4395	0.3255

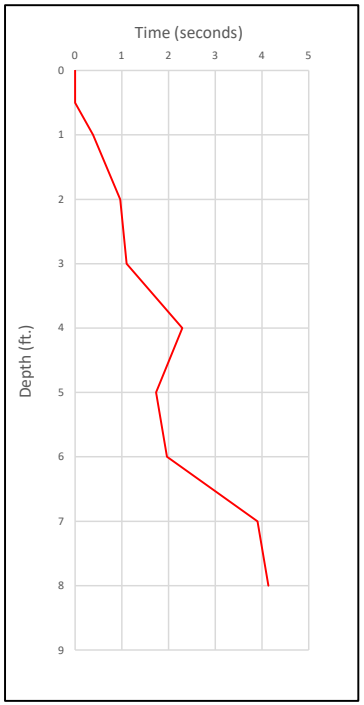
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-29B
Date/Time Installed:	3/28/21 11:05 AM	Date/Time Tested:	4/13/21 4:20 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	16.46
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	8	Avg. Installation Rate (sec/ft)	2.06

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.38
2	0.96
3	1.10
4	2.29
5	1.73
6	1.96
7	3.90
8	4.14
Total Time (s) =	16.46



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	1,580	0.0025	0.0050	0.0038
1	3,000	3,000	0.0120	0.0095	0.0108
1	4,000	4,000	0.0365	0.0260	0.0313
1	5,000	5,000	0.1175	0.0930	0.1053
1	6,000	6,080	0.4625	0.4175	0.4400
1	7,000	6,320	1.0490	0.9935	1.0213
Unload					
1	0	0	1.0010	0.9825	0.9918

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	540	0.2020	0.0360	0.1190
1	1,000	1,060	0.3780	0.1220	0.2500
1	1,500	1,500	0.4905	0.2165	0.3535
1	0	0	0.0235	0.0630	0.0433
1	500	540	0.2605	0.1300	0.1953
1	1,000	1,060	0.4025	0.1910	0.2968
1	1,500	1,540	0.5070	0.2660	0.3865
1	2,000	2,020	0.6030	0.3635	0.4833
1	2,500	2,500	0.7055	0.4870	0.5963
1	0	0	0.0120	0.1405	0.0763
1	2,500	2,520	0.7205	0.5430	0.6318
1	3,000	3,020	0.8105	0.6540	0.7323
1	3,500	3,540	0.9230	0.8175	0.8703
1	4,000	4,000	1.0135	0.9620	0.9878
Unload					
1	0	0	0.0145	0.2920	0.1533
Reload					
1	Max.	3,780	1.0150	1.0100	1.0125
Unload					
1	0	0	0.0115	0.3920	0.2018

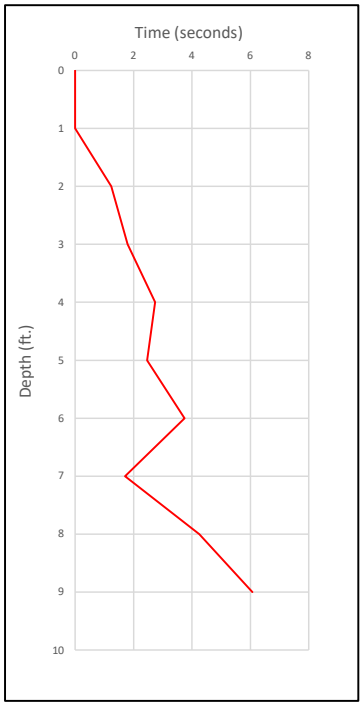
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-30A
Date/Time Installed:	3/28/21 10:10 AM	Date/Time Tested:	4/13/21 5:20 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	23.97
Pushed to Depth (ft.):	1	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	2.66

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	1.23
3	1.79
4	2.73
5	2.46
6	3.74
7	1.70
8	4.25
9	6.07
Total Time (s) =	23.97



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	1,600	0.0085	-0.0020	0.0033
1	3,000	3,020	0.0145	-0.0030	0.0058
1	4,000	4,080	0.0185	0.0020	0.0103
1	5,000	5,080	0.0275	0.0000	0.0138
1	6,000	6,120	0.0255	0.0025	0.0140
1	7,000	7,060	0.0305	0.0055	0.0180
1	8,000	8,000	0.0370	0.0110	0.0240
1	9,000	9,120	0.0530	0.0245	0.0388
1	10,000	10,080	0.0785	0.0475	0.0630
Unload					
1	0	0	0.0460	0.0425	0.0443
Reload					
1	Max.	12,300	1.0270	1.0075	1.0173
Unload					
1	0	0	0.9870	0.9960	0.9915

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	520	0.1600	0.0640	0.1120
1	1,000	1,040	0.3085	0.1610	0.2348
1	1,500	1,500	0.4215	0.2480	0.3348
1	0	0	0.0170	0.0285	0.0228
1	500	520	0.2225	0.1195	0.1710
1	1,000	1,080	0.3625	0.2050	0.2838
1	1,500	1,520	0.4485	0.2705	0.3595
1	2,000	2,020	0.5500	0.3535	0.4518
1	2,500	2,520	0.6530	0.4420	0.5475
1	0	0	0.0250	0.0450	0.0350
1	2,500	2,560	0.6925	0.4825	0.5875
1	3,000	3,000	0.7770	0.5595	0.6683
1	3,500	3,500	0.8870	0.6625	0.7748
1	4,000	4,040	1.0050	0.7760	0.8905
1	0	0	0.0340	0.0675	0.0508
Reload					
1	Max.	4,340	1.1225	0.8960	1.0093
Unload					
1	0	0	0.0530	0.2055	0.1293

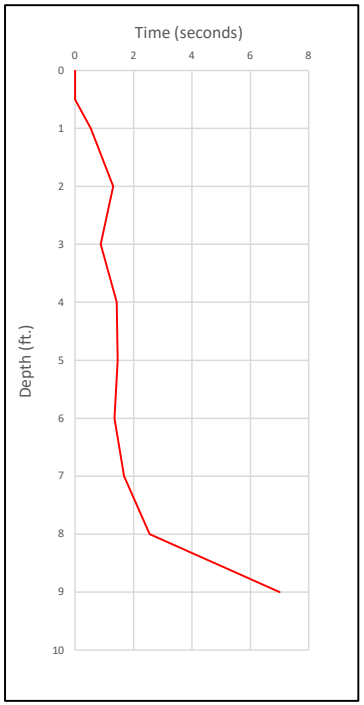
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-30B
Date/Time Installed:	3/28/21 10:25 AM	Date/Time Tested:	4/13/21 5:10 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	18.14
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	9	Avg. Installation Rate (sec/ft)	2.02

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	0.53
2	1.30
3	0.87
4	1.42
5	1.45
6	1.34
7	1.67
8	2.55
9	7.01
Total Time (s) =	18.14



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	1,520	0.0020	0.0010	0.0015
1	3,000	3,120	0.0055	0.0065	0.0060
1	4,000	4,060	0.0075	0.0115	0.0095
1	5,000	5,080	0.0085	0.0165	0.0125
1	6,000	6,160	0.0110	0.0220	0.0165
1	7,000	7,060	0.0140	0.0280	0.0210
1	8,000	8,080	0.0195	0.0350	0.0273
1	9,000	9,040	0.0250	0.0425	0.0338
1	10,000	10,040	0.0325	0.0510	0.0418
Unload					
1	0	0	0.0155	0.0165	0.0160
Reload					
1	Max.	13,260	0.0940	0.1270	0.1105
Unload					
1	0	0	0.0705	0.0735	0.0720

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	520	0.0555	0.0620	0.0588
1	1,000	1,040	0.1210	0.1400	0.1305
1	1,500	1,500	0.1920	0.2115	0.2018
1	0	0	0.0370	0.0470	0.0420
1	500	520	0.0965	0.1090	0.1028
1	1,000	1,080	0.1585	0.1715	0.1650
1	1,500	1,520	0.2115	0.2245	0.2180
1	2,000	2,020	0.2870	0.2975	0.2923
1	2,500	2,520	0.3730	0.3775	0.3753
1	0	0	0.0750	0.0750	0.0750
1	2,500	2,560	0.4105	0.4065	0.4085
1	3,000	3,000	0.4830	0.4765	0.4798
1	3,500	3,500	0.5860	0.5735	0.5798
1	4,000	4,040	0.7030	0.6810	0.6920
1	0	0	0.1100	0.1160	0.1130
Reload					
1	Max.	5,300	1.0610	0.9435	1.0023
Unload					
1	0	0	0.1590	0.1375	0.1483

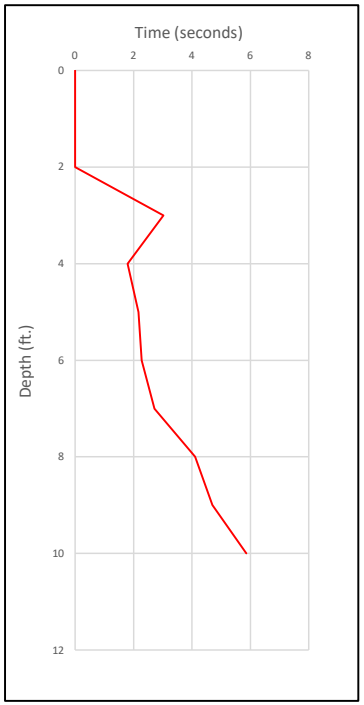
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-31A
Date/Time Installed:	3/28/21 10:40 AM	Date/Time Tested:	4/13/21 3:10 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	26.64
Pushed to Depth (ft.):	2	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	2.66

Embedment Data

Depth (ft.)	Time (s)
0	0
1	0
2	0
3	3.02
4	1.79
5	2.17
6	2.27
7	2.71
8	4.11
9	4.7
10	5.87
Total Time (s) =	26.64



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	1,560	0.0030	0.0030	0.0030
1	3,000	3,120	0.0075	0.0045	0.0060
1	4,000	4,080	0.0125	0.0065	0.0095
1	5,000	5,160	0.0205	0.0110	0.0158
1	6,000	6,040	0.0290	0.0160	0.0225
1	7,000	7,080	0.0455	0.0270	0.0363
1	8,000	8,120	0.0675	0.0445	0.0560
1	9,000	9,180	0.1165	0.0865	0.1015
1	10,000	10,080	0.1855	0.1490	0.1673
Unload					
1	0	0	0.1470	0.1360	0.1415
Reload					
1	Max.	11,420	1.0090	0.9725	0.9908
Unload					
1	0	0	0.9630	0.9550	0.9590

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	500	0.1275	0.0805	0.1040
1	1,000	1,040	0.2475	0.1935	0.2205
1	1,500	1,540	0.3325	0.2920	0.3123
1	0	0	0.0120	0.0425	0.0273
1	500	520	0.1905	0.1270	0.1588
1	1,000	1,200	0.3260	0.2510	0.2885
1	1,500	1,500	0.3545	0.2815	0.3180
1	2,000	2,040	0.4435	0.3775	0.4105
1	2,500	2,520	0.5285	0.4730	0.5008
1	0	0	0.0220	0.0630	0.0425
1	2,500	2,640	0.5795	0.5275	0.5535
1	3,000	3,080	0.6440	0.5960	0.6200
1	3,500	3,560	0.7380	0.6955	0.7168
1	4,000	4,040	0.8395	0.8015	0.8205
Unload					
1	0	0	0.0320	0.0990	0.0655
Reload					
1	Max.	4,860	1.0495	0.9830	1.0163
Unload					
1	0	0	0.0560	0.1105	0.0833

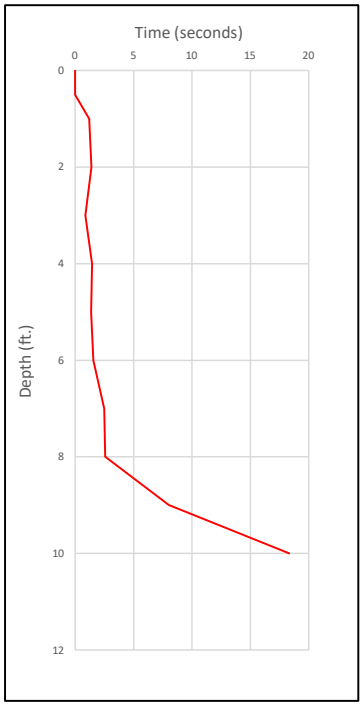
Field Notes

ANS GEO

Project:	AES - Brookside Solar	Site Location	Chateaugay, NY	Pile ID:	PT-31B
Date/Time Installed:	3/28/21 10:45 AM	Date/Time Tested:	4/13/21 2:30 PM	Pile Type/Size:	W6x9
Pre-Auger/Pre-Drill (Y/N)?:	N/A	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):	39.18
Pushed to Depth (ft.):	0.5	Embedment Depth (ft.):	10	Avg. Installation Rate (sec/ft)	3.92

Embedment Data

Depth (ft.)	Time (s)
0	0
0.5	0
1	1.18
2	1.39
3	0.87
4	1.44
5	1.36
6	1.55
7	2.49
8	2.56
9	8.01
10	18.33
Total Time (s) =	39.18



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	1,620	0.0095	-0.0125	-0.0015
1	3,000	3,120	0.0160	-0.0195	-0.0018
1	4,000	4,040	0.0185	-0.0250	-0.0033
1	5,000	5,160	0.0210	-0.0280	-0.0035
1	6,000	6,100	0.0225	-0.0280	-0.0028
1	7,000	7,140	0.0240	-0.0280	-0.0020
1	8,000	8,040	0.0255	-0.0270	-0.0008
1	9,000	9,080	0.0280	-0.0255	0.0013
1	10,000	10,200	0.0305	-0.0225	0.0040
Unload					
1	0	0	0.0090	-0.0290	-0.0100
Reload					
1	Max.	13,040	0.0435	-0.0125	0.0155
Unload					
1	0	0	0.0175	-0.0265	-0.0045

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	540	0.1255	0.1545	0.1400
1	1,000	1,020	0.2055	0.2535	0.2295
1	1,500	1,500	0.2815	0.3505	0.3160
1	0	0	0.0660	0.0415	0.0538
1	500	640	0.2140	0.2225	0.2183
1	1,000	1,060	0.2585	0.2860	0.2723
1	1,500	1,580	0.3220	0.3675	0.3448
1	2,000	2,080	0.3920	0.4530	0.4225
1	2,500	2,500	0.4620	0.5285	0.4953
1	0	0	0.0930	0.0470	0.0700
1	2,500	2,560	0.5040	0.5475	0.5258
1	3,000	3,040	0.5820	0.6230	0.6025
1	3,500	3,500	0.6700	0.7085	0.6893
1	4,000	4,020	0.7760	0.8090	0.7925
Unload					
1	0	0	0.1345	0.0655	0.1000
Reload					
1	Max.	4,960	1.0260	1.0085	1.0173
Unload					
1	0	0	0.1660	0.0925	0.1293

Field Notes

ANS GEO

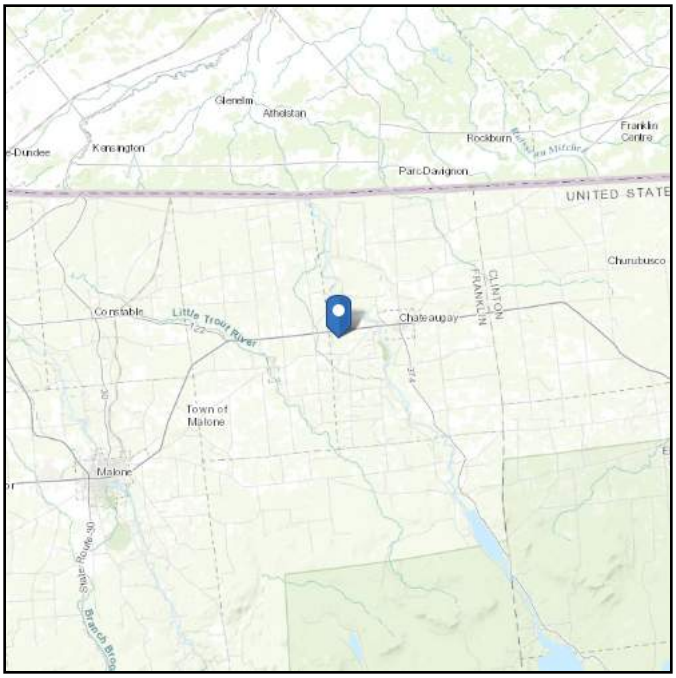
Attachment F

Seismic Support Data

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	870.72 ft (NAVD 88)
Risk Category:	II	**Latitude:**	44.919068
Soil Class:	D - Stiff Soil	**Longitude:**	-74.123527



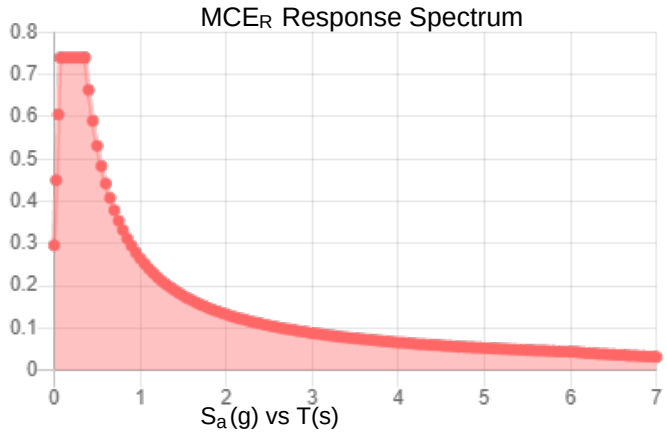
Seismic

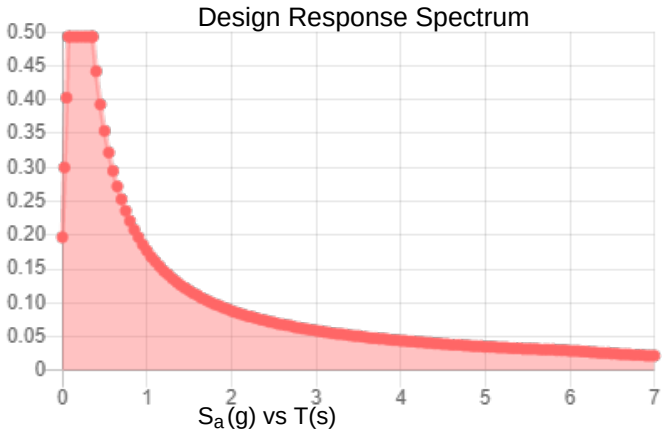
Site Soil Class: D - Stiff Soil

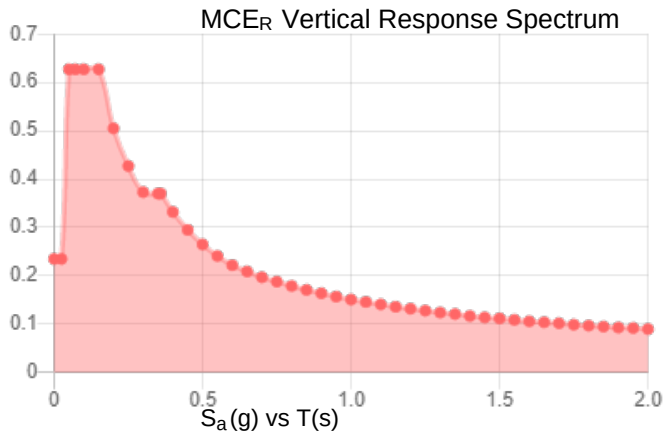
Results:

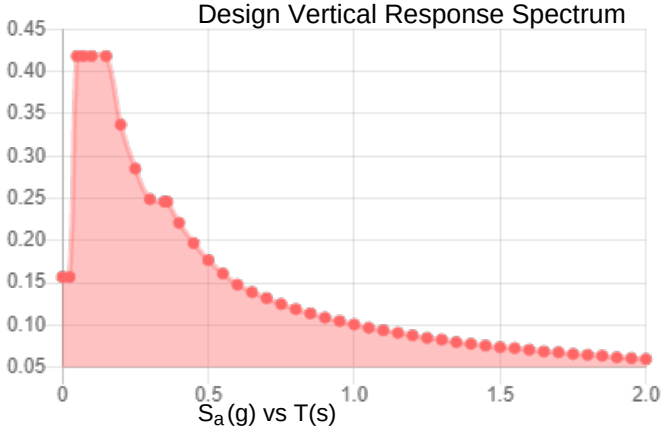
S_S :	0.541	S_{D1} :	0.177
S_1 :	0.112	T_L :	6
F_a :	1.368	PGA :	0.359
F_v :	2.377	PGA_M :	0.446
S_{MS} :	0.739	F_{PGA} :	1.241
S_{M1} :	0.265	I_e :	1
S_{DS} :	0.493	C_v :	1.06

Seismic Design Category C









Data Accessed: Tue Apr 13 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

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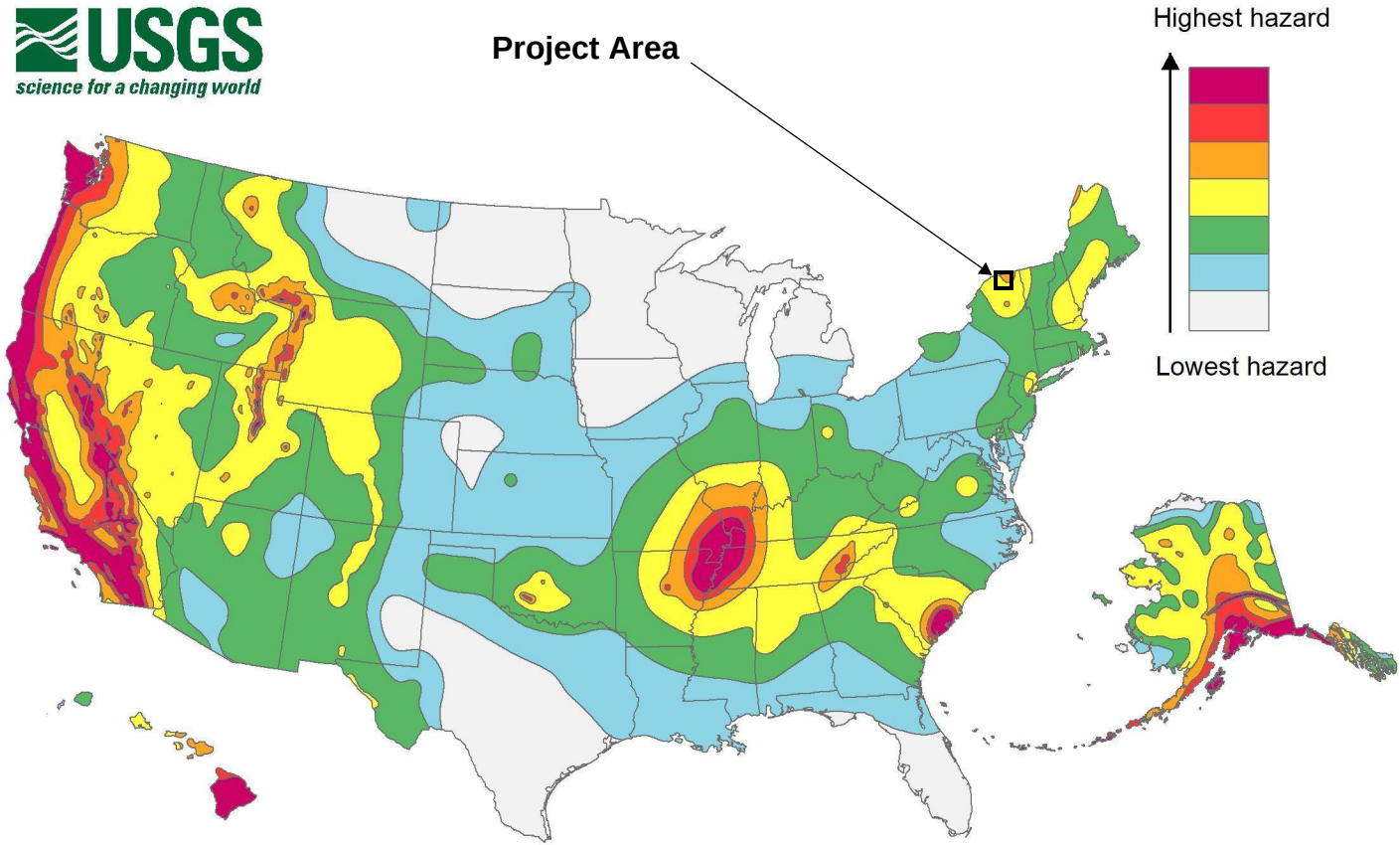

USGS
science for a changing world
Project Area
Highest hazard
Lowest hazard

ANS GEO

Attachment G

NRCS Soil Report

United States Department of Agriculture

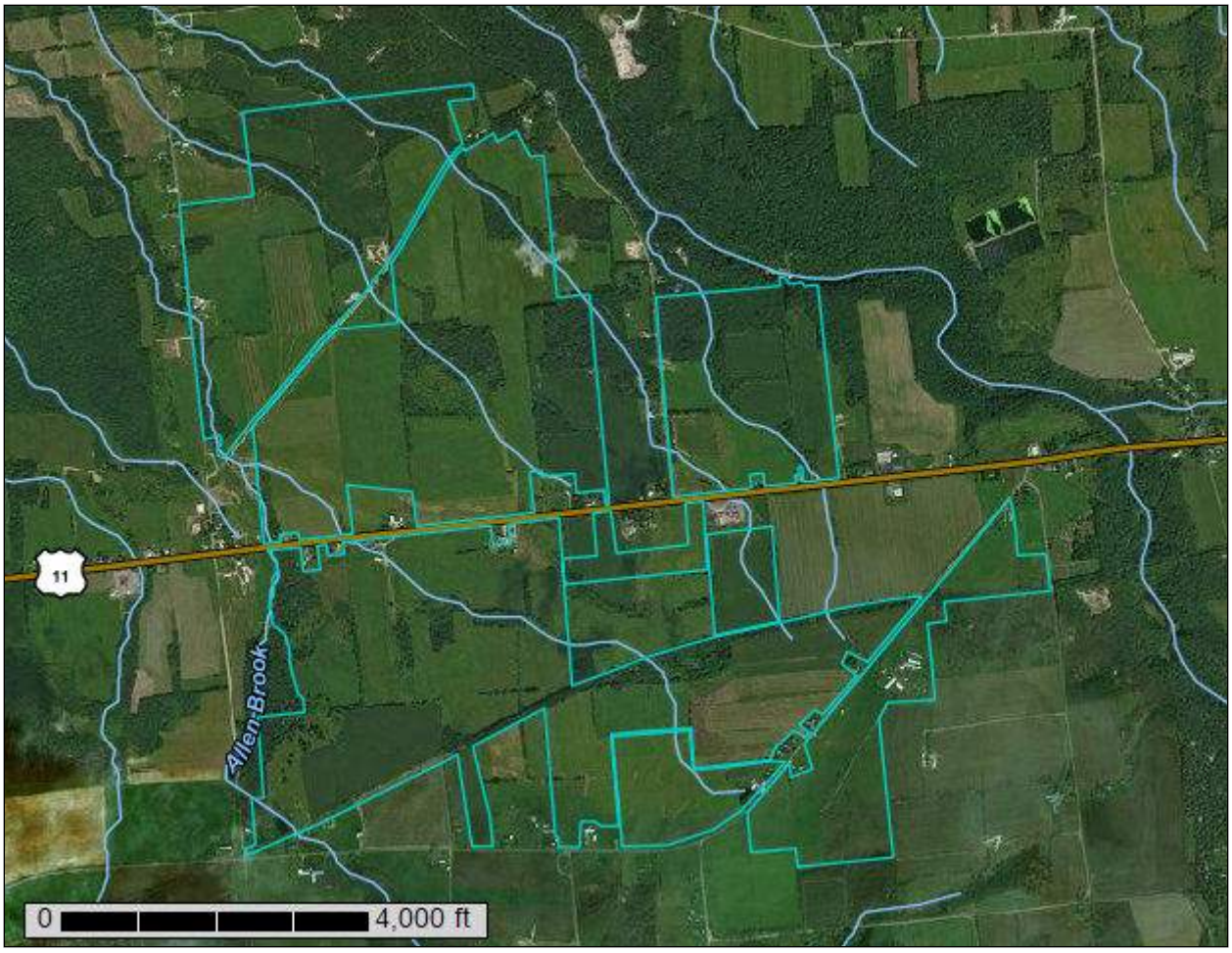
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Franklin County, New York

AES - Brookside Solar



March 25, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

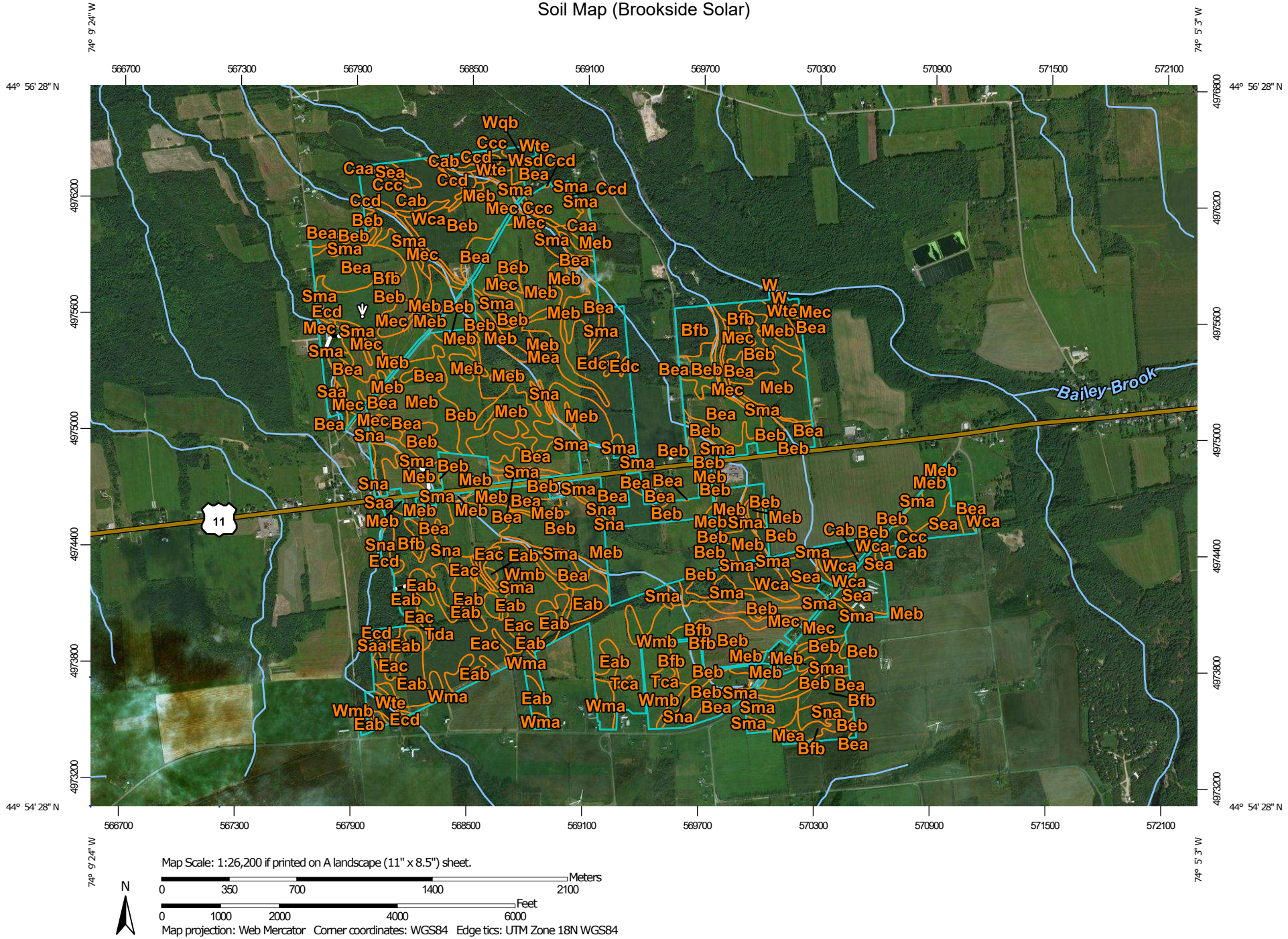
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Brookside Solar)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Franklin County, New York
Survey Area Data: Version 4, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 10, 2014—Nov 11, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Brookside Solar)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bea	Brayton stony loam, 0 to 3 percent slopes	234.5	18.2%
Beb	Brayton stony loam, 3 to 8 percent slopes	272.4	21.1%
Bfb	Brayton very stony loam, 0 to 8 percent slopes	44.8	3.5%
Caa	Colton and Constable gravelly loamy sands, 0 to 3 percent slopes	3.8	0.3%
Cab	Colton and Constable gravelly loamy sands, 3 to 8 percent slopes	36.2	2.8%
Cbb	Colton and Constable cobbly loamy sands, 3 to 8 percent slopes	10.4	0.8%
Ccc	Colton and Constable gravelly and cobbly loamy sands, 8 to 15 percent slopes	10.2	0.8%
Ccd	Colton and Constable gravelly and cobbly loamy sands, 15 to 25 percent slopes	4.7	0.4%
Daa	Duane gravelly sandy loam, 0 to 3 percent slopes	16.0	1.2%
Eaa	Empeyville very fine sandy loam, 0 to 3 percent slopes, stony	2.3	0.2%
Eab	Empeyville very fine sandy loam, 3 to 8 percent slopes, stony	65.5	5.1%
Eac	Empeyville very fine sandy loam, 8 to 15 percent slopes, stony	11.3	0.9%
Ecd	Empeyville very fine sandy loam, 15 to 25 percent slopes, stony	1.0	0.1%
Edc	Empeyville very fine sandy loam, 8 to 25 percent slopes, very stony	3.1	0.2%
Mea	Moira stony loam, 0 to 3 percent slopes	11.5	0.9%
Meb	Moira stony loam, 3 to 8 percent slopes	182.4	14.1%
Mec	Moira stony loam, 8 to 15 percent slopes	37.5	2.9%
Mha	Muck, shallow	3.6	0.3%
Saa	Saco and Sloan soils, 0 to 2 percent slopes	7.8	0.6%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Sea	Scarboro fine sandy loam, 0 to 3 percent slopes	19.4	1.5%
Sga	Scarboro loam, neutral variant, over till or clay, 0 to 3 percent slopes	0.3	0.0%
Sma	Runeberg soils, 0 to 5 percent slopes	96.8	7.5%
Sna	Runeberg soils, 0 to 5 percent slopes, very stony	55.4	4.3%
Tca	Tughill and Dannemora stony very fine sandy loams, 0 to 3 percent slopes	2.2	0.2%
Tda	Tughill and Dannemora very stony very fine sandy loams, 0 to 3 percent slopes	1.5	0.1%
W	Water	0.0	0.0%
Wca	Walpole sandy loam, 0 to 6 percent slopes	17.0	1.3%
Wma	Westbury and Dannemora stony very fine sandy loams, 0 to 3 percent slopes	10.4	0.8%
Wmb	Westbury and Dannemora stony very fine sandy loams, 3 to 8 percent slopes	115.2	8.9%
Wqb	Worth very fine sandy loam, 3 to 8 percent slopes, stony	4.5	0.4%
Wsd	Worth very fine sandy loam, 8 to 25 percent slopes, very stony	0.7	0.1%
Wte	Worth very fine sandy loam, 25 to 60 percent slopes, very stony	9.1	0.7%
Totals for Area of Interest		**1,291.7**	**100.0%**

Map Unit Descriptions (Brookside Solar)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made

up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Franklin County, New York

Bea—Brayton stony loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmbz
Elevation: 100 to 1,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Brayton and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brayton

Setting

Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from granite and other noncalcareous rock

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 17 inches: fine sandy loam
H3 - 17 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 16 to 24 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F142XA020NY - Rich Moist Till Frigid
Hydric soil rating: No

Minor Components

Parishville
Percent of map unit: 5 percent
Hydric soil rating: No

Westbury
Percent of map unit: 5 percent
Hydric soil rating: No

Dannemora
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Sun
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Moira
Percent of map unit: 5 percent
Hydric soil rating: No

Beb—Brayton stony loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bmc0
Elevation: 100 to 1,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Brayton and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brayton

Setting
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from granite and other noncalcareous rock

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 17 inches: fine sandy loam
H3 - 17 to 60 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 16 to 24 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F142XA020NY - Rich Moist Till Frigid
Hydric soil rating: No

Minor Components

Moira

Percent of map unit: 5 percent
Hydric soil rating: No

Westbury

Percent of map unit: 5 percent
Hydric soil rating: No

Parishville

Percent of map unit: 5 percent
Hydric soil rating: No

Sun

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Dannemora

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Bfb—Brayton very stony loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: bmc1
Elevation: 100 to 1,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Brayton and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brayton

Setting

Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from granite and other noncalcareous rock

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 17 inches: fine sandy loam
H3 - 17 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 16 to 24 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F142XA020NY - Rich Moist Till Frigid
Hydric soil rating: No

Minor Components

Dannemora
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Sun
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Parishville
Percent of map unit: 5 percent
Hydric soil rating: No

Westbury
Percent of map unit: 5 percent
Hydric soil rating: No

Moira
Percent of map unit: 5 percent
Hydric soil rating: No

Caa—Colton and Constable gravelly loamy sands, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bmc2
Elevation: 10 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Colton and similar soils: 40 percent
Constable and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting
Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: gravelly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Constable

Setting

Landform: Terraces, deltas, outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived mainly from acid sandstone or igneous rock

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: gravelly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 8 to 20 inches to ortstein
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: D
Ecological site: F142XA004NY - Acidic Shallow Dry Outwash Frigid
Hydric soil rating: No

Minor Components

Fahey
Percent of map unit: 5 percent
Hydric soil rating: No

Croghan
Percent of map unit: 5 percent
Hydric soil rating: No

Au gres (naumburg)
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: No

Duane
Percent of map unit: 5 percent
Hydric soil rating: No

Adams
Percent of map unit: 5 percent
Hydric soil rating: No

Cab—Colton and Constable gravelly loamy sands, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bmc3
Elevation: 10 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Colton and similar soils: 40 percent
Constable and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting
Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: gravelly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Constable

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived mainly from acid sandstone or igneous rock

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 8 to 20 inches to ortstein
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: F142XA004NY - Acidic Shallow Dry Outwash Frigid
Hydric soil rating: No

Minor Components

Duane

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Wallace

Percent of map unit: 5 percent
Hydric soil rating: No

Fahey

Percent of map unit: 5 percent
Hydric soil rating: No

Adams

Percent of map unit: 5 percent
Hydric soil rating: No

Cbb—Colton and Constable cobbly loamy sands, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bmc4
Elevation: 10 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colton and similar soils: 40 percent
Constable and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Constable

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived mainly from acid sandstone or igneous rock

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 8 to 20 inches to ortstein
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: F142XA004NY - Acidic Shallow Dry Outwash Frigid
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 5 percent
Hydric soil rating: No

Duane

Percent of map unit: 5 percent
Hydric soil rating: No

Fahey

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Wallace

Percent of map unit: 5 percent
Hydric soil rating: No

Ccc—Colton and Constable gravelly and cobbly loamy sands, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bmc5
Elevation: 10 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 40 percent
Constable and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Constable

Setting

Landform: Terraces, deltas, outwash plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived mainly from acid sandstone or igneous rock

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: gravelly cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 8 to 20 inches to ortstein

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: F142XA004NY - Acidic Shallow Dry Outwash Frigid
Hydric soil rating: No

Minor Components

Trout river

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Wallace

Percent of map unit: 5 percent
Hydric soil rating: No

Adams

Percent of map unit: 5 percent
Hydric soil rating: No

Duane

Percent of map unit: 5 percent
Hydric soil rating: No

Ccd—Colton and Constable gravelly and cobbly loamy sands, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: bmc6
Elevation: 10 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 40 percent

Constable and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits of predominantly granitic rock, with lesser amounts of sandstone and schist

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Constable

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived mainly from acid sandstone or igneous rock

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 9 inches: gravelly cobbly loamy sand
H2 - 9 to 11 inches: gravelly loamy sand
H3 - 11 to 27 inches: gravelly loamy sand
H4 - 27 to 60 inches: stratified sand to gravel

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 8 to 20 inches to ortstein
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F142XA004NY - Acidic Shallow Dry Outwash Frigid
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Duane

Percent of map unit: 5 percent
Hydric soil rating: No

Trout river

Percent of map unit: 5 percent
Hydric soil rating: No

Wallace

Percent of map unit: 5 percent
Hydric soil rating: No

Daa—Duane gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmcm
Elevation: 310 to 1,750 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Duane and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duane

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits derived mainly from sandstone, granite, and gneiss

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 6 inches: gravelly loamy sand
H2 - 6 to 29 inches: very gravelly loamy sand
H3 - 29 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F142XA006NY - Acidic Moist Outwash Frigid
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent

Fahey

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Naumburg

Percent of map unit: 5 percent
Hydric soil rating: No

Colton

Percent of map unit: 5 percent
Hydric soil rating: No

Eaa—Empeyville very fine sandy loam, 0 to 3 percent slopes, stony

Map Unit Setting

National map unit symbol: 2xj3d
Elevation: 460 to 1,710 feet
Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Empeyville, stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Empeyville, Stony

Setting

Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: very fine sandy loam
Bhs1 - 4 to 5 inches: very fine sandy loam
Bhs2 - 5 to 9 inches: very fine sandy loam
Bhs3 - 9 to 15 inches: very fine sandy loam
Bs1 - 15 to 19 inches: cobbly very fine sandy loam
Bs2 - 19 to 23 inches: gravelly fine sandy loam
B/E - 23 to 31 inches: gravelly fine sandy loam
Bx - 31 to 48 inches: very cobbly loamy fine sand
C - 48 to 79 inches: very cobbly loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)

Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F142XB013NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Worth, stony

Percent of map unit: 7 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dannemora, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: Yes

Westbury, stony

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Schroon, stony

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Eab—Empeyville very fine sandy loam, 3 to 8 percent slopes, stony

Map Unit Setting

National map unit symbol: 2xj3f
Elevation: 380 to 2,000 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Empeyville, stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Empeyville, Stony

Setting

Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: very fine sandy loam
Bhs1 - 4 to 5 inches: very fine sandy loam
Bhs2 - 5 to 9 inches: very fine sandy loam
Bhs3 - 9 to 15 inches: very fine sandy loam
Bs1 - 15 to 19 inches: cobbly very fine sandy loam
Bs2 - 19 to 23 inches: gravelly fine sandy loam
B/E - 23 to 31 inches: gravelly fine sandy loam
Bx - 31 to 48 inches: very cobbly loamy fine sand
C - 48 to 79 inches: very cobbly loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Worth, stony

Percent of map unit: 7 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dannemora, stony

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: Yes

Westbury, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Schroon, stony

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Eac—Empeyville very fine sandy loam, 8 to 15 percent slopes, stony

Map Unit Setting

National map unit symbol: 2xj3h

Elevation: 390 to 2,080 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Empeyville, stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Empeyville, Stony

Setting

Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: very fine sandy loam
Bhs1 - 4 to 5 inches: very fine sandy loam
Bhs2 - 5 to 9 inches: very fine sandy loam
Bhs3 - 9 to 15 inches: very fine sandy loam
Bs1 - 15 to 19 inches: cobbly very fine sandy loam
Bs2 - 19 to 23 inches: gravelly fine sandy loam
B/E - 23 to 31 inches: gravelly fine sandy loam
Bx - 31 to 48 inches: very cobbly loamy fine sand
C - 48 to 79 inches: very cobbly loamy fine sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Worth, stony

Percent of map unit: 7 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dannemora, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: Yes

Westbury, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Schroon, stony

Percent of map unit: 2 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Ecd—Empeyville very fine sandy loam, 15 to 25 percent slopes, stony

Map Unit Setting

National map unit symbol: 2xj3k
Elevation: 310 to 1,440 feet
Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Empeyville, stony, and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Empeyville, Stony

Setting

Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: very fine sandy loam
Bhs1 - 4 to 5 inches: very fine sandy loam
Bhs2 - 5 to 9 inches: very fine sandy loam
Bhs3 - 9 to 15 inches: very fine sandy loam
Bs1 - 15 to 19 inches: cobbly very fine sandy loam
Bs2 - 19 to 23 inches: gravelly fine sandy loam
B/E - 23 to 31 inches: gravelly fine sandy loam
Bx - 31 to 48 inches: very cobbly loamy fine sand
C - 48 to 79 inches: very cobbly loamy fine sand

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B/D
Ecological site: F142XB013NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Worth, stony

Percent of map unit: 7 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dannemora, stony

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: Yes

Westbury, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Schroon, stony

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Edc—Empeyville very fine sandy loam, 8 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2xj3m
Elevation: 210 to 1,800 feet
Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Empeyville, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Empeyville, Very Stony

Setting

Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear

Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: very fine sandy loam
Bhs1 - 4 to 5 inches: very fine sandy loam
Bhs2 - 5 to 9 inches: very fine sandy loam
Bhs3 - 9 to 15 inches: very fine sandy loam
Bs1 - 15 to 19 inches: cobbly very fine sandy loam
Bs2 - 19 to 23 inches: gravelly fine sandy loam
B/E - 23 to 31 inches: gravelly fine sandy loam
Bx - 31 to 48 inches: very cobbly loamy fine sand
C - 48 to 79 inches: very cobbly loamy fine sand

Properties and qualities

Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 2.1 percent
Depth to restrictive feature: 14 to 35 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F142XB013NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Worth, very stony

Percent of map unit: 7 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Westbury

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Dannemora

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: Yes

Schroon

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Mea—Moira stony loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmdl
Elevation: 800 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Moira and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Moira

Setting

Landform: Till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived dominantly from acid sandstone

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 5 inches: gravelly fine sandy loam
H2 - 5 to 27 inches: gravelly sandy loam
H3 - 27 to 53 inches: very gravelly loam
H4 - 53 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 1 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 24 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Brayton

Percent of map unit: 5 percent
Hydric soil rating: No

Massena

Percent of map unit: 5 percent
Hydric soil rating: No

Westbury

Percent of map unit: 5 percent
Hydric soil rating: No

Empeyville

Percent of map unit: 5 percent
Hydric soil rating: No

Skerry

Percent of map unit: 5 percent
Hydric soil rating: No

Meb—Moira stony loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bmdm
Elevation: 800 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Moira and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Moira

Setting

Landform: Drumlinoid ridges, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived dominantly from acid sandstone

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 5 inches: gravelly fine sandy loam
H2 - 5 to 27 inches: gravelly sandy loam
H3 - 27 to 53 inches: very gravelly loam
H4 - 53 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 24 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Westbury

Percent of map unit: 5 percent
Hydric soil rating: No

Massena

Percent of map unit: 5 percent
Hydric soil rating: No

Worth

Percent of map unit: 5 percent
Hydric soil rating: No

Skerry

Percent of map unit: 5 percent
Hydric soil rating: No

Empeyville

Percent of map unit: 5 percent
Hydric soil rating: No

Mec—Moira stony loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bmdn
Elevation: 800 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Moira and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Moira

Setting

Landform: Drumlinoid ridges, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived dominantly from acid sandstone

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 5 inches: gravelly fine sandy loam
H2 - 5 to 27 inches: gravelly sandy loam
H3 - 27 to 53 inches: very gravelly loam
H4 - 53 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 14 to 24 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Worth
Percent of map unit: 5 percent
Hydric soil rating: No

Brayton
Percent of map unit: 5 percent
Hydric soil rating: No

Parishville
Percent of map unit: 5 percent
Hydric soil rating: No

Becket
Percent of map unit: 5 percent
Hydric soil rating: No

Empeyville
Percent of map unit: 5 percent
Hydric soil rating: No

Mha—Muck, shallow

Map Unit Setting
National map unit symbol: bmdr
Elevation: 250 to 1,500 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Muck, shallow, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Muck, Shallow

Setting
Landform: Swamps, marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organic material

Typical profile

H1 - 0 to 10 inches: muck
H2 - 10 to 24 inches: muck
H3 - 24 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Available water capacity: Very high (about 16.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Sloan

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Livingston

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Birdsall

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Tughill

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Muck, deep

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Saa—Saco and Sloan soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: bmff
Elevation: 150 to 1,510 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Saco and similar soils: 40 percent
Sloan and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty alluvium derived mainly from crystalline rock, shale, and sandstone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 20 inches: silt loam
H3 - 20 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water capacity: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Sloan

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 20 inches: silty clay loam
H3 - 20 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Eel (teel)

Percent of map unit: 5 percent
Hydric soil rating: No

Wayland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Rumney

Percent of map unit: 5 percent
Hydric soil rating: Yes

Podunk

Percent of map unit: 5 percent
Hydric soil rating: No

Muck

Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Sea—Scarboro fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmfq
Elevation: 0 to 2,100 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scarboro

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: mucky fine sandy loam
H2 - 8 to 16 inches: loamy sand
H3 - 16 to 24 inches: loamy sand
H4 - 24 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Unnamed soils
Percent of map unit: 5 percent

Walpole
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Muck, shallow
Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Naumburg
Percent of map unit: 5 percent
Hydric soil rating: No

Croghan
Percent of map unit: 5 percent
Hydric soil rating: No

Sga—Scarboro loam, neutral variant, over till or clay, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bmfs
Elevation: 200 to 800 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Scarboro, till substratum, and similar soils: 40 percent
Scarboro, clay substratum, and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scarboro, Till Substratum

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: mucky loam
H2 - 8 to 16 inches: loamy sand
H3 - 16 to 24 inches: loamy sand
H4 - 24 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Scarboro, Clay Substratum

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: mucky loam
H2 - 8 to 16 inches: loamy sand
H3 - 16 to 24 inches: loamy sand
H4 - 24 to 60 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Walpole
Percent of map unit: 5 percent
Hydric soil rating: Yes

Covington
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Muck
Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Naumburg
Percent of map unit: 5 percent
Hydric soil rating: No

Wallington
Percent of map unit: 5 percent
Hydric soil rating: No

Sma—Runeberg soils, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2wrcz
Elevation: 90 to 1,740 feet
Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Runeberg and similar soils: 75 percent
Runeberg, frequently ponded, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Runeberg

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone

Typical profile

A - 0 to 10 inches: loam
Bg1 - 10 to 15 inches: sandy loam
Bg2 - 15 to 24 inches: sandy loam
C - 24 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Runeberg, Frequently Ponded

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone

Typical profile

A - 0 to 10 inches: mucky loam
Bg1 - 10 to 15 inches: sandy loam
Bg2 - 15 to 24 inches: sandy loam
C - 24 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Malone

Percent of map unit: 4 percent
Landform: Ridges, low hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Adjidaumo, poorly drained

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cook

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sna—Runeberg soils, 0 to 5 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wrd0
Elevation: 180 to 1,660 feet

Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Runeberg, very stony, and similar soils: 75 percent
Runeberg, frequently ponded, very stony, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Runeberg, Very Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone

Typical profile

A - 0 to 10 inches: loam
Bg1 - 10 to 15 inches: sandy loam
Bg2 - 15 to 24 inches: sandy loam
C - 24 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 2.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Runeberg, Frequently Ponded, Very Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone

Typical profile

A - 0 to 10 inches: mucky loam
Bg1 - 10 to 15 inches: sandy loam
Bg2 - 15 to 24 inches: sandy loam
C - 24 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 2.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Malone, very stony

Percent of map unit: 4 percent
Landform: Ridges, low hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Adjidaumo, poorly drained

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cook

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 1 percent

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Tca—Tughill and Dannemora stony very fine sandy loams, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmg3
Elevation: 490 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Tughill and similar soils: 40 percent
Dannemora and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tughill

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Gravelly loamy till, derived mainly from acid siliceous rocks, and scoured by glacial meltwater

Typical profile

O - 0 to 6 inches: muck
H1 - 6 to 9 inches: gravelly very fine sandy loam
H2 - 9 to 38 inches: very gravelly fine sandy loam
H3 - 38 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches

Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Dannemora

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived principally from sandstone and other acid sedimentary and igneous rocks

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 16 inches: gravelly fine sandy loam
H3 - 16 to 32 inches: very gravelly fine sandy loam
H4 - 32 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 12 to 20 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F143XY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Ridgebury

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Westbury
Percent of map unit: 5 percent
Hydric soil rating: No

Massena
Percent of map unit: 5 percent
Hydric soil rating: No

Muck
Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Tda—Tughill and Dannemora very stony very fine sandy loams, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bmg4
Elevation: 390 to 2,000 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Tughill and similar soils: 40 percent
Dannemora and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tughill

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Gravelly loamy till, derived mainly from acid siliceous rocks, and scoured by glacial meltwater

Typical profile
O - 0 to 6 inches: muck
H1 - 6 to 9 inches: gravelly very fine sandy loam
H2 - 9 to 17 inches: very gravelly fine sandy loam, gravelly fine sandy loam
H2 - 9 to 17 inches: very gravelly fine sandy loam
H3 - 17 to 60 inches:

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Dannemora

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived principally from sandstone and other acid sedimentary and igneous rocks

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 16 inches: gravelly fine sandy loam
H3 - 16 to 32 inches: very gravelly fine sandy loam
H4 - 32 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 12 to 20 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F143XY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Muck
Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Massena
Percent of map unit: 5 percent
Hydric soil rating: No

Westbury
Percent of map unit: 5 percent
Hydric soil rating: No

Whitman
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Ridgebury
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

W—Water

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Wca—Walpole sandy loam, 0 to 6 percent slopes

Map Unit Setting
National map unit symbol: bmg7
Elevation: 280 to 1,620 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Walpole and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 10 inches: sandy loam
H2 - 10 to 28 inches: loamy sand
H3 - 28 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Unnamed soils

Percent of map unit: 5 percent

Scarboro

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Naumburg

Percent of map unit: 5 percent
Hydric soil rating: No

Croghan

Percent of map unit: 5 percent
Hydric soil rating: No

Swanton

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Wma—Westbury and Dannemora stony very fine sandy loams, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bmgj
Elevation: 300 to 1,800 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 95 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Westbury and similar soils: 40 percent
Dannemora and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westbury

Setting

Landform: Drumlinoid ridges, till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone and siltstone

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 6 inches: gravelly very fine sandy loam
H2 - 6 to 19 inches: gravelly very fine sandy loam
H3 - 19 to 51 inches: gravelly sandy loam
H4 - 51 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 10 to 24 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D

Hydric soil rating: No

Description of Dannemora

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived principally from sandstone and other acid sedimentary and igneous rocks

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 16 inches: gravelly fine sandy loam
H3 - 16 to 32 inches: very gravelly fine sandy loam
H4 - 32 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 12 to 20 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F143XY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Massena

Percent of map unit: 5 percent
Hydric soil rating: No

Tughill

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Empeyville

Percent of map unit: 5 percent
Hydric soil rating: No

Brayton

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 5 percent

Wmb—Westbury and Dannemora stony very fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bmgk
Elevation: 440 to 1,800 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 145 to 150 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Westbury and similar soils: 40 percent
Dannemora and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westbury

Setting

Landform: Drumlinoid ridges, till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone and siltstone

Typical profile

O - 0 to 3 inches: moderately decomposed plant material
H1 - 3 to 6 inches: gravelly very fine sandy loam
H2 - 6 to 19 inches: gravelly very fine sandy loam
H3 - 19 to 51 inches: gravelly sandy loam
H4 - 51 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 10 to 24 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Dannemora

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived principally from sandstone and other acid sedimentary and igneous rocks

Typical profile

H1 - 0 to 8 inches: gravelly fine sandy loam
H2 - 8 to 16 inches: gravelly fine sandy loam
H3 - 16 to 32 inches: very gravelly fine sandy loam
H4 - 32 to 60 inches: very gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 12 to 20 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F143XY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Empeyville

Percent of map unit: 5 percent
Hydric soil rating: No

Tughill

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Ridgebury

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Massena

Percent of map unit: 5 percent

Hydric soil rating: No

Brayton

Percent of map unit: 5 percent
Hydric soil rating: No

Wqb—Worth very fine sandy loam, 3 to 8 percent slopes, stony

Map Unit Setting

National map unit symbol: 2xj2t
Elevation: 410 to 2,120 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 90 to 140 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Worth, stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Worth, Stony

Setting

Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
Oe - 2 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: very fine sandy loam
Bhs1 - 3 to 4 inches: very fine sandy loam
Bhs2 - 4 to 7 inches: very fine sandy loam
Bhs3 - 7 to 21 inches: very fine sandy loam
Bs - 21 to 26 inches: gravelly fine sandy loam
Bx1 - 26 to 33 inches: very gravelly loamy fine sand
Bx2 - 33 to 50 inches: gravelly loamy fine sand
C - 50 to 79 inches: gravelly loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: 18 to 38 inches to fragipan
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Empeyville, stony

Percent of map unit: 7 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Westbury, stony

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bice, stony

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Highmarket, stony

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wsd—Worth very fine sandy loam, 8 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2xj33
Elevation: 440 to 1,740 feet
Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Worth, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Worth, Very Stony

Setting

Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
Oe - 2 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: very fine sandy loam
Bhs1 - 3 to 4 inches: very fine sandy loam
Bhs2 - 4 to 7 inches: very fine sandy loam
Bhs3 - 7 to 21 inches: very fine sandy loam
Bs - 21 to 26 inches: gravelly fine sandy loam
Bx1 - 26 to 33 inches: very gravelly loamy fine sand
Bx2 - 33 to 50 inches: gravelly loamy fine sand
C - 50 to 79 inches: gravelly loamy fine sand

Properties and qualities

Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 2.1 percent
Depth to restrictive feature: 18 to 38 inches to fragipan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent

Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Empeyville, very stony

Percent of map unit: 7 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Westbury

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bice

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Highmarket

Percent of map unit: 2 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wte—Worth very fine sandy loam, 25 to 60 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2xj34
Elevation: 250 to 1,380 feet

Mean annual precipitation: 31 to 59 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Worth, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Worth, Very Stony

Setting

Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived from sedimentary rock

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
Oe - 2 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: very fine sandy loam
Bhs1 - 3 to 4 inches: very fine sandy loam
Bhs2 - 4 to 7 inches: very fine sandy loam
Bhs3 - 7 to 21 inches: very fine sandy loam
Bs - 21 to 26 inches: gravelly fine sandy loam
Bx1 - 26 to 33 inches: very gravelly loamy fine sand
Bx2 - 33 to 50 inches: gravelly loamy fine sand
C - 50 to 79 inches: gravelly loamy fine sand

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 2.1 percent
Depth to restrictive feature: 18 to 38 inches to fragipan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Empeyville, very stony

Percent of map unit: 7 percent
Landform: Low hills, drumlinoid ridges

Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Westbury

Percent of map unit: 3 percent
Landform: Low hills, drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bice

Percent of map unit: 3 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Highmarket

Percent of map unit: 2 percent
Landform: Drumlinoid ridges, low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf